

STRATEGIC AIRLIFT CAPABILITY: FROM THEORY TO PRACTICE

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Strategic airlift remains a critical supporting capability that should be achieved, maintained and improved. This capability ensures the ability to deploy and sustain military forces across possible distant battlefields. The paper analyses the growing strategic airlift capabilities gap between operational needs and current realities, and underlines the need for an enhanced strategic airlift capability to meet current and future NATO alliance needs. By analyzing requirements against the existing/potential solutions, this paper further ponders over options like the organic national capability, partnerships such as the Strategic Airlift Consortium (SAC) or leasing aircraft through a venture such as the Strategic Airlift Interim Solution (SALIS). The paper also evaluates the feasibility of applying these solutions to European Union airlift needs.

Key words: *Strategic Airlift Consortium (SAC), Strategic Airlift Interim Solution (SALIS), strategic airlift capability, NATO Critical Capabilities Package.*

“Systematic use of pooled and shared assets would reduce duplications, overheads and, in the medium-term, increase capabilities”.

1. INTRODUCTION

The global security interests suggest that the principal tasks for the armed forces over the next 25 years will remain much as they have been, but potentially with intensified demands. War related or peace keeping missions will be the starting point for choosing the national or multinational military capabilities. Those capabilities required for a

large range of possible operations in different regions will allow nations to make a credible contribution to regional stability.

Over the time, national armed forces need to remain interoperable with main partners and allies. It will also need to be deployable, sufficiently self-reliant, versatile, and adaptable. Their international interests require that nations must retain the ability to contribute with combat capabilities when required. The general result

should be a projected force structure that retains and enhances its current mix of capabilities, enabling it to operate in places similar or different to where it is today.

In this respect, strategic airlift remains a critical supporting capability that should be achieved, maintained and improved. This capability ensures the ability to deploy and sustain military forces across possible distant battlefields.

The combat effectiveness, protection, sustainability, and mobility of military forces are highly important objectives, and that's why the enabling capabilities of long-range air transport are so critical.

Generally speaking, the term capability is used to describe the personnel, equipment, platforms and/or other material that affect the capacity to undertake military operations. More specifically, capability is:

“The power to achieve a desired operational effect in a nominated environment, within a specified time, and to sustain that effect for a designated period. Capability is generated by some fundamental inputs such as organization, personnel, collective training, major systems, supplies, facilities, support, command and management”. [1]

Airlift capability represents *“the total capacity expressed in terms of number of passengers and/or weight/cubic displacement of cargo that can be carried at any one time to a given destination by available airlift”* [2].

It consists of two distinct types, strategic and tactical airlifting. Typically, strategic airlifting involves moving materiel, weapons and personnel over long distances (across or off the continent or theater), whereas a tactical airlift focuses on deploying resources and material into a specific location with high precision.

Military strategic transport aircraft are distinguished by their load capacity (cargo and passengers) that they are able to carry and by the distance (range) they can cover. Strategic airlifters are generally larger and can fly longer distances than tactical ones.

Aircraft which perform this role are considered strategic airlifters, such as Lockheed C-141 Starlifter, Lockheed C-5 Galaxy, Boeing C-17 Globemaster III, Ilyushin Il-76 Candid or Antonov An-124 Ruslan, in contrast with tactical airlifters, such as the C-130 Hercules, Lockheed Martin C-27 Spartan and Transall C-160, which can normally only move supplies within a given theater of operations.

Table 1 presents a comparison of strategic airlifters based on capacity and range, flown at full load and without air-to-air refueling (where is the case) [3].

In the context that we are talking about, the desired strategic aircraft should be based on aircraft that have the capacity not only to fly long distances, but also to carry oversized and overweight equipment.

Table 1. A comparison of strategic airlifters based on capacity and range.

Type	Aircraft	Capacity [tones]	Range [km]
Medium size	C-160 Transall	16	1,800
	C-130 Hercules	17	3,200-5,000
Outsize medium	A 400M	35	3,700
	AN-70	47	1,350
	Ilyushin IL-76	47	3,000
	C-17 Globemaster	80	5,000
Outsize upper	C-5 Galaxy	120	5,200
	AN-124	135	5,000

2. ACHIEVING STRATEGIC AIRLIFT CAPABILITY

Achieving strategic airlift capability is a question of funding, military strategy and economic efficiency analysis. United States has currently the greatest strategic airlift capacity in the world, while many countries’ armed forces possess little or none.

