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Ten Ideas for Smarter NATO Missile Defense

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NATO leaders have cited missile defense as an example of applying the principles of the Smart Defense initiative endorsed at the 2012 NATO Summit to enhance collective defense at minimum cost. As ballistic missiles continue to proliferate and become more accessible to both state and nonstate actors, it is important to foster global partnerships to pursue NATO's missile defense mission and protect North American and European interests. NATO should consider opportunities to further apply the principles of Smart Defense now to reduce future costs of deterring and countering missile proliferation.

At the May 2012 summit, NATO leaders endorsed the Smart Defense initiative, citing the benefits of pooling military capabilities, relying on greater interdependence of member countries' military assets, and adopting a "collective defense" perspective when prioritizing defense investments. Smart Defense would allow NATO to counter evolving twenty-first century threats at a time of declining defense budgets. NATO leaders cited missile defense as an example of Smart Defense. They also acknowledged the continuing proliferation of ballistic missiles, noting that over thirty countries have missiles in their arsenals today. Opportunities currently exist for NATO to apply the principles of Smart Defense to missile defense to more cost-effectively enhance the protection of all its members.

In addition to a growing number of countries acquiring ballistic missiles, another threat is emerging. More "user friendly" ballistic missile systems that can be operated by small groups or individuals without traditional military training are becoming increasingly accessible. Not only are missiles available on the international arms market, many sizable missile arsenals are currently located in places of domestic unrest (such as Syria, Libya, Egypt, and across North Africa), which have questionable security measures protecting their missile arsenals. An additional concern is that most ballistic missiles are on mobile launchers that provide the opportunity for terrorist or extremist groups to strike valuable targets from great distances while maintaining anonymity and concealing the location and the size of their arsenal. Southern Europe has the highest exposure to large numbers of missiles from the Middle East and North Africa. However, anti-ship ballistic missiles (ASBMs),

NATO in an Era of Global Competition

NATO is emerging from more than a decade of war in Afghanistan and is faced with unprecedented shifts in the world order, new global challenges, and severe fiscal constraints. Against this backdrop, the Atlantic Council's Brent Scowcroft Center on International Security and the Norwegian Institute for Defence Studies (IFS) launched the *NATO in an Era of Global Competition* project to provide recommendations for policymakers across the Alliance as they chart an appropriate strategic orientation for the world's most important political-military alliance.

Working with recognized experts, government representatives and military officials from Europe, Canada, and the United States, this project will produce a set of issue briefs informed by multiple public and private events. The project also aligns with NATO's major priorities as the Alliance prepares for its 2014 "transformation" summit. For more information about this effort, please contact Scowcroft Center Associate Director Simona Kordosova at skordosova@AtlanticCouncil.org.

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which both China and Iran possess, threaten shipping hubs, restricted shipping lanes (ports, locks, canals, straits), and ships at sea. Finally, as Iran continues to develop and test long-range missiles, enhancing current US homeland missile defense capabilities becomes increasingly important.

An effective counterproliferation strategy must convince potential attackers that their attempts to employ missiles would be unsuccessful. NATO member states should lead the international community by demonstrating political resolve and commitment to counter missile proliferation. However, NATO has yet to adopt an expeditionary missile defense mission to protect international trade between Europe and North America. Additionally, many NATO member states have expressed reluctance to commit their current assets to actively participate in the NATO missile defense architecture due to high perceived costs. Therefore, NATO must apply the principles of Smart Defense more extensively to maintain the relevancy of missile defense and lower the cost for new member states to contribute to the missile defense architecture.

A system-wide assessment of the potential effectiveness of collective missile defense enhancements should consider the fundamental elements of a missile defense architecture. All missile defense systems have three primary elements: interceptors and their launchers, a fire-control system, and a fire-control sensor. Another important element could be external sensors that will increase the ability of a missile defense system to simultaneously engage threat missiles at longer ranges and in larger raid sizes. Depending on their power and resolution, some external sensors can also provide fire control sensor quality missile precision tracking data to greatly enhance the system's reliability and robustness, the ability to discriminate threat missile warheads, and the ability to accurately assess the results of an attempted missile intercept. Basic missile defense functions have been proven effective in over fifty flight tests during the past decade and the initial NATO missile defense architecture has begun operations. Still, more opportunities exist today to cost-effectively enhance the remainder of the planned missile defense network. The following ten ideas illustrate practical applications of the "Smart Defense" concept.

First, NATO leaders should recognize that protecting NATO's interests in the twenty-first century will require that its missile defense mission extend beyond European territorial defense. Likewise, expeditionary missile defense is a relevant NATO mission as it protects vital trade and commerce routes between Europe and North America.

