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**ALLIANCE GROUND SURVEILLANCE AND THE
FUTURE OF NATO'S SMART DEFENSE**

by

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March 2014

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SMART DEFENSE**

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ABSTRACT

Twenty-three years after its inception in 1991, NATO's Alliance Ground Surveillance (AGS) program is nearly an operational reality. Though AGS is a significant accomplishment, the political, economic, and strategic concerns of individual Allies have tempered the pursuit of a more robust acquisition. AGS will provide an important capability advance for the Alliance, but it obviously cannot overcome all the systemic capability shortcomings that the Alliance's Smart Defense (SD) initiative hopes to address. Given NATO's struggles with AGS, its label as a "flagship" SD program may be undeserved—or illustrative of the challenges facing SD. While AGS appears to mirror the NATO AWACS acquisition, neither provides an ideal template for further SD programs. Instead, the successes and failures of AGS suggest an evolution in joint Alliance procurements. While focusing on efficiencies—a traditional SD ideal that is insufficient in isolation—AGS reinforces a more important principle in the Alliance: sustaining NATO's political cohesion.

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LIST OF ACRONYMS

AEW	airborne early warning
AGS	Alliance Ground Surveillance
AWACS	Airborne Warning and Control System
CNAD	(NATO's) Conference of National Armaments Directors
CSDP	Common Security and Defense Policy
CTAS	Cooperative Transatlantic AGS System
EDA	European Defense Agency
FOC	full operational capability
JSTARS	Joint Surveillance and Target Attack Radar System
IOC	initial operational capability
ISR	Intelligence, Surveillance, and Reconnaissance
LD/HD	low density, high demand
NATO	North Atlantic Treaty Organization
NE-3A	NATO's E-3A (NATO's AWACS variant)
P&S	pooling and sharing
SACEUR	Supreme Allied Commander Europe
SD	Smart Defense
TIPS	Transatlantic Industrial Proposed Solution
UAV	unmanned aerial vehicle

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I. INTRODUCTION

Today, NATO's most prominent joint acquisition program is called Alliance Ground Surveillance (AGS). First conceived in 1991, the program has weathered major political challenges, and it is now on track to be implemented in the 2015–2017 timeframe.¹ This thesis investigates the following questions: What is the history of AGS? What does AGS mean for NATO's Smart Defense (SD) initiative? More deeply, what are the motivators behind the AGS program, and what are its prospects? To what extent can lessons from the AGS project contribute to smarter capability procurement in NATO? In short, this thesis examines the NATO AGS program and asks, what, why, and so what?

AGS has been identified as a flagship SD program by Secretary General Rasmussen, who promotes SD as “ensuring greater security, for less money.”² The Smart Defense (SD) initiative is widely perceived to be a useful concept for the NATO Allies that will promote efficiencies in military spending at a critical time for the Alliance. Influential leaders on both sides of the Atlantic have issued dire warnings about the future of the Alliance if SD does not become the new mindset. Left unsaid, however, is whether successfully implemented SD is enough to avoid these grim forecasts.

Expected savings from SD programs are small in comparison to recent and expected defense budget reductions, and, despite much fanfare, SD initiatives have only registered limited commitments from member states. German scholar Michael Rühle asserts bluntly that better coordination “could potentially save European nations a few hundred million euros, yet the budget cuts since the beginning of the financial crisis in 2008 amount to more than 30 billion euros.”³ While the implementation of SD has been flawed, the necessity for it has been genuine. Absent greater efficiencies through

1 “Alliance Ground Surveillance,” NATO, last updated April 15, 2013, http://www.nato.int/cps/en/natolive/topics_48892.htm.

2 “Smart Defense and Interoperability,” NATO Multimedia Library, last modified October 21, 2013, <http://natolibguides.info/smartdefence>.

3 Michael Rühle, “The Future of the Transatlantic Security Relationship,” *American Foreign Policy Interests* 35, no. 5 (2013), http://www.tandfonline.com/doi/full/10.1080/10803920.2013.836015#.Ummi7_lq_To, 1.

cooperation, shrinking national defense budgets and poorly coordinated procurement and maintenance will severely weaken member states and the alliance as a whole. A major theme in SD is cooperation in, among other things, the acquisition, maintenance, and operation of new military capabilities. This study focuses on the essential first step, formal Alliance acquisition of the AGS program.

The successes and failures of the Alliance Ground Surveillance (AGS) program offer important lessons about Smart Defense and NATO's future ability to make major joint acquisitions. The Allies saw the advantages of U.S. E-8 Joint Surveillance and Target Attack Radar System (JSTARS) aircraft during the Gulf War of 1990–1991, and set a formal requirement for this capability in 1992. Three Supreme Allied Commanders Europe (SACEURs)—Generals George Joulwan, Wesley Clark, and Joseph Ralston—made AGS their number one acquisition priority.

AGS nonetheless remains a work in progress.⁴ Since 1992, the program has undergone significant revamping, changes in participating member states, and muted debates about its relevance and prospects. Secretary of Defense Leon Panetta stated in October 2011 that “AGS is a crucial symbol of alliance collaboration...Unless it is implemented successfully, the drive for similar, cost-effective, multinational approaches to capability development would be seriously undermined.”⁵

Heeding this sentiment, 14 of NATO's 28 member states (Bulgaria, the Czech Republic, Denmark, Estonia, Germany, Italy, Latvia, Lithuania, Luxembourg, Norway, Romania, Slovakia, Slovenia, and the United States) resolved to fund AGS in May 2012.⁶ Since then, events have transpired that threaten to complicate the acquisition process. A

4 The streak of AGS enjoying number one priority status seemingly ended with SACEUR General James Jones, whose statements embraced more diverse priorities. Pierre A. Chao, *NATO AGS-Finally Ready to Fly* (Washington, DC: Center for Strategic and International Studies, 2004); “NATO Considers Merging AGS,” *Jane's Defence Weekly*, June 8, 2001.

5 U.S. Department of Defense, “Remarks by Secretary Panetta at Carnegie Europe, Brussels Belgium,” October 5, 2011, <http://www.defense.gov/transcripts/transcript.aspx?transcriptid=4895>.

6 “Alliance Ground Surveillance.”

successful AGS program would be a much needed vote of confidence for NATO, but it is by no means assured, and its effectiveness as a flagship Smart Defense program is debatable.

A. PROBLEMS AND HYPOTHESES

NATO is in an existential crisis. Evolving security threats, differing national priorities, and shrinking defense budgets are tearing at the heart of the world's most powerful and arguably most successful alliance. These seemingly insurmountable headwinds reveal divisions across the Alliance, yet the NATO Allies unequivocally express resolve to maintain unity. Such a dichotomy cannot last. NATO must attend to its most critical fault lines; failing to do so may result in collapse when the Alliance experiences real pressure. In an attempt to address major shortcomings and preserve the Alliance's capabilities and influence, Secretary General Anders Fogh Rasmussen has in recent years raised the banner of Smart Defense, which sounds rich in promise, despite its conceptual vagueness. Acknowledging Europe's flagging military ability and credibility, Rasmussen has argued that Smart Defense will "build greater security with fewer resources but more coordination and coherence."⁷

In theory, Smart Defense revolutionizes thinking about military capabilities acquisition, prioritizing military expenditures for the good of the alliance by developing specific capabilities on a multinational basis. Critics, however, "see Smart Defense as a new label for the old approach to capability development in the alliance or as a NATO rebranding of the EU's concept of pooling and sharing."⁸ These critics have much history to draw upon. NATO first discussed the value of joint acquisitions—without calling it Smart Defense—in then-secret Strategic Concepts as early as 1949.⁹ For such an

⁷ "Building Security in an Age of Austerity: Keynote Speech by NATO Secretary General Anders Fogh Rasmussen at the 2011 Munich Security Conference," February 4, 2011, www.nato.int/cps/en/natolive/opinions_70400.htm.

⁸ Lisa Aronsson and Molly O'Donnell, *Smart Defense and the Future of NATO: Can the Alliance Meet the Challenges of the Twenty-First Century?* The Chicago Council on Global Affairs, March 2012, 8, http://www.thechicagocouncil.org/userfiles/file/NATO/Conference_Report.pdf.

⁹ NATO Standing Group, "Revised Strategic Concept for the Defense of the North Atlantic Area," November 19, 1949, 15, www.nato.int/docu/stratdoc/eng/a491119a.pdf.

endeavor to gain traction against an army of skeptics, it needs a success story as proof that the concept is viable. AGS seems to be the only current program capable of providing such evidence.

During the Cold War, the NATO Allies proved themselves capable of such collective action, but 2014 is not 1978. The most prominent success story for what is currently termed Smart Defense was finalized in December 1978, when NATO's "Defence Planning Committee signed a memorandum of understanding to buy and operate a NATO-owned AEW [Airborne Early Warning] system. By this decision, the member nations embarked on NATO's largest commonly funded acquisition program."¹⁰ The NATO Airborne Warning and Control System (AWACS) acquisition is today an ongoing success, but in its origins it shared many of the same problems as the AGS program today, most notably disagreements over technical data sharing and the division of benefits from domestic industries getting a piece of the deal or other "offsets."¹¹

The post-Cold War political situation has exacerbated these issues. Absent a common threat as compelling as the Soviet Union, European governments have seen fewer convincing incentives to pay for NATO capabilities that do not directly benefit their own industries. Disagreements arising from this contention have greatly reduced the scale of the AGS program and with it the number of full participants. The initial concept of 12 modified A321s (European JSTARS) with the possibility of adding unmanned aerial vehicles now stands finalized at zero A321s and five Global Hawks.¹² NATO AWACS enjoyed full support from all Allies save Belgium, France, Iceland, and the U.K.¹³ Today, AGS enjoys the political support of all Allies, but only half have committed to the costly acquisition.

10 "NATO Airborne Early Warning and Control Force E-3A Component: The History," <http://www.e3a.nato.int/eng/html/organizations/history.htm>.

11 R. D. M. Furlong, "Can NATO Afford AWACS?," *International Defense Review* 5 (1975).

12 "Last Best Chance for NATO Airborne Ground Surveillance," *International Defense Review*, August 19, 2002, <https://janes.ihs.com.libproxy.nps.edu/CustomPages/Janes/DisplayPage.aspx?DocType=News&ItemId=++1100546&Pubabbrev=IDR>.

13 Comptroller General of the United States, *Report to the Congress of the United States: Equitable Cost Sharing Questioned on NATO's Airborne Early Warning and Control Program* (Washington, DC: United States General Accounting Office, 1980), 10.

The number of full AGS partners was formalized at 14 in 2012, down from 23 in 2005 and 20 in 2008. Of the 26 Alliance members in 2005, only Hungary, Iceland, and the United Kingdom opted to not contribute to funding a €23 million study on AGS. By 2009, Belgium, France, Greece, Poland, Portugal, the Netherlands, Poland, and Spain opted out of the acquisition. By the time that the AGS contract was finally signed at the Chicago summit in May 2012, the consortium had regained Denmark, but lost Canada. Only 14 participants remained full AGS partners, though France and the UK had agreed to provide “in-kind” national assets to the ground surveillance mission. Even this final count continues to change. While Poland rejoined the program after the 2012 signing, the number appears unlikely to increase further given the current economic environment.¹⁴

Following two decades of tribulations, AGS was presented as a major success story at the Chicago Summit in May 2012. A consortium within the Alliance finally committed to a \$1.7 billion purchase of five Global Hawk Block 40 aircraft. NATO Deputy Secretary General Alexander Vershbow said that the commitment “will move us from consultations to implementation, from an idea to a programme.”¹⁵ Still, the program’s success is by no means assured. Problems with the Global Hawk remain on both sides of the Atlantic.

Three months before NATO settled on the purchase of Global Hawk Block 40 aircraft, the U.S. Air Force attempted to terminate its Global Hawk Block 30 acquisition on the grounds that it “was underperforming, had busted its budget, and wasn’t vital to immediate combat needs.”¹⁶ By February 2013, Air Force officials in the Pentagon were strongly considering terminating the Block 40 variant, which was given a “50/50 chance

14 See Chapter II for a full description. “NATO commits to AGS, Delays Design Phase,” *Jane’s Defence Weekly*, April 29, 2005; Brooks Tigner, “AGS Wrangle on the Agenda as NATO Ministers Meet,” *Jane’s Defence Weekly*, June 12, 2008; “Alliance Ground Surveillance.”

15 “NATO Alliance Ground Surveillance Programme Takes off in Chicago,” May 20, 2012, www.nato.int/cps/en/natolive/news_87544.htm.

16 Richard H.P. Sia and Alexander Cohen, “The Drone that Wouldn’t Die: How a Defense Contractor Bested the Pentagon,” *The Atlantic*, July 16, 2013, <http://www.theatlantic.com/politics/archive/2013/07/the-drone-that-wouldnt-die-how-a-defense-contractor-bested-the-pentagon/277807/>.

of survival.”¹⁷ Although Northrop Grumman and national policy-makers have been influenced by the threat of the Global Hawk’s imminent retirement, the platform’s performance has improved recently. Since 2011–2013, and helped in part by high demand for its services in Afghanistan, the cost per-flight hour was reduced 50 percent, and the mission capable rate rose from an abysmal 55.2 percent to a low but more reasonable 74.1 percent.¹⁸ Alongside the impressive U.S. Navy acquisition of 68 MQ-4C Broad Area Maritime Surveillance “Triton” aircraft,¹⁹ U.S. Asian partners have expressed interest in acquiring the Global Hawk to improve their maritime capabilities as well.

Across the Atlantic, the Global Hawk is having growing pains as well. In May 2013, Germany completely cancelled its Euro Hawk program, which was to have been a sister program to NATO AGS.²⁰ Even worse, the fallout from the Euro Hawk scandal could affect Germany’s projected €483 million contribution to the NATO program as well.²¹ Chancellor Merkel and Defense Minister Thomas de Mazière appear to have survived what was viewed by many in Germany as a scandal with a handy election victory in September 2013, but so far there is no definitive news regarding restarting the program or its implications for AGS.

Can solidarity and continued commitment within the AGS coalition of the willing be maintained against such countercurrents? To what extent will other factors such as

17 Amy Butler, “Why Global Hawk Block 40 May Be Killed,” *Aviation Week & Space Technology*, February 25, 2013, http://www.aviationweek.com/Article.aspx?id=/article-xml/AW_02_25_2013_p22-550617.xml&p=3.

18 Andrea Shalal-Esa, “Cost of Flying Northrop’s Global Hawk down Over 50 Percent: Sources,” Reuters, September 13, 2013, <http://www.reuters.com/article/2013/09/13/us-northropgrumman-globalhawk-idUSBRE98C12220130913>; Brian Everstine, “Readiness Declines in Aging, Overworked Fleet,” *Military Times*, October 2, 2013, <http://www.militarytimes.com/article/20131002/NEWS04/310020026/Readiness-declines-aging-overworked-fleet>.

19 “Triton,” Northrop Grumman Corporation, accessed February 9, 2014, <http://www.northropgrumman.com/Capabilities/Triton/Pages/default.aspx>.

20 “German Defense Minister to Face Grilling over Euro Hawk Debacle,” *Deutsche Welle*, July 22, 2013, <http://www.dw.de/german-defense-minister-to-face-grilling-over-euro-hawk-debacle/a-16964646>; Justyna Gotkowska, “The End of the German Euro Hawk Programme—The Implications for Germany and NATO,” ISN ETH Zurich, June 3, 2013, <http://www.isn.ethz.ch/layout/set/print/content/view/full/24620?id=164644>.

21 Gotkowska, “The End of the German Euro Hawk Programme.”

industrial interests, continuing operational requirements, and evolving threats to the Alliance affect the future of AGS? This study hypothesizes that a combination of rationales will keep AGS alive, but that its significance as a model for Secretary Rasmussen's Smart Defense is dubious.

B. LITERATURE REVIEW

There are few comprehensive works on AGS available. Pierre A. Chao of the Center for Strategic and International Studies and *Jane's Defence Weekly* prepared studies in 2004 and 2006 (respectively) that provide truncated histories and forecasts while exploring the program's relevance to NATO's future. Besides these and the factsheet from NATO's website, most of the available sources were produced in conjunction with evolutionary milestones in the AGS program and are limited to cursory descriptions of achievements and recent highlights. A myriad of references to AGS are found in analyses that focus on Smart Defense; Intelligence, Surveillance, and Reconnaissance (ISR); NATO's 2011 intervention in Libya; etc. By themselves, these sources do not provide much insight regarding the topic at hand, but when linked together and then paired with NATO's strategic documents, they start to build a more meaningful picture.

As for academic "camps" or differing points of view, the research thus far has discovered little. This may be due in part to a dearth of position papers written on AGS since the requirement was first established in 1992. This dearth may in turn be attributed to the fact that AGS has been regarded in political and journalistic discourse as a technical matter, not one deserving of the "high politics" attention awarded to nuclear and missile defense matters. Another factor may be that there was so little public disagreement regarding AGS prior to its near disintegration and revival in 2007. This likely has to do with the fact that all Allies agreed on the need for a ground surveillance capability, but did not want internal competition to diminish the appearance of NATO solidarity.

Despite these limitations, the thesis research will focus on ISR and aviation-related scholarly journal articles on AGS, aerial ground surveillance, and Smart Defense.

