The Transformation of Airbus Industrie: From Consortium to Company

Professor Keith Hayward
Staffordshire University
EUCSA Conference
Seattle
May 29-30 1997

(A working paper, not for citation with out the author's permission)

The collaborative experience

Since the late 1950s, international co-operation has become a significant, and for some national aerospace industries, a dominant industrial strategy. In several cases, collaboration remains the only realistic way for firms to participate in major programmes. Even for those with a complete range of technical resources, financial and market pressures have often forced the adoption of an international approach to development and production.

Collaboration can take many forms and can be used, especially in the US, to describe all forms of international links between companies. [1] At one end of the spectrum is the supplier/sub-contractor relationship, where equipment, components, and structures are bought on the international market. This has been a well-established part of international aerospace since well before the Second World War. More commonly in Europe, however, collaboration relates to international development and manufacturing. Again this can vary in complexity and in the degree of interdependence between the partners. The simplest forms are licensing and/or international co-production of a foreign design. In more advanced forms, the sub contractor may become a risk-sharing partner. [2] In most cases, the recipient's interests are in obtaining employment, technology, and export benefits. For the prime contractors, the hope is to extend production lines and/or to obtain further revenue from amortised R&D. Governments on both side of the equation may hope to obtain economic benefits, political influence or to reinforce security commitments.

In Europe aerospace collaboration has come to mean much more than even a risk-sharing partnership - although this format is also used extensively by both European primes and sub contractors. Collaboration in this sense is defined "two or more nations agreeing to share the *development and production costs* of a new project". [3] Moreover, such collaboration has usually implied comprehensive work and technology sharing agreements proportionate to the level of a nation's or company's contribution to the costs of development. The specific form of collaboration can vary considerably and has changed over the years in the light of experience and new requirements. Most of the current European programmes are (or started out) as international project-based consortia where industrial leadership and direction are vested in a trans-national holding company.

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1 See Aerospace Industries Association of America, *The US Industry and the Trend Towards Internationalisation*, (Washington D.C, 1988)

2 See T. Taylor, "Defence Industries in International Relations", *Review of International Studies*, January 1990, pp. 60-6.

3 K. Hartley, *NATO Arms Cooperation*, (London, 1983), p.124.

The European aerospace industry has an extensive experience of collaborative development. This began in the mid to late 1950s with co-production of the US F-104 and Hawk missile, as well as the NATO-sponsored Fiat G-91 and Bregeut Atlantic. Collaboration came of age with the Franco-German Transall military transport, the Anglo-French Concorde and Jaguar fighter programmes launched in the early 1960s. These were followed by the Airbus and Tornado, several missile and helicopter joint ventures and the beginnings of a European space programme. The initial experience of collaboration was neither easy nor harmonious, with national and corporate rivalries, disputes over work shares and project leadership, and problems stemming from fluctuating political support, providing a continuous backdrop to development. [4]

By the 1970s, however, collaboration was accepted as a routine strategy for European aerospace programmes and some of the early problems had been eased by the experience of successfully working together. Practice, and some expensive lessons, had also led to the evolution of more efficient and equitable forms of managing international projects. In particular, the emergence of trans-national project-based consortia such as Panavia (Tornado) and Airbus Industrie, was viewed as a major advance in international programme management. In the case of civil programmes, the growth of industry-led rather than government-inspired collaboration was regarded as an even more significant improvement. [5] Overall, the result of European collaboration up to the late 1980s was to bind European firms in a network of agreements and joint projects, but which did not at the same time entail the surrender of national control over aerospace.

