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NATO Strategic Airlift: Capability or Continued US Reliance?

by

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Preface

As a military dependent growing up in Germany during the Cold War, I experienced the vital importance of the NATO alliance in the protection of Europe against the Soviet Communist threat. I remember the numerous exercises my father spent "in the field" with NATO allies in Germany. At the time though I didn't realize the importance of transporting the soldiers from the United States during REFORGER exercises, or even within the European theater. Many years later as an Aircraft Maintenance Officer, I ended up working primarily with airlift and refueling aircraft. Examining solutions to NATO's airlift needs allows me to contribute to the alliance and help carry out its needs in a demanding environment.

This paper would not have been possible without the valuable assistance of several people. First, my research advisors, Dr. Mary Hampton and Wing Commander Nick Stringer, provided the framework, guidance and mentorship critical to the completion of a project of this magnitude. My classmate, Major Todor Golakov of the Bulgarian Air Force, provided immeasurable first-hand experience, contacts, and unbridled passion about NATO's airlift capability. Finally, Colonel Steven Groenheim, Lieutenant Colonel Terence Wheeler, and Lieutenant Colonel Christian Knutson provided critical information on the formation and initial operations of the Strategic Airlift Consortium.

Abstract

A growing strategic airlift capabilities gap within the NATO alliance drove members toward capabilities improvement goals to strengthen the alliance by increasing strategic airlift capacity. Although NATO has made progress in addressing deficiencies in strategic airlift capacity, NATO must further refine a strategic airlift capability to meet current and future alliance needs. Analyzing requirements against the potential solutions, this study evaluates the ability of existing organic and lease solutions along with the new C-17 Strategic Airlift Consortium to meet current and future NATO strategic airlift needs. The study further evaluates the feasibility of applying these solutions to European Union airlift needs. While organic and lease options provide some capability, purchasing additional C-17 aircraft under SAC provides guaranteed access to proven airframes at consistent cost, and therefore remains the the best solution for overall NATO capability. Although this solution reduces dependence on commercially leased and lesser capable organic aircraft, NATO must enhance this solution with fiscal reforms regarding deployment funding to encourage participation by all members in alliance work.

Chapter One: Introduction

Globalization in the post-Cold War world not only increases the connections between societies, but also increases the impact societies have upon each other. To protect their citizens and ensure their way of life, large states, and international organizations increasingly involve themselves in the affairs of states around the globe. In order to effectively influence other states through military power or humanitarian capability, these states and organizations must project power through the ability to deliver forces and firepower across the globe.

A strategic airlift component provides nations the capability and capacity necessary to project force throughout the globe. While sealift offers great volume and reduced cost, airlift delivers military power within critical time constraints to counter emerging threats or emergency situations. Due to a lack of European strategic airlift capability, the United States supported 29 European nations with over 900 airlift missions transporting more than 20,000 short tons of cargo in 2007 alone. Although these figures include tactical airlift, “the majority of deployments were by USTRANSCOM strategic lift.”¹

In addition to combat power, strategic airlift rapidly responds to humanitarian crises around the globe. The airlift component of USTRANSCOM, Air Mobility Command (AMC), evacuated over 9,000 personnel and delivered more than 1,300 tons of equipment during the hurricanes Ike and Gustav relief efforts. With global reach, AMC delivered 587 tons of relief supplies to Georgian citizens to mitigate suffering from the conflict with Russia in 2008.²

While geographic isolation necessitated US development and reliance on the force projection capabilities provided by strategic airlift, the North Atlantic Treaty Organization only recently began operating outside the traditional European boundaries. Ironically, the impetus for NATO’s global involvement resulted from the first invocation of the Article Five collective

defense agreement caused by the September 11, 2001, attacks on the United States and not the expected Cold War attack in Europe.

Although the Cold War brought stability among the great powers, today's increasing globalization created new military challenges for NATO members.³ Although not part of the original combat operations in Afghanistan, NATO operates the International Security Assistance Force "tasked with helping provide security in post-Taliban Afghanistan."⁴ In addition, NATO has delivered equipment and trained Iraqi military forces while providing "training to African Union (AU) officers and contributed technical assistance to the AU mission at its headquarters in Addis Ababa, Ethiopia."⁵

In addition to increasing global military defense and security activities, NATO also provided assistance to global humanitarian crises through its coordination capabilities and delivery of relief supplies and equipment. In the Pakistan earthquake disaster, NATO built on lessons from assisting with hurricane Katrina relief to quickly deliver over 3,500 tons of supplies. In addition, components of NATO's NRF restored infrastructure, provided medical care and precisely delivered aid using helicopters.⁶ Although these examples reveal effective force employment abroad, NATO currently lacks the strategic airlift capability to conduct large-scale humanitarian or combat operations outside the boundaries of Europe. Expecting to remain engaged in worldwide issues, NATO must develop strategic airlift capability to meet all ranges of operational needs.

While NATO expanded both its operations and operating environments, the European Union (EU) also increased the scope and nature of operations in current or potential trouble areas of the world. Although the organizations remain decidedly different, the intersection of critical mission areas such as defense will provide both opportunities and challenges for NATO and the EU.

While this paper does not advocate one organization's approach, this study investigates opportunities where cooperation could provide synergistic effects for both organizations.

*"I think the alliance needs strategic lift because we don't have any. ... We need a vehicle that can take us from Europe to Afghanistan, or Europe to Africa."*⁷

– General James Jones, NATO Supreme Allied Commander

Reducing or eliminating shortfalls in strategic airlift provides several advantages to the NATO alliance. First, developing and robusting NATO's strategic airlift capability enhances both kinetic and non-kinetic missions. An airlift solution also enhances interoperability and standardization, thus providing greater future integration and capability. In addition, a common alliance solution provides capability to nations to meet national goals and objectives at significantly lower costs than individual acquisition and procurement programs. A strategic airlift solution also maintains a strong alliance by allowing Europe to "do its part" and preventing the US from paying all of the costs in equipment and money. Finally, achieving a solution complementary to both NATO and the EU maximizes resources, minimizes redundancy and builds greater partnership between the two organizations.

NATO has made progress in addressing deficiencies in strategic airlift capacity, however the alliance must further refine a strategic airlift capability to meet current and future alliance needs. Although NATO has attempted to solve the problem using a combination of organic national assets, commercially leased aircraft and a NATO-owned capability, NATO must reduce the dependence on commercially procured airlift, maximize the capabilities of the wholly-owned NATO Strategic Airlift Consortium, and reform NATO processes to achieve a viable strategic airlift capability. Further, coordinating the management and administrative functions of NATO

and the EU's strategic airlift programs maintains diverse mission flexibility, increases coordination and interoperability, and achieves capability for both organizations in a fiscally-constrained environment.