The main message in the recent literature on ISR in NATO can be characterized as follows: European ISR assets are insufficient, and NATO reliance on U.S. national assets is both imprudent and inequitable. The NATO foray in Libya in 2011 is often cited as evidence of this overreliance. Ellen Hallams and Benjamin Schreer sum up the relationship as follows: “The campaign as a whole remained heavily dependent on the U.S. to provide [ISR] capabilities,” specifically U.S. AWACS (which supported the operation with 1,650 flying hours, despite the claim that NATO AWACS provided 24/7 coverage of the conflict), JSTARS, and satellites.²² *The New York Times* stated similarly that “Europe’s military capabilities fell far short of what was needed, even for such a limited fight.”²³

Although the Libya experience was informative and reinforcing, NATO has known about the deficiencies in its non-U.S. ISR capabilities for a long time. The 1992 requirement decision for joint airborne ground surveillance showcases this point. A 2003 Rand study on the interoperability of U.S. and NATO capabilities through the 1990s noted the danger of overreliance upon U.S. low-density, high-demand (LD/HD) assets.²⁴ Most ISR capabilities—even for U.S. allies—are unsurprisingly located in LD/HD assets. Moreover, the preponderance of the assets (RC-135, EC-130, E-8, U-2/Global Hawk, MQ-1/9 Predator/Reaper, etc.) are U.S. national assets. To be fair, several European Allies maintain ISR assets. Notable examples include the British, who have five Sentinel jets, seven AWACS, and six Tornado fighter squadrons (which can serve in an electronic surveillance role when properly equipped); the French, who have two C-160G Gabriel

22 Ellen Hallams and Benjamin Schreer, “Towards a ‘Post-American’ Alliance?” *International Affairs* 88, no. 2 (2012); Mike W. Ray, “552 ACW Receives Outstanding Unit Award,” *Tinker Take Off*, October 26, 2012, <http://journalrecord.com/tinkertakeoff/2012/10/26/552nd-acw-receives-outstanding-unit-award/>.

23 “NATO’s Teachable Moment,” *The New York Times*, August 29, 2011, http://www.nytimes.com/2011/08/30/opinion/natos-teachable-moment.html?_r=0.

24 Eric Larson, *Interoperability of US and NATO Allied Air Forces: Supporting Data and Case Studies* [Project Air Force] (Santa Monica, CA: Rand Corporation, 2003), xiv–xvi.

electronic intelligence aircraft and four AWACS; the Germans, who have 31 electronic warfare/surveillance Tornados; and the Italians, who have 16 Tornados. Moreover, NATO has a fleet of 17 AWACS.²⁵

Nevertheless, given their utility and relative scarcity, LD/HD aircraft are among the assets most likely to be pulled from joint operations if national needs dictate. The Rand study asserts that NATO missions could be compromised if U.S. ISR assets were re-tasked mid-operation.²⁶ Additionally, the report documents strategic, operational, tactical, and technological problems associated with the use of national assets in every major NATO engagement.²⁷ A jointly owned and operated platform would help resolve these issues, and most of the literature presents NATO AGS as an answer to the problem of NATO's dependence on U.S. JSTARS and Global Hawks.

The Smart Defense literature consists of speeches by the NATO Secretary General and other Alliance officials and analytical studies by scholars, primarily in NATO nations. The obligatorily cited Rasmussen speech at the Munich Security Conference on 4 February 2012 outlines the Secretary General's concept of what Smart Defense could (and should) be.

Danish Colonel Jakob Henius and University of Edinburgh Professor Jacopo Leone MacDonald published *Smart Defense: A Critical Appraisal* for the NATO Defense College just prior to the Chicago Summit. MacDonald compares NATO's budget problems to a statement attributed to Lord Ernest Rutherford: "Gentlemen, we have run out of money. It is time to start thinking."²⁸ Despite this promising foreshadow of program cogency, Smart Defense remains largely a cerebral success. The report argues

25 In the 1970s, France and the UK opted to purchase their own AWACS instead of participating in the NATO AWACS program. This preference is unchanged, and today France and the UK plan to contribute national assets to NATO operations instead of being full AGS partners. Interestingly, these "in-kind" assets were previously slated to be terminated. See Chapter II for a further description; Tornado figures from "World Air Forces 2013," *Flight Global*, accessed February 9, 2014, http://www.flightglobal.com/airspace/media/reports_pdf/empty/101015/world-air-forces-2013.pdf.

26 Larson, *Interoperability of U.S. and NATO Allied Air Forces*, xiv--xvi.

27 *Ibid.*, xiii.

28 Jacopo Leone MacDonald, "The Basics of Smart Defense," ed. Jakob Henius and Jacopo Leone MacDonald, *Forum Paper Series*, Rome: NATO Defense College, 2012.

that evidence both supports and detracts from Smart Defense, and that it is “an old idea” that should not be discounted because it is also “based on new premises.” Like much of the literature, *A Critical Appraisal* concludes with the idea that under conditions of austerity, non-Smart Defense initiatives “appear singularly unwise”—dumb defense by another name.²⁹

Colonel Henius continues to explore the drawbacks of Smart Defense in “Specialization: The Gordian Knot of NATO’s Smart Defense,” in which he outlines a variety of clearly defined reasons why states resist specializing in their militaries. These all essentially boil down to the rational fear of being left without necessary capabilities in the event of a less than major Article 5 response.³⁰

In the same vein, the Chicago Council on Global Affairs published *Smart Defense and the Future of NATO*, which offers the idea that nations “need to make bold decisions about sensitive issues.” It contends, as do most articles supportive of the initiative, that despite the seeming affront to sovereignty, Smart Defense remains in the Allies’ individual as well as collective interests.³¹

Camille Grand, the Director of the Fondation pour la Recherche Stratégique, neatly outlines the rationale for Smart Defense and “some elements for a successful Smart Defense.”³² While Grand gives sound and sensible policy recommendations, they largely share the same weakness, that is, they offer generalities when specifics are needed. This is a common shortcoming in writings on Smart Defense and NATO. Relating Smart Defense to AGS, Grand refers to AGS as a flagship Smart Defense project without explaining how a program qualifies as such a project, and then criticizes

²⁹ Ibid.

³⁰ Jakob Henius, “Specialization: The Gordian Knot of NATO’s Smart Defense,” *Smart Defense, A Critical Appraisal*, ed. Jakob Henius and Jacopo Leone MacDonald, *Forum Paper Series*, Rome: NATO Defense College, 2012.

³¹ Lisa Aronsson and Molly O’Donnell, *Smart Defense and the Future of NATO: Can the Alliance Meet the Challenges of the Twenty-First Century?* The Chicago Council on Global Affairs, March 2012, 9, http://www.thechicagocouncil.org/userfiles/file/NATO/Conference_Report.pdf.

³² Camille Grand, “Smart Defense,” *Smart Defense and the Future of NATO: Can the Alliance Meet the Challenges of the Twenty-First Century?* The Chicago Council on Global Affairs, March 2012, 47, http://www.thechicagocouncil.org/userfiles/file/NATO/Conference_Report.pdf.

Secretary General Rasmussen for associating “Smart Defense and [the] consolidation of large projects such as AGS or missile defense without explaining the link further.”³³ Such is the elusive nature of Smart Defense: it is easy to generalize about, but nearly impossible to pin down. Essentially, the idea is acquiring, maintaining, and operating capabilities on a multinational basis with a view to generating greater efficiency that might be achievable on a national basis. Indeed, some capabilities might not be achievable if limited to the individual state level.

More recently, Bastian Giegerich has sounded the alarm on the uncoordinated nature of budget cuts among the NATO Allies. In his judgment, budget reductions threaten the ability of NATO Allies to contribute to the Alliance, while the flagship SD programs have been “in the works for a long time, and are thus unlikely to serve as a lasting inspiration for Smart Defense as a whole.” Giegerich has proposed redefining SD as “creating value in defense,” not limited SD cost savings, and perhaps most importantly, the “promotion of transatlantic solidarity and common security in times of austerity.”³⁴

In contrast, Michael Rühle has drawn attention to the shortcomings of SD thus far. He has advanced compelling explanations for why these are unlikely to change, and why European defense budget cutbacks will irritate the United States (but not irrevocably so). In his view, NATO will evolve into “a transatlantic security community with lower ambitions, yet with a continuously solid institutional relationship.”³⁵ Rühle concludes, “While the military-operational or financial benefits of pooling and sharing may remain small, the pursuit of such approaches has meanwhile become a political imperative irrespective of potential military gains.”³⁶ In other words, despite the modesty of SD results from a financial and operational viewpoint, SD efforts may help to sustain the transatlantic Alliance. AGS, for all its shortcomings, fits nicely into this definition of SD.

33 Ibid, 47, 48.

34 Bastian Giegerich’s assessment and quotes from NATO Allied Command Transformation, the University of Bologna, and the Istituto Affari Internazionali’s *Dynamic Change: Rethinking NATO’s Capabilities, Operations and Partnerships*, October 2012, 8, 21, 28.

35 Rühle, “The Future of the Transatlantic Security Relationship,” 1.

36 Ibid, 4.

C. METHODS AND SOURCES

This thesis is a case study on NATO's multi-national acquisition of AGS. The broader field of inquiry is decision-making and bargaining for the acquisition of commonly funded capabilities in an alliance. The analytical approach will be empirical and historical, and the author will rely on qualitative judgments rather than quantitative or statistical methods. As noted in the literature review, this thesis is based on published sources.

There are certain issues that this thesis will not address. While each of these issues could be examined in a separate multi-chapter thesis, this author leaves them to be explored by other researchers in order to focus on the specifics of AGS.

While this thesis focuses on the aerial portion of the AGS program, it does not cover the Canadian-European developed ground portion, which could be critical to the future of AGS in some circumstances.

Other topics to be left for other researchers include the debate over the ethics of manned versus unmanned military aircraft. While this is an important topic from a philosophical point of view, the arguments seemingly desiccate down to technological limitations and value judgments, both of which can be reassessed with innovation and circumstance. This thesis also does not assess in detail the relative advantages of variously proposed technical options for AGS (i.e., types of radar and sensor packages that were ultimately not selected), nor will it address the relative capabilities, advantages, or disadvantages of the U-2 and Global Hawk variants. Another relevant issue related to Smart Defense is the phenomenon of multi-national military acquisitions outside the NATO framework. Though some of these programs have been successful and are mentioned, they present their own separate challenges and will not be fully explored here.

D. THESIS OVERVIEW

The thesis is organized as follows. This chapter sets out the main questions raised in this investigation and the basic logic of the thesis. Chapter II covers AGS background. It begins with an analysis of NATO's AWACS program, the program after which AGS was initially modeled. Following this discussion, the chapter covers AGS history and

current status. Chapter III explores the operational significance of AGS as a shared airborne ground surveillance capability. This chapter defines ground surveillance as a necessary conventional capability that has remained relevant throughout the many evolutions in NATO's strategic direction. NATO's security challenges and level of ambition, and the diverse priorities of the Allies are also discussed. Chapter IV analyzes the institutional significance of AGS. This chapter examines major issues within the Alliance and relates AGS to NATO's Smart Defense initiative. The chapter concludes with informed judgments regarding the impact of AGS on the future of Smart Defense. The concluding chapter summarizes the principal findings.

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II. WHAT IS AGS?

Twenty-one years after NATO resolved to achieve the capability of airborne ground surveillance, AGS has gone from inaction to enactment. Smiling NATO leaders and national politicians present AGS as a worthy success that came from longstanding partnerships and steadfast resolve toward obtaining such a capability. Unsurprisingly, the fanfare at the signing of commitments at the Chicago Summit in 2012 was not reflective of AGS' turbulent history. Today, 15 allies are committed to funding the procurement of five Northrop Grumman Global Hawk aircraft that are a version of the U.S. Air Force Block 40 variant and that also include some European technologies. Twenty-six Allies are committed to AGS common operating and sustainment budgets. As of this writing in March 2014, NATO operators are scheduled to receive the first aircraft in 2016, and full operating capability is projected in 2017.³⁷

This chapter presents a more complete discussion of NATO's Alliance Ground Surveillance (AGS) program than is currently available. Though there have been some recent news articles on the program, a casual observer is limited to outdated or incomplete reports and NATO's own words. While the description of AGS on NATO's website is accurate, it presents an overly optimistic viewpoint and glosses over some of the program's deficiencies and future hurdles. To remedy this, this chapter explores what AGS is, reviews the history of the NE-3A as an emulated predecessor program, and then brings the reader up to speed on the situation today.

A. VARIOUS INTERPRETATIONS

Some of the contentious questions regarding AGS are: Why did it take so long to achieve consensus? Why did some allies commit to the program while others did not? Can national assets be used in lieu of an expensive joint acquisition? Is such a shared capability necessary?

³⁷ Michael C. Sirak, "NATO's New Eyes in the Sky," September 24, 2013, ISN ETH Zurich, <http://www.isn.ethz.ch/Digital-Library/Articles/Detail/?lng=en&id=169484>.

AGS is a bit of an enigma, but oddity is normal in multi-national endeavors. The NATO website uses the expression “AGS participant” to designate procuring Allies, but this obfuscates the story a bit. Because it is an alliance that respects the sovereignty of each member state, all NATO decisions require consensus. In the case of AGS, however, a variety of consensuses were needed. To start, on the political level, all 28 Allies officially support the AGS program.³⁸ Only France and the UK have opted to not contribute to the program’s recurring operational costs, which are not to exceed (approximately) \$107 million annually; 15 of the 28 member states have agreed to contribute to the \$1.7 billion acquisition.

In the last two decades, these agreements were difficult to attain because of “how” the program would be implemented. Though ground surveillance was recognized as a necessary capability that the United States had and that Canada and the European generally lacked, differences of opinion regarding how to remedy this disparity resulted in decades of delays in an otherwise simple acquisition. While all desired AGS, the perception of costs and benefits differed for each Ally. The relative importance of AGS appears to have been based on the projected economic gain and on national views of security threats. Thus, as military budgets shrank and the AGS acquisition evolved, NATO’s roster of full participants shifted. Some allies withdrew to save money, while others joined up to display solidarity. The AGS process has been an exercise in both dedication and uncertainty.

Arguments are still made both for and against the necessity of a jointly acquired ground surveillance capability. As recently as 2010, Ben Friedman of the Cato Institute objected to the \$1.2 billion price tag and argued, “NATO should scrap the AGS

³⁸ Though “support” in this instance may sound impressive, it really only means that no Ally has voiced official opposition (broken silence) to the program. Such an assertion by any Ally would instantly remove the “NATO” from “NATO AGS”. Consensus was reached on AGS despite Iceland and Hungary never wishing to involve themselves in early stages, because their reticent positions were acceptable to the other allies.

program and rely on the aircraft flown by member nations.”³⁹ Perhaps Friedman was correct to raise questions about affordability, because by 2012, cost overruns for the program had ballooned to \$1.7 billion.⁴⁰

U.S. Air Force Maj. Gen. Steve Schmidt, whose NATO Airborne Early Warning and Control Force Command is slated to operate the AGS Global Hawks and currently operates NATO AWACS, disagrees with Friedman’s prescription. He calls AGS “the key to the future,” and is convinced of the need for the capability that AGS is expected to provide.⁴¹ On one hand, NATO has operated adequately, if disjointedly, without such jointly procured and operated capabilities in the past and some observers might find General Schmidt’s judgment excessively grandiloquent. On the other hand, there are fewer reasons to believe that national assets will be able to fulfill NATO’s desire for robust capabilities in the future. As technology evolves and budget priorities shift, some Allies may be unable to continue acquiring and maintaining national military capabilities that are meaningful to the Alliance. AGS may be part of the answer for these Allies.

Programs like AGS ideally aid in keeping all the Allies relevant to the Alliance by giving them a role in NATO’s new operational capabilities. Additionally, these cooperative projects promise to keep the Alliance relevant to the Allies by providing them with access to capabilities that are firmly in their interest. If the latter hypothesis is correct—and this thesis concludes that it is correct—then AGS may indeed be one of the keys to NATO’s future.

B. SCHOLARLY WORKS ON AGS

With few exceptions, the publicly available written works on AGS are noteworthy for their lack of breadth and depth. Nonetheless, research on the program is warranted for several reasons, including 1) an inadequate amount of scholarly work that examines the program holistically and critically, 2) the significance of a success or failure of AGS for

39 Dave Majumdar, “Ground Truth,” *C4ISR—The Journal of Net-Centric Warfare*, July 1, 2010, 16.

40 Kate Brannen, “NATO Signs \$1.7B Global Hawk Contract,” *Defense News*, May 21, 2012, <http://www.defensenews.com/article/20120521/DEFREG02/305210001/NATO-Signs-1-7B-Global-Hawk-Contract>.

41 Majumdar, “Ground Truth.”

the concept of Smart Defense and the unity and operational credibility of the alliance, and 3) recent events surrounding Global/Euro Hawk programs in the United States and Germany.

Aside from the information on NATO's website, the last consolidated scholarly updates on AGS were written in 2004 and 2006. The 2004 version was produced by Pierre A. Chao, the Director of Defense Industrial Initiatives at the Center for Strategic and International Studies (CSIS). He gave a perceptive outline of AGS relevance as a capability and as a reflection of larger NATO strengths and weaknesses and raised issues that hampered (and still hamper) the program. Chao concluded that a successful AGS "enhances the Transatlantic Alliance more broadly." This work was good, but could be expanded and needs to be brought up to date.⁴² In 2006, *Jane's Defence Weekly* published "Airborne Ground Surveillance-Taking the High Road," which gave an update on aerial ground surveillance in general, but delved more into the technical history of the USAF E-8 JSTARS, U-2 Dragonlady, and the United Kingdom's Airborne Stand-Off Radar (ASTOR) radar and sensor capabilities than into NATO's AGS.⁴³ As if inspired by a premonition, this 2006 article articulated the possibility that AGS would shrink to a UAV only project (this would occur in 2008).⁴⁴ The intent of this chapter is to provide a summary background and an analysis of recent events, to bring the reader up to date on the latest in AGS.

C. AGS PRECURSOR: NATO AWACS

When conceiving AGS, NATO planners did not have to start with a blank slate. In 1978, NATO jointly acquired an airborne early warning (AEW) capability that exists today as 17 NE-3A AWACS.⁴⁵ Today, along with British E-3D's, these platforms

⁴² Pierre A. Chao, *NATO AGS-Finally Ready to Fly* (Washington, DC: Center for Strategic and International Studies, 2004), http://csis.org/files/media/csis/pubs/0407_natoags.pdf.

⁴³ "Airborne Ground Surveillance-Taking the High Road," *Jane's Defence Weekly*, February 23, 2006.

⁴⁴ Ibid.