The limits of *ad hoc* collaboration

All forms of development collaboration have a balance of advantages and disadvantages. Collaboration is more costly, especially if there is duplication of development and production activity. The exact premium is difficult to calculate but estimates of between 10 per cent and 50 per cent have been typical; but it is difficult to reach firm conclusions about the "cost of collaboration" due to limited number of directly comparable examples. One authoritative study concluded that European collaborative ventures have been no more expensive than national programmes. [6]

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4 See R Williams, *International Technological Collaboration*, (London, 1973)

5 K. Hayward, *International Collaboration*, Pinter, London 1986, Chapter 3.

6 See M. Rich (*et al*), *Multinational Co-production of Military Aerospace Systems*, RAND, Santa Monica, 1981, R-2861. It should be noted that generally European domestic programmes lagged well behind those of the US in terms of efficiency.
behind the efficiency of US national

Another analysis concluded that the Tornado bomber cost more to develop than a comparable national programme, but that this was "more or less balanced by the benefits in terms of reduced unit price through increased production runs". [7]

Evidence given to the British House of Commons Defence Committee investigating the European Fighter, suggested that "a national programme would be more costly than a collaborative programme ... in terms of procurement cost we would be talking of an increment in excess of 20 per cent". However, other data suggested that the UK's requirements over the life-time of the project could have been met by a national project for only 5 per cent more than the collaborative programme. According to the UK National Audit Office, collaboration has tended to reduce the net development costs to contributing states but the "unit production costs of a collaborative programme might be higher than a national equivalent". The UK Parliamentary Comptroller and Auditor General concluded from an analysis of ten international defence programmes that it was hard to identify the extent of "financial and other benefits actually accruing from collaboration". [8] In general, however, any assessment of the costs and benefits of collaboration will be based on subjective judgements or face the problem of "counter factual" arguments - the "what ifs" of a hypothetical national alternative or a foreign purchase which itself may be deliberately under priced in order to undermine long term competition

The work sharing agreements associated with collaborative programmes, especially if based on the principle of *le juste retour,* can affect efficiency and increase costs, especially if one of the partners is technically less advanced or industrially less experienced than the others. This has become less of a problem for European airframe and engine manufacturers as standards have levelled up - mainly due to collaboration. However, work sharing issues can still cause problems in the equipment sector where national capabilities can still vary. In the case of the European Fighter, the differences in competence between British and Spanish equipment firms caused problems in adjusting the balance of work between the two countries. [9] Equally, disputes over work sharing can re-occur even in a mature programme such as the Airbus. [10] The affects of *le juste retour* are rarely economically beneficial. The existence of several

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7 IEPG, *Towards a Stronger Europe* (The Vredeling Report) (Brussels 1986) p.119.

8 The House of Commons Defence Committee, Session 1987-9, HC431, Qs. 76-8; The Comptroller and Auditor General, cited by M. Bittlestone, *Cooperation or Competition ?*, Adelphi Paper No. 250, IISS, London Spring 1990, p.60.

9 House of Commons Defence Committee, *The European Fighter Airccraft*, Session 1991-2, (HMSO, Lonson) HC 299 Para. 54.

10 For a more detailed history of the Airbus programme, the GIE system and the early attempts at reform, see K. Hayward, *European Aerospace Collaboration op. cit.*, and *The World Aerospace Industry,* Duckworth/RUSI, London 1994, pp. 163-70, and D.W. Thornton, *Airbus Industrie*, Macmillan, London, 1995.

production lines for the European Fighter (EF2000) and that each wing is built in two countries inevitably reduces industrial efficiency. Under pressure to reduce costs to meet German targets, the EF2000 team were able to find savings of 13 per cent, but any further improvement could only come from either simplifying the specification or the work sharing agreements. [11] The extent to which work shares and equipment sub contracting can be subjected to the financial rigours of competition is an increasingly sensitive aspect of collaboration. Its application to international programmes could increase industrial efficiency and considerably improve cost control. [12] However, under the current collaborative structures, this is not easy where both political and industrial pressures demand the imposition of *juste retour* procedures.

The European defence-aerospace transnational

Although Europe has an impressive and unprecedented experience of collaboration, the present position falls well short of full industrial interdependence. A half-way house improvement in the organisation of collaboration could be to assign more authority to a designated 'prime contractor. In the view of the UK National Audit Office, ideally international programmes should be led by 'real companies' rather than trans-national consortia brought together for a particular programme. This would sharpen efficiency and establish clear lines of responsibility. However, the Audit Office recognised that this would not be possible for large projects; in this case "the consortium company had to be vested with sufficient authority by its parent companies to run the collaborative programme effectively". [13] This itself is unlikely to be sufficient in the long term to tackle more strategic issues such as over-capacity and the more effective use of European resources to improve technology acquisition. The optimal solution is the creation of genuine aerospace trans-national enterprises.