This paper describes the historical context regarding the development of NATO and EU strategic airlift programs followed by a discussion of each organization's current strategic airlift operating environment. The study then defines the NATO and EU strategic airlift requirements to establish the baseline necessary for analysis of strategic airlift capabilities. The analysis continues with a description and analysis of current NATO solutions as an explanatory case study to evaluate the current strategic airlift programs. Finally, the study describes the areas where NATO and the EU cooperation in strategic airlift programs could enhance the capability and interests of both organizations.

Chapter Two: Problem Description

Prior to the end of the Cold War, leaders on both sides of the Atlantic recognized a growing capabilities gap within the NATO alliance. The reliance on American hard power for European defense during the Cold War reduced the need for the European nations to develop specific war fighting capabilities.⁸ With over 4,000 miles of ocean separating alliance partners, the United States required strategic airlift assets to deploy its forces in support of alliance collective defense obligations. In contrast, European nations lacked the need to develop a strategic airlift capability due the majority of war fighting expected to occur within the range of European tactical airlift or convoys. Even if Europe had strategic lift capability, a former US ambassador to NATO estimated only 3-5 percent of European army forces could rapidly deploy overseas.⁹

While the Cold War established the capabilities gap, Operation ALLIED FORCE in Kosovo revealed the extent of the gap throughout the alliance. Although the gap did not prevent success,

future alliance endeavors depend on leveling capabilities across all member nations. Indeed, leaving these problems untouched further creates a “two-tiered” alliance. Potential problems range from an increased US inclination toward unilateral military action using the Europeans as a “cleanup” force to reduced commitments to the alliance itself.¹⁰ Seeking to address the imbalance, the 1999 NATO Summit in Washington, D.C., created the Defense Capabilities Initiative (DCI) which identified 58 major areas for improvement and divided them into 5 categories: mobility and deployability, sustainability and logistics, effective engagement, survivability, command and control, and consultation.¹¹

Unwillingness by most NATO nations to increase defense spending limited the progress of the DCI. To refocus alliance efforts, the Prague Capabilities Commitment (PCC) targeted airlift, secure communications, precision-guided munitions, and protection against WMD. To assist with objective compliance, NATO required progress reports.¹² Although the Riga Summit of 2006 suggested NATO would achieve 72% of PCC initiatives by 2008, strategic lift comprised part of the remaining 28% requiring additional time and resources.¹³

Closing the gap in strategic airlift requires fiscally feasible solutions. Although agreeing in principle to appropriate 2% of their GDPs to defense, many members continually fall short of this amount.¹⁴ In addition, European members’ heavy personnel and infrastructure expenditures leave little room for the capital investment required for strategic airlift. Thus, any strategic lift solution must exist within existing fiscal realities and constraints.

To meet the new global mission requirements, NATO initiated force transformation efforts. Conceived as a “technologically advanced, flexible, rapidly deployable, and interoperable joint force, including land, sea and air elements that could be rapidly tailored,” the NATO Response Force (NRF) became fully operationally capable in November of 2006.¹⁵ Modeled after the

United States' Marine Expeditionary Brigades (MEB), full NRF capability consists of 25,000 personnel comprising a forced-entry capable brigade-sized land force, naval carrier, surface action group, amphibious task group, special operations forces and an air component capable of 200 daily combat sorties.¹⁶ Each NRF completes an 18-month cycle consisting of a six-month training period, six-month vulnerability period, followed by a six-month "on-call" period. With an NRF force in each phase of the cycle, member nations must commit nearly 75,000 personnel with the corresponding three-fold complement of naval and aviation equipment. As a rapidly deployable force, the NRF concept calls for deployment initiation within five days of notification with self-sustainment of operations for 30 days without resupply.¹⁷ Although the NRF's sealift component provides significant lift capacity and potentially mitigates airlift limitations, the speed and flexibility required by the NRF's five-day deployment requirement necessitates a robust strategic airlift capability.¹⁸

NATO's establishment of the NRF sought to balance the alliance's competing demands: the need for military capability versus the political will to dedicate, fund and sustain NATO forces.¹⁹ The NRF's "concrete focus and distinct capabilities" allowed NATO planners to maximize transformation efforts into forces European nations actually desired.²⁰ Developing forces for the NRF opened advanced US military "doctrine, information networks, weapons and munitions and organizational structures" to all member nations, but most importantly to NATO's newest members, without threatening the funding or efforts required for current major European programs.²¹ Politically, the NRF provided the right-sized capability for increased European operations abroad while not interfering with the European Security and Defense Policy (ESDP) and the Petersburg task oriented European Rapid Reaction Force (ERRF).²²

In addition to the flexible response provided by the NRF, NATO's ongoing operations depend on strategic airlift capability. Although the US declined NATO's offers of support at the onset of Operation ENDURING FREEDOM, NATO now runs major portions of the Afghanistan development effort as part of the International Security Assistance Force (ISAF). NATO took over ISAF in August 2003 as NATO's first operation outside the traditional alliance boundaries.²³ Expanded in October 2003 to cover the entire country, all 26 NATO nations plus 13 others operate "under a UN mandate at the request of the Government of the Islamic Republic of Afghanistan."²⁴ NATO forces lead over 55,000 personnel²⁵ operating on a spectrum of activities, but focus on "extending security, and supporting governance, reconstruction and redevelopment" to enable Afghan self-sufficiency in governance and security.²⁶ NATO recently reinforced its commitment to operations in Afghanistan at the April 2008 Bucharest Summit by making Afghanistan the alliance's key priority.²⁷

Although land routes from ports in Pakistan provide capability to sustain forces in Afghanistan, continued threats to the security of those routes increases the need for complementary resupply capability through airlift. In addition, the speed and volume advantages of strategic airlift give commanders flexibility. Given the long-term nature of Afghan engagement, both personnel and equipment require rotation for reconstitution. In addition, strategic airlift provides direct delivery of many critical assets needed to establish and build Afghan National Army capability. An Antonov An-124 aircraft recently transported donated Czech Republic helicopters to Kabul.²⁸ Similarly, the Canadian military used a combination of An-124 and US C-17 aircraft in September 2006 to deliver 42-ton Leopard tanks.²⁹ As these examples demonstrate, continued alliance equipment and personnel rotation needs along with Afghan equipment deliveries requires a ready and robust strategic airlift capability.

The security provided by the NATO alliance during the Cold War afforded European nations a secure environment to establish formal relationships based on common interests. Post-World War II Europe faced challenges from not only reintegrating Germany, but establishing a greater European community with increased control over European affairs. With the establishment of the European Coal and Steel Community (ECSC) in 1951, six nations (France, Germany, Belgium, the Netherlands, Luxemburg and Italy) sought the economic benefits from cooperation in the coal and steel industries as well as the security provided by creating interdependencies on the German government.³⁰ Further economic integration in the form of the European Economic Council eliminated trade barriers, established standards among industry and established greater supranational control by the council over the individual nations.³¹ In what Mark Gilbert calls an “unprecedented voluntary cession of national sovereignty,” the Maastricht Treaty of 1992 created the EU to further increase cooperation and integration among its members.³²

Growing from early economic cooperation, the EU of today operates more like a state actor and less like an international organization. Further relinquishing traditional sovereignty concerns, the EU members adopted a common budget and currency, established common governance and legal standards with a European parliament and European Court of Justice, and formed an executive body with limited power to negotiate agreements on behalf of its members.³³ Although seemingly on a course to evolve state powers into a federation of states, the EU suffered a setback with the failure of the European Constitution.