NATO and EU can rely on three primary options, either individually or in combination, to increase airlift capacity:

1. increased organic national capability,
2. leasing aircraft through a venture such as the Strategic Airlift Interim Solution (SALIS) or,
3. purchasing aircraft under a partnership such as the Strategic Airlift Consortium (SAC).

Hereinafter, we will analyze each of the three options. 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” [4].

The United States currently operates 52 C-5B/C/A model aircraft, five C-5M Super Galaxy [5] and 211 C-17 Globemaster III aircraft [6]. Great Britain now owns five C-17 aircraft and Canada recently took delivery of their fourth C-17.

In addition to the recent British and Canadian C-17 procurements, the European consortium Airbus produced the first prototype A400M aircraft in June 2008. Airbus plans to build and deliver (until 2020) 180 A400M aircraft for eight NATO members: Germany (60), France (50), Belgium (7), UK (25), Spain (27), Luxembourg (1), and Turkey (10).

Canadian Forces (CF) also requires strategic airlift support and air mobility to ensure the effectiveness and rapid deployability of forces independently or jointly in Coalition, United Nations or NATO operations. The Strategic Airlift Capability Project observed that Canada’s increasing requirements were served by a mixture of military and commercial aircraft [7].

The CF military airlift capability was provided by 32 CF CC-130 Hercules, five CC-150 Polaris aircraft and commercial contracted airlift. But CC-130 Hercules (acquired in 1964-1968 timeframe) can provide only limited strategic airlift capability and capacity. The limitations relate to the long distances involved in strategic airlift, cargo volume constraints and slower flying speeds. Moreover, the

retirement in 2010 of up to fourteen older Hercules aircraft reduced the level of service to unacceptable levels.

The Strategic Airlift Capability Project noted that these assets will not be able to satisfy CF airlift requirements and are not expected to meet the required strategic airlift needs in the future. A strategic airlift capability (called Strategic Air Transport - SAT Weapon System) should be procured as part of an integrated and unified approach to airlift to permit the CF to be a more effective, relevant and responsive force, interoperable with CF allies, particularly NATO and the US Air Force (USAF).

New Zealand chooses the approach of having a small (but adequate) airlift capability [8], based on a fleet of the two B757 and an ongoing upgrade program for the existing five C-130H Hercules aircraft. The initiative is considered vital to maintain NZ independent airlift capability, and will be augmented on medium term (2020) with a replacement aircraft program. The decision on the appropriate replacement will be based on a study that will be finished before the next Defense Review (around 2015).

Alternatively, groups of nations (such as NATO members) choose to pool their strategic airlift resources rather than individually duplicating the substantial investment required to purchase and maintain such costly and, in many cases, seldom-used assets.

The November 2006 Riga summit noted that NATO is involved in six

missions and operations on three continents, but some analysts termed strategic airlift as “*potentially the alliance’s Achilles heel of capabilities*”.

There are several ongoing initiatives in NATO and EU to overcome deficiencies concerning strategic airlift capabilities. NATO Response Force needs this capability for expeditionary operations like the ongoing operations in Afghanistan, assistance in case of tsunami or earthquake occurrence or in Africa for UN humanitarian relief support operations.

In 2007, within the framework of the Strategic Airlift Capability (SAC) program, ten NATO member states (Bulgaria, Estonia, Hungary, Lithuania, Netherlands, Norway, Poland, Romania, Slovenia and United States) plus two partner countries (Sweden and Finland) decided to acquire, manage, support and operate three Boeing C-17 Globemaster III strategic transport aircraft [9]. The airplanes are available to participant nations for a number of pre-agreed flying hours and the permanent base is located in Papa Air Base in Hungary.

There are several issues to be overcome, such as:

- crews and support personnel need to be trained for mission profiles and standards agreed by all participating countries;
- the aircraft missions schedule should meet national requirements, but must also be accommodated to NATO, UN or EU missions;

In order to achieve the prompt fulfillment of the member countries' missions, SAC does not require the unanimous agreement of its partners for operations. Therefore, each nation "owns" a share of the SAC aircraft's flight hours that can be used for missions of interest to that particular nation. In contrast with this arrangement, the personnel contributed by each nation are assigned to various missions, not only those requested by their nation.