⁴⁵ There were initially 18 NATO AWACS purchased. One of these crashed following an aborted takeoff on July 14, 1996 in Aktion, Greece.

provide NATO its “Eye in the Sky.”⁴⁶ The airplanes’ home station is NATO Air Base Geilenkirchen in northwest Germany. Along with the supporting personnel, these aircraft make up “NATO’s first integrated, multi-national flying unit, providing rapid deployability, airborne surveillance, [and] command, control and communication for NATO operations.”⁴⁷ The AEW program is supplemented with national assets from France and the United States, and uniquely by the UK, which commits its six E-3Ds to NATO to fulfill “25% of the Force’s annual operational output.”⁴⁸ Like AGS, the NATO AWACS was a tough sell for Allied nations that wanted the capability, but not the price tag. National benefits were also contested, with each Ally rightly attempting to maximize domestic benefits from the joint program. In many ways, the motivations, obstacles, and perceived benefits of AGS are reflected in its predecessor AWACS program.

In 1970, NATO defense planners identified a problem. Flying at high speed and low altitudes, the latest generation Soviet fighters could penetrate the NATO Air Defense Ground Environment radar chain and strike before being detected. The rationale for AEW was accepted by European nations prior to this discovery, but the updated Soviet threat led the Allies to pursue a joint AWACS acquisition with significantly more alacrity. Although the United States intended to acquire of its own fleet of E-3s, then the most expensive aircraft in the world, Washington was unwilling to grant exclusive prioritization of their use for European operations. This meant that if U.S. AWACS were needed elsewhere, Europe might be left exposed. The reliance upon U.S. national capabilities for European defense created strategic problems that were not limited to AEW, but unlike the nuclear issue, aerial reconnaissance was not accompanied with political controversy (save its expense), so it was a capability that Allies could jointly pursue. This did not mean that its acquisition was an easy task.⁴⁹

46 “E-3D Component—RAF Waddington, United Kingdom,” NATO AEW&C Programme Management Agency, <http://www.napma.nato.int/organisation/7.html>.

47 “NATO Airborne Early Warning & Control Force E-3A Component,” NATO E-3A Component, <http://www.e3a.nato.int/>.

48 “E-3D Component—RAF Waddington, United Kingdom,” NATO AEW&C Programme Management Agency, <http://www.napma.nato.int/organisation/7.html>.

49 Furlong, “Can NATO afford AWACS?,” 671.

A major stumbling block to joint acquisition of AWACS was the division of national benefits. This was a problem because the E-3 was almost entirely built by Boeing, in America, with American workers. In the true spirit of jointness, however, each participating Ally expected to receive a share of spending inside its country commensurate with its costs. European Allies desired more European industry involvement in the AWACS acquisition, but fiscal and technological constraints made such a move impractical. Because many European Allies did not wish to increase their reliance upon the United States by committing to long-term procurement contracts that bolstered U.S. industry at European expense, the Allies came to an impasse.

The problem was settled in two ways: the first was for the United States to subsidize Allied participation, and the second was for France and the UK to retain more independence by offering national “assets-in-kind.” Because simply sending checks to Seattle was politically and economically unpalatable for European Allies, Washington was forced to sweeten the deal. By offering advantageous trade “offsets” to various Allies, the U.S. subsidized European participants that did not receive economic or industrial benefits commensurate with their contributions.⁵⁰ For some larger partners, the program had more obvious advantages. Germany benefitted economically and defensively by having the E-3s based on its territory, while other Allies—Greece, Italy, Norway, and Turkey—would benefit by hosting the AWACS at permanent forward operating locations.

France and the UK remained unconvinced that a joint NATO acquisition was in their best interest. Britain thought that “delays likely in the NATO programme could not be tolerated,” while France was not then part of NATO’s integrated military command structure; and neither seemed comfortable with an increasing reliance upon the US-dominated alliance.⁵¹ Ironically, by 1990, both had decided to contribute to the European AEW capability through the purchase of national, but nevertheless US-produced, E-3s of their own. Perhaps most importantly, the decision to maintain national assets allowed

⁵⁰ Charles Wolf Jr. et. al., *‘Offsets’ for NATO Procurement of the Airborne Warning and Control System: Opportunities and Implications* (United States Air Force Project) (Santa Monica, CA: Rand, 1976).

⁵¹ Doug Richardson, “Collaborative Weapons. Can they Work?,” *Flight Global*, June 1, 1985, <http://www.flightglobal.com/pdfarchive/view/1985/1985%20-%201736.html>.

France and the United Kingdom the same freedom of action enjoyed by the United States. Despite NATO rules for consensus, independent assets ensured that these three Allies could not veto each other's ability to have airborne early warning.

The NATO requirement for consensus to employ joint assets has the potential to idle desired capabilities, but the NATO AWACS have been kept usefully employed through much of their existence. Through the 1980s, they were used as intended, monitoring the European skies against potential Soviet aggression and thereby contributing to the Alliance's deterrence and defense posture. Through the 1990s AWACS were used extensively, notably in the Balkans. Since 9/11—and noting Operation Eagle Assist in 2001–2002, recent operations over Afghanistan, and Operation Unified Protector in 2011—the NATO AWACS have been comparatively idle. More recent schisms within the Alliance reveal what Camille Grand calls “difficulties involving collective capabilities” that “set a worrying precedent.”⁵² As NATO missions increasingly consist of seemingly optional expeditionary interventions, Allies can expect more difficulties ahead when trying to tap joint assets.

After the 18 E-3A aircraft were delivered to the Alliance in 1982–1985, they formed an important part of NATO's defense posture. Much like AGS, though, the program took a long time to get airborne. Although flying operations began in 1982, NATO would not declare full operational capability until “the end of 1988.”⁵³ Despite its earlier concerns about NATO's slow procurement practices, Britain's national AEW program never came to be, and it was unable to contribute to NATO's AEW program until the early 1990s.

U.S. and NATO AWACS roles began to diverge following the end of the Cold War. From 9 August 1990 NATO and U.S. AWACS jointly monitored the skies over Turkey and Iraq. Two weeks after the war ended (16 March 1991), NATO AWACS

⁵² Grand, “Smart Defense,” 46.

⁵³ “NATO Airborne Early Warning & Control Force, E-3A Component,” Public Affairs Office, www.e3a.nato.int/common/files/en_factsheet_apr2013.pdf.

headed home, while U.S. AWACS would remain on daily patrols for 12 years.⁵⁴ Following Operation Desert Storm, Saddam Hussein used his remaining military assets to brutally punish those portions of his population that had attempted to oust him. In response to these acts, and under the authority of UN Security Council (UNSC) Resolutions 687 and 688, the United States established no-fly zones that evolved into Operation Northern Watch and Operation Southern Watch. These operations were ongoing from 1991 and, with few interruptions, lasted until the subsequent U.S.-led invasion of Iraq in 2003. The operations were very demanding on U.S. LD/HD assets, were in line with NATO's objectives as stated in the 1991 Strategic Concept,⁵⁵ and even legitimized by the UNSC. Nonetheless, NATO AWACS deployments were largely limited to collective defense and non-Article 5 operations in Europe until 2011.

Prior to 2011, almost all significant NATO AWACS deployments were to the Balkans. Exceptions included 36 Libya monitoring missions in 1992 and recurring border defense of Turkey. Within the context of Balkan area missions, there were three major combat and monitoring deployments: Operation Sky Monitor and Operation Deny Flight in 1992-1994, Operations Deadeye and Deliberate Force in 1995, and Operation Allied Force in 1999. Over the course of these operations, the NATO AWACS logged 10,667 sorties.⁵⁶

In 1992 the first tranche of missions took place over Hungary and the Adriatic Sea in support of UNSC-authorized operations in Bosnia; the next major deployments took place from 24 March 1999 until 9 June 1999, when 14 NATO AWACS provided around the clock aerial surveillance of the Federal Republic of Yugoslavia, including Kosovo.⁵⁷ Though these operations were considered successful as far as the use of the NATO AWACS was concerned, political wrangling may have taught the United States lessons

54 NATO Airborne Early Warning & Control Force: E-3A Component, "NATO AWACS: Operations 1990-2012," <http://www.e3a.nato.int/eng/html/organizations/operations.htm>.

55 North Atlantic Council, "The Alliance's New Strategic Concept," November 1991, http://www.nato.int/cps/en/natolive/official_texts_23847.htm. Thematic, but especially paragraphs 11, 12, 41.

56 Ibid.

57 Leigh Armistead and Edwin Leigh Armistead, *AWACS and Hawkeyes: The Complete History of Airborne Early Warning Aircraft* (Minneapolis, MN: Zenith Press, 2002), 180, 181.

about the complications associated with fighting wars while dependent on Allied consensus. In subsequent conflicts, the initial U.S. preference for reliance on national assets may have sidelined joint assets in the name of American pragmatism.

Less than a month after 9/11, the United States requested NATO support in an unexpected way. Instead of requesting that the Allies go to war in Afghanistan together, Washington requested that NATO E-3s be deployed to the United States as part of Operation Eagle Assist, in order to free up U.S. AWACS for non-NATO deployments.⁵⁸ While U.S. AWACS helped initiate Operation Enduring Freedom in Afghanistan and continued to maintain no-fly zones in Iraq, NATO AWACS in Operation Eagle Assist logged over 3,000 hours of flight time over the continental United States in the period from October 2001 to May 2002.⁵⁹ Concurrent with the kickoff of Operation Iraqi Freedom in March 2003, NATO E-3s deployed to Turkey as part of Operation Crescent Guard. Their two month mission (20 February to 16 April 2003) was to augment Turkey's integrated air defense system on missions that were thankfully described as "fairly quiet."⁶⁰ Following a July 2008 request for assistance and delayed by lengthy debates about costs and usefulness, NATO AWACS resumed their combat role on 15 January 2011 under the banner of Operation Afghan Assist.⁶¹ Because the aircraft are based at Mazar-e Sharif, Afghanistan, this operation was the first in which the NATO Allies operated their AEW system from outside NATO territory.⁶²

Soon after NATO assumed this new role in supporting ISAF, discord regarding the conflict in Libya further strained the North Atlantic alliance. During the well documented row between Germany and other Allies, the AWACS program provided

58 U.S. Department of State: Office of the Spokesman, "NATO AWACs Deployed to the United States," October 18, 2001, <http://2001-2009.state.gov/r/pa/prs/ps/2001/5447.htm>.

59 U.S. Department of State, "NATO Coalition Contributes to Global War on Terrorism," October 24, 2002, <http://2001-2009.state.gov/p/eur/rls/fs/14627.htm>.

60 NATO Airborne Early Warning & Control Force: E-3A Component, "NATO AWACS: Operations 1990-2012," <http://www.e3a.nato.int/eng/html/organizations/operations.htm>

61 Axel Springer, "Berlin and Paris Argue on AWACS Deployment to Afghanistan," *Die Welt*, March 24, 2009, http://www.welt.de/welt_print/article3432228/Berlin-und-Paris-streiten-ueber-Awacs-Einsatz-fuer-Afghanistan.html.

62 NATO Airborne Early Warning & Control Force: E-3A Component, "NATO AWACS: Operations 1990–2012," <http://www.e3a.nato.int/eng/html/organizations/operations.htm>

Germany legal and political maneuvering space. Instead of directly participating in (or supporting) Operation Unified Protector—which might well have triggered a potentially embarrassing parliamentary vote for Chancellor Merkel—Germany shifted personnel to the AWACS mission in Afghanistan, which freed up other Allied forces for Libya.⁶³ Though the Alliance managed to work through each of these conflicts acceptably, these more recent examples showcase how political limitations can hinder the effective use of multi-national assets.

D. AEW/AGS COST SHARING

Though not intentional, AEW and AGS contribution levels are similar (see Table 1).⁶⁴

⁶³ “Germany’s Libya Contribution: Merkel Cabinet Approves AWACS for Afghanistan,” *Der Spiegel Online*, March 23, 2011, <http://www.spiegel.de/international/world/germany-s-libya-contribution-merkel-cabinet-approves-awacs-for-afghanistan-a-752709.html>.

⁶⁴ It is important to note that outside the NATO acquisitions, France and the UK maintain national AEW systems, while the United States and Germany pursued expensive national Global/Euro Hawk AGS programs as well.

Table 1. Ally Contributions to NATO AWACS and NATO AGS

Ally	NATO AWACS Contributions 1980 ⁶⁵	NATO AGS Contributions 2013 ⁶⁶
TOTAL	\$1.826B	\$1.7B (€1.343B)⁶⁷
United States	42.12% (\$769M)	37.09% (€502.38)
FRG/Germany	30.72% (\$560M)	29.57% (€400.47)
France	Non-participant	Providing contributions in kind
Canada	9.78% (\$179M)	0
Italy	5.59% (\$102M)	13.08% (€177.23)
Netherlands	3.29% (\$60M)	0
Denmark	1.67% (\$30M)	3.43% (€46.51)
Norway	1.36% (\$25M)	2.95% (€39.91)
UK	1.06% ⁶⁸ (\$19.4M)	Providing contributions in kind
Turkey	0.84% (\$15M)	0
Greece	0.66% (\$12M)	0
Portugal	.08% (\$1.5M)	0
Luxembourg	.09% (\$1.5M)	0.26% (€3.47)
Belgium	0	0
Spain	Not Allied	Expected to contribute 8.8% (€150) ⁶⁹
Poland	Not Allied	Expected to contribute 4.5% (€75) starting in 2014 ⁷⁰
Romania	Not Allied	1.867 (€25.28)
Czech Republic	Not Allied	1.51% (€20.51)
Bulgaria, Estonia, Latvia, Lithuania, Slovakia, Slovenia	Not Allied	2.55% (€34.51)

⁶⁵ Comptroller General of the United States, Report to the Congress of the United States: Equitable Cost Sharing Questioned on NATO's Airborne Early Warning and Control Program," July 1, 1980, United States General Accounting Office, 10. The numbers in this report do not add up to 100 percent due to Belgium's then recent decision to withdraw funding from the AEW acquisition.

⁶⁶ Scott Coon, "NATO Alliance Ground Surveillance (AGS)," June 18, 2013, www.theresearchcorridor.com/sites/default/files/ScottCoon2013.pdf. These are the most up to date numbers available, and they are about 7–8 percent shy of 100 percent. This may reflect uncertainties at the time of publishing regarding Spanish and Polish contributions.

⁶⁷ To reflect the terms at the conclusion of the Alliance's May 2012 Chicago Summit, this amount is based on average 21–27 May 2012 "historical exchange rates," calculated at www.oanda.com/historical-rates.

⁶⁸ The UK later decided against contributing to the acquisition of NATO E-3s in favor of purchasing a national AEW fleet. The BAE-developed Nimrod aircraft was plagued with problems and the UK opted to buy seven Boeing E-3 Sentry aircraft in 1986 instead. These E-3Ds were ostensibly for NATO's use in the joint AEW program, though they could also be utilized for UK national or coalition operations.

⁶⁹ The magnitude of this future contribution and, indeed, Spain's participation may be in question, according to some reports. David Ing, "Rise in AGS Costs Brings Calls for Spain to Quit the Programme," *Jane's Defence Weekly*, August 20, 2012.

⁷⁰ Bartosz Glowacki, "Poland Rejoins NATO AGS Program," *Flight Global*, April 17, 2013, <http://www.flightglobal.com/news/articles/poland-rejoins-nato-ags-programme-384734/>.

E. EVOLUTION OF ALLIANCE PARTICIPATION IN AGS

Beginning in 1992, the NATO Defense Planning Committee formalized the requirement for JSTARS-type air ground surveillance capability.⁷¹ By 1995, the NATO Conference of National Armaments Directors (CNAD) recommended a “NATO-owned and operated core AGS capability, supplemented by interoperable national assets.”⁷² Initially, the United States proposed the US-built JSTARS platform as the ideal platform to fulfill the requirement—the requirement was predicated on JSTARS battle performance after all—but European Allies did not favor this proposal because of inequities in industrial benefits and because the U.S. refused to fully release technical data regarding the sensor technologies. In 1997, the JSTARS proposal was dismissed in favor of an unspecified proposal that would allow for more European benefits.⁷³

From 1998 through 2004, competition took place for the design of AGS. The NATO Transatlantic Advanced Radar Program, which included Belgium, Canada, Denmark, Luxembourg, Norway, and the United States, competed against the Standoff Surveillance Target Acquisition Radar program, which included France, Germany, Italy, the Netherlands, and Spain.⁷⁴ By April 2002, all of the erstwhile efforts coalesced into the Transatlantic Industrial Proposed Solution (TIPS), whose members included EADS, Galileo Avionica, Northrop Grumman, Thales, General Dynamics Canada, and Indra (Spain). TIPS proposed the Airbus 321 manned aircraft along with Global/Euro Hawks.⁷⁵ Soon after, in November 2002, the Prague Summit reinforced NATO’s commitment to AGS, and presented the ideational concept of a full operating capability of 12 A321s by 2010, with consideration for additional UAVs by 2008.⁷⁶ Following the Prague summit,

71 Pierre A. Chao, “NATO AGS—Finally Ready to Fly?,” Center for Strategic and International Studies, July 2004.

72 Ibid.

73 Ibid; Sandra I. Erwin, “NATO Radar-Aircraft Project Gains Broader Political Clout,” *National Defense Magazine*, August 2003, http://www.nationaldefensemagazine.org/archive/2003/August/Pages/NATO_Radar3806.aspx.

74 Chao, “NATO AGS,” 5.

75 “Last Best Chance for NATO Airborne Ground Surveillance,” *International Defense Review*, August 19, 2002.

76 Ibid.

NATO received an unsolicited proposal called the Cooperative Transatlantic AGS System (CTAS) from Raytheon and Alenia Marconi Systems. This proposal suggested using Global Express jet manned platforms and a variety of UAVs for AGS.⁷⁷ The NATO CNAD dismissed the CTAS proposal in favor of the TIPS solution in April 2004.⁷⁸ By 2005, though, the TIPS proposal had shrunk to five or six A321s and 7 RQ-4s although it retained its \$4 billion cost.⁷⁹ The changes in AGS costs and capabilities were beginning to cause doubts within the Alliance about the program in general.

