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# Germany and NATO Missile Defence

## Between Adaptation and Persistence

Marcel Dickow, Katarzyna Kubiak, Oliver Meier and Michael Paul

At the 2010 Lisbon summit, the NATO allies decided to develop a joint missile defence system as a core element of collective defence. Since then, the security environment has changed fundamentally. The hopes of cooperating with Moscow on missile defence have been shattered, while the nuclear deal with Iran reduces the threat from the south and thus undermines one of the central justifications for the proposed system. At the same time, the alliance has made progress in its efforts to protect its territory, forces and populations from missile attacks. While the fundamental decision to create a missile defence system is likely to hold, the German Bundestag should consider the foreign policy, security, industrial, arms control and financial implications before approving any additional German contributions.

NATO hopes to achieve initial operational capability of its missile defence system before the July 2016 Warsaw Summit, thus providing a limited capacity to protect NATO territory from ballistic missile attack. Fundamental changes in the alliance's security environment since 2013 have not led to significant adjustments of missile defence plans. This is surprising, given the transformation of security relations with the two states capable of threatening NATO territory with medium- or intermediate range missiles: Russia following its aggression against Ukraine, and Iran after the signing of the nuclear agreement in July 2015.

NATO's insistence on pushing ahead with a missile defence system does not necessarily imply agreement over its purpose and goal. The lack of a debate can be

explained by Washington's sustained willingness to fund the programme almost entirely itself. For many, the political costs of changing course also appears higher than those of continuing the programme. The multi-faceted nature of NATO's missile defence system permits each NATO member to justify support from its own specific perspective, without the necessity to align these justifications with those of others.

## NATO Missile Defence or US Protection for NATO?

In 2009, US President Barack Obama abandoned his predecessor's plans to construct US missile defence bases in Poland and the Czech Republic on the basis of bilateral agreements. Instead, Obama decided to

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establish a NATO system. At the time, Germany and other allies welcomed his decision. They hoped that the US contribution – the so-called European Phased Adaptive Approach (EPAA) – would provide them with greater influence on the development and deployment of the US missile defence systems stationed in Europe. States like Germany also expected the chances of a cooperative arrangement with Russia to improve.

One year later, at the Lisbon summit, NATO decided to make missile defence a core element of collective defence. Here, for the first time, NATO set itself the target of protecting the NATO populations and territories against missile attack. Existing and planned capacities to protect NATO forces against short-range missile attack were also integrated into the new system.

Member states decide on the basis of their national threat assessments which sensors (radar, satellite) and interceptors they contribute to the system. Under the EPAA, the United States provides by far the largest share of capacities. Land- and sea-based Aegis anti-missile systems are key to territorial missile defence. American Standard Missiles 3 (SM-3) form the backbone of the system. SM-3s are designed to destroy incoming medium- and intermediate-range missiles in mid-flight by direct impact (“hit to kill”), outside the earth’s atmosphere.

In Phase 1 of the EPAA, the United States in 2011 deployed a first warship equipped with the Aegis missile defence system in the Mediterranean. A mobile AN/TPY-2 radar was stationed at Kürecik, Turkey, to gather data on incoming missiles and transmit it to the command and control centres.

EPAA Phase 2 was completed at the end of 2015, when the Aegis Ashore missile defence base at Deveselu, Romania, achieved technical readiness and began test and training operations. Meanwhile, four US navy ships equipped with SM-3 interceptors were also stationed at Rota, Spain.

In order for initial operational capability to be declared at the July 2016 Summit, the system has to provide at least a limited capability to protect alliance territories

from missile attack. Amongst other things, NATO will have to demonstrate through exercises, tests and training that the sensors and interceptors are connected and interfaced with Headquarters Allied Air Command at Ramstein.

The third and final phase of EPAA is due to be completed by 2018, when the Aegis Ashore missile defence base at Redzikowo, Poland, becomes operational. Only then is NATO missile defence expected to protect the populations, territories and armed forces of all European NATO members against a limited ballistic missile attack. NATO has declared that zones with different levels of security across the region are unacceptable.