Currently, the aircraft is operated by aircrews from all participating nations under the command of a multinational military structure (Heavy Airlift Wing - HAW).

In May 2010 was declared Initial Operational Capability (IOC) of the HAW. Full Operational Capability (FOC) of the HAW is anticipated for late 2011 or beginning 2012. It will be declared when HAW will be able to conduct the whole range of missions assigned to it, having available the entire fleet of three C-17s.

A second initiative is the Strategic Airlift Interim Solution (SALIS), under which a multinational airlift consortium of 16 NATO countries (Belgium, Canada, Czech Republic, Denmark, France, Germany, Greece, Hungary, Luxembourg, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, United Kingdom) plus two partner nations (Finland and Sweden) contracted six Antonov An-124-100 transport aircraft from a civilian company [10]. The airplanes are provided for the transportation of unusually large cargo as follows:

two aircraft on full-time charter, two more on six days' notice and another two on nine days' notice.

The countries committed themselves to use the aircraft for a minimum of 2000 flying hours per year. The initial contract was signed on 2006 with Ruslan SALIS GmbH, a subsidiary of the Russian company Volga Dnepr, based in Leipzig and it expires on 31 December 2012.

The difference between SAC Program and SALIS is that in the first the countries that joined it have purchased the aircraft together, while in SALIS they just contract flight hours in a charter-like way. Based on their initial contribution to the program the SAC participants are entitled to a corresponding percentage of the available flight hours.

These two complementary initiatives are very important because:

- it gave the Alliance the capability to reach out globally and transport troops, equipment and supplies across the world;
- strategic airlift capabilities are vital to ensure that NATO countries are able to deploy their forces and equipment rapidly to wherever they are needed;
- by pooling resources, NATO countries made significant financial savings, and have the potential of collectively acquiring assets that otherwise would be prohibitively expensive to purchase as individual countries.

At the Lisbon 2010 Summit, NATO presented its new Strategic Concept that defines the Alliance's strategic

priorities for the next decade. As part of the strategic concept, a new “Critical Capabilities Package” was endorsed representing the Alliance’s most pressing capability needs.

While the package was based mostly on existing plans and programs it assures that the most urgent capabilities are provided, helping the Alliance to face the demands of ongoing operations, emerging challenges and acquire key enabling capabilities. Once again, improving air- and sea-lift capabilities was mentioned on the list of Lisbon’s Prioritized Capabilities Package [11].

An important aspect in relation with strategic airlift capability is the coordination issues among the “players”. At present, both NATO’s Strategic Airlift Coordination Centre and the EU’s European Airlift Centre are co-located in Eindhoven [12].

In 2005, when the African Union asked both the EU and NATO to give logistical support to their peacekeeping mission in Darfur, both organizations decided to use separate airlift commands in Europe.

One step ahead on coordinating strategic airlift fleet was during EUROFOR operation in support of UN mission in place (MONUC) in its stabilizing role during the election process in Congo (2006). The airlift operation between Europe, Gabon and Kinshasa relied on SALIS (Strategic Airlift Interim Solution)

system. Even it was an EU mission flights between Europe and Africa were coordinated by the Strategic Airlift Coordination Centre in Eindhoven, Netherlands, in liaison with the operational HQ.

3. CONCLUSIONS

The Strategic Airlift Interim Solution is very much an interim solution - the Antonovs have been leased to meet shortfalls in European strategic airlift capabilities, until deliveries of Airbus A400M aircraft begin, likely in 2010 [13].

The A400M is a collaborative effort involving governments and industry of eight European countries and it is designed to satisfy the European requirement for rapid, reliable air mobility for force deployment and humanitarian missions, in peace, crisis and war situations. Even if the A400M is smaller than a C-17, it can transport two-thirds the volume and half of the payload at less than half of its price and at a third of its life-cycle costs [14].

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.

The European Defense Agency is currently exploring with EU countries the possibilities of pooling acquisitions of additional aircraft, partnering in contracting transport services, and pooling maintenance and training in case of additional A400M procurement.