Nevertheless, 13 years after its conception, NATO AGS received its first real funding. In April 2005, NATO officials were “relieved” when 23 Allies agreed to fund a \$29.6 million “project definition study” to “answer key questions regarding interoperability” before moving into the design and development phase.⁸⁰ Hungary, Iceland, and the UK opted out of funding the AGS study. In 2006 the project’s budget had shrunk to \$3.6 billion, and “some sources suggest[ed that] only the UAV element will go forward.”⁸¹

Disagreements between Allies continued at least until June 2007, when *Jane’s* reported that the A321 had been eliminated from AGS consideration. Despite 15 years of agreement on the need for a NATO AGS capability, “Spiraling costs and the inability of partners to agree on a common way forced all previous AGS agreements to be scrapped.”⁸² A year later, NATO revived AGS, but as a much reduced program. By June 2008, Northrop Grumman was the sole prime contractor, and AGS was a completely unmanned program. Instead of five A321s that blended European and U.S. sourced

⁷⁷ Ibid.

⁷⁸ Chao, “NATO AGS,” 5.

⁷⁹ “NATO Commits to AGS, Delays Design Phase,” *Jane’s Defence Weekly*, April 29, 2005.

⁸⁰ Information from *Jane’s* is somewhat contradictory regarding the number of planned A321s in 2005-6. A 2005 report claims 5, while a 2006 report claims 6. While it is possible, it is unlikely that the proposed number of aircraft grew during this period. “NATO Commits to AGS, Delays Design Phase,” *Jane’s Defence Weekly*, April 29, 2005; “Airborne Ground Surveillance-Taking the High Road,” *Jane’s Defence Weekly*, February 23, 2006.

⁸¹ “Airborne Ground Surveillance-Taking the High Road,” *Jane’s Defence Weekly*, February 23, 2006.

⁸² Robert Hewson, “NATO Resurrects a Smaller and Cheaper AGS Programme,” *Jane’s Defence Weekly*, June 6, 2008.

sensors, AGS was then supposed to be a \$1.4 billion, eight RQ-4 Global Hawk program, that was “sourced largely from the United States.”⁸³ Following the acceptance of the Northrop Grumman proposal in 2008, Belgium, France, Greece, Portugal, the Netherlands, and Turkey expressed no interest in contributing to the initial acquisition of AGS. By 2009, AGS consisted of 17 Allies, because Spain and Poland had quit as well.

Though specific information regarding exactly why these countries suspended their involvement is sparse, the most probable cause arises from the loss of expected domestic economic activity associated with the A321 for the first tranche, and the ongoing financial crisis for the second. The decision to base AGS in Italy—instead of proposed sites in Greece, Poland, Portugal, Romania, Slovenia, Spain or Turkey—also had to weigh heavily on the minds of on-the-fence governments in 2009.⁸⁴

Despite the semi-abandonment by half of the Allies, 2009 was a big year for AGS. The signing of a Programme Memorandum of Understanding (PMOU) was a major milestone for the program. Per the NATO website, “the PMOU sets the legal, organisational, and budgetary framework for the AGS programme and launches both the NATO AGS Management Organisation (NAGSMO) and NATO AGS Management Agency (NAGSMA) to take charge of the programme.”⁸⁵ The Northrop Grumman announcement was somewhat more revealing when it declared that the PMOU demonstrated agreement by 13 Allies to “fund the development phase of a program of record with an airborne segment based on the Block 40 RQ-4 Global Hawk high-altitude, long-endurance (HALE) unmanned aircraft system (UAS), which includes the Multi-Platform Radar Technology Insertion Program (MP-RTIP) sensor and supporting ground elements.”⁸⁶

83 Ibid.

84 Joris Janessen Lok, “NATO Mulls over AGS Basing Decision,” *Aviation Week*, November 22, 2007, <http://www.aviationweek.com/blogs.aspx?plckblogid=blog:27ec4a53-dcc8-42d0-bd3a-01329aef79a7&plckpostid=blog:27ec4a53-dcc8-42d0-bd3a-01329aef79a7post:b6755f59-5407-416d-ac3d-2e987bdd1598>; David Ing, “Rise in AGS Costs Brings Calls for Spain to Quit the Programme,” *Jane’s Defence Weekly*, August 20, 2012.

85 “NATO’s Allied Ground Surveillance Programme Signature Finalized,” September 25, 2009, NATO, http://www.nato.int/cps/en/natolive/news_57711.htm.

86 “NATO AGS,” Northrop Grumman Corporation, accessed February 9, 2014, <http://www.northropgrumman.com/Capabilities/NATOAGS/Pages/default.aspx>.

Even with the PMOU, the AGS program continued to shrink. Because of budget cuts in 2009-2011, the AGS Global Hawk acquisition was reduced from eight to six, at an estimated cost of \$1.4 billion.⁸⁷

2012 was a mixed year for AGS. In March, Canada quit AGS and the NATO AWACS program to save \$90 million, a move that some thought would end AGS.⁸⁸ Nevertheless, Romania had joined the program in February, and two months later Spain rejoined as well.⁸⁹ On 20 May 2012, NATO formally signed AGS into existence at the Chicago Summit, committing the 14 remaining allies to a \$1.7 billion acquisition.

NATO remained open to Alliance contributions for AGS, and gained two more partners after the May 2012 signing. Denmark rejoined the AGS program in December 2012, and described its involvement as being generally in line with NATO's Smart Defense concept. Specifically, the Danish Defense Ministry noted that operations in Libya in 2011 had demonstrated the need for better surveillance in precision targeting.⁹⁰ In April 2013, following criticism about its weak participation in the Libya operation, Poland announced that it would rejoin the AGS program in 2014 to improve its status within the Alliance. The Polish Defense Ministry reportedly believes that "Joining AGS will be very significant for increasing Poland's meaning and strengthening its position in NATO structures."⁹¹

⁸⁷ Bradley Peniston, "Budget Cuts Reducing NATO's Planned UAV Purchase," June 22, 2011, <http://www.atlanticcouncil.org/blogs/natosource/budget-cuts-reducing-natos-planned-uav-purchase>.

⁸⁸ David Pugliese, "Canada Pulls out of NATO Airborne Surveillance Programs to save \$90M," *National Post*, March 17, 2012, <http://news.nationalpost.com/2012/03/17/canada-pulls-out-of-nato-airborne-surveillance-programs-to-save-90m/>.

⁸⁹ Ben Iannotta and Tom Withington, "NATO Signs Deal for Radar Equipped Global Hawks," *Defense News*, July 3, 2012, <http://www.defensenews.com/article/20120703/C4ISR01/307030009/NATO-Signs-Deal-Radar-Equipped-Global-Hawks>; Ing, "Rise in AGS Costs."

⁹⁰ Danish Ministry of Defense, "Denmark Rejoins the AGS Project," May 23, 2012, <http://www.fmn.dk/eng/news/Pages/DenmarkrejoinstheAGSproject.aspx>.

⁹¹ Bartosz Glowacki, "Poland Rejoins NATO AGS Programme," April 17, 2013, <http://www.flightglobal.com/news/articles/poland-rejoins-nato-ags-programme-384734/>.

The most recent AGS news is positive. In December 2013, Northrop Grumman began production on the first of five Global Hawks. Following decades of delays in the program, the company highlighted the beginning of “on-time production” for the platform.⁹²

F. REASONS FOR DOUBT

Despite a decade of operations supporting U.S. forces in Afghanistan, Iraq, and around the world, the Global Hawk has recently been the target of some negative press. Opinions about the Global Hawk within the U.S. Air Force took a marked turn for the worse following the release of a revealing 2011 report from the Office of the Secretary of Defense, Operational Test and Evaluation division. While the AGS Global Hawk will be based on the Block 40 variant, the Block 30 predecessor was shown to have major shortcomings. This widely sourced report revealed massive cost overruns, operational deficiencies in the Block 30 system, and a need to quickly resolve Block 30 issues to allow for increased focus on Block 40 matters.⁹³ Since the United States armed services were also faced with austerity measures in the form of normal and “sequester” budget cuts, the under-capable, over-budget Global Hawk became an attractive target for budget-trimmers. Northrop Grumman’s widespread operations—spread over 22 states, and in all 53 of California’s congressional districts—seems to have bought the U.S. Air Force Global Hawks some time, however.⁹⁴ The U.S. Air Force submitted a 2013 budget that would have retired the Block 30 variant of the Global Hawk, but that decision was overturned by members of Congress who are reportedly preoccupied with employment and economic issues in their constituencies.⁹⁵

92 Northrop Grumman, “Northrop Grumman Begins On-Time Production of First NATO Global Hawk,” December 3, 2013, Northrop Grumman Corporation, http://www.globenewswire.com/newsarchive/noc/press/pages/news_releases.html?d=10060279.

93 The Office of the Director: Operational Test and Evaluation, “Air Force: Global Hawk High-Altitude Long Endurance Unmanned Aerial System (RQ-4),” *DOT&E FY2011 Annual Report*, December 2011, 221–225, <http://www.dote.osd.mil/pub/reports/FY2011/>.

94 Geoff Dyer, “Drones Can Count on Friends in High Places,” *Financial Times*, October 10, 2013.

95 *Ibid.*

The Global Hawk program continues to be in trouble. It is on tentative life support in the United States and cancelled in Germany. While there remain powerful advocates of sustaining the program, the budgetary game of “kick the can down the road” cannot go on indefinitely. Eventually, the long dreaded defense cuts will come, and programs previously highlighted for possible elimination generally fare poorly in the ensuing budget contest. AGS supporters should be concerned that the U.S. Air Force’s attempt to end part of its own Global Hawk program due to its higher than anticipated costs and lower than expected mission capable rates may be indicative of future problems for NATO’s AGS program.

Political repercussions from the Euro Hawk scandal could affect Germany’s €483 million contribution as well.⁹⁶ Neither of these factors has overtly affected the NATO acquisition yet, but they signal more uncertainty in AGS’s future. Little news has emerged from Germany regarding the Euro Hawk or AGS since the September 2013 election. The better than expected performance by Chancellor Merkel is likely good news for the programs, but Chris Pocock reported in June 2013 that “Germany intends to offer for AGS whatever alternative platform it decides to employ for the Cassidian integrated signals intelligence system (ISIS) [the German designed sensor suite] that was the payload on the Euro Hawk.”⁹⁷ Whether the new German government will pursue this policy option remains to be seen.

Aside from the issues with the Global Hawk platform itself, there is also a problem with AGS’ robustness. Despite the celebratory face that NATO maintained at the Chicago Summit and maintains today, AGS enthusiasts from the 1990s or early 2000s would likely see the program as a bit of a letdown. Fiscal and political realities have significantly reduced the program’s projected acquisitions while retaining a sizable portion of the expense. The experts and officials working on AGS have watched the program shrink from 12 Airbus 321s and some additional number of unmanned aircraft, to five unmanned aircraft whose sister programs are highlighted for elimination in

⁹⁶ Gotkowska, “The End of the German Euro Hawk Programme.”

⁹⁷ Chris Pocock, “Germany, UK Offer Alternatives to Global Hawk for NATO AGS,” June 14, 2013, AINonline, <http://www.ainonline.com/aviation-news/ain-defense-perspective/2013-06-14/germany-uk-offer-alternatives-global-hawk-nato-ags>.

Germany and the United States Air Force. The price tag has also shrunk—from \$4 billion to \$1.7 billion—but, in view of the significantly smaller acquisition, this amount remains relatively high.

European Allies have long expressed concern about sustaining their own defense industries. The same Allies must be disappointed in an AGS program whose recognizable face is, like the E-3's before it, not produced in Europe. The program will use radar technologies developed in Europe and the United States, but to casual observers, AGS appears to be “Made in America.” If further issues with the Global Hawk platform arise, this factor could fuel the doubts of European leaders who may already question the relevance of AGS for their country or the Alliance.

When discussing the possible consequences of the Canadian departure from AGS and its ramifications for joint NATO programs in the future, NATO E-3 component commander German Air Force General Burkhard Pototzsky (dubiously) comforted his troops by stating, “We all know NATO, nothing will happen overnight...I expect that nobody will lose his job in the near future!”⁹⁸ Given this political and fiscal context, it is hard to imagine that the participating Allies will reverse course and quickly cancel AGS, but the possibility cannot be ruled out.

The reasons to stay the course are many. There is still a need for non-US surveillance capabilities, and save mostly ideational French-UK and German programs, the European NATO Allies have not chosen to pursue the capability outside the NATO Alliance. Also, despite the seeming fickleness in committing to the purchase of surveillance platforms, 26 Allies have long been committed to contributing to AGS ongoing operations and sustainment budgets. Many of these long term expenditures will benefit Belgium, Germany, and Italy, among the European Allies whose personnel and companies will be hired to support the program.

⁹⁸ Richard Longoria, “News: Commander Discusses Past and Future with Component Personnel,” April 6, 2012, Defense Video & Imagery Distribution System, <http://www.dvidshub.net/news/113757/commander-discusses-past-and-future-with-component-personnel#.UlbtKsim4>.

Nevertheless, one wonders how much Allies truly feel that they are likely to benefit from the AGS capability and how much the program has been continued out of loyalty and deference to the United States. A major critique of Smart Defense is that it would force smaller states to accept solutions that are always more efficiently provided by larger states. Some reliance on larger Allies can be justified in the name of efficiency, but if taken too far, this concept could destroy Europe's defense industries in favor of "smartly" acquiring more efficiently manufactured American products. AGS may contribute to perceptions that America is likely to dominate the Smart Defense acquisition process.

G. REASONS FOR HOPE

The main reason to believe that the AGS program will be successful is that it has signed commitments from all 28 members of the Alliance and now exists as a real program. Succinctly put, "All 28 Alliance members will collectively fund the infrastructure, all but France will contribute to the satellite bandwidth costs, and all but Britain and France will provide money for operations and sustainment."⁹⁹ In May 2012, Deputy Secretary General Alexander Vershbow called the signing of the AGS procurement contracts a "powerful message" of solidarity despite austere economic conditions.¹⁰⁰ While most Allies continue to fail in meeting NATO's recommended level of two percent of GDP for defense spending, 15 agreed to fund an expensive acquisition and 26 Allies committed to pay for the long term sustainment of the program.¹⁰¹

Inertia is a powerful force, and NATO AGS is rolling. Failure to continue ultimately would carry costs that are not limited to dollars and euros. While abandoning the program now would very likely result in costly cancellation penalties, there are other factors at play as well. As with any Alliance decision, dissent is much more acceptable during the negotiation phase of a project. Once the project is agreed upon, Allies will feel

99 Michael Sirak, "AGS: A Game Changer for NATO Intelligence and Interoperability," *Air Force Magazine*, September 16, 2013, <http://www.atlanticcouncil.org/blogs/natosource/ags-a-game-changer-for-nato-intelligence-and-interoperability>.

100 "NATO Alliance Ground Surveillance Programme Takes Off in Chicago," May 20, 2012, NATO, http://www.nato.int/cps/en/natolive/news_87544.htm.

101 Sirak, "AGS: A Game Changer for NATO Intelligence and Interoperability."

a certain level of betrayal and resentment toward a nation that reneges on its commitments. This factor may help to dissuade some Allies from withdrawing from the AGS program.

German commitment to the AGS program seemed to be contingent upon the continued support of Chancellor Angela Merkel and the new Defense Minister, Ursula von der Leyen. Her predecessor, Thomas de Mazière, had been the target of criticism over funds wasted on the suspended Euro Hawk program. In cancelling the Euro Hawk, de Mazière's position was clear: "We prefer to pull the plug. That applies to the future as well, when costs get out of control. Better an end with horror than a horror without end," Defence Minister Thomas de Mazière told parliament."¹⁰² Given this environment, further cost increases could be unacceptable for Germany's participation in AGS. Nonetheless, EADS' Integrated Signals Intelligence System remains a significant part of AGS, and the CDU/CSU's strong performance in the September 2013 elections signifies a potentially more positive environment for AGS. While Germany's acquisition of Euro Hawks appears to have been ruled out, Berlin's commitment to NATO AGS seems solid, at least for now.

Recent commitments by Asian states to acquire and base Global Hawks on their territory bode well for AGS. Both Japan and South Korea have begun the acquisition process for Global Hawks to buttress their militaries. Japan is considering purchasing three Global Hawks for maritime patrols,¹⁰³ while South Korea is now committed to purchasing four Global Hawks, most likely to provide near continuous monitoring of its northern border.¹⁰⁴ Additionally, the United States has recently entered into commitments with Japan regarding rotational deployments of Global Hawks at Misawa

¹⁰² "Germany Pulls the Plug on Euro Hawk Drone Project," May 16, 2013, *Euro News*, <http://www.euronews.com/2013/05/16/germany-pulls-the-plug-on-euro-hawk-drone-project/>.

¹⁰³ "Japan to Purchase 3 Global Hawk Systems," August 28, 2013, UAS Vision, <http://www.uasvision.com/2013/08/28/japan-to-purchase-3-global-hawk-systems/>.

¹⁰⁴ Joyce Lee, "South Korean Plans to Buy Four Global Hawk Aircraft from 2017," Reuters, November 3, 2013, <http://www.reuters.com/article/2013/11/04/us-northrop-korea-globalhawk-idUSBRE9A300O20131104>.

Air Base.¹⁰⁵ These will occur during summer months when poor weather precludes operations from the Global Hawk's normal airfields in Guam.

¹⁰⁵ James Hardy, "US to Rotate Global Hawks through Japan," *Jane's Defence Weekly*, October 3, 2013, <http://www.janes.com/article/27959/us-to-rotate-global-hawks-through-japan>.

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III. OPERATIONAL AGS: WHAT WILL AGS DO?

While the general public recoiled from pictures of the “highway of death” in early 1991, military commanders worldwide saw the event differently. NATO commanders realized that the targeting technologies used by the United States to defeat Saddam Hussein’s powerful army were an absolute necessity in future conflicts. Today, waves of mechanized infantry and tanks are not at the forefront of operational consideration, but airborne ground surveillance is still considered to be an extraordinarily worthwhile capability. The Alliance’s AGS has atrophied from its original robust concept due to seemingly self-interested state desires, but it nonetheless remains a relevant and beneficial capability concept. Though the previous two decades have seen shifts in NATO’s strategic thought, the desire for an airborne ground surveillance capability has been sustained.

