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The End for the Airbus A400M?

Repercussions and Alternatives for the German Military

Sascha Lange

The A400M programme is in big trouble. Production has been stopped and there is no sign when the transporter might make its maiden flight or enter service. Manufacturer EADS and the states waiting to replace their transport fleets face huge extra costs while repercussions loom for German military operations. What solutions are available for maintaining Germany's military airlift capacity?

The order for 180 A400Ms was signed on 27 May 2003. With a volume of more than €20 billion this was the largest ever European procurement of military transport aircraft. Like the Eurofighter, the A400M was seen as a flagship project for European defence cooperation.

The Problem

Originally the A400M's first test flight was scheduled for February 2008. Deliveries to France were to begin in October 2009, with Germany following one year later. The German air force planned to achieve *initial operational capability* in the fourth quarter of 2012, by when it would have received twelve aircraft.

According to the latest information from EADS none of the delivery deadlines will be met. The first flight test of the TP400-D6 engine for the A400M (on a highly modified C-130K Hercules) was delayed until December 2008 – 22 months late. Worse, a design

error meant that the engine used for the test did not correspond to the specifications for later series production. There were also problems with the electronic control system. But it seems these difficulties are just the tip of the iceberg.

The decision to stop production of the A400M fuselage until further notice points to absolutely fundamental problems. Some of these are of a technical nature. The plane's fuselage is too heavy, primarily because of measures to compensate for the serious vibration problems that occur due to the high power output (8200 kW) of the TP400-D6 engines.

The European engine consortium Europrop International (EPI) – comprising MTU Aero Engines (Germany), ITP (Spain), Rolls-Royce (UK) and Snecma (France) – was picked primarily for reasons of labour market policy. When EADS accepted the order it should have taken into account that all existing turboprops in this performance class are designed differently.

The only two turboprop engines in the category of the TP400-D6 – the Russian NK-12 and the Ukrainian D-27 – both have coaxial contra-rotating propellers, which reduces vibration and increases propulsive efficiency. Those engines are also placed further away from the fuselage, which further reduces mechanical stress.

Management errors have also contributed to the woes of the A400M. For a long time the design and development delays were not taken seriously, and neither communicated openly within EADS/Airbus nor reported properly to top management. Airbus channelled its most capable engineers to its civilian programmes (e.g. the A350), where it faces strong international competition for market share and turnover. The A400M, on the other hand, appeared to be politically secure and economically less attractive. However, if this emblem of joint European defence procurement were to fail it would represent to a dramatic loss of face for the manufacturer.

The current management of EADS/Airbus is plainly also aware of this. They are calling for renegotiation of the A400M programme and asking for a “reallocation of risk” (i.e. additional payments by purchasing states), a further shift of the timetable plus downgrading technical specifications. Otherwise, they say, they can give no guarantee of the project’s viability. EADS denies, however, that it would consider aborting the programme. Unfortunately the manufacturer has taken a long time to come close about the dimensions of the problem, and only revealed difficulties piece by piece. This has damaged trust between the involved states, narrowing the possibilities for finding solutions and demolishing future export prospects. There is an urgent need – both within the industry and between manufacturer and customer – for an improved culture of dialogue and openness about where risks lie.

Given the serious problems suffered by recent American transporter development programmes (C-130J, C-17), both customer and supplier should have monitored the

A400M project more closely – especially given that EADS/Airbus was already struggling with massive delays and cost overruns in the development and production of the civilian A350 and A380.

Repercussions for Germany and the EU

Demand for military airlift capacity has risen sharply over the past ten years, and European armed forces are resorting to a range of aircraft to fill the gap. Fourteen Airbus A310 and A310 MRTT transporters are deployed for strategic long-range transport alongside aircraft from the *Strategic Airlift Interim Solution* (SALIS; mainly six leased Antonov 124s). Almost three hundred C-160 Transall and C-130 Hercules aircraft cover operational and tactical air transport. Most of these are now more than thirty years old.

According to the original planning the A400M was to have largely replaced the SALIS fleet and the C-130s and C-160s between 2009 and 2021. Now that it will be at least 2016 before the A400M achieves initial operational capability, the existing aircraft will have to remain in service at least five years longer than planned. Given that the need for repairs and maintenance increases with age it is plain that the cost of keeping the old tactical transporters will increase considerably. This applies especially to the high operational tempo under tough conditions, such as in Afghanistan. These additional costs – and those for the SALIS aircraft – will have to be borne by the taxpayer. Furthermore the personnel and infrastructure required for the A400M – which the different European armed forces provided on time – will continue to consume funding while awaiting delivery of the new aircraft. Given the political willingness, the cost to the purchasing states can be reduced a little by the contractual penalties for late delivery, which could amount to a discount of 6 percent.