Although the recent constitution effort failed, the EU continues to maintain an interest in developing a European defense identity. Outside of NATO, European nations focused little attention on defense beyond the formation of the Western European Union (WEU) in 1954.³⁴ However the Cold War demonstrated a relative European impotence to influence US defense

policy regarding the handling of the Cuban missile crisis, the Vietnam War, and negative US reaction to European interests in the Suez Canal area.³⁵ The EU gained greater defense independence with increased cooperation between the EU and WEU in 1997. The EU adopted the WEU's 1992 limitations of force known as the Petersberg tasks: humanitarian and rescue tasks, peacekeeping tasks, tasks of combat forces in crisis management, including peacemaking.³⁶ Although many of the tasks seem to focus on resolving crisis through humanitarian and peace keeping efforts, peacemaking could necessitate the full spectrum of major combat operations.

Despite describing the types of potential EU military engagements, the EU lacked a coherent policy for the use of military force. Seeking to clarify the EU's goals, Britain's Prime Minister Tony Blair and French President Jacques Chirac, declared the EU "must have the capacity for autonomous action, backed up by credible military forces, the means to decide to use them, and the readiness to do so."³⁷ To achieve these ideals, the EU created the European Security and Defense Policy (ESDP) in 1999 consisting of a 60,000 member Rapid Reaction Force (RRF) to carry out the Petersberg tasks.³⁸ Similar to the PCC, the EU works military solutions through the European Capabilities Action Plan designed to promote "bottom-up" projects,³⁹ and the European Defence Agency (EDA) designed "to support the Council and Member States in their effort to improve the EU's defence capabilities in the field of crisis management and to sustain the ESDP as it stands now and develops in the future."⁴⁰

Although the EU membership contains many NATO nations, the EU does not benefit from organic US strategic airlift capability, but must currently rely on limited national capability provided through Great Britain's C-17s or through commercial lease arrangements. Thus, the

expeditionary nature of the EU forces drives the need for a significant capable strategic airlift force.

Although NATO and the EU are separate organizations with distinct missions, both organizations have historically sought a cooperative relationship on issues of common interest. Building on foundations that began at NATO's Washington Summit in 1999, the 2002 NATO-EU Declaration on EDSP recognized the need for "coherent, transparent and mutually reinforcing development of the military capability requirements common to the two organizations"⁴¹ to accomplish the missions of both organizations without interference or unnecessary duplication of effort.

The greatest cooperative effort regarding defense involves making NATO assets available for EU operations when NATO itself is not engaged. Commonly known as Berlin Plus, the agreement covers four main areas:

- Assured EU access to NATO operational planning (the hardware and software needed to plan a particular mission)
- Availability to the EU of NATO capabilities and common assets
- The option to use NATO's European command for EU-led operations, including developing the European role of NATO's Deputy Supreme Allied Commander, Europe (DSACEUR)
- Adjustments to NATO defence planning system to allow for forces to be used for EU operations as well⁴²

Using the Berlin Plus arrangements, the EU effectively accomplished Petersberg tasks by transitioning NATO's ALLIED HARMONY operation in Macedonia to a 300-person EU-led Operation CONCORDIA with 300 personnel.⁴³ At the time of this writing, the EU continues to lead 7,000 troops in Operation ALTHEA enforcing the Dayton Peace Accords in Bosnia and Herzegovina. The ALTHEA chain of command utilizes an on-scene EU commander with the

NATO Deputy Supreme Allied Commander Europe (DSACEUR) at the Supreme Headquarters Allied Powers Europe (SHAPE). If necessary, ALTHEA also relies on extraction forces from NATO.⁴⁴ Outside of Berlin Plus, NATO and the EU have also assisted the African Union in the Darfur region of Sudan. NATO provided training and airlift support while the EU assisted with military planning and civil policing.⁴⁵

Although NATO and the EU developed distinct capability improvement documents, NATO's Prague Capability Commitment and the EU's European Capability Action Plan, both organizations recognized the need for cooperation. To improve the capabilities of both organizations without duplication of effort, the EU and NATO have formally agreed to cooperate in the following areas: NBC defense, medical, UAVs, strategic airlift and sealift, and air-to-air refueling.⁴⁶

The discussion above reveals the potential for significant cooperation between the two organizations in meeting airlift shortfalls, yet disagreements could effectively limit the degree of true cooperation between the EU and NATO. Although both organizations focus on Europe with many dual member nations, some only belong to one. A recent example of the ongoing conflict between Turkey and Cyprus illustrates the difficulty in achieving unity.⁴⁷ Despite working together on defense issues, the mere entry of the EU into the defense realm leads to potential conflict over the future relevance of NATO. In addition, the potential for duplication of effort and diversion of resources could occur as nations make hardware procurement decisions to meet capabilities of the two organizations. With limited defense spending in many European nations, meeting the needs of one organization may be difficult, let alone satisfying potential multiple requirements of two organizations. Finally, the forces for NATO and EU operations will likely come from the same limited pool of a nation's resources. Determining how a nation will

prioritize support could significantly affect either alliance's capabilities, or the nation's ability to handle national concerns.

Chapter Three: Strategic Airlift Requirements

With the many uses of strategic airlift across the spectrum of operations from full conflict to humanitarian operations, demand for airlift consistently exceeds supply. While taking into consideration the myriad operations undertaken by NATO and the EU, examining the operations requiring the greatest requirement of strategic airlift resources will assist in determining the minimum acceptable level of strategic airlift needed by NATO and the EU.