Originally, the United States had planned for a fourth phase of EPAA. This would have involved the development and deployment of more capable interceptors (SM-3 IIB). Washington terminated EPAA Phase 4 in March 2013, citing funding difficulties and the growing threat presented by North Korean missile capabilities. In fact, the move should also be interpreted as a conciliatory gesture towards Russia. Moscow had criticised the plan to station SM-3 IIBs because these missiles could potentially have been capable of intercepting Russian intercontinental missiles targeted at the United States.

NATO will continue to expand its ballistic missile defence capabilities after 2018. Current plans include developing and procuring new tactical air defence systems and improving the networking of existing system components.

In the event of crisis, NATO’s command and control centre would give the orders to launch interceptors. Because such a decision would have to be taken extremely quickly, the launch order would have to be given on the basis of rules of engagement agreed in advance among allies.

Ramstein is the headquarters of the US Air Forces in Europe, which commands the American part of the system (including Aegis vessels) during peacetime. It is still unclear which EPAA components will be placed permanently under NATO com-

mand, and which elements will be assigned to NATO only in times of crisis.

NATO establishes and funds the missile defence system's command, control and communications infrastructure. In 2010, then-NATO Secretary-General Anders Fogh Rasmussen estimated the overall cost of upgrading the alliance's program to serve territorial missile defence purposes to be less than €200 million, over a period of ten years.

Many experts regard that figure as wildly over-optimistic. Ivo Daalder, then US Permanent Representative to NATO, stated in 2012 that the allies had pledged more than €1 billion for the system's command, control and communications infrastructure.

NATO missile defence thus remains essentially an American programme. Europeans will only be able to influence the system's set-up if they are willing to provide corresponding funds.

### **The German Contribution**

Like all NATO members, Germany contributes financially to the development of the joint command and control system. Germany is also directly involved in three elements of the NATO missile defence. Firstly, Germany hosts the command and control centre in Ramstein.

Secondly, Germany has pledged a Patriot contingent with up to three launchers as a contribution to the NATO missile defence system; Patriot missiles can intercept short-range ballistic missiles and aircraft.

Thirdly, Germany provides staff to the German-Dutch Competence Centre for Surface-based Air and Missile Defence in Ramstein, which plans and coordinates air defence activities, promotes interoperability between NATO forces and cooperates with NATO's missile defence command structure.

In June 2015, the German defence ministry decided to develop and procure a tactical air and missile defence system based on the Medium Extended Air Defence System (MEADS) design to replace the existing Patriot anti-missile system by 2025. It remains unclear which partners will develop

this system jointly with Germany, how existing development risks can be minimised, when the project will enter series production, and how the tactical air and missile defence system is to be integrated into the NATO missile defence system.

A political decision on equipping German frigates with missile defence capability also has yet to be taken. The German Bundeswehr is currently investigating the extent to which its three F-124 frigates could be equipped with sensor capability for detecting and tracking missiles at high-altitudes.

On this naval aspect, Germany is collaborating closely with the Netherlands and Denmark, which are planning to equip three, respectively four frigates with adapted sensors suitable for NATO missile defence. The objective of the trilateral cooperation is to adapt existing sensors, so that they are able to detect incoming missiles within and above the atmosphere and to guide interceptors to their targets.

Since April 2015 the German Navy Command in Rostock has been leading trilateral efforts to develop a capability to intercept missiles outside the atmosphere. Germany's leading role is particularly significant because these efforts are taking place in the context of the Framework Nation Concept. This concept, supported by Berlin, aims to establish a division of labour among allies in the development of particular military capabilities, in order to make them widely available.

### **What Is the Threat?**

According to NATO, the proposed missile defence system is a hedge against the proliferation of ballistic missiles. The alliance believes that more than thirty countries possess ballistic missiles or are in the process of acquiring them, but the alliance has not named any specific country as a threat. Importantly, missile defence is to provide protection only against threats from outside the Euro-Atlantic area.