Second, NATO leaders must acknowledge that an extensive set of missile defense-capable sensors that exist in Europe today that are currently not part of the missile defense architecture. Utilizing all available sensors will not only bolster the current missile defense sensor network in Europe but could significantly enhance the US homeland defense system's effectiveness. European sensors can be particularly beneficial in assessing the success of initial intercept attempts of missiles heading from the Middle East toward North America. NATO should conduct a joint survey of all sensors in all member countries to identify potential "dual-use" missions (such as adding a missile tracking function to existing space object tracking missions) to enhance NATO's missile defense sensor network. Critical to meeting lower cost expectations, the survey should clearly identify its objective to assess the utility of existing sensor capability and not the upgrade, or conversion, of existing sensors to become part of a missile defense fire-control system. A steering committee for this survey is recommended to ensure consistent application of assumptions and steps to minimize costs. Given Russia's extensive set of missile tracking-capable sensors, Russia should be invited to participate in the survey.

Third, based on the results of the survey of potential missile defense capable sensors, NATO should spearhead education and consultation initiatives to convince more of its members to incorporate their existing "dual use" sensors into the NATO missile defense architecture. In order to achieve this, NATO must provide accurate information showing that such integration enhances its members' overall security and operational resiliency at a relatively low cost.

Fourth, consistent with its record of effectively establishing international military standards, NATO should establish missile defense sensor data exchange standards to enable universal sharing of relevant missile defense tracking data. Many of the sensors and command and control systems were created using system specific data formats that require expensive revision of software, disclosure of operating processes, and translation before missile defense assets from different manufacturers can be linked in a manner consistent with the Smart Defense concept. Adopting a common sensor data exchange standard today will limit the need for technology transfer and enable the cost effective development of interoperable missile defense assets in the future. It would also facilitate the modification of current systems to be more interoperable in the near term. NATO's proven history of leading standardization practices would entice the global aerospace community to participate and facilitate the development of missile defense partnerships around the world.

Fifth, the United States has developed software algorithms that enable fire control systems to use a wide spectrum of missile defense sensors, including X, L, C, S band and infrared frequencies. In addition to enhancing missile precision tracking capabilities, using a wide variety of sensor frequencies greatly complicates an aggressor's ability to deploy effective missile defense countermeasures. The feasibility and benefits of linking a diverse set of sensors has been repeatedly demonstrated in US laboratories, during flight testing, and in orbit. The United States should assist its NATO allies in developing the same capability. This is important because the precision of combined sensor data can be more accurate than the precision of any individual sensor.

Sixth, US and French missile defense flight tests over the Atlantic Ocean would benefit from broader NATO participation. The United States has an extensive set of planned missile defense flight tests over the next five years and many of them are viable candidates to be moved from the Pacific to the Atlantic Ocean without significantly increasing cost. The United States and France have flight test ranges on the Atlantic coast and an extensive set of maritime and airborne range assets to enable missile defense testing in a region where many NATO countries could affordably participate. Aside from validating joint missile defense tactics, demonstrating the effectiveness of the NATO missile defense network in live intercepts will greatly enhance its deterrence effect.

Seventh, NATO should facilitate the pooling of resources to significantly reduce the requirement and costs of acquiring and managing missile defense assets. For instance, like-minded countries, such as those with common land-based and maritime missile defense systems, can effectively trans-load interceptors as they relieve units on station at deployed locations or on patrol at sea. Furthermore, by agreeing to standardize weapon system interface requirements, member states can share missile defense interceptors on future weapons platforms.

Eighth, cruise missile defense should be added to the US Aegis Ashore system. Currently, only the maritime version of the Aegis system can counter cruise missiles, but Aegis Ashore can be modified to have similar capabilities with a minimal increase in cost or manpower requirements. Additionally, the Aegis Ashore cruise missile defense function would greatly benefit from a highly integrated extended NATO missile defense sensor architecture.

Ninth, NATO should take steps to deploy Aegis Ashore in Turkey, which is currently the NATO member most exposed to the threat of ballistic and cruise missiles. A single Aegis Ashore system in Turkey can provide protection at significantly lower manpower and operational costs than the many mobile missile defense units required to provide similar protection. If deploying another Aegis Ashore to Turkey is not currently affordable, then NATO should consider taking advantage of the inherent "relocatability" of the modular Aegis Ashore design. The Alliance could establish the infrastructure and negotiate the requisite government agreements would that enable the expedited deployment of Aegis Ashore systems in Turkey if future conditions warrant.

Tenth, in a manner similar to the Nimble Titan war game series,[1] NATO should pursue missile defense partnerships globally through a series of technically based simulations and engineering analyses. Participants would include NATO members, the Gulf Cooperation Council (GCC) countries, Japan, and South Korea, and aim to ensure the safety and security of vital maritime trade routes and other infrastructure essential to thriving global commerce. The results emerging from these analyses could form the basis for collective missile defense agreements and exercises with future NATO partners.

In conclusion, although the United States and NATO have taken the initial steps to build a regional missile defense architecture, there is still much work to be done until it provides a robust defense. As missile proliferation continues, the ability of future enhancements of the planned NATO missile defense architecture to deter and counter growing missile threats becomes increasingly uncertain. Applying the principles of Smart Defense, as illustrated in the ten ideas proposed, will reduce the risks of protecting all of NATO members and enable them to pursue their global interests in the most affordable manner possible.

1 Nimble Titan is a series of seminars and war games involving twenty-two participating countries and led by the United States Strategic Missile Defense Command. See http://content.govdelivery.com/accounts/USDOD/bulletins/7b3159.

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