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

EU countries have to rethink their strategic military airlift approaches. Given that there is a lot of uncertainty over the factors that influence lift requirements probably nobody can give a definite answer on how much and what kind of airlift will be enough to cover the overgrowing nations' needs. Ultimately, decision makers must balance the costs involved in strategic transport investment against the capabilities that these assets will provide.

In operations where EU members participate alongside the US, to compensate the European deficiency in terms of airlift, the use of US aircraft is by no means guaranteed since these assets are barely sufficient for US own needs or they may need to use them elsewhere.

The reasonable question is if the handful of C-17s and leased Antonovs will provide enough strategic airlift capability for the EU's near-future operational requirements. The answer depends on what those requirements will be. The alternatives are either EU nations are not planning to extend their global military reach as much

as first thought, or a more long-term strategic airlift capability will be required.

In 2010, the second Headline Goal for the establishment of rapid-reaction battle groups of combined European Union (EU) force expired. If in the future such force will prove itself useful and possible to be achieved, to ensure the effectiveness of these formations EU countries have to rethink their strategic military airlift approaches.

The original idea stated that each EU battle group, made up of around 1,500 combat troops plus support and combat support units, must be capable of operating 80 missions by C-130-sized transports. Each group should be sustainable from 30 days, extendible up to three months. The aim is for the battle groups to begin operations 10 days after a European Council decision on action.

For many nations in Europe this is a tough challenge. There is a chronic lack of strategic airlift capability across the EU, especially among smaller states, a problem that has been recognized for some time but for which only temporary solutions have so far been found. The issue is being addressed through a combination of national procurements, leasing, such as the multinational Strategic Airlift Interim Solution (SALIS) agreement, or by accessing strategic military transporters being made available within the NATO strategic airlift capability program.

There are at least six policy options to solve the complicated airlift capability deficit: long-term

procurement (joint production, off-the-shelf purchasing or long term leasing), short-term leasing and chartering, government-contractor agreements to use commercial lift assets, public-private partnerships, pooling and role specialization.

Each of these options has advantages and disadvantages [15] summarized hereinafter.

1. Long term procurement

Pros

- Greatest level of assured access and timeliness / responsiveness

Cons

- High cost
- Reduced flexibility
- Maintenance and other logistic support requirements

1.1. Joint production

Pros

- Economies of scale
- Gains from specialization
- Increased affordability for individual nations

Cons

- Delays
- Coordination issues
- Commitment issues

1.2. Off-the-shelf purchasing

Pros

- Wider choice
- Less costly than production
- Speedy acquisition

Cons

- Specifications may not always fit requirements
- Does not support EU defense industrial base and preservation of EU technical and industrial capabilities

1.3. Long term leasing

Pros

- Simpler acquisition than owning
- Assured access
- Financial benefits: avoids large initial capital outlay
- Support structure may be less costly than owning

Cons

- High cost (overall more expensive than ownership)
- Potential leasing restrictions on operational use of assets

2. Short term leasing and chartering

Pros

- Simpler acquisition than owning
- Allows long term control and assured access to assets and availability
- financial benefits
- support structure savings

Cons

- Expensive option
- Problems with timely access to assets for the immediate deployment phase, but may be adequate for later phases
- limited asset availability depending on requirement
- restriction related to security
- potential high insurance cost for operations in hostile environment
- quality/suitability problems
- diminished political control

3. Government-contractor agreements to use commercial lift assets

- Pros*
- less expensive than owning or leasing assets
 - assured access to airlift capability provided
- Cons*
- costly retainer contracts
 - problems with timely availability
 - reluctance of commercial operators to go into dangerous situations
 - suitability problems
 - need for governments to provide strong incentives to attract interest of commercial carriers

4. Public-private partnerships

- Pros*
- financing advantages
 - advantage from transfer of risk to private sector
- Cons*
- need to government to provide incentives to the private sector

5. Pooling

- Pros*
- flexibility - modules can be assembled in many ways
 - less costly than national/multinational purchase or lease
 - political feasibility due to limited EU role
- Cons*
- coordination, module assembly may be complex
 - requirement for nations to act promptly to make committed assets available in a timely way
 - sovereignty and concerns over control

6. Role specialization

- Pros*
- potentially greater focus and competence through specialization
- Cons*
- politically controversial; division of labour require large amount of trust, willingness to relinquish national sovereignty
 - potential complexity of role integration

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 [16].

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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