Today, NATO divides its purposes into three “core tasks.” These are collective defense, crisis management, and cooperative security. AGS advocates claim that the ground surveillance capability will be a boon to each task. Swedish Scholar Pal Jonson suggests that NATO Allies can also be trifurcated (roughly) along these lines into “Collective Defenders,” “Expeditionaries,” and “Russia Firsters.”¹⁰⁶ This perspective helps explain each Ally’s motivation to participate fully or partially in AGS. The divisions also reflect a compromise between the stated ambition of a more proactive NATO and the reality of member states whose prime motives are self-interested and budget-constrained. This chapter explores AGS benefits and challenges at the operational level, examines how the intended functions of AGS have evolved over time in relation to NATO’s Strategic Concepts, and suggests that national prioritizations of NATO’s core tasks help to explain why specific Allies have chosen to be full or partial members of the AGS program.

¹⁰⁶ Pal Jonson, The Debate about Article 5 and its Credibility: What is it All About?, *NATO Defense College Research Paper*, no. 58, May 2010.

A. AGS OPERATIONAL ADVANTAGES

Once operational, the AGS system “will continuously detect and track moving objects throughout observed areas and will provide radar imagery of areas of interest and stationary objects.”¹⁰⁷ This capability is currently held by a number of individual Allies, but interoperability and sharing issues hinder commanders’ decision making processes. With a shared system that is interoperable with evolving NATO technologies, military and political leaders will be able to make quicker and better-informed decisions.

When it comes to long distance ISR, satellites and blimps are the only assets that regularly best the endurance of Global Hawks. Since these platforms are not operationally flexible (and the fact that NATO does not operate them), the Global Hawk represents a major advancement in NATO ISR capabilities. Northrop Grumman also touts the Global Hawk’s impressive 32 hour sortie duration, and “the ability to be deployed 2,000 nautical miles from its main operating base with a resulting on-station time exceeding 24 hours, thus ensuring a ready capability for worldwide operations.”¹⁰⁸

B. AGS OPERATIONAL CHALLENGES

Compared to Afghan and maritime environments, European airspace is particularly crowded, and unmanned aircraft currently require a large “safety bubble” when operating around other aircraft. As unmanned aircraft technologies mature this requirement may someday be overcome, but in the interim, the Global Hawk presents cumbersome logistical challenges. Although the Italian government has approved Global Hawk operations out of Sicily, these challenges helped kill the Euro Hawk. Looking forward, the Allies will have to surmount these challenges to flying through European airspace for peacetime operations.

Though the Global Hawk is advertised as an “all-weather” aircraft, the lack of an anti-ice system restricts operations in icing conditions. Hot weather operations present

¹⁰⁷ “Alliance Ground Surveillance,” NATO, last updated April 15, 2013, http://www.nato.int/cps/en/natolive/topics_48892.htm.

¹⁰⁸ “NATO AGS,” Northrop Grumman Corporation, accessed February 9, 2014, <http://www.northropgrumman.com/Capabilities/NATOAGS/Pages/default.aspx>.

special challenges as well.¹⁰⁹ Though this thesis does not presume to forecast where the AGS system will be used, one can assume that NATO will not rule out operations in very hot and very cold locations.

The Global Hawk is basically defenseless. While a 60,000 foot operational altitude exceeds the range of many weapons, technologies developed decades ago reveal the vulnerability of high flying aircraft. Soviet strikes on U-2 aircraft in 1960 and 1962 are cases in point. Today, the Global Hawk operates with impunity in uncontested environments. Lieutenant General Robert Otto, the Air Force Deputy Chief of Staff for ISR, has categorized Global Hawks as “permissive ISR” assets.¹¹⁰ At the same time that the U.S. Air Force is contemplating dismantling some of its Global Hawk, Predator/Reaper UAVs, and MC-12 fleets—all extensively used in uncontested Afghanistan-type conflicts—it is actively pursuing a more survivable fleet. General Otto continues: “As we decrease the amount of our forces fighting in these permissive environments, we have to take a look at our ISR assets and ask if they are the appropriate mix to fight in future environments.”¹¹¹

The risks associated with using a Global Hawk in a threatening environment may marginalize the utility of NATO’s projected AGS. Global Hawk’s vulnerability to conventional anti-aircraft threats makes it a less than ideal collection platform for higher risk missions. It is therefore probable that Global Hawks will only be used in operations that are militarily safe in order to avoid the political and financial challenges of replacing downed aircraft. Even Northrop Grumman, by omission, alludes to this limitation by lauding the Global Hawk’s ability to operate alone in “peacetime and early crisis.”¹¹² One might imagine that an “early crisis” could become a full-fledged crisis if one of

109 The Office of the Director: Operational Test and Evaluation, “Air Force: Global Hawk High-Altitude Long Endurance Unmanned Aerial System (RQ-4),” *DOT&E FY2011 Annual Report*, December 2011, 221–225, <http://www.dote.osd.mil/pub/reports/FY2011/>.

110 Kris Osborn, “General: Air Force Must Rebalance ISR for ‘Contested Environments,’” September 17, 2013, Defense Tech, <http://defensetech.org/2013/09/17/general-air-force-must-rebalance-isr-for-contested-environments/>.

111 Ibid.

112 “NATO AGS,” Northrop Grumman Corporation, accessed February 9, 2014, <http://www.northropgrumman.com/Capabilities/NATOAGS/Pages/default.aspx>.

NATO's costly surveillance drones got shot down. Not only would the loss of an aircraft be expensive; the loss of one platform would mean the destruction of 20 percent of the capability. Given the difficulty of purchasing the initial five aircraft, it seems unlikely that the Allies would agree to additional purchases.

Global Hawks can be used in contested areas, but depending on the threats, the need for supporting assets could be significant. The conduct of operations to suppress enemy air defenses or to defend Global Hawks with fighter escorts would nullify major advantages of long endurance surveillance platforms. In some circumstances, defending Global Hawks would place a huge demand on other assets. Dozens of other aircraft might be required to support one 24-hour patrol.

C. IN-KIND CONTRIBUTIONS (FRANCE AND THE UK)

According to a 2009 agreement, AGS will be augmented by national "in-kind" contributions from Britain and France. Developments in this regard are chronicled in *Defense Industry Daily's* "Après Harfang: France's Next High End UAV."¹¹³ Though the Anglo-French alliance initially outlined robust plans to develop a system jointly, political and technological realities have seemingly ended the venture. Per the UK-France Summit 2010 Declaration on Defense and Co-operation:

Unmanned Air Systems have become essential to our armed forces. We have agreed to work together on the next generation of Medium Altitude Long Endurance Unmanned Air Surveillance Systems. Co-operation will enable the potential sharing of development, support and training costs, and ensure that our forces can work together. We will launch a jointly funded, competitive assessment phase in 2011, with a view to new equipment delivery between 2015 and 2020.¹¹⁴

Despite having made such announcements regarding Anglo-French cooperation, these Allies appear to have retreated from the idea of a joint UAV contribution for AGS.

113 "Après Harfang: France's Next High End UAV," *Defense Industry Daily*, November 21, 2013, <http://www.defenseindustrydaily.com/apres-harfang-frances-next-high-end-uav-06451/>.

114 "UK-France Summit 2010 Declaration on Defence and Security Co-operation," Prime Minister's Office, November 2, 2010, <https://www.gov.uk/government/news/uk-france-summit-2010-declaration-on-defence-and-security-co-operation>.

Britain seems to prefer developing its own smaller WK450B Watchkeeper drone while maintaining its Raytheon Systems Sentinel R1 battlefield reconnaissance aircraft. The French have thus far not fully committed to any system.

Assuming no progress on joint UAV production by Britain and France, Britain will likely use its five Sentinel aircraft, while France's contribution remains undetermined. The assumption regarding the British position comes from Air Chief Marshal Sir Stephen Dalton, Chief of the Air Staff, Royal Air Force, who suggested that the soon to be retired fleet of Sentinel aircraft "could be retained through the next Strategic Defence and Security Review, planned to conclude during 2015. One possible role would be in providing a manned adjunct to NATO's future Alliance Ground Surveillance fleet."¹¹⁵ Such a move would be understandable given the perceived success of Sentinel operations in Afghanistan, Libya, and Mali.

The French have yet to commit to a platform, but they have made moves to acquire UAV capabilities of their own. Following what seems to be an abandonment of the British-French initiative, France has worked with Germany, Israel, Italy, and Spain, out of a desire for a non-U.S. platform. Nevertheless, France has most recently committed to purchasing 12 to 16 U.S. built Medium Altitude Long Endurance MQ-9 Reapers.¹¹⁶ Whether these will be used as France's in-kind contribution is unknown.

Given its advantages and despite its challenges, AGS will provide NATO with valuable capabilities. It is, however, a new scope on an aging rifle. While it signals progress, AGS is only a piece of a still incomplete capability puzzle. Though the system is impressive, few adversaries will be deterred by what are essentially high-flying cameras. Only by sustaining "pointy end of the spear" capabilities will NATO remain a credible threat. AGS can assist greatly in decision-making, but the decision-makers are limited by a shrinking and aging pool of national and collective military assets. At best, and with further commitments to additional capabilities by the Allies, AGS will be a

115 Craig Hoyle "RAF Chief Hints at Sentinel AGS Role Post-Afghanistan," *Flight Global*, June 11, 2013, <http://www.flightglobal.com/news/articles/raf-chief-hints-at-sentinel-ags-role-post-afghanistan-386937/>.

116 Nicholas de Larrinaga, "France Conducts its First MQ-9 Reaper Flight," *Jane's Defence Weekly*, September 25, 2013, <http://www.janes.com/article/27464/france-conducts-its-first-mq-9-reaper-flight>.

force multiplier that makes NATO operations more successful in many ways. At worst, AGS cameras might bring NATO's weaknesses even more in focus.

D. EVOLUTION OF GROUND SURVEILLANCE PER NATO'S STRATEGIC CONCEPTS

Post-Cold War, as threats and priorities shifted in the Alliance, NATO codified the new positions in three separate Strategic Concepts. Issued in 1991, 1999, and 2010, these documents worked less as bold new initiatives for Allies to mull over and more as reflections of realities already at play. The need for ground surveillance was recognized during a transformational time for NATO. Though the disintegration of the Soviet Union was accompanied with a corresponding reduction in the Alliance's need for conventional and nuclear forces, the need for robust conventional capabilities remained, and is still emphasized today. Events since 1990 have reinforced this reality.

1. 1991 Strategic Concept

With the dissolution of the Warsaw Pact, the implosion of the Soviet Union, and the reunification of Germany, the status quo was not an option for NATO. To sustain the Atlantic Alliance, the Allies reaffirmed in the 1991 Strategic Concept that "The Alliance is purely defensive in purpose...The role of the Alliance's military forces is to assure the territorial integrity and political independence of its member states, and thus contribute to peace and stability in Europe."¹¹⁷ Despite this defensive commitment, a decade-long conflict in the former Yugoslavia would soon challenge the purely "defensive in purpose" principle. Additionally, the 1991 Strategic Concept, while retaining a significant focus on Europe, acknowledged that a non-bipolar world could present the Allies with more varied, if smaller, security challenges.

Though the Allies employed hopeful words for cooperation and dialogue, they also resolved to maintain conventional military capabilities. The North Atlantic Council declared that "The means by which the Alliance pursues its security policy to preserve the peace will continue to include the maintenance of a military capability sufficient to

¹¹⁷ North Atlantic Council, "The Alliance's New Strategic Concept," November 7-8, 1991, par. 36, http://www.nato.int/cps/en/natolive/official_texts_23847.htm.

prevent war and to provide for effective defence.”¹¹⁸ As part of that effort, NATO’s Defense Planning Committee determined in 1992 that ground surveillance was a critical capability deficiency, and soon after resolved to get what would later be known as AGS.

Though AGS would not have been the solution to the Balkan conflicts, the troubled breakup of Yugoslavia revealed NATO’s need for improved traditional military capabilities. After largely failing to contain Balkan atrocities through 1995—a failure that can be credited to insufficient European military forces, commitment, and coordination, coupled with American reticence—NATO faced an existential problem. What good was NATO in the 1990s if it could not prevent wartime atrocities in Europe? Failing to take action on fundamental NATO ideals—the “common values of democracy, human rights and the rule of law...for the establishment of a just and lasting peaceful order in Europe”¹¹⁹—could lead to an ipso facto destruction of a four decade long Atlantic partnership.

In order to maintain its legitimacy as a relevant force in international politics, NATO began to more firmly embrace its role in crisis management and peace operations—also known as crisis response operations and non-Article 5 operations. Such changes required more than robust organizational charts and increased diplomatic bureaucracy. While the mechanisms in Brussels were influential, NATO continued to recognize conventional force requirements.

2. 1999 Strategic Concept

By 1999, NATO recognized its growing sphere of responsibility and how its missions had evolved. The Allies explicitly stated, “The Alliance therefore not only ensures the defence of its members but contributes to peace and stability in this region.”¹²⁰ NATO actions in the Balkans had by 1999 expanded in an effort to stem conflict that had recently required significant NATO force in Kosovo. Acknowledging

118 “The Alliance’s New Strategic Concept,” 1991, par. 19.

119 Strategic Concept, 1991, par. 15.

120 North Atlantic Council, “The Alliance’s Strategic Concept,” April 24, 1999, par. 6. http://www.nato.int/cps/en/natolive/official_texts_27433.htm?selectedLocale=en.

that instability near NATO was dangerous to Allies, the 1999 Strategic Concept referred to NATO's "commitment, exemplified in the Balkans, to conflict prevention and crisis management, including through peace support operations: all reflect its determination to shape its security environment and enhance the peace and stability of the Euro-Atlantic area."¹²¹

In September 2001, for the first time in its history, NATO invoked its Article 5 commitment, and did so in response to a terrorist attack against the United States. Even more importantly, as Steven Erlanger of *The New York Times* noted, years of indecision changed overnight into an acceptance that NATO could need to act globally (though many European governments had caveats regarding this change).¹²² This was reflected in changed policies that would be formalized in the 2010 Strategic Concept. In the interim, NATO also remained focused on its "cooperative security" agenda, including partnership programs and Alliance enlargement, as well as conducting its largest and most demanding crisis response operation in Afghanistan.

Between the 1999 Strategic Concept and its successor in 2010, NATO's focus became somewhat fragmented. Without too much attention to nuance, these concerns divide the Allies in roughly three ways. Former Warsaw Pact countries, unwilling to return to Russian buffer state status, have focused on collective defense, including conventional and nuclear deterrence and defense capabilities. Allies blessed with better strategic geography are generally more concerned with improving ties with Russia and pursuing non-Russian cooperative security issues. Still others are concerned primarily with crisis management contingencies within and beyond Europe.

3. 2010 Strategic Concept

At the 2010 Lisbon Summit, NATO published a new strategic concept that codified the Alliance's three "core tasks." These tasks are cooperative security, crisis

¹²¹ North Atlantic Council, "The Alliance's Strategic Concept," April 24, 1999, par. 12. http://www.nato.int/cps/en/natolive/official_texts_27433.htm?selectedLocale=en.

¹²² Steven Erlanger, "So Far, Europe Breathes Easier Over Free Hand Given the U.S.," *The New York Times*, September 29, 2001. <http://www.nytimes.com/2001/09/29/world/nation-challenged-alliance-so-far-europe-breathes-easier-over-free-hand-given-us.html>.

management, and collective defense. Unsurprisingly, NATO makes the sweeping but entirely plausible claim that AGS supports all of these tasks: “AGS will contribute to these three core tasks through using its Swath & Spot Synthetic Aperture Radar (SAR) and its Ground Moving Target Indicator capabilities to collect information that will provide political and military decision makers with a comprehensive picture of the situation on the ground.”¹²³ Nonetheless, this claim is mere political costuming. AGS has been dressed up before with current political buzzwords, but NATO’s need for airborne ground surveillance existed before Secretary General Rasmussen’s Smart Defense and the declarations in Lisbon and Chicago.

E. PRIORITIZATION OF NATO’S THREE CORE TASKS

As with any alliance, the NATO Allies have a variety of rationales for their membership. These rationales are generalized in the three core tasks, but prioritized differently among the Allies. More secure Allies tend to focus on NATO’s expeditionary crisis management operations. Less secure Allies tend to focus more on homeland defense and NATO’s collective defense mission. Still others tend to focus on cultivating “cooperative security” relationships with non-NATO states (especially Russia).

For some Allies, the missions in Libya and Afghanistan, along with worrying instability in Mali and other parts of Africa, reveal a need and provide impetus for modernized capabilities. To keep these Allies engaged, the Alliance needs to maintain the ability to affect positive outcomes in these conflicts. AGS is a part of the maintenance of this capability. James M. Goldgeier, Dean of the School of International Service at American University, points out that the “expeditionary” interest in NATO centers more and more on what NATO can do to contain conflicts worldwide. This is in contrast to what some Allies view as an outdated notion of simply stabilizing and defending Allies Europe. In his view, “Acting as an expeditionary alliance is not secondary to Article V; in certain cases today, it is the essence of Article V.”¹²⁴

¹²³ “Alliance Ground Surveillance.”

¹²⁴ James M. Goldgeier, “The Future of NATO,” Council Special Report, No. 51, February 2010, 7, www.cfr.org/content/publications/attachments/NATO_CSR51.pdf.