An earlier attempt to found a trans-national aerospace company - the Dutch-German VFW-Fokker - came to grief in 1979. It failed in part because the healthier Dutch half could not (would not) transfer defence work to bail out the ailing German component. The German government also preferred to bring VFW into a domestic merger. [14] However, in the early 1990s, commercial and political pressures have begun to push European companies and established transnational partnerships beyond the format created in the 1960s and which matured during the 1970s. European aerospace has reached a point

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11 *Financial Times*, 16 December 1992.

12 There are again limits imposed by the realities of collaborative politics. Despite attempts to employ more stringent contracting procedures, EFA worksharing has led to some inefficiency, a problem "inevitable in multinational projects." HC 299, *op cit*, Para.52

13 National Audit Office, *MoD Collaborative Projects*, House of Commons Paper No.247, London 1991, paras. 4.24-4.27.

14 See Hayward, *International Collaboration, op. cit.*

where the collaborative processes which achieved so much in the past have reached the limits of their ability to respond effectively and efficiently to rapidly changing market conditions. Moreover, even if they differ over possible formats, this is recognised by companies and governments alike. European defence equipment budgets have to stretch further and governments want more 'value for money' from their defence contractors. Global competition is also increasing as Europe new entrants vie for military and civil sales. The rapid rationalisation of the US aerospace industry and the creation of Lockheed-Martin and Boeing-MDC is forcing European aerospace, and especially its large civil airliner sector, to achieve still higher levels of efficiency and productivity.

Since 1990, a number of more integrated aerospace transnational groupings have emerged. A few have been the product of simple merger activity. Thomson of France, the British GEC and BAe, as well as Siemens, have acquired foreign firms. However, mergers and acquisitions in the defence and aerospace field are hedged with national political and security issues. GEC and BAe are currently involved in competing bids linked to French firms to buy into Thomson, but are facing considerable opposition from the French government. Matra and GEC Marconi were amongst the first in the aerospace sector to create a jointly-owned subsidiary, Matra-Marconi Space (MMS) to manage their satellite and space interests.

BAe twice tried to forge a comparable missile alliance (its space business was sold to MMS) with French firms. The first attempt, with Thomson, failed when the two parties failed to agree on an asset valuation. In the summer of 1996, after a long and protracted gestation, BAe's guided weapons operation was finally merged with Matra. The Matra-BAe merger was facilitated by the British government's decision to buy a jointly developed product. This illustrates a common view amongst European industrialists that the existence of common projects still seem to drive the integrative process. The Matra-BAe merger appeared to have galvanised a similar union between Aerospatiale and DASA. However, political problems over a number of joint satellite and missile programmes, combined with DASA's second thoughts on commercial grounds, aborted talks late in 1996.[15] Nevertheless, the creation of Matra-BAe may yet stimulate a further round of rationalisation embracing DASA, Thomson and Aerospatiale. Such a consolidation would bring the European missile industry belatedly in line with the US.

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15 DASA appears to be waiting for an opportunity to join Matra-BAe, or whichever group forms out of the Thomson bids.

The British aero-engine company Rolls-Royce and BMW initiated a jointly-owned subsidiary on a 'green-field' site in the former East Germany. BMW-RR is developing a family of engines for regional airliners. There is a single production line in Germany with Rolls components coming in from the UK. For Rolls, however, the joint company fill a gap in its range; there are no plans for BMW to join in Rolls' core aero-engine activities (save, perhaps, as a sub contractor through the joint enterprise).

A number of joint ventures grew directly out of established collaborative programmes. The most significant of these is the Franco-German Eurocopter. Eurocopter is the largest helicopter manufacturer in Europe. Representing a merger of DASA and Aerospatiale helicopters, it grew out of the Tiger military helicopter programme. Since January 1997, it has been an integrated international company owned 50/50 by DASA and Aerospatiale. Incorporated under French law, the new company has a fully integrated management structure. However, production of key programmes such as the Tiger is still based in both countries and the firm has yet to launch a programme under the joint regime. Although the parent companies have taken some steps to rationalise capacity, Eurocopter still has to take some hard decisions about closing plant and/or redistributing work. [16] For example, Tiger final assembly may be conducted at a single location, but there will be pressure to maintain an equal distribution of design and development competence in both Germany and France.