The strategic airlift required for the current and future global engagement posture of NATO differs significantly in the amount and type of airlift required for the Cold War defense of Europe. As NATO has adjusted mission requirements to meet the new environment, NATO should also determine the strategic airlift requirements to meet desired needs. At the time of this writing, the author has been unable to access official NATO strategic airlift studies, but has used secondary source material from journal articles, congressional reports and other NATO material to derive a NATO strategic airlift position. The scope of this analysis focuses on cargo requirements and excludes the movement of the estimated 22,000 personnel required for an NRF deployment based on the wide availability of civilian capability.⁴⁸

While the most stringent NATO mission involves an Article Five defense of its members, the more likely scenario involves the deployment of the NRF and the sustainment of forces in NATO's ongoing Afghanistan operations. The most stringent NRF mission therefore involves the deployment and sustainment of a full NRF. In a study commissioned by the US Deputy Assistant Secretary of Defense Forces Transformation and Resources, analyst Richard Kugler estimates a complete NRF deployment requires transportation capability for 50,000 tons of

equipment. Although 3-6 roll-on/roll-off ships would transport a considerable portion of the requirement, “100 or more sorties of heavy air cargo” aircraft would complete the deployment.⁴⁹

In a study titled, “Deploying the NRF”, Colonel Carlo Massai of the Joint Air Power Competence Center describes requirements based on a “balanced approach, drawing upon the emerging CJSOR for a full NRF deployment, together with data from the NATO MOVEX 04 exercise which simulated a NRF 3 and 4 deployment.”⁵⁰ While the author acknowledges the difficulties in quantifying a “typical” NRF deployment, great variance exists in the estimates. Col Massai’s middle of the road estimate of a 100,000 ton movement requirement doubles the Kugler estimate.

To further define the scope of effort required, one must translate the sortie estimates into an aircraft requirement to describe the physical resources NATO needed. Since the NRF relies on a short deployment timeline, the alliance will favor more aircraft rather than fewer to rapidly generate the 100 sorties into a successful force deployment closure. The best approximation for NATO’s strategic airlift need comes from the US Congress. In the National Defense Authorization Act for Fiscal Year 2008, a US Senate subcommittee cited an eight C-17 equivalent requirement for NRF deployment based on data from the NATO Supreme Allied Commander Europe’s Minimum Military Requirements study.⁵¹

As NATO worked through the Prague Capabilities Commitment to adopt a military capability standard, European Union leaders similarly met in Helsinki in 1999 to establish military capabilities outlined in the Headline Goal.⁵² Supporting the Petersberg tasks, the EU force of 60,000 troops would deploy within 60 days and could remain deployed for up to one year.⁵³ In yet another parallel with NATO military capabilities initiatives, the EU recognized deficiencies and implemented the European Capability Action Plan (ECAP) to address concerns such as

mobility and also to form 13 battlegroups.⁵⁴ Further refining of ideals led to the “Headline Goal 2010” which calls for three specific airlift-related tasks: implementing EU strategic lift joint coordination, developing a fully efficient European Airlift Command for those member nations who want to be part of the EAC, and completing development of the rapidly deployable EU Battlegroups (force package of approximately 1,500 troops).⁵⁵

In addition to the operations transitioned from former NATO control, EU operations have spanned the spectrum from peacekeeping to building civilian governance capability. With France as a lead nation, the EU initiated Operation ARTEMIS to provide peacekeeping in Congo from 5 Jun 2003 to 1 Sep 2003.⁵⁶ On a much smaller scale, the EU provided assistance in July 2004 to Georgian legal reform with eight experts led by a French judge.⁵⁷

A study by Belgium’s Royal Defense College in 2004 described European Union strategic airlift requirements in terms of the most stringent requirement, peace imposition, by asking the questions: “how much, how far, and how fast.”⁵⁸ Based on the *Headline Goal Task Force* guidelines, the EU would deploy approximately 20% of the required equipment by airlift at distances of up to 4,000 kilometers from European Union borders.⁵⁹ The study estimates “a daily movement of 14 heavy carriers (C-17 Globemaster equivalent), 60 medium carriers (C-130 or C-160 Transall equivalents) and 10 passenger aircraft” to transport the 60,000 personnel force with 40,000 tons of equipment and supplies.⁶⁰

To date, neither organization has deployed a full NRF or ERRF in a conflict situation. Thus, the best estimates available for the most stringent strategic airlift needs for NATO quantify a total of eight C-17 equivalents. Although transporting less tonnage than NATO forces, the EU estimates the use of 14 C-17 equivalents over the full 60-day deployment period. In analyzing the compatibility of NATO’s strategic airlift solutions to a broader EU context, one must account

for the EU's greater perceived need for airlift. Final solutions must recognize the difference and offer potential solutions in the final recommendations.

Chapter Four: Current NATO Strategic Airlift Solutions

To meet NRF deployment requirements and continue to sustain ongoing operations such as ISAF in Afghanistan, NATO can rely on three primary options, either individually or in combination, to increase airlift capacity: increased organic national capability, leasing aircraft through a venture such as the Strategic Airlift Interim Solution (SALIS), or purchasing aircraft under a partnership such as the Strategic Airlift Consortium (SAC).

Until recently exploring other options, NATO relied upon the organic strategic airlift contributions of its members. Although encouraging nations to cooperate on airlift needs, the Movement and Transportation Principles section of the "NATO principles and policies for movement and transportation" document states "nations are responsible for obtaining transportation resources to deploy, sustain and redeploy their forces."⁶¹ NATO coordinates shortfalls through the Allied Movement Coordination Centre (AMCC) and the Joint Transportation Co-ordination Centre (JTCC).⁶² While each nation must develop individual capacity, NATO ensures standardization of airlift through five Allied Movement Publications.⁶³

In one respect, the alliance already produces significant airlift capability. Since the alliance itself owns no strategic airlift forces, the United States, Great Britain and Canada would provide nearly all of the organic the capability.⁶⁴ The United States currently operates 111 C-5A/B aircraft and 174 C-17 aircraft with potential plans to increase to 205 C-17s. The smaller of the two airlifters, the C-17 delivers a 169,000 pound cargo at a range of 2,400 nautical miles.⁶⁵ Great Britain now owns five C-17 aircraft and Canada recently took delivery of their fourth C-17

from Boeing.⁶⁶ The remaining NATO members utilize combinations of tactical airlifters such as the C-130 and C-160.

In addition to the recent British and Canadian C-17 procurements, the European consortium Airbus produced the first prototype A400M aircraft in June 2008. The propeller driven aircraft transports outsized cargo of 66,000 pounds up to 2400 nautical miles.⁶⁷ This range provides capability throughout Europe and Northern Africa without requiring in-flight refueling. Airbus plans to build 180 A400M aircraft for eight NATO members: Germany (60), France (50), Belgium (7), UK (25), Spain (27), Luxembourg (1), and Turkey (10). While the A400M offers short landing on unimproved surfaces, it lacks the weight lifting capacity to carry tanks or heavy equipment. Although various sources describe the final delivery to NATO customers in 2020, at the time of this writing, Airbus had not finalized the complete production timeline and delivery schedule.