Iran, Israel, Russia, Saudi Arabia and Syria all possess medium-range missiles

capable of reaching NATO territory. Given that Israel and Saudi Arabia are partners and NATO has repeatedly insisted that its missile defence system is not directed against Russia, only Syria and in particular Iran remain as potential threats.

In 2009, Obama cited the declining threat posed by Iranian long-range missiles as a key reason for reconfiguring US missile defence plans in Europe. Iran is currently focusing on efforts to improve short- and medium-range missiles. Washington recently confirmed that Iran is expected to have the capacity to build long-range missiles capable of directly threatening the United States by 2020 at the earliest. But Iran already possesses medium-range missiles capable of reaching parts of NATO territory.

It is unclear what implications the agreement on the Joint Comprehensive Plan of Action to resolve the conflict over Iran's nuclear programme will have on NATO's missile defence plans. Successful implementation of the agreement would permanently block Iran's options to acquire nuclear weapons. The danger of Tehran threatening Europe with nuclear-armed missiles would cease to exist. However, Iran is permitted to continue developing and testing conventional missile technologies. Yet, transfers of missile technology to Iran are subject to approval by the Security Council within the first eight years of the JCPOA.

The threat of Syria's missile arsenal has also reduced because a large proportion of the available weapons have already been used in the civil war.

In view of these developments, it is no surprise that the development of the NATO missile defence system is now justified primarily in terms of the threat of proliferation, rather than by any concrete threat from a state outside the Euro-Atlantic area.

### **What Are the Objectives of NATO Missile Defence?**

By developing a missile defence system, NATO is firstly seeking to prevent any potential enemy from considering a ballis-

tic missile attack on its territory. As such, missile defence is seen as a means of deterrence by denial.

In the event of that strategy failing, secondly, it seeks to limit the damage caused by an attack. While no missile defence system can provide absolute protection, from NATO's perspective, neutralising even just a proportion of incoming missiles justifies the system. This argument applies in particular where the attacker possesses deployable weapons of mass destruction.

Thirdly, a missile defence system is supposed to buy time during regional crises and thus increase the alliance's freedom of action. The scenario of Iran blockading the Strait of Hormuz is sometimes cited in this connection. If Iran simultaneously threatened Europe with (nuclear-armed) medium-range missiles, it could – in this scenario – deter NATO from intervening decisively. A missile defence system would, it is argued, shift the dynamic in such a regional conflict to the West's advantage. NATO would retain the initiative if it denies the aggressor certainty about the success of a missile attack and thus undermines its deterrent potential.

This latter scenario is widely discussed among security experts, but much less so in political circles. An open debate about whether NATO can and should strengthen its capacity for intervention by developing missile defence systems would therefore be desirable.

### **What Can NATO Missile Defence Achieve?**

The difficulties associated with technical realisation of a missile defence system are at least as great as the experts' doubts about its effectiveness. It is almost impossible to predict the performance of such a complex system, which depends on the effect and efficiency of internal and external parameters including the type of incoming missile; the flight time, velocity and size of the target; length of warning time; weather conditions; counter-measures; sensor performance and networking.

The effectiveness of the NATO missile defence system can only be tested and measured for narrowly defined cases because the system combines and interfaces different interceptor and sensor systems, some of which are mobile. Generally speaking, tactical anti-missile systems with permanently networked sensor and shooter systems (such as Patriot) operating in defined areas are more effective than heterogeneous systems of systems.

The SM-3 generation IA and IB interceptors stationed in Romania and on Aegis naval vessels form the heart of EPAA and have been comprehensively tested against medium- and intermediate-range missiles. According to the US Missile Defence Agency, thirty-three of the forty tests conducted since 2002 were successful. Virtually no data on the test conditions is available, however, so it is doubtful whether this high rate of success would be achievable under realistic, real-world conditions. In particular, networking the huge number of sensors is a great challenge.