The fact that many observers in Central and Eastern Europe would take issue with Goldgeier's view illustrates the tension within the Alliance about the proper balance among its three core tasks. Accordingly, the sustainment of traditional collective defense capabilities is the main concern for Allies in Central and Eastern Europe. Some scholars note that these Allies have made strides to improve the conventional force structure of Europe by participating in a variety of joint programs that demonstrate a commitment to Smart Defense. Marcin Zaborowski and Attila Demkó of the Central European Policy Institute conclude that, despite fiscal challenges, "The Central European countries have been among the strongest supporters of closer co-operation; they had been buying new weapons systems jointly with other allies even before the launch of smart defence." Two major successes include the "Strategic Airlift Capability" and the AGS program. For the Strategic Airlift Capability program, the Central and Eastern European states of Bulgaria, Estonia, Hungary, Lithuania, Poland, Romania and Slovenia partnered with the Netherlands, Norway, and the U.S. (and Partnership for Peace nations Finland and Sweden) to buy three C-17 transport aircraft. For AGS Bulgaria, the Czech Republic, Estonia, Latvia, Lithuania, Poland, Romania, Slovakia and Slovenia are full participants.¹²⁵

Finally, some Allies' preeminent goal is improving relations with non-NATO states. This primarily involves working with Russia. This presents a special challenge due to the general European reliance upon Russia for energy resources, and the nearly complete reliance of some Central and Eastern European NATO Allies on Russia in this regard.

Since the end of the Cold War, NATO has evolved from a force that defends the home front to a force that also acts in support of international security far from home. Because NATO AGS fits into both of these roles, it is accepted by all Allies, but national interests divide the Alliance into "full contributors" and "partial contributors" to this surveillance capability.

¹²⁵ Marcin Zaborowski and Attila Demkó, "Smart Defense: Central European Contribution," Central European Policy Institute, February 5, 2013, <http://www.cepolicy.org/publications/smart-defence-central-european-contribution>.

F. PARTIAL VERSUS FULL CONTRIBUTORS

In his 2010 paper about NATO's Article 5 credibility, Pal Jonson divides the NATO Allies into three categories: Collective Defenders, Expeditionaries, and Russia Firsters.¹²⁶ These are remarkably similar to NATO's core tasks as presented in the 2010 Strategic Concept: Collective Defense, Crisis Management, and Cooperative Security. In general, and with some considerable overlap, the Collective Defense Allies have tended to support AGS more fully, while the Cooperative Security Allies have supported it least.

Jonson identifies which Allies are in each category.¹²⁷ While every Ally is committed to the three core tasks, each prioritizes them according to its perceived security situation. Jonson identifies Estonia, Latvia, Lithuania, Norway, and Poland, as Collective Defenders while acknowledging that the Czech Republic, Greece, Iceland, Slovakia, and Turkey are also generally supportive of this position. These Allies express the most concern over territorial defense and focus more on the core task of Collective Defense. Jonson's Expeditionaries are Canada, Denmark, the Netherlands, the United Kingdom, and the United States. For these states, conflicts outside or on the periphery of NATO borders get the most attention. Logically, they prioritize the pursuit of crisis management capabilities. Lastly, Jonson's Russia Firsters include Belgium, France, Germany, Italy, Portugal, and Spain. These Allies contrast somewhat with the Collective Defenders in how they perceive Russian capabilities and intentions. Whereas Collective Defenders wish to show NATO strength in relation to the ex-Soviet Bear, Russia Firsters wish to establish better ties.

When one compares these impressionistic lists against the AGS roster, Collective Defenders seem to stand out as most supportive of AGS. Among AGS participants, there are really two types: full participants and partial participants. The difference is essentially that full participants will cover the purchase and contribute to paying the ongoing costs, while partial participants will only contribute to paying the ongoing costs.

¹²⁶ Jonson, "The Debate about Article 5 and its Credibility."

¹²⁷ Ibid.

Full participants include Allies from all three of Jonson's categories. Collective Defenders include Bulgaria, the Czech Republic, Estonia, Latvia, Lithuania, Norway, Poland, Romania, Slovakia, and Slovenia. Expeditionaries are Denmark, Luxembourg, and the United States, while Russia Firsters Italy and Spain are full participants as well.

Partial AGS participants span the categories as well, but with more representation among non-Collective Defenders. Expeditionaries are Canada, the Netherlands, and the United Kingdom; and Russia Firsters are Belgium, France, and Portugal. Finally, Collective Defenders include Iceland, Greece, and Turkey as outliers in the partial participant list, but these "mismatches" have good reasons for their national positions.

All Allies supported AGS initially, but when the domestic benefits shrank, the general trend was the abandonment of full AGS support by non-Collective Defenders. There are many exceptions to this generalization, and each Ally has reasons for its national position. Iceland does not maintain a military establishment and had long been exempted from the expectation of full participation. Greece's fiscal difficulties are bleak, and Athens is understandably unwilling to make additional spending commitments. As reported in the news recently, Turkey has seemingly been disappointed in NATO and is even considering non-NATO suppliers such as China for its defense needs. As for the outliers Italy and Spain, Italy expects to benefit economically from the basing of AGS in Sicily, while Spain wishes to bolster its position in the Alliance by demonstrating its ability to pay and play.

IV. AGS INSTITUTIONAL SIGNIFICANCE IN THE ERA OF SMART DEFENSE

Robert Komer wrote in 1977 that “NATO is a classic alliance of 15 independent allies—all largely going their own ways...national, rather than NATO forces are the order of the day.”¹²⁸ Today, NATO is an alliance of 28 independent allies, but Komer’s insight has otherwise stood the test of time.

A. NATO IN CRISIS

There are many reasons to agree with and to reject the statement above. On one hand, politicians and other NATO advocates can point to the Allies’ repeated assertions of solidarity and continued dedication to mutual defense. On the other hand, American officials have stated that the United States will not endlessly subsidize the defense of a continent that should be able to contribute much more to the Alliance’s deterrence and defense posture than it has in recent years. At the same time, there is growing worry in Europe that the United States will abandon it. While the Allies still depend upon each other, evolving threats are shifting American attention elsewhere. Despite the ongoing threat of conflict in the Balkans and potential conflicts with Russia, U.S. military operations since 2001 have been conducted mainly in the greater Middle East. Moreover, in January 2012, the U.S. DoD’s strategic guidance confirmed a change in U.S. force posturing in what is widely known as the “pivot” to the Asia-Pacific region. This guidance states in unusually specific terms that, “while the U.S. military will continue to contribute to security globally, *we will of necessity rebalance toward the Asia-Pacific region.*”¹²⁹ NATO European Allies have contributed to U.S.-led coalitions as well as NATO-led operations in the past, and have even committed to new NATO roles outside Europe. Still, reductions in military capabilities are marginalizing European relevance in

¹²⁸ Robert W. Komer, “Ten Suggestions for Rationalizing NATO,” *Survival: Global Politics and Strategy* 19, no.2 (1977): 67.

¹²⁹ U.S. Department of Defense, “Sustaining U.S. Global Leadership: Priorities for 21st Century Defense,” January 2012, 2, http://www.defense.gov/news/defense_strategic_guidance.pdf. Italics in the original.

future conflicts. Not wanting to go it alone, the United States has reason to seek out more committed friends in regions where there is more common purpose.

Commitment is one thing; capabilities are another. In NATO's case, contributions to the Alliance can come in many forms, but goodwill and yesterday's exertions seem not to offset today's rapidly vanishing military capabilities. As shrinking military budgets and capabilities become the norm, Canada and the European Allies need to give the United States a reason to remain committed to NATO. While U.S. attention is shifting away from NATO, shortcomings in national and European Union (EU) defense capabilities tie Europe to a NATO that is seemingly more and more reliant upon U.S. contributions. Claudia Major, Christian Mölling, and Tomas Valasek, experts in Smart Defense, state that, "Ideally, NATO's European allies should be increasing or at least maintaining military strength to respond to U.S. retrenchment. Instead, they are cutting furiously to cope with the economic crisis."¹³⁰ Attempting to sustain multi-national efforts, initiatives like NATO's Smart Defense (SD) and the EU's Pooling and Sharing (P&S) beseech partner states to spend more efficiently together in order to remain as relevant as possible in times of austerity. So far, these programs have shown very little ability to achieve their goals.

While SD and P&S advocates laud AGS as a successful example, "most new collaborative projects are far more trifling and cover areas such as military education and human resources."¹³¹ While it is difficult to argue against successful money saving SD programs, their impact has thus far been insufficient. Michael Rühle argues that planned SD projects "could potentially save European nations a few hundred million euros, yet the budget cuts since the beginning of the financial crisis in 2008 amount to more than 30 billion euros."¹³² Professor David Yost warns that the growing imbalance between U.S. and Allied capabilities "could become politically debilitating" for the Alliance as it could

130 Claudia Major, Christian Mölling, and Tomas Valasek, "Smart, but Too Cautious: How NATO Can Improve Its Fight against Austerity," May 21, 2012, Centre for European Reform, http://www.cer.org.uk/sites/default/files/publications/attachments/pdf/2012/pb_nato_21may12_2-5150.pdf.

131 Ibid.

132 Rühle, "The Future of the Transatlantic Security Relationship."

breed resentment in Europe and disdain in the United States.¹³³ French SD expert Camille Grand states the problem more pointedly, if less diplomatically: “European countries are continuing to be free riders, instead of working seriously to see how to act together.”¹³⁴

The lack of seriousness is possible because Allies are complacent and feel relatively secure, but this feeling of security comes cheaply for Europeans, and expensively for Americans. Perhaps these sharing programs should be recast not as efficiency measures, but as the cost of sustaining the Alliance, which is the mechanism providing the current sense of security. NATO Defence College intern Giulia Roccia states in her paper that NATO cannot radically shift the self-interested behaviors of Allies, but that it can encourage better coordination to show why cooperation is in an Ally’s long term interest, even when short term interests dictate otherwise.¹³⁵ Her argument is only partially correct. NATO could do a better job of advocating multi-lateral efforts, but better management of shrinking capabilities is insufficient. Champions of the Alliance must do a better job of showing its member states that SD programs keep bigger Allies (especially Britain, France, Germany, and the United States) interested in the Alliance and that cooperation sustains the relevance of smaller Allies. AGS is a small but noteworthy part of the solutions required to address this seemingly insurmountable NATO problem.

This chapter discusses efforts to bolster European participation in NATO in the forms of P&S and SD, reviews potential AGS outcomes, and demonstrates that current SD outcomes are grossly inadequate. The chapter nonetheless suggests that AGS might point toward an evolution in SD—perhaps it could be called “pragmatic defense”?—that could bring efficiencies and savings, but also recognize the value of less than ideal bargains in sustaining relationships.

133 David S. Yost, *NATO’s Balancing Act* (Washington DC: United States Institute of Peace Press, forthcoming in 2014), 111.

134 Steve Erlanger, “Shrinking Europe Military Spending Stirs Concern,” *The New York Times*, April 22, 2013, http://www.nytimes.com/2013/04/23/world/europe/europes-shrinking-military-spending-under-scrutiny.html?pagewanted=all&_r=0.

135 Giulia Amparo Bruni Roccia, “Making NATO’s Smart Defense Initiative Work,” *E-international Relations*, March 25, 2013, <http://www.e-ir.info/2013/03/25/making-natos-smart-defence-initiative-work/>.

B. PARALLEL EFFORTS: SMART DEFENSE AND POOLING AND SHARING

1. Pooling and Sharing

As relevant military capabilities evolve, some NATO Allies are having a hard time keeping up. Since capabilities are the metric against which militaries are ultimately measured, many experts and officials worry about how they are shrinking for all NATO Allies. In Europe, this is a continuation of policies and budget choices that began with the fall of the Berlin Wall in 1989. For the North American Allies, the change is more nuanced, but recent budgetary pressures are forcing cuts as well. To lessen the impact of smaller budgets, states have notionally embraced the idea of partnering with allies to maximize (or at least increase) the efficiency of their defense spending. While these programs have had varying levels of success, multilateral actions undertaken with the United States seem to work better than multilateral efforts that exclude the United States.

Stephen Hadley, former National Security Advisor to President George W. Bush, has stated that, although European officials sound upbeat when discussing the transatlantic relationship, they fail to acknowledge the shortcomings. In his view, “Europe has become so enamored with soft power that it has stopped investing in hard power...[I]n terms of hard security, it makes Europe a free rider.”¹³⁶ Since the end of the Cold War, some European elites have embraced the idea that the European Union could effectively employ soft power. In this, the EU has been generally successful. Alongside this effort—and perhaps, in part, because of this focus—attempts to organize hard power without the United States and within an EU context have largely fallen short of their original targets. Efforts to remain a meaningful partner of the United States by strengthening the European portion of NATO have also failed to gain the initially desired robustness due to declining domestic will along with shrinking national defense budgets.

Numerous efforts—such as the EU Battlegroups, the French-German brigade, and the entirety of the Common Security and Defense Policy (CSDP)—have achieved some of what they set out to accomplish, but these oft-celebrated institutions have yielded little

¹³⁶ Judy Dempsey, “U.S. Sees Europe as Not Pulling its Weight,” February 6, 2012, *The New York Times*, <http://www.nytimes.com/2012/02/07/world/europe/07iht-letter07.html?pagewanted=all>.

in terms of actual combat capability. Tomas Valasek, Permanent Representative of the Slovak Republic to NATO, notes that these programs started out with high expectations and enthusiasm, but their anemic outcomes have “given military cooperation a bad name.”¹³⁷ Reflecting the problem of focusing on discussion over action in the EU’s “pooling and sharing” initiative, Christian Mölling states that “the initiatives launched to date have not been particularly successful,” and that “Europe is running the risk of talking to death another sensible option for maintaining its defence capability.”¹³⁸

Though played down by those in charge, failures to attain significant outcomes in joint EU activities can be equated with wasting opportunities to retain power and influence. This can be seen, however, as perfectly rational from a state perspective. Retaining absolute (though shrinking) state authority today instead of trading it for the promise of a portion of an (also shrinking, but more relevant) EU authority tomorrow makes perfect sense to many national leaders.

Jolyon Howorth has suggested that EU elites are divided between those who accept that “nation-states are no longer the only actors in the international system” and those who “have a vested interest in pretending that the rules of the game remain the same.” For Howorth, the formation of a strategic EU context is not just pragmatic, it is essential for the European Union’s relevance in the world of tomorrow. As Howorth has observed, “The EU’s assets will all have declined, at least relatively, against her main competitors... [so] the refusal to make collective EU choices in the world of 2025 will be tantamount to an abdication of sovereignty.”¹³⁹ Mölling refers to the retention of state authorities throughout Europe—even for Britain and France—as a “false kind of sovereignty.” In his view, “No European country is strong enough anymore to go it alone.”¹⁴⁰ Nevertheless, the CSDP’s ambitious call for transitioning to joint capability

137 Steven Erlanger, “Shrinking Europe Military Spending Stirs Concern.”

138 Christian Mölling, *Pooling and Sharing in the EU and NATO*, Stiftung Wissenschaft und Politik: German Institute for International and Security Affairs, June 18, 2012, http://www.swp-berlin.org/en/publications/swp-comments-en/swp-aktuelle-details/article/europes_defence_pooling_sharing.html.

139 Jolyon Howorth, *Defense and Security Policy in the European Union* (New York: Palgrave MacMillan, 2007), 21-2.

140 Judy Dempsey, “U.S. Sees Europe.”

acquisitions has been criticized by some observers as more paperwork than practice, and the challenge of further transitioning European sovereignty from the state to actual EU authorities remains.

There are currently several functioning P&S programs, and the European Defense Agency (EDA) has identified many other areas for development. The EDA's P&S factsheet lists those programs already enacted or identified as necessary: Helicopter Training, Maritime Surveillance, Pilot Training, Smart Munitions, Transportation Hubs, Naval Logistics and Training, Space and Intelligence, Surveillance, and Reconnaissance (ISR) capabilities, and Field Hospitals.¹⁴¹ Many of these stated goals were an outcome of deficiencies identified in the Libya operation. Hoping to improve European preparedness in future conflicts, European defense leaders are trying to master these issues quickly. In theory, P&S initiatives are identified and promoted by EDA steering committees. It is hoped that this method will maximize efficiencies by streamlining the process.

Though P&S has thus far pursued less ambitious programs than NATO AGS, it has its own distinct strengths and shortcomings. Though more limited due to the exclusion of the United States and Canada (and more importantly, the U.S. and Canadian defense budgets), P&S enjoys the advantage of more limited goals and legitimacy derived from being a European program that benefits Europeans. Sub-regional groupings like the Central European, Nordic, Baltic, Benelux, and Visegrad states, along with the France/UK alliance have been successful at promoting cooperation that could not be effected through the more cumbersome EU or NATO frameworks. As the EU further establishes its CSDP through the EDA, changing P&S from exception to norm seems imperative.

2. Smart Defense: Smarter Concept Needed

Strategic planners have long bemoaned the inefficiencies that accompanied NATO member states' military organization, but they seem to have consistently been

¹⁴¹ European Defense Agency, "EDA's Pooling and Sharing," November 24, 2011, http://www.eda.europa.eu/docs/documents/factsheet_-_pooling_sharing_-_301111.

committed to overcoming them. In 1949, NATO's strategic concept advocated, but always with caveats, "to develop a maximum of strength through collective defense planning." This was further defined as calling for standardization of military maintenance, equipment, and procedures. Further hints of what would later be known as SD are seen in the commitment to "cooperation...in research and development of new weapons."¹⁴² In 1977, Robert Komer recognized the Warsaw Pact's seeming advantage in military efficiencies that came from lower troop costs and centralized control from Moscow. He proposed a "rationalization" of NATO defense. In an eyebrow raising parallel to SD, Komer predicted that deterring the Warsaw Pact would be impossible given budgetary constraints unless NATO members could overcome "national particularism" and adopt the concepts of rationalization.¹⁴³ This goal of unified efforts would last through the end of the Cold War. Thirty-seven years later, not much has changed, and efforts to make NATO spending smarter are still in the works.