In addition to organic national options, NATO currently relies on leasing strategic airlift capability through the private sector as an important component of current strategic airlift capability. On 23 January 2006, 15 NATO nations and one NATO partner nation, entered into an agreement known as the Strategic Airlift Interim Solution (SALIS) to lease flight hours on Russian and Ukrainian An-124-100 aircraft. With a cargo lift capacity of 120 tons, the An-124 provides significant lift capacity. Designed as a “gap filler” until A400M or other solutions are available to NATO, the SALIS agreement provides for two full-time charter aircraft based at Leipzig, Germany, with two more on six days notice and another two on nine days notice.⁶⁸ Nations coordinate for the charter of the aircraft through the Strategic Air Lift Co-ordination Centre, co-located with the European Airlift Centre, in Eindhoven, the Netherlands.⁶⁹

The SALIS Memorandum of Understanding (MOU) provides capability for NATO, EU and national uses.⁷⁰ To guarantee “assured access” for either NATO or EU operational needs, the SALIS MOU makes six An-124 aircraft available for 20 days once per calendar year with a minimum of 800 flying hours available.⁷¹ In addition, further provisions allow between 6 and 10 activations for NATO or EU missions. Member nations commit to a certain number of flying hours per year, with a total of 1859 annual flight hours.⁷² The SALIS MOU provides flexibility with provisions for the addition of new members.⁷³

The ultimate costs of the SALIS program remain difficult to pinpoint. While members pay for the flying hours used, they also pay a proportional share of the administrative charges, service charges, and the costs of assured access based on their total number of hours. The MOU does not list the actual costs of the flying hours or ancillary costs; however analysts predict \$200 million for 2,000 flying hours a year for a three-year commitment. Using these figures, the costs (including charges) equates roughly to \$33,000 per flying hour. A recent mission to Afghanistan using the An-124 SALIS charter cost \$250,000.⁷⁴

Born from a need to solve strategic airlift shortfalls while keeping costs low to participants, ten NATO nations, plus Partnership for Peace nations Sweden and Finland, signed the Strategic Airlift Consortium Memorandum of Understanding (SAC MOU) on 23 September 2008 to jointly own three C-17 aircraft.⁷⁵ Joint ownership provides efficiencies by giving participants a greater airlift capability at a lower cost than if purchased individually. Prior to initiating SAC, analysts estimated an annual cost of 13 million Euro for each nation of a notional four-nation partnership collectively owning four aircraft. If those same four nations owned one aircraft each, costs would rise by \$11 million Euro per year with the corresponding loss in capability.⁷⁶ Purchasing aircraft as a collective also affords capability to smaller nations. Small nations

purchasing a relatively small number of aircraft must often combine purchases with larger nations to gain price reductions, yet lose flexibility in configuration or type of aircraft.

SAC consists of two C-17 aircraft purchased under Foreign Military Sales agreements in addition to one aircraft given as a non-cash contribution by the United States. The inaugural year of a 30-year program provides for 3,165 declared flight hours with 335 hours in reserve for contingency purposes. The United States committed to the most hours (1000) while smaller nations such as Lithuania and Estonia both committed to purchase 45 annual flight hours each.

The aircraft will be certified, registered and operated from Papa Air Base, Hungary, under a Heavy Airlift Wing concept (HAW). HAW operations began in November 2008 to prepare for aircraft arrival in 2009.⁷⁷ Once trained in the United States, multi-national crews will operate the aircraft with logistics provided by 50 Boeing C-17 Globemaster III Sustainment Partnership contractor personnel through Boeing Contractor Logistics Support.⁷⁸

In developing SAC, NATO sought to build on the successful NATO-owned AWACS capability initiated in the late 1970's. NATO manages the 17 AWACS aircraft with the AEW&C Program Management Agency (NAMPA).⁷⁹ Similarly, the SAC agreements created the NATO Airlift Management Organization (NAMO), its executive body, the NATO Airlift Management Agency (NAMA), and the NATO Production and Logistics Organization (NPLO) established on 29 Sep 08 to manage the aircraft owned collectively by the member nations.⁸⁰ With a staff of 30-40 people, the newly created NATO organizations provide for the acquisition, management and sustainment of the aircraft in partnership with the NATO Maintenance and Supply Agency (NAMSA).⁸¹ Unlike the AWACS partnership which relied on offset arrangements⁸², participating nations buy flying hours⁸² and may trade them among other member nations, or use them to support third party needs.⁸³

Although NATO created organizations to sustain and manage the aircraft, SAC is not a NATO unit.⁸⁴ The command structure clearly aligns management and sustainment functions with NATO, while operational control resides with the participating nations through the US commander of the HAW, his Swedish deputy, and the SAC Steering Board composed of member nations.⁸⁵ With 14 different nations in SAC using a limited resource, the HAW established priorities for missions listed below.

1. Employment or redeployment of forces in support of NATO, EU or UN military operations
2. Response to actual or anticipated armed conflict or crisis where a SAC nation is involved
3. National emergencies in direct support of a SAC nation's citizens
4. Nation support of NATO, EU, or UN operations not covered in #1
5. National support of humanitarian operations
6. Other national requirements⁸⁶

Although NATO, EU and UN missions remain the top priority, canceling a national mission to rededicate assets would require a consensus of all members.⁸⁷ Although one expects a member nation might agree to cancel a national mission in support of emergency NATO, EU or UN operations, routine NATO requests may not receive the same attention. In addition, both Hungary and the HAW Commander may cancel missions, and nations may "opt out" of missions due to national caveats.⁸⁸

Although preparations continue for basing aircraft from Papa Air Base, SAC must address key issues. First, rising costs meant either a funding increase of 9.6% or the deferment of aircraft and materiel capabilities to include: "LAIRCM (Large Aircraft Infrared Countermeasures), hangar, spare engine, ½ the material handling equipment, 24 HAW personnel and costs to train them."⁸⁹ SAC chose to accept the initial deferment of the previously mentioned items, yet expects nations to fund them soon. Although originally designed to take advantage of in-place

infrastructure at Ramstein Air Base Germany, the political decision resulting in basing at Papa Air Base, Hungary, means member nations must invest in infrastructure to achieve capability. SAC hopes to receive NATO Security Investment Program (NSIP) funds to build a hangar, yet NATO's recent December 2008 Capability Package currently supports \$100 million of projects at Ramstein and Rota Air Bases.⁹⁰

Chapter Five: Analysis of current NATO strategic airlift solutions

Although NATO has addressed building strategic airlift capacity through a combination of lease and consortium purchase options, analysis of strategic airlift capability should begin with current and future national capacity. Indeed the national capacity of the United States has sustained the alliance since its inception. The United States, along with recent strategic airlift purchasers, Great Britain and Canada, possess significant lift capability to transport NATO NRF forces anywhere in the globe. Yet the alliance can't rely solely on current or future national capability. First, other national commitments continually place demands on US, British and Canadian national interests. Ongoing British commitments to the Falklands and US deployments and exercises in PACOM provide two such examples. In addition, those extended commitments place a heavy burden on existing strategic airlift fleets. Expected to achieve a 30-year lifespan flying an average of 1,000 hours per year, Gen Arthur Lichte, Commander of Air Mobility Command, recently stated the US C-17 fleet may only last a 22-25 year lifespan.⁹¹ With each aircraft averaging 1,400 hours per year, the US may eventually have to make often expensive decisions in maintenance time and money regarding to extend C-17 service life. In addition to the factors listed above affecting the availability of US, British and Canadian aircraft, allies cannot rely on borrowing other allied aircraft to meet national or alliance reasons simply because the aircraft may not be available during times of need due to maintenance or other commitments.