The critical components also include the radar sensors. Aegis ships currently use AN/SPY-1 S-band radar, while a mobile AN/TPY-2 X-band radar is stationed in Turkey. Radar equipment already installed on German and other European warships can essentially be used, but only after expensive adaptation. A demonstration in 2015 would suggest that such heterogeneous sensor networks and different command and shooter infrastructures can function properly together. But tests under realistic conditions have not yet been conducted.

Designing missile defence systems that could cope with all conceivable warheads and countermeasures is technically complex and very expensive. Decoys and electronic countermeasures can impair the effectiveness of missile defence systems, especially if interception takes place beyond the earth's atmosphere. In that sense, the attacker always has the advantage of being able to exploit specific weaknesses of the system.

## **Does Missile Defence Strengthen Cohesion in NATO?**

As a joint alliance project, missile defence is supposed to strengthen the commitment to collective defence. Yet, there are certain differences of opinion, both between and within NATO states, on whether and how missile defence will affect the alliance's cohesion. Some NATO states see the purpose of the project primarily in protection against threats from the south. Others emphasise that the missile defence bases are a visible expression of America's security guarantees for Europe – by which they mean above all protection against Russia.

Competing industrial interests associated with the creation of missile defence systems can also weaken NATO's cohesion. For example, in 2013 the United States withdrew from the development of the MEADS air defence system, which the European partners continued to support. And at the end of 2015, the new Polish government called into question its predecessor's plans to equip the Wisła air defence system with the US Patriot systems, in the hope of achieving a better deal. For two years, Turkey shortlisted a Chinese missile defence system provider, despite considerable NATO reservations against the inclusion of Chinese technology in the alliance's system. In the meantime, Turkey is considering either developing and manufacturing the technology domestically, or acquiring fully-developed systems from NATO allies.

By comparison, few joint projects exist within NATO to develop or produce missile defence technology. The only system apart from MEADS is one based on the Aster missile – which can intercept targets including short-range ballistic missiles – that France, the United Kingdom and Italy are jointly developing and producing. At this point, the Americans have not made any NATO member a partner in developing core technologies, as Japan has become in the Aegis programme. Japan was, however, willing to invest up to \$1 billion to become a US partner.

The Americans have long been warning Europe against free-riding. Especially in

Congress, there are growing calls for the European allies to pull their weight on missile defence. Expectations that missile defence will strengthen alliance cohesion are only realistic as long as all involved are willing to stick to the existing division of labour, and as long as they resist the temptation to use the project as leverage for achieving unrelated goals.

### **Does Missile Defence Deepen Conflict with Russia?**

When NATO decided in 2010 to create a missile defence system, the German government hoped that missile defence might be an instrument to strengthen security cooperation with Russia. Between 2010 and 2012 NATO and Russia did indeed explore possibilities of cooperation.

In the meantime, it has become clear that Russia's problems with missile defence are fundamental in nature. Moscow fears that future US missile defence capabilities could negate Russia's nuclear second-strike capacity. Russia is concerned about the flexible, global and open architecture of the planned American system.

Moscow consequently demands legally-binding assurances that the interceptors stationed in Europe will not target Russia's strategic nuclear arsenal. Other demands raised by the Kremlin in recent years include: complete integration of Russia into the system, all interceptors to be deployed outside the Euro-Atlantic region, restrictions on the number of interceptors, limits on the velocity of interceptors, and restrictions on the number of missile defence bases.

The United States is not prepared to limit its missile defence plans by giving any such guarantee. The Administration's hands are tied on these questions because Congress has repeatedly made clear – by large majorities – that it will not accept any restrictions on US missile defence plans.

At the end of 2013 Russia ended the dialogue with NATO on its missile defence plans. NATO, in turn, in April 2014 broke off working-level contacts with Russia in

response to Russia's annexation of Crimea.

Moscow justifies resumption of development work on new nuclear warheads and delivery systems by the necessity to overcome US missile defence systems. In the coming years Russia intends to operate five different types of intercontinental missiles with manoeuvrable warheads and/or the ability to reach the United States via the southern hemisphere. The development and procurement of long-range cruise missiles can also be seen as a response to US missile defence plans. Russia has also repeatedly threatened to withdraw from nuclear arms control agreements and to station nuclear-capable Iskander short-range missiles in Kaliningrad. In March 2015, the Russian ambassador in Copenhagen even warned of the possibility of nuclear strikes against Danish naval vessels involved in NATO missile defence.