Smart Defense, the modern day incarnation of NATO teamwork, was born in 2011. As a purposefully vague concept, it can be described, but not easily defined. Popularized by NATO Secretary General Anders Fogh Rasmussen, SD is a concept that "can help nations build greater security with fewer resources...so that together we can avoid the financial crisis from becoming a security crisis."¹⁴⁴ This new mindset has been routinely celebrated in NATO speeches and policy documents since Rasmussen's speech, but has not caught on much beyond that. Longstanding multi-national NATO activities such as the previously discussed NATO AWACS program, and commonly funded NATO command systems, airfields, and pipelines have been recast as examples of SD, but the concept still remains hollow for the same reasons that national assets are considered advantageous. From an individual Ally's perspective, "un-smart" defense may make significantly more sense than what some SD advocates prescribe. Allies whose militaries

142 NATO Standing Group, "Revised Strategic Concept for the Defense of the North Atlantic Area," November 19, 1949, 15, www.nato.int/docu/stratdoc/eng/a491119a.pdf.

143 Komer, "Ten Suggestions."

144 "Building Security in an Age of Austerity: Keynote Speech by NATO Secretary General Anders Fogh Rasmussen at the 2011 Munich Security Conference," February 4, 2011, www.nato.int/cps/en/natolive/opinions_70400.htm.

are organized with national goals in mind can—among other things—maximize benefits to domestic industries and focus to a greater extent on national defense priorities. Because of this, national assets and unilateral defense acquisitions continue to predominate. In theory, a modern, large, and relevant AGS program could be a catalyst that furnishes the rationale for embracing Smart Defense.

Some academics point to AGS as a “flagship” SD program, but the significance of AGS as the model (or template) for future SD programs is somewhat dubious. Nevertheless, a collapse of the AGS program could have a markedly negative effect on future cooperative efforts. Given the political and strategic environment in which NATO operates, such a failure could have significant consequences for the alliance. It could also give ammunition to those who question its future ability to carry out even its Article 5 collective defense commitments, let alone its newer, more ambitious and continuing crisis management operations and cooperative security activities.

3. Teamwork: Blending SD and P&S

Smart Defense is an initiative remarkably similar to the European Union’s Pooling and Sharing (P&S) concept. Christened in 2010, one year before SD, P&S is an equally vague concept that advocates hope will allow European Union states to sustain and build defense capabilities despite shrinking military budgets.¹⁴⁵ There will likely be growing pains associated with blending what the Zurich-based Center for Security Studies calls “Smart Pooling” between the EU and NATO, but continuously improving efficiencies at any level will further NATO’s SD goals.¹⁴⁶

Both SD and P&S aim to increase efficiencies by streamlining processes, but this shared aim contributes to the weakness of both ideas. Though small groups of states and individual states are taking actions consistent with SD and P&S, these actors only select programs and policies that are clearly and quickly advantageous. This significantly limits

¹⁴⁵ European Defense Agency, “EDA’s Pooling and Sharing,” November 24, 2011, http://www.eda.europa.eu/docs/documents/factsheet_-_pooling_sharing_-_301111.

¹⁴⁶ Daniel Möckli, “Smart Pooling: State of Play in European Defence and Armaments Cooperation,” *CSS ETH Zurich*, No. 126, December 2012. http://www.css.ethz.ch/publications/DetailansichtPubDB_EN?rec_id=2323.

the scope of the projects undertaken and makes large scale programs like AGS extremely difficult to initiate. Though P&S has had worthwhile successes (training missions, field hospitals, common munitions, etc.), there is little sign that the EU will be able to jointly acquire its stated major capability goals (like space, ISR, and air to air refueling assets).¹⁴⁷

The November 2010 UK-France Defence Cooperation Treaty, discussed briefly in Chapter 3, looked promising. It committed the nations to cooperate on a variety of projects, but the signature projects remain mostly conceptual. According to some commentators, even if these bilateral and multilateral projects come to fruition, the resulting assets would be unacceptably constrained by the veto power of participating states. Coalitions of two are cumbersome, and larger partnerships introduce further coordination challenges. The same phenomenon undermines SD and P&S programs. This in turn leads many Allies to continue to rely upon national assets.

4. AGS and Smart Defense: Which Defines Which?

While Smart Defense is an ideal, it is not new, nor is it a driver of change. Since 1949, NATO's track record on Smart Defense has been fairly consistent. Although Allies routinely express commitment to efficiencies and make conceptual promises about working together, SD successes remain fortuitous exceptions rather than drivers of joint action. This is largely because "smart" is a relative concept. Key to the success of any SD program is the idea that it is advantageous for all parties involved. Examples of these programs are limited, and even these require a great deal of negotiations to ensure equal "smartness." Though there are many indirect pressures at play, NATO Allies maintain little coercive power over each other. Building compelling programs that interest all Allies while simultaneously making everyone feel like a winner is a difficult art to perfect. Proponents of SD and P&S use flagship programs like AGS to celebrate the advantages of teamwork, but these flagships of cooperation are of limited use as SD models.

¹⁴⁷ European Defense Agency, "EDA's Pooling and Sharing," November 24, 2011, http://www.eda.europa.eu/docs/documents/factsheet_-_pooling_sharing_-_301111.

Headline programs like AGS and AWACS are special cases that evolved from unique circumstances. NATO AWACS was not a success simply because it aligned with a mindset that encouraged teamwork. It carries the “smart” moniker today because, to deal with Soviet strike threats, AWACS aircraft were an efficient alternative to a significant increase in fighter air patrols. AWACS was sold on the concept that, despite its expense, it would save money by more efficiently defending against a significant common threat.¹⁴⁸ The United States shouldered much of its cost because it valued the capability enough to subsidize the Alliance’s defense posture, reduce the costs of its own E-3s, and aid its own industry. Today’s AGS program has a similar if somewhat less convincing rationale for Europe—that NATO should not be so reliant upon U.S. assets, and that acquisition of a ground surveillance capability may save the lives of European troops in future conflicts.¹⁴⁹ Because the AGS case is not as compelling as the AWACS case, consensus took much longer to attain, and the end result was more limited. In any case, the unique attributes of AWACS and AGS make them imperfect models for other SD initiatives. They do, however, reveal something important.

While there exists the potential for major NATO joint acquisitions in the future—air tankers and satellites come to mind—these major acquisitions cannot achieve the overall savings, sustenance, and development of capabilities that SD envisions. A successful AGS program would benefit Allies because it would give NATO a much needed capability. This success, however, would make no more than a dent in the systemic budgetary and organizational issues that threaten NATO’s ability to conduct combat operations. In order to meet the stated goals of SD, NATO needs vastly more smart programs than the 20 announced in Chicago in May 2012.

The majority of the public commentary that provides guidance for how to implement SD is flawed. The arguments fail for at least three reasons.

¹⁴⁸ Furlong, “Can NATO Afford AWACS?,” 671.

¹⁴⁹ Such a scenario is speculative, but the United States has national ground surveillance capabilities and would use them if its people or interests were at risk. EU-led operations (Berlin Plus contingencies) could use AGS assets to protect EU forces and any non-NATO Allies they partner with in the future.

The first is that “Smart Defense” is nearly impossible to argue against generally, but impossible to enact without paying attention to smallest details. While “the devil is in the details” is an overused idiom, the shoe seems to fit.

The second is that critical details of potential SD programs are not openly discussed. Prescriptions found in the academic literature hold forth at length with plausible ideas about what Smart Defense should and should not do, but are usually too general to be useful. Statements like “NATO should therefore promote Smart Defence with a practical and prudent approach,”¹⁵⁰ the “initiative still needs to be more accurately defined in the longer term,”¹⁵¹ and that “Smart Defense should be focused in three areas...residual force...core force...and Force 2020”¹⁵² may spur limited action, but they do not seem likely to motivate the bold initiatives envisioned by NATO leaders. The NATO Allies have never accepted procurement deals that are inconsistent with their perceived interests. It is hard to imagine that SD will change this pattern, but Allied interests may need to be reassessed.

A third (though certainly not final) reason for viewing SD as flawed is that few acknowledge the issues associated with Allies finding solutions to capabilities issues *outside* NATO. Instead of worrying about the loss of capabilities in general, NATO leaders would be wise to further consider what Timo Noetzel and Benjamin Schreer acknowledge is “an increasing preeminence of bilateral defense relationships between Allies and Washington.”¹⁵³ It is easy to imagine a future in which the United States chooses to partner with select Allies in order to circumvent the cumbersome NATO process and contrary voices in the Alliance. Recent examples include American deals with Poland and Romania. In Poland, the United States made “a significant commitment of aircraft, time, and personnel to the bilateral relationship” by establishing a permanent

150 Henius, “Smart Defense: A Critical Appraisal.”

151 Grand, “Smart Defense,” 46.

152 “Smart Defense and the Future of NATO,” 9.

153 Timo Noetzel and Benjamin Schreer, “Does a Multi-Tier NATO Matter? The Atlantic Alliance and the Process of Strategic Change,” *International Affairs*, March 2009, 2, 221–226.

operational detachment at Lask Air Base.¹⁵⁴ In the near term, this detachment will support annual aerial fighter and transport exercises. The bilateral U.S.-Romanian relationship has seemingly warmed as well. Romania recently purchased U.S. anti-ballistic missiles (to be operational by 2015) and is assisting U.S. drawdown efforts in Afghanistan by allowing the U.S. military temporary use of Kogalniceanu air base.¹⁵⁵

This phenomenon is not limited to bilateral ties with the United States. Recent dealings between Turkey and China regarding missile defense systems and defense equipment deals involving France, Germany, and Russia demonstrate that interests outside NATO may outweigh intra-Alliance solidarity. As these different bilateral relationships grow, it is conceivable that a future adversary could use the resultant divisions in NATO to its advantage. Because the strength of any alliance is dependent upon unity, the growing tendency to form bilateral relations should be viewed as an ominous sign by NATO supporters.

C. INTERESTS REDEFINED?

Today, Allies participate in joint acquisitions because they see a value in doing so. But this value is a particularly relative concept, and subject to redefinition by specific Allies. For some, value can come in the form of obtaining a shared capability and/or from economic benefits associated with participation. At one extreme, with states that are truly concerned with security, an acquired capability may be sufficient to justify a substantial cost. At the other extreme, states that consider themselves secure may only be willing to participate in joint ventures if they have economic incentives to do so. For these states, if such incentives are taken away, the reason for participation disappears. When these two motivations clash, goodwill among Allies can be lost; yet this dynamic is nothing new.

As Michael Rühle has suggested, many Allies today view SD as a preferred method for reinforcing the transatlantic tether. Instead of limiting AGS to an envisioned

¹⁵⁴ Jennifer H. Svan, "First US Military Unit to be Continuously Stationed in Poland Activated," *Stars and Stripes*, November 9, 2012, <http://www.stripes.com/news/first-us-military-unit-to-be-continuously-stationed-in-poland-activated-1.196515>.

¹⁵⁵ Andrew Tilghman, "Hundreds of U.S. Troops Will Deploy to Romania Next Year," *Military Times*, October 18, 2013, <http://www.militarytimes.com/article/20131018/NEWS05/310180024/Hundreds-U-S-troops-will-deploy-Romania-next-year>.

acquired capability or regarding it as an economic boon, these Allies seem to view participation as an attempt to remain relevant to NATO and to sustain the Alliance's cohesion. When looking for value in defense spending, few projects could compare to securing an element of NATO's Article 5 protection. By this measure, joint acquisitions like AGS are an extremely efficient use of state funds spent for military defense.

By committing their territory and a relative pittance in support of larger Allies' projects, smaller Allies are able to maintain a voice and sustain the security assurances of the most powerful Alliance in the world. In other words, today's joint NATO acquisitions may be pursued for reasons in addition to commitment to an amorphous procurement efficiency goal. These less than obvious considerations could be at the heart of a redefined and reinvigorated SD.

Instead of simply stating their dedication to NATO's principles as expressed in the Strategic Concepts, Allies could view future AEW and AGS type projects as opportunities for Allies to demonstrate their commitment to each other. Smart Defense is, in its current form, a disappointment. The rhetoric of its proponents has implied that, through efficiencies that are in everyone's interest, capabilities can be successfully sustained despite budget cutbacks. Not surprisingly, this happy promise applies to very few capabilities and begets projects like AGS that fall short of their original goals. It might be more accurate to say that effective Smart Defense projects should necessarily be unequal or favor certain Allies as a way to cover the real costs associated with being in an Alliance. As NATO's strategic interests shift outside of Europe, such unequal burden sharing by smaller and/or less prosperous Allies would help mitigate the longstanding "free-rider" problem. For many of these less influential Allies, the primary interest in joint acquisitions is not securing a financially advantageous deal. The acquisitions may instead be undertaken as a meaningful way to remain relevant to the Alliance and to uphold its political cohesion.

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V. CONCLUSION

Today, AGS is NATO's most prominent joint acquisition program. By 2017, it will provide the Alliance with a fully operational and shared aerial ground surveillance capability. The Global Hawk system upon which AGS is based has had a significant amount of bad publicity, especially in regard to the Euro Hawk and U.S. Air Force Block 30 variants. More recently, however, the platform's fortunes have improved. Non-NATO U.S. Allies (including Japan and South Korea) have committed to purchase Global Hawks, and AGS appears to be on track per the 2012 Chicago Summit commitment.

Aside from its role as surveillance platform, some analysts have suggested that AGS is a model or "flagship" program for NATO's Smart Defense (SD) initiative. In a sense, these voices may be correct. AGS will improve NATO's ISR capabilities—which have been repeatedly criticized as deficient—while employing a measure of Smart Defense-type burden sharing. In this vein, AGS is similar to NATO's preceding large-scale joint acquisition of 18 AWACS aircraft. Nevertheless, it is far from clear that future SD projects will be inspired by the demonstrated efficiencies of AGS once the capabilities are employed operationally.

The end of the Cold War signaled fundamental changes in Alliance policy, which have been reflected in the Strategic Concepts of 1991, 1999, and 2010. Despite the dissolution of the Warsaw Pact, the Allies continue to reaffirm their unanimous commitment to the North Atlantic Treaty, especially regarding their "collective defense" obligations under Article 5. Still, three distinct groups have emerged that emphasize different security priorities. These are codified in the 2010 Strategic Concept as the "core tasks" of "collective defense," "crisis management," and "cooperative security." Every Ally agrees that the each core task is vital, but Allies differ on the rank order priority. This prioritization trifurcation exacerbates the perpetual concern over fair burden-sharing.

AGS is advertised as useful for each of the core tasks, but selective participation in footing the \$1.8 billion acquisition bill suggests otherwise. AGS was initially envisioned as a much larger acquisition. Changes in budgets, strategy, and perceived

national benefits diminished both the size of the program and the cast of full AGS participants. Using Swedish expert Pal Jonson's model,¹⁵⁶ the Allies that are most concerned with protecting territorial integrity—Jonson's Collective Defenders—seem to be the most willing full AGS participants. The Allies that are more concerned with out of area crisis management operations (Expeditionaries), that are focused on improving relations with partner states (Russia Firsters), or that do not gain a significant economic boost from AGS are less likely to contribute to the AGS acquisition.

Perhaps acknowledging its measured success, Secretary of Defense Leon Panetta alluded to AGS as a “critical symbol” whose failure would undercut future joint capability development projects.¹⁵⁷ This is probably true; however, this implies that a successful AGS would have the opposite effect. While AGS may advance the SD concept generally, the program has suffered too many setbacks and delays to be a model of efficiency in joint acquisitions. However, if the Allies accept a new SD paradigm that recognizes the critical importance of sustaining NATO's political cohesion without neglecting the need for efficiently acquired and operationally relevant capabilities, AGS will be a success worth repeating.

¹⁵⁶ Pal Jonson, *The Debate about Article 5 and its Credibility: What is it All About?*, NATO Defense College Research Paper, no. 58, May 2010.

¹⁵⁷ U.S. Department of Defense, “Remarks by Secretary Panetta at Carnegie Europe, Brussels Belgium,” October 5, 2011, <http://www.defense.gov/transcripts/transcript.aspx?transcriptid=4895>.

LIST OF REFERENCES

- “Airborne Ground Surveillance—Taking the High Road.” *Jane’s Defence Weekly*. February 23, 2006.
- “Alliance Ground Surveillance.” NATO. Last modified April 15, 2013.
http://www.nato.int/cps/en/natolive/topics_48892.htm.
- Armistead, Leigh and Armistead, Edwin Leigh. *AWACS and Hawkeyes: The Complete History of Airborne Early Warning Aircraft*. Minneapolis, MN: Zenith Press, 2002.
- Aronsson, Lisa and O’Donnell, Molly. *Smart Defense and the Future of NATO: Can the Alliance Meet the Challenges of the Twenty-First Century?* Chicago, IL: The Chicago Council on Global Affairs. 2012.
http://www.thechicagocouncil.org/userfiles/file/NATO/Conference_Report.pdf.
- “Building Security in an Age of Austerity: Keynote Speech by NATO Secretary General Anders Fogh Rasmussen at the 2011 Munich Security Conference.” February 4, 2011. NATO. www.nato.int/cps/en/natolive/opinions_70400.htm.
- Brannen, Kate. “NATO Signs \$1.7B Global Hawk Contract.” *Defense News*. May 21, 2012.
<http://www.defensenews.com/article/20120521/DEFREG02/305210001/NATO-Signs-1-7B-Global-Hawk-Contract>.
- Butler, Amy. “Why Global Hawk Block 40 May Be Killed.” *Aviation Week & Space Technology*. February 25, 2013.
http://www.aviationweek.com/Article.aspx?id=/article-xml/AW_02_25_2013_p22-550617.xml&p=3.
- Chao, Pierre A. *NATO AGS-Finally Ready to Fly*. Washington, DC: Center for Strategic and International Studies, 2004.
- Comptroller General of the United States. *Report to the Congress of the United States: Equitable Cost Sharing Questioned on NATO’s Airborne Early Warning and Control Program*. Washington DC: United States General Accounting Office, 1980.
- Coon, Scott. “NATO Alliance Ground Surveillance (AGS).” June 18, 2013.
www.theresearchcorridor.com/sites/default/files/ScottCoon2013.pdf.
- Danish Ministry of Defense. “Denmark Rejoins the AGS Project.” May 23, 2012.
<http://www.fmn.dk/eng/news/Pages/DenmarkrejoinstheAGSproject.aspx>.