Finally, relying on current US, British and Canadian capability does not solve the problems regarding developing European capability identified in the Prague Capabilities Commitment.

With limited ability to borrow allies' organic airlift, some analysts believe the Airbus A400M aircraft contracts will help European nations close the strategic airlift gap. Several factors limit the reliance on a future European A400M national capability. First, concerns with aircraft production and capability drive the urgency of need for a solution. Current delays in aircraft production mean the first A400M won't fly until 2013.⁹² NATO's Colonel Carlo Massai of the Joint Air Power Competence Centre believes the A400M "should therefore enable the timely deployment of the NRF without prejudicing the availability of US and UK strategic lift assets, nor requiring NATO to depend on complicated and expensive lease arrangements for An 124s."⁹³ Despite this confidence, the A400M's limitations may prove otherwise. While capable of outsize cargo, the A400M cannot transport the heavy tanks or artillery pieces required to meet NRF goals. In addition, aircraft design modifications could reduce the current A400M design specifications of transporting a 66,000 pound load up to 3,000 miles without refueling.

Relying on the European A400M purchases merely transfers the concerns of relying on national interests from the US, Great Britain, and Canada to Europe. Four European nations (Germany, France, Great Britain and Spain) plan to purchase 90% of the original A400M production. While this enhances a European capability, the numerous other European nations without A400M purchases will remain as dependent on their European neighbors as the alliance currently is on the United States.

Finally, reliance on current or future national solutions alone continues to stratify the alliance between large wealthy nations and smaller poorer nations. Lacking capital investment or military need for A400M aircraft means these nations will always depend on the nations with

airlift capacity to deploy their forces. With added expense, plus the challenges of relying on partners for opportune airlift, may mean smaller nations may contribute fewer forces to NATO operations in the future.

National organic capability does not provide effective solutions now, or in the future. Two options remain for consideration: continue a combination of SAC and SALIS, or procure an alliance-owned organic capability.

For many reasons, the combination of SALIS and SAC provides NATO strategic airlift capability. Perhaps most importantly, this solution provides capability to deploy forces now. Already in effect, the SALIS agreement produces strategic airlift for needed NATO capabilities. The complementary SAC initiative will gain its three aircraft and begin operations during this calendar year. In one respect, the alliance gains a measure of security because neither solution meets the need by itself. Diversifying aircraft types through the civilian and national partnership actually helps mitigate the potential loss of capability from fleet wide urgent maintenance actions or civilian contract disputes. While not the primary option, US, British and Canadian strategic airlift assets remain an emergency “strategic reserve.”

The mix of SAC and SALIS, however fails to provide the perfect partnership due to several concerns impacting overall effectiveness. First, while the An-124 has one of the largest cargo holds in the world, other aircraft limitations inhibit flexibility. Due to its size, the An-124 requires long runways for takeoff and landing. For example, the An-124 can't land at forward bases such as Herat and Mazar-e-Sharif in Afghanistan.⁹⁴ In addition, the non-pressurized cargo hold limits cargo type and passenger transportation. Finally, the lack of defense measures limits restricts the aircraft to an “environment that does not require defensive aid equipped cargo

aircraft”⁹⁵. Since current operating concepts call for a force-entry capable NRF, strategic airlift assets need the capability to operate from hostile areas.

While the SALIS members pay fixed costs associated with guaranteeing a specified capability available for use, the cost to use that capability fluctuates due to market demand at the time of need. As noted during the Pakistan earthquake crisis, costs for leasing airlift tend to escalate during periods of high demand.⁹⁶

Finally, NATO requires dependable airlift. A charter An-124 remained under “ramp arrest” for more than a year while courts sorted out a contract dispute. Unwarranted foreign government influence may also affect aircraft availability. While the Ukrainian charter company would not necessarily plan to break contracts, the recent conflict with Russian over natural gas prices reveals the extent the Russian government will exert its influence into Ukrainian governmental affairs. Unfortunately, such a situation may occur during a must-not-fail mission.

While SAC promises great flexibility and capability, NATO leaders must manage expectations appropriately. As discussed previously, SAC itself is not a NATO organization, but functions through the member nations with management support provided by NATO. While the alliance itself will have a degree of control regarding the management aspects of SAC, operational decisions rest with the HAW and member nations themselves. In approving the sale and transfer of the C-17 aircraft, the US Congress expects SAC “to give priority to meeting airlift requirements associated with NATO missions”⁹⁷, but national interests may take precedence if a national mission conflicts with a NATO mission.

Whether purchasing or leasing strategic airlift capability, funding remains a large concern. Because current NATO practices call for nations to deploy or pay for the deployment of the forces they contribute to NATO operations, nations contributing forces to the NRF pay both in

forces and costs while those nations not participating in the operation normally accrue little to no costs. Dubbed the “reverse lottery” by the NATO Secretary General⁹⁸, a nation must spend its resources if their forces are needed thereby creating “disincentives for nations to be “first in” for a given operation, due to the high costs of establishing facilities needed to start-up in a theatre.”⁹⁹ For example, Spain spent 14 million Euros in 2006 to deploy its forces to Pakistan in support of earthquake relief operations.¹⁰⁰ This disincentive may also drive nations away from participating in an airlift consortium as nations with airlift capacity would feel compelled to provide forces because they possess the means to transport them to the conflict.

The final alternative involves extending the scope of SAC through the collective purchase of eight total C-17 strategic airlift assets to meet the NATO needs without relying on organic national or lease capabilities. Similar to NATO’s AWACS capability, an alliance airlift capability provides flexibility in increasing or decreasing flight hours as required for operational needs. This option integrates and builds capacity for smaller nations not only in the airlift provided, but through participation as crew and staff members. This option eliminates the fluctuations of market cost and other unknowns associated with long term lease agreements. NATO must overcome some of the previously mentioned challenges associated with SAC. While this study cannot compare aircraft type for purchase, the C-17 provides the latest capability and production continues at least through 2009 on new aircraft.

Although the strategic airlift solutions discussed above provide capability to both NATO and the EU through their member nations, NATO and the EU cooperation should expand beyond current strategic airlift initiatives to prevent duplication of effort, enhance cooperation and synergistic effects.