The problems with the A400M also have a knock-on effect on the European Security

and Defence Policy (ESDP). For years the EU has been striving to play an enhanced military role and reduce its dependency on the United States. One important precondition for this is an independent strategic air transport capacity. The *European Union Battle-groups* – which are important to the ESDP – stood to profit especially from the introduction of the A400M, which would have allowed troops and some outsized cargo to be airlifted quickly and directly even to remote crisis areas.

The delivery delays are not the only problem. The A400M's performance specifications are in doubt too. Indeed, there is now doubt as to whether the plane will achieve a sufficient payload/range performance. The manufacturer has gone very quiet about the initial specification of a range of 4,500 kilometres with a 30-tonne payload. But giving that up would call into question the original plan to create airlift capability for armour such as the German Puma infantry fighting vehicle and the French Véhicule Blindé de Combat d'Infanterie (VBCI). It must be feared that future core weapons systems of the European armed forces will continue to require non-EU transport aircraft such as the Antonov 124, C-5 or C-17 for air transport. Furthermore, certain tactical abilities of the A400M (especially steep landing approach) could turn out to be considerably weaker than the C-160 or C-130. That would mean a partial loss of operational capability for European air forces.

Possible Solutions

The process of transforming the Western armed forces follows the principle that procurement should prioritize existing operational proven products (*Military Off-The-Shelf*) if that means that requirements can be satisfied more quickly. This is intended to avoid setting up time-consuming and expensive development programmes. Applied to the field of air transport that might mean leasing or purchasing existing aircraft.

For transporting urgent loads fifteen NATO states use SALIS, for which the member states have an option until 2021. But the currently contracted SALIS capacities do not permit operational or tactical airlifts to be conducted. As well as SALIS fourteen NATO states also use – at the demand of the United States – the *Nato Strategic Airlift Capability*, although this is now limited to three C-17s. It would be conceivable to expand the use of SALIS or to lease more civilian air transport capacity (which is available at relatively low cost in the current economic climate).

The American C-17 (with a payload of up to 77.5 tonnes) would be a purchase option. As well as the United States five other states use this aircraft or have ordered it yet. With a procurement price of €150 million each the plane is not cheap. On the other hand the per-plane costs of the A400M programme (partly already spent) are not lower – for a theoretical maximum payload of 37 tonnes. But because of its size the C-17 is expensive to run and unable to use small airfields with difficult landing conditions, so it would have to be complemented by other smaller planes such as the Lockheed Martin C-130J (payload up to 20 tonnes), the Alenia C-27 (11.5 tonnes) or the EADS C-295 (9.7 tonnes).

Another option that makes military sense but poses tricky diplomatic problems could be to come back to the Antonov 70, which Germany originally wanted as the European military transporter. A prototype is already flying and with modifications it would be ready to go into production in four to five years.

Independently of leasing and purchase options, the consolidation of air transport capacity at the European level should be continued. With more than five hundred transport aircraft of various types – even if they are mostly old – Europe actually possesses a respectable air transport capacity. A *European Airlift Fleet* under the auspices of the *Movement Coordination Centre Europe* could deal with temporary shortages suffered by national forces. It would also be conceivable

to strengthen the *Nato Strategic Airlift Capability*. This would match with the ambitions of the United States, which is interested in increasing sales of the C-17, at the expense of the European defence industry (which would naturally also be the case if European air forces purchased additional C-17s themselves). On the other hand transatlantic cooperation would benefit if Europe's nations purchased transport planes from the United States. That in turn could improve the chances of the Airbus A330 aerial refuelling tanker aircraft in the upcoming USAF procurement process.

transitional period. Should the problems with the A400M be resolved at some later point these substitute aircrafts could be shifted to other air forces or contributed to a joint European air transport fleet encompassing civilian and military aircraft. The A400M buyers still have to consider whether they can responsibly accept minor reductions in the military operational performance specifications. Some customers might see room for negotiations over time schedule or price. But it is unlikely that a political case for major downgrades in performance (with the risk of a partial loss of capabilities in relevant operational scenarios) could be made to the soldiers being deployed on missions.

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Prospects

The European prestige project of the A400M has run into trouble through political and management mistakes in its planning and execution. Now EADS/Airbus is trying to foist the resulting extra costs onto the purchasing states. Political responses to this vary widely. While French Defence Minister Hervé Morin would consider accepting the extra costs to save the programme, his British colleague John Hutton rejects the idea categorically. Hutton can take advantage of the strong position of the United Kingdom, which already has six new C-17s and more than twenty C-130Js and is in a position to realize follow-on orders quickly. Thanks to its multi-track procurement strategy London would certainly be able to live with termination of the A400M project.

Germany on the other hand takes a rather more equivocal stance, having as it does a major industrial stake in the programme. For the moment the German government is insisting that all parties respect the contracts as signed, but it could turn up the heat on the manufacturers by moving to plan alternatives. It might well be possible to tap more civil air transport resources in the short term (for example through SALIS). It would also be conceivable for the German and other European air forces to lease or purchase C-17s and/or C-130Js to gain planning security for a