- “Denmark Re-joins NATO AGS Programme.” *Jane’s Defence Weekly*. December 17, 2012.
- De Larrinaga, Nicholas. “France Conducts its First MQ-9 Reaper Flight.” *Jane’s Defence Weekly*. September 25, 2013. <http://www.janes.com/article/27464/france-conducts-its-first-mq-9-reaper-flight>.
- Defense Industry Daily “Apres Harfang: France’s Next High End UAV.” November 21, 2013. <http://www.defenseindustrydaily.com/apres-harfang-frances-next-high-end-uav-06451/>.
- Dempsey, Judy. “U.S. Sees Europe as Not Pulling its Weight.” February 6, 2012. *The New York Times*. <http://www.nytimes.com/2012/02/07/world/europe/07iht-letter07.html?pagewanted=all>.
- Dyer, Geoff. “Drones Can Count on Friends in High Places.” *Financial Times*. October 10, 2013.
- “The End of the German Euro Hawk Programme—The Implications for Germany and NATO.” June 3, 2013. ISN ETH Zurich. <http://www.isn.ethz.ch/layout/set/print/content/view/full/24620?id=164644>.
- Erlanger, Steven. “So Far, Europe Breathes Easier Over Free Hand Given the U.S.” *The New York Times*. September 29, 2001. <http://www.nytimes.com/2001/09/29/international/europe/29EURO.html>.
- . “Shrinking Europe Military Spending Stirs Concern.” *The New York Times*. April 22, 2013. http://www.nytimes.com/2013/04/23/world/europe/europes-shrinking-military-spending-under-scrutiny.html?pagewanted=all&_r=0.
- Erwin, Sandra I. “NATO Radar-Aircraft Project Gains Broader Political Clout.” *National Defense Magazine*. August 2003. http://www.nationaldefensemagazine.org/archive/2003/August/Pages/NATO_Radar3806.aspx.
- European Defense Agency. “EDA’s Pooling and Sharing.” November 24, 2011. http://www.eda.europa.eu/docs/documents/factsheet_-_pooling_sharing_-_301111.
- Everstine, Brian. “Readiness Declines in Aging, Overworked Fleet.” *Military Times*. October 2, 2013. <http://www.militarytimes.com/article/20131002/NEWS04/310020026/Readiness-declines-aging-overworked-fleet>.
- Furlong, R.D.M. “Can NATO Afford AWACS?” *International Defense Review* 5 (1975).

- “German Defense Minister to face grilling over Euro Hawk debacle.” *Deutsche Welle*. July 22, 2013. <http://www.dw.de/german-defense-minister-to-face-grilling-over-euro-hawk-debacle/a-16964646>.
- “Germany’s Libya Contribution: Merkel Cabinet Approves AWACS for Afghanistan.” *Der Spiegel Online*. March 23, 2011. <http://www.spiegel.de/international/world/germany-s-libya-contribution-merkel-cabinet-approves-awacs-for-afghanistan-a-752709.html>.
- “Germany Pulls the Plug on Euro Hawk Drone Project.” May 16, 2013. *Euro News*. <http://www.euronews.com/2013/05/16/germany-pulls-the-plug-on-euro-hawk-drone-project/>.
- Giegerich, Bastian. NATO Allied Command Transformation, the University of Bologna, and the Instituto Affari Internazionali’s *Dynamic Change: Rethinking NATO’s Capabilities, Operations and Partnerships*. October 26-27, 2012. <http://www.iai.it/pdf/dynamic-change.pdf>.
- Glowacki, Bartosz. “Poland Rejoins NATO AGS Program.” *Flight Global*. April 17, 2013. <http://www.flightglobal.com/news/articles/poland-rejoins-nato-ags-programme-384734/>.
- Goldgeier, James M. “The Future of NATO.” Council Special Report, No. 51. February 2010. www.cfr.org/content/publications/attachments/NATO_CSR51.pdf.
- Gotkowska, Justyna (for the Center for Eastern Studies). “The End of the German Euro Hawk Programme—The Implications for Germany and NATO.” Center for Security Studies, Switzerland. <http://www.isn.ethz.ch/Digital-Library/Articles/Detail/?id=164644>.
- Grand, Camille. “Smart Defense.” *Smart Defense and the Future of NATO: Can the Alliance Meet the Challenges of the Twenty-First Century?* The Chicago Council on Global Affairs. 2012. http://www.thechicagocouncil.org/userfiles/file/NATO/Conference_Report.pdf.
- Hallams, Ellen and Schreer, Benjamin. “Towards a ‘Post-American’ Alliance? NATO Burden-sharing after Libya.” *International Affairs* 88, no 2 (2012).
- Hardy, James. “US to Rotate Global Hawks through Japan.” *IHS Jane’s Defence Weekly*. October 3, 2013. <http://www.janes.com/article/27959/us-to-rotate-global-hawks-through-japan>.
- Henius, Jakob. “Specialization: The Gordian Knot of NATO’s Smart Defense.” *Smart Defense, A Critical Appraisal*, edited by Jakob Henius and Jacopo Leone MacDonald. *Forum Paper Series*. Rome: NATO Defense College, 2012.

- Hewson, Robert. "NATO Resurrects a Smaller and Cheaper AGS Programme." *Jane's Defence Weekly*. June 6, 2008.
- Howorth, Jolyon. *Defense and Security Policy in the European Union*. New York: Palgrave MacMillan, 2007.
- Hoyle, Craig. "RAF Chief Hints at Sentinel AGS Role Post-Afghanistan." *Flight Global*. June 11, 2013. <http://www.flightglobal.com/news/articles/raf-chief-hints-at-sentinel-ags-role-post-afghanistan-386937/>.
- Iannotta, Ben. "JSTARS' Struggles." *C4ISR—The Journal of Net-Centric Warfare* (2012).
- . "NATO Signs Deal for Radar Equipped Global Hawks." *Defense News*. July 3, 2012. <http://www.defensenews.com/article/20120703/C4ISR01/307030009/NATO-Signs-Deal-Radar-Equipped-Global-Hawks>.
- Ing, David. "Rise in AGS costs Brings calls for Spain to Quit the Programme." *Jane's Defence Weekly*. August 20, 2012.
- "Japan to purchase 3 Global Hawk Systems." August 28, 2013. UAS Vision. <http://www.uasvision.com/2013/08/28/japan-to-purchase-3-global-hawk-systems/>.
- Jonson, Pal. "The Debate about Article 5 and its Credibility: What is it All About?" *NATO Defense College Research Paper*, no. 58. May 2010.
- Komer, Robert W. Ten Suggestions for Rationalizing NATO. *Survival: Global Politics and Strategy* 19, no. 2 (1977).
- Larson, Eric. *Interoperability of US and NATO Allied Air Forces: Supporting Data and Case Studies* [Project Air Force]. Santa Monica, CA: Rand Corporation. 2003.
- "Last Best Chance for NATO Airborne Ground Surveillance." *International Defense Review*. August 19, 2002.
- Lee, Joyce. "South Korean Plans to Buy Four Global Hawk Aircraft from 2017." Reuters. November 3, 2013. <http://www.reuters.com/article/2013/11/04/us-northrop-korea-globalhawk-idUSBRE9A300O20131104>.
- Lok, Joris Janessen. "NATO Mulls over AGS Basing Decision." *Aviation Week*. November 22, 2007. <http://www.aviationweek.com/blogs.aspx?plckblogid=blog:27ec4a53-dcc8-42d0-bd3a-01329aef79a7&plckpostid=blog:27ec4a53-dcc8-42d0-bd3a-01329aef79a7post:b6755f59-5407-416d-ac3d-2e987bdd1598>.

- Longoria, Richard. "News: Commander Discusses Past and Future with Component Personnel." April 6, 2012. Defense Video & Imagery Distribution System. <http://www.dvidshub.net/news/113757/commander-discusses-past-and-future-with-component-personnel#.UlbiCKsim4>.
- MacDonald, Jacopo Leone. "The Basics of Smart Defense." *Smart Defense, A Critical Appraisal*, edited by Jakob Henius and Jacopo Leone MacDonald, *Forum Paper Series*. Rome: NATO Defense College, 2012.
- Major, Claudia, Mölling, Christian, and Valasek, Tomas. "Smart but Too Cautious: How NATO Can Improve its Fight against Austerity." May 21, 2012. Centre for European Reform. http://www.cer.org.uk/sites/default/files/publications/attachments/pdf/2012/pb_nato_21may12_2-5150.pdf.
- Majumdar, Dave. "Ground Truth." *C4ISR—The Journal of Net-Centric Warfare*. July 1, 2010.
- Möckli, Daniel. "Smart Pooling: State of Play in European Defence and Armaments Cooperation." CSS ETH Zurich, No. 126, December 2012. http://www.css.ethz.ch/publications/DetailansichtPubDB_EN?rec_id=2323.
- Mölling, Christian. "Pooling and Sharing in the EU and NATO." June 18, 2012. Stiftung Wissenschaft und Politik: German Institute for International and Security Affairs. http://www.swp-berlin.org/en/publications/swp-comments-en/swp-aktuelle-details/article/europes_defence_pooling_sharing.html.
- NATO. "NATO Alliance Ground Surveillance Programme Takes off in Chicago." May 20, 2012. www.nato.int/cps/en/natolive/news_87544.htm.
- . "NATO's Allied Ground Surveillance Programme Signature Finalized." September 25, 2009. http://www.nato.int/cps/en/natolive/news_57711.htm.
- NATO AEW&C Programme Management Agency. "E-3D Component—RAF Waddington, United Kingdom." <http://www.napma.nato.int/organisation/7.html>.
- "NATO AGS." Northrop Grumman Corporation. Accessed February 9, 2014. <http://www.northropgrumman.com/Capabilities/NATOAGS/Pages/default.aspx>.
- NATO Airborne Early Warning & Control Force: E-3A Component. "NATO AWACS: Operations 1990-2012." <http://www.e3a.nato.int/eng/html/organizations/operations.htm>.
- . "NATO E-3A Component." <http://www.e3a.nato.int/>.
- "NATO Considers Merging AGS." *Jane's Defence Weekly*. June 8, 2001.

- “NATO Commits to AGS, Delays Design Phase.” *Jane’s Defence Weekly*. April 29, 2005.
- NATO Public Affairs Office. “NATO Airborne Early Warning and Control Force E-3A Component: The History.” NATO Public Affairs.
<http://www.e3a.nato.int/eng/html/organizations/history.htm>.
- NATO Public Affairs Office. “Airborne Early Warning & Control Force, E-3A Component.” NATO Public Affairs.
www.e3a.nato.int/common/files/en_factsheet_apr2013.pdf
- NATO Standing Group. “Revised Strategic Concept for the Defense of the North Atlantic Area.” November 19, 1949. www.nato.int/docu/stratdoc/eng/a491119a.pdf.
- “NATO’s Teachable Moment.” *The New York Times*. August 29, 2011.
http://www.nytimes.com/2011/08/30/opinion/natos-teachable-moment.html?_r=0.
- North Atlantic Council. “The Alliance’s New Strategic Concept.” November 1991.
http://www.nato.int/cps/en/natolive/official_texts_23847.htm
- . “The Alliance’s Strategic Concept.” April 24, 1999.
http://www.nato.int/cps/en/natolive/official_texts_27433.htm?selectedLocale=en.
- Northrop Grumman. “Triton.” Accessed February 9, 2014.
<http://www.northropgrumman.com/Capabilities/Triton/Pages/default.aspx>.
- . “Northrop Grumman Begins On-Time Production of First NATO Global Hawk.” December 3, 2013.
http://www.globenewswire.com/newsarchive/noc/press/pages/news_releases.html?d=10060279.
- The Office of the Director: Operational Test and Evaluation. “Air Force: Global Hawk High-Altitude Long Endurance Unmanned Aerial System (RQ-4).” *DOT&E FY2011 Annual Report*. December 2011.
<http://www.dote.osd.mil/pub/reports/FY2011/>.
- Osborn, Kris. “General: Air Force Must Rebalance ISR for ‘Contested Environments.’” September 17, 2013. Defense Tech. <http://defensetech.org/2013/09/17/general-air-force-must-rebalance-isr-for-contested-environments/>.
- Peniston, Bradley. “Budget Cuts Reducing NATO’s Planned UAV Purchase.” The Atlantic Council. June 22, 2011.
<http://www.atlanticcouncil.org/blogs/natosource/budget-cuts-reducing-natos-planned-uav-purchase>.

- Pocock, Chris. "Germany, UK Offer Alternatives to Global Hawk for NATO AGS." *AINonline*. June 14, 2013. <http://www.ainonline.com/aviation-news/ain-defense-perspective/2013-06-14/germany-uk-offer-alternatives-global-hawk-nato-ags>.
- Pugliese, David. "Canada Pulls out of NATO Airborne Surveillance Programs to Save \$90M." *National Post*. March 17, 2012. <http://news.nationalpost.com/2012/03/17/canada-pulls-out-of-nato-airborne-surveillance-programs-to-save-90m/>.
- Ray, Mike W. "552 ACW Receives Outstanding Unit Award." *Tinker Take Off*. October 26, 2012. <http://journalrecord.com/tinkertakeoff/2012/10/26/552nd-acw-receives-outstanding-unit-award/>.
- Richardson, Doug. "Collaborative Weapons. Can they Work?" *Flight Global*. June 1, 1985. <http://www.flightglobal.com/pdfarchive/view/1985/1985%20-%201736.html>.
- Roccia, Giulia Amparo Bruni. "Making NATO's Smart Defense Initiative Work." *E-international Relations*. March 25, 2013. <http://www.e-ir.info/2013/03/25/making-natos-smart-defence-initiative-work/>.
- Rühle, Michael. "The Future of the Transatlantic Security Relationship." *American Foreign Policy Interests*. October 7, 2013. http://www.tandfonline.com/doi/full/10.1080/10803920.2013.836015#.Um7_lq_To.
- Noetzel, Timo and Schreer, Benjamin. "Does a Multi-Tier NATO Matter? The Atlantic Alliance and the Process of Strategic Change." *International Affairs*. March 2009.
- Sia, Richard H.P. and Cohen, Alexander. "The Drone that wouldn't Die: How a Defense Contractor Bested the Pentagon." *The Atlantic*. July 16, 2013. <http://www.theatlantic.com/politics/archive/2013/07/the-drone-that-wouldnt-die-how-a-defense-contractor-bested-the-pentagon/277807/>.
- Shalal-Esa, Andrea. "Cost of Flying Northrop's Global Hawk Down Over 50 Percent: Sources." Reuters. September 13, 2013. <http://www.reuters.com/article/2013/09/13/us-northropgrumman-globalhawk-idUSBRE98C12220130913>.
- Sirak, Michael C. "NATO's New Eyes in the Sky." September 24, 2013. *ISN ETH Zurich*. <http://www.isn.ethz.ch/Digital-Library/Articles/Detail/?lng=en&id=169484>.
- . "AGS: A Game Changer for NATO Intelligence and Interoperability." *Air Force Magazine*. September 16, 2013. <http://www.atlanticcouncil.org/blogs/natosource/ags-a-game-changer-for-nato-intelligence-and-interoperability>.

- “Smart Defense and Interoperability.” NATO Multimedia Library. Last modified October 21, 2013. <http://natolibguides.info/smartdefence>.
- Springer, Axel. “Berlin and Paris argue on AWACS Deployment to Afghanistan.” *Die Welt*. March 24, 2009. http://www.welt.de/welt_print/article3432228/Berlin-und-Paris-streiten-ueber-Awacs-Einsatz-fuer-Afghanistan.html.
- Svan, Jennifer H. “First US Military Unit to be Continuously Stationed in Poland Activated.” *Stars and Stripes*. November 9, 2012. <http://www.stripes.com/news/first-us-military-unit-to-be-continuously-stationed-in-poland-activated-1.196515>.
- Tigner, Brooks. “AGS Wrangle on the Agenda as NATO Ministers Meet.” *Jane’s Defence Weekly*. June 12, 2008.
- Tilghman, Andrew. “Hundreds of U.S. Troops Will Deploy to Romania Next Year.” *Military Times*. October 18, 2013. <http://www.militarytimes.com/article/20131018/NEWS05/310180024/Hundreds-U-S-troops-will-deploy-Romania-next-year>.
- “UK–France Summit 2010 Declaration on Defence and Security Co-operation.” Prime Minister’s Office. November 2, 2010. <https://www.gov.uk/government/news/uk-france-summit-2010-declaration-on-defence-and-security-co-operation>.
- U.S. Department of Defense. “Remarks by Secretary Panetta at Carnegie Europe, Brussels, Belgium. October 5, 2011. <http://www.defense.gov/transcripts/transcript.aspx?transcriptid=4895>.
- . “Sustaining U.S. Global Leadership: Priorities for 21st Century Defense.” January 2012. http://www.defense.gov/news/defense_strategic_guidance.pdf.
- U.S. Department of State: Office of the Spokesman. “NATO AWACs Deployed to the United States.” October 18, 2001. <http://2001-2009.state.gov/r/pa/prs/ps/2001/5447.htm>.
- . “NATO Coalition Contributes to Global War on Terrorism.” October 24, 2002. <http://2001-2009.state.gov/p/eur/rls/fs/14627.htm>.
- Wolf, Charles Jr, Gregory A. Carter, Robert P. Castro, David Dreyfuss, and John J. McCall. *Offsets’ for NATO Procurement of the Airborne Warning and Control System: Opportunities and Implications*. United States Air Force Project. Santa Monica, CA: Rand, 1976.
- “World Air Forces 2013,” Flight Global, accessed February 9, 2014, http://www.flightglobal.com/airspace/media/reports_pdf/empty/101015/world-air-forces-2013.pdf.

Yost, David S. *NATO's Balancing Act*. Washington DC: United States Institute of Peace Press, forthcoming in 2014.

Zaborowski, Marcin and Demkó, Attila. "Smart Defense: Central European Contribution." Central European Policy Institute. February 5, 2013. <http://www.cepolicy.org/publications/smart-defence-central-european-contribution>.

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