With defense budgets especially tight in the current global economic crisis, maximizing capability while minimizing costs requires dialog and cooperation between NATO and EU members. Seeking to bolster national capabilities of EU members, the chief executive of the EDA, Alexander Weis, has encouraged nations to pool their A400M purchases. In addition, he's exploring joint ownership options as well to hopefully entice and encourage nations who have not decided to purchase the A400M.¹⁰¹ While the EU may develop these partnerships alone, working together with NATO on a common coordination effort may yield greater effectiveness without unnecessary duplication of effort. Calling for a greater level of cooperation in airlift, NATO Secretary General Jaap de Hoop Scheffer recently challenged the EU and NATO to bring together the upcoming A400M aircraft with C-17s as a joint transport project.¹⁰²

Ideally, the European NATO and EU forces would procure sufficient strategic airlift using a SAC commonly owned aircraft relationship. The differences between the two organizations may preclude such advances in cooperation, yet NATO and EU can capitalize on the synergies of the recently created Movement Coordination Centre Europe (MCCE). Designed to integrate national air and sea transport and refueling assets, the MCCE consists of 15 European nations with another six potential members.¹⁰³ NATO should evaluate the feasibility of integrating SAC planning and coordination functions within the MCCE. Fully integrating all NATO and EU members into the MCCE and establishing NATO and EU management cells could reduce costs, improve coordination, and enhance European strategic airlift doctrine and practice.

In addition to enhancing communication and coordination at a common airlift center, NATO and the EU should expand cooperation through the pooling of resources. Airlift resource pooling makes aircraft available to nations on a cost reimbursement basis. Although the Netherlands signed the SAC agreements, the Dutch and Germans recently signed the German-Dutch Air

Transport Agreement which “offers the Netherlands the possibility of using German A400Ms in exchange for a 50 million Euro financial contribution.”¹⁰⁴ Thus, the Netherlands gains tactical/strategic lift without the expense of aircraft procurement. In addition, twelve European nations recently signed a Declaration of Intent to establish a European Air Transport Fleet (EATF).¹⁰⁵ Through pooling, this new agency intends to establish equivalency criteria to allow the trading or purchase of flight hours or other services such as maintenance.

The United States achieves great capability from a similar arrangement known as Acquisition and Cross Servicing Agreements (ACSA). ACSA agreements allow nations to buy, sell, or trade commodities at prices the providing nation would normally pay if providing the good or service to its own forces or government. Thus, nations save resources through these types of agreements. Adopting a resource pooling program for NATO and EU nations helps reduce shortfalls and cost while increasing integration among the two organizations.

Chapter Six: Recommendations and Conclusions

NATO and the EU stand at the crossroads of implementing new missions requiring increased capability. Making smart decisions regarding strategic airlift will allow both NATO and the EU to strengthen their respective organizations’ capabilities. This study provides four recommendations: purchasing eight total C-17 aircraft for SAC to meet NRF deployment needs, re-evaluating NATO and EU airlift requirements, overhauling NATO funding procedures, and integrating NATO-EU strategic airlift coordination.

First, NATO should purchase an additional five C-17 aircraft to meet NRF deployment requirements. While this purchase requires an upfront investment, NATO needs an organic alliance-owned capability to guarantee access for future missions. As described in the analysis section, an alliance-owned provides solid capability while minimizing limitations inherent in the

other solutions. Adopting a C-17 SAC solution does not completely close the door on the use of the An-124 for special requirements. While the alliance should cancel the expensive SALIS guaranteed lease provisions, hiring these aircraft for single mission charters makes sense when cargo demands or mission requirements exceed C-17 capability. Purchasing the additional five aircraft needed to meet NATO NRF requirements now takes advantage of lower costs because the production line remains open.

Fully funding the eight aircraft also builds the NATO alliance. While the larger members of the alliance have previously provided a majority of the forces and their airlift transportation, the availability of the C-17 SAC allows smaller nation such as Lithuania and Estonia to contribute forces to NATO missions knowing they now have a measure of control on deployment timelines. On why his country joined SAC, Estonia's Defense Minister Jaak Aaviksoo stated, "Estonia acquires remarkable freedom and secures itself against contingencies if the need should arise to quickly transport personnel or equipment, or evacuate from, an operation area."¹⁰⁶ Similarly, Lithuania's contribution allows the small nation to modernize its armed forces while "paying back" the alliance for the air policing it receives over the Baltics.¹⁰⁷

Both NATO and the EU would benefit from re-evaluating current airlift requirements. Current analyses vary in scope and do not use common frames of reference when discussing the true capabilities needed. While separate analyses would serve NATO and EU interests, performing a joint analysis may offer additional avenues of cooperation. To reduce the amount of airlift needs, both organizations should take a hard look at the equipment requirements to meet operational capability. Planners should recognize opportunities to streamline deployment packages by coordinating common use items among members to prevent duplication of effort.¹⁰⁸ In addition to common asset planning, appropriately utilizing prepositioned equipment and host

nation support offers opportunities to reduce strategic airlift requirements. While prepositioning assets includes costs such as storage and maintenance, and host nation support may lack assurances of availability, planners should examine these sources as potential means to reduce airlift requirements.

The current economic crisis further hinders the ability of European nations to increase already low defense spending. With low expectations of additional capital investment, NATO must fix existing funding mechanisms to maximize national contributions to missions. This study directly supports recommendations from *Alliance Reborn: An Atlantic Compact for the 21st Century* regarding funding.¹⁰⁹ First, NATO must “expand the use of common funds to cover some costs for participating in NATO missions.”¹¹⁰ Julianne Smith et al. suggest 0.2 percent of annual military expenditures would provide reimbursement for nations providing “first in” forces.¹¹¹ Providing some reimbursement for a nation using their SAC hours to support a NATO mission should make nations more likely to participate. Next, common funds should purchase common equipment.¹¹² Utilizing common equipment reduces airlift requirements as nations do not have to rotate equipment with every aircraft deployment. Although reforming funding remains difficult, the operational and alliance cohesion benefits make the effort worthwhile.

Integrating strategic airlift planning and operations with the EU enhances the capabilities of both organizations. Dr. Julian Lindley-French, speaking at the Atlantic Council’s conference on *Reforming NATO for the 21st Century*, advocated increased joint force planning and cooperation on equipment procurement.¹¹³ In addition to overall planning efforts, NATO and the EU should consolidate strategic airlift management and request processes. As analyst Daniel Keohane notes, “Although in Brussels the NATO and EU headquarters do not work together, in Addis Ababa at the AU headquarters, EU and NATO personnel jointly co-ordinate their airlift

support.”¹⁴ NATO and the EU can build on this tactical cooperation by establishing a close working relationship among NATO and EU airlift coordination cells within the MCCE to commonly manage assets with the ability to trade hours among NATO and EU members as needed.

The changing world needs the capabilities provided by the NATO alliance and the European Union. To meet challenging global demands, both organizations, and their component nations, require force projection capabilities. Strategic airlift provides the capability to extend the NATO and EU reach into trouble spots with the flexible options of humanitarian assistance to conventional military operations. Maximizing strategic airlift capability ensures NATO and the EU can initiate and sustain operations throughout the globe within challenging fiscal realities.