The expansion of missile defence capacities thus drives arms races in Europe and elsewhere. That should come as no surprise, given that historically (anticipated) improvements in one side's defensive capabilities have generally led to the expansion of offensive capacities by the other side.

Some observers hope that the establishment of a NATO missile defence system will make it easier to reduce the role of nuclear weapons. The Obama Administration has set an objective – especially in regional crisis scenarios – of moving from “deterrence by retaliation” to a new type of “deterrence by denial”. But these hopes tied to missile defences have not been fulfilled in reality. For example, EPAA has not reduced the importance attached to US nuclear weapons deployed in Europe.

### **Implications for Germany**

The plans to establish a missile defence system in NATO have reached a point where it would appear almost impossible to abandon the project. Plans for completing the third EPAA phase by 2018 are firm. Construction of the second Aegis Ashore missile defence base in Poland will begin shortly.

For other elements of the missile defence system, final decisions have yet to be taken. In advance of the Warsaw Summit, the allies are debating the alliance's security and defence posture. In order to reduce conflicts over aspects such as funding, configuration, deployment and – not least – use of the missile defences, the system's rationale should be revisited. From the German perspective, a number of unresolved questions exist that should be answered before Berlin takes decisions to expand its participation in NATO missile defence.

From the *security perspective* the threat analysis needs to be clarified. At the moment, there are different opinions about what NATO intends to defend against. It must also be asked whether the successful implementation of the Iran agreement would not offer sufficient reason to re-evaluate the scope and timeframe of the project.

From the *military perspective*, the performance of the system should be assessed from different perspectives. Experience has already been gathered with intercepting short-range missiles. Defence against medium-range and intermediate-range missiles has only been tested in a handful of cases, and these were rarely based on realistic conditions. In this context, it is also important to ask to what extent Germany and other European NATO allies would be included in decisions to deploy or use missile defence systems in times of peace or crisis. Finally, in terms of including German frigates in the system, the possible negative impact on the German navy's overall operational capability needs to be taken into account.

From the *alliance perspective*, it should be considered whether and how NATO allies can better reconcile the different objectives associated with the creation of a missile defence system. The difficult process of deciding to deploy – and later withdraw – Patriot systems from Turkey is an indication of negative consequences differences over missile defences could have for the alliance's cohesion. In particular, the question needs to be asked what influence

Europe would have on the possible use of such capabilities in times of crisis.

The deployment of effective missile defence systems could have positive repercussions for *arms control*, if it reduces the political and military importance of nuclear weapons. But at the same time, the danger of new arms races grows. This security dilemma can be reduced by confidence-building and other cooperative mechanisms, but it cannot be resolved. Specifically, measures to improve transparency, such as visits, inspections or even the stationing of liaison officers at missile defence bases could help to allay Moscow's concerns about NATO's system being used against Russia.

The *financial risks* of German participation in missile defence are currently limited, to the extent that it is largely left to the member-states themselves to decide on the type and scale of their contribution. But that situation could change should the United States no longer be willing to contribute the lion's share of the cost of the system in Europe. In Congress, calls for a larger European financial contribution already grow louder.

The decision on a MEADS-based tactical air and missile defence system was partly motivated by *industrial policy*, led by the hope that the development of key components in Europe would offer technological and labour market advantages over an American solution. However, in the short-to medium-term Europe and Germany have few comparable capabilities to contribute to the development of systems to defend against medium- and intermediate-range missile systems.

The expansion of missile defence capabilities will continue after the Warsaw Summit, as will the debate over the system's role in NATO's deterrence and defence posture. Whether and how Germany participates beyond the contributions already promised should not be decided until a thorough debate has been conducted over the outlined aspects of the multi-faceted project of "missile defence in NATO".

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