Improving strategic airlift capabilities creates a more capable NATO alliance by providing a common asset for all nations to employ. Small and large nations benefit from reduced acquisition costs, life cycle costs, while receiving the benefits of a greater pool of aircraft to meet national and alliance needs. Finally, developing strategic airlift capability enhances overall NATO capability no matter the outcome of current debates over collective defense versus collective security.

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² Air Mobility Command, “AMC Airlift to deliver”

³ Daalder, “Global NATO”,

⁴ Daalder, “Global NATO”,

⁵ Daalder, “Global NATO”,

⁶ Jochems, “Operations: old and new”,

⁷ NATO, “NATO Working on Airlift Needs,”

⁸ Borchert, *The Lessons of Kosovo*, 373

- ⁹ Space War. “US laments Europe’s military shortfalls”
- ¹⁰ Borchert, *The Lessons of Kosovo*, 373
- ¹¹ NATO, “Current and Future Capability Priorities for the Atlantic Alliance”, paragraph 29
- ¹² NATO, “Current and Future Capability Priorities for the Atlantic Alliance”, paragraph 29
- ¹³ NATO, “Current and Future Capability Priorities for the Atlantic Alliance”, paragraph 32
- ¹⁴ NATO, “Current and Future Capability Priorities for the Atlantic Alliance”, paragraph 32
- ¹⁵ Bell, “Sisyphus and the NRF”
- ¹⁶ Bell, “Sisyphus and the NRF”
- ¹⁷ Bell, “Sisyphus and the NRF”
- ¹⁸ NATO, “The NATO Response Force- NRF”
- ¹⁹ Kugler, “The NATO Response Force”, 4
- ²⁰ Kugler, “The NATO Response Force”, 4
- ²¹ Kugler, “The NATO Response Force”, 6
- ²² Kugler, “The NATO Response Force”, 6
- ²³ NATO, “Briefing: Helping Secure Afghanistan’s Future”
- ²⁴ NATO, “Briefing: Helping Secure Afghanistan’s Future”
- ²⁵ NATO, “NATO in Afghanistan”
- ²⁶ NATO, “Briefing: Helping Secure Afghanistan’s Future”
- ²⁷ NATO, “Briefing: Helping Secure Afghanistan’s Future”
- ²⁸ Personal communication with friend on advisory team
- ²⁹ Priestly, “Passage to Panjwaii- Canadian Tanks Go to Afghanistan”
- ³⁰ McCormick, *The European Union*, 65
- ³¹ McCormick, *The European Union*, 69-70
- ³² McCormick, *The European Union*, 92
- ³³ McCormick, *The European Union*, 29
- ³⁴ McCormick, *The European Union*, 341
- ³⁵ McCormick, *The European Union*, 72-73
- ³⁶ McCormick, *The European Union*, 343
- ³⁷ McCormick, *The European Union*, 343
- ³⁸ McCormick, *The European Union*, 343
- ³⁹ Cornish, Paul Dr. “EU and NATO: Co-operation or Competition?”, 17
- ⁴⁰ Cornish, Paul Dr. “EU and NATO: Co-operation or Competition?”, 17
- ⁴¹ Solana, “EU-NATO Declaration on ESDP”
- ⁴² Defence-Europe, “NATO-EU Relations”
- ⁴³ Defence-Europe, “NATO-EU Relations”
- ⁴⁴ NATO, “NATO-EU: A Strategic Partnership”
- ⁴⁵ Defence-Europe, “NATO-EU Relations”
- ⁴⁶ Defence-Europe, “NATO-EU Relations”
- ⁴⁷ Defence-Europe, “NATO-EU Relations”
- ⁴⁸ Massai, “Deploying the NRF”, 12
- ⁴⁹ Kugler, “The NATO Response Force”, 16
- ⁵⁰ Massai, “Deploying the NRF”, 11
- ⁵¹ US Congress. Sec 1028 of National Defense Authorization Act for Fiscal Year 2008
- ⁵² Lindstrom, “The Headline Goal”, 1
- ⁵³ Lindstrom, “The Headline Goal”, 1
- ⁵⁴ Lindstrom, “The Headline Goal”, 3
- ⁵⁵ Lindstrom, “The Headline Goal”, 5
- ⁵⁶ Lindstrom, “The Headline Goal”, 2

- ⁵⁷ Lindstrom, “The Headline Goal”, 2
- ⁵⁸ De Neve, “No Future for European Military Technology?” 1a
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- ⁶⁰ De Neve, “No Future for European Military Technology?” 1c
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- ⁶² NATO, “NATO principles and policies for movement and transportation”, 11-4
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- ⁶⁴ Kugler, “The NATO Response Force”, 16
- ⁶⁵ United States Air Force, “USAF C-5 and C-17 Factsheets”
- ⁶⁶ Boeing, “Boeing Completes Delivery of 4th C-17”
- ⁶⁷ Airbus, *The Pocket Guide to A400M The Versatile Airlifter*, 9
- ⁶⁸ NATO, “Strategic Airlift Interim Solution (SALIS)”
- ⁶⁹ NATO, “Strategic Airlift Interim Solution (SALIS)”
- ⁷⁰ Strategic Airlift Interim Solution (SALIS) MOU, Section 2.1.2
- ⁷¹ Strategic Airlift Interim Solution (SALIS) MOU, Section 3.1.2
- ⁷² Strategic Airlift Interim Solution (SALIS) MOU, Section 3.2.1
- ⁷³ Strategic Airlift Interim Solution (SALIS) MOU, Section 11.2
- ⁷⁴ Smith, “Transforming NATO (...again)”, 34
- ⁷⁵ NATO, “SAC Program Background & Current Status”
- ⁷⁶ Sprenger, “NATO Working on Airlift Needs”
- ⁷⁷ Consortium Beddown Division, Slide 4
- ⁷⁸ NATO, “Strategic Airlift Capability moves to implementation,”
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- ⁸⁰ NATO, “SAC Program Background & Current Status”
- ⁸¹ NATO, “Frequently Asked Questions”
- ⁸² Hessler, “The Impact of Offsets”, 86. “The term offset refers to a practice whereby a buyer requires compensating purchases, investments, etc. from a seller, thereby offsetting some mutually agreed upon portion of the cost of the original purchase”
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- ⁸⁴ Wheeler, email, 3 Dec 08
- ⁸⁵ Consortium Beddown Division, Slide 8
- ⁸⁶ Consortium Beddown Division, Slide 9
- ⁸⁷ Wheeler, email, 3 Dec 08
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- ⁸⁹ Wheeler, email, 3 Dec 08
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¹⁰⁵ European Defense Agency, “European Air Transport Fleet Launched”,

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¹⁰⁹ Hamilton, “Alliance Reborn: An Atlantic Compact”, ix

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