Although the creation of Eurocopter was a significant step in the integration of European military helicopters, compared the US, Europe as a whole still has too many helicopter manufacturing and design centres. While they are involved in co-operative programmes, the British Westland and Italian Agusta are still independent firms. Moreover, Westland's links with the US through licence production of the Apache competes with the Tiger for European sales. Although linked with Westland in the EH-101 programme, Agusta may be drawn into Eurocopter as a more long term guarantee of survival. Westland is part of the GKN industrial group, but its future is uncertain, especially given the poor sales of the EH-101.

Broad-band acquisitions and mergers along the lines of Boeing-MDC or Lockheed-Martin still appear to be far down the European agenda. The absence of common European company legislation, although clearly not a outright obstacle to the creation of European defence transnationals, remains a complicating factor. Multi-national joint ventures and merger agreements still involve complex arrangements relating to contract, accountancy rules, corporate governance and labour legislation. There are other

16 MMS has focused work on different plants; the UK, for example, leads in military comsats.

problems in building such enterprises on top of existing *ad hoc* collaborative structures. For example, Aerospatiale is currently suing Matra for breach of industrial property rights over the Storm Shadow missile being developed by Matra-BAe for the RAF. Aerospatiale claims that as the Storm Shadow is based on the Apache, gives it a right to 42 per cent of work share for the Apache missile and all of its derivatives. Matra and BAe agreed a separate work share for the Storm Shadow.

In many respects, these transnational mergers have yet to generate the find of capacity reduction implied by US rationalisation. In the case of Matra-Marconi, the joint company has concentrated some types of operation at its various national sites and Eurocopter is beginning to integrate some of its functions. [17] However, the next stage will have to involve tougher decisions about the distribution of employment, work and the creation of interdependent research and production facilities. This may prove to be a tricky political as well as industrial step. A commercially driven firm such as BAe that has already shown a ruthlessness in terms of cutting capacity, might find this easier than some of its continental neighbours. By the same token, the British government has so far elected to allow the market to decide such things. There may, however, be a point even for the UK, at which the loss of a national capability becomes a matter of political concern and cause for intervention.

As important as these companies are, with the exception of Eurocopter, they do not involve 'core' aerospace activities. The real challenge for the European trans-national will be creating trans-national firms in large civil and military platforms. In this respect, the transformation of Airbus Industrie into a Single Corporate Entity, would mark a qualitative shift in the structure of European aerospace and a huge step towards industrial integration.

The Airbus Groupement d'Interet Economique (GIE)

Origins

Airbus Industrie was formed in 1970, although the Airbus programme dates from the mind 1960s. AI originally comprised Aerospatiale, Deutsche Airbus (now part of Daimler Aerospace - DASA) and CASA of Spain. Hawker Siddeley (HSA), the British industrial partner in the initial government sponsored A300 development programme, was linked to AI by private contract. In 1979, HSA, now part of BAe, became a full

17 Dowty-Messier also merged their under-carriage interests following collaboration on Airbus and through the EU Framework funded Eurogear programme. The joint firm also has North American subsidiaries.

member of AI. AI also has several associate members including Belairbus, a Belgian group. As of 1997, AI shares were divided accordingly:

Aerospatiale:	37.9
DASA	37.9
BAe	20.0
CASA	4.2

(Note that work shares on individual programmes can vary - BAe has close to 30 per cent of the work share of some of the later Airbus aircraft).

AI is formally a holding company provided with a legal identity under the French GIE formula which allows firms to concert specified activities without entailing any generalised commitment of assets or capital. The GIE statutes demand unlimited liability of the partners in respect of their Airbus activities, but the individual accounts involving the partners are fully transparent, known in detail only to themselves. AI has some key planning and production co-ordination functions, but its main role is to sell aeroplanes and to act as the focus for Airbus customers. While there have been some disputes between the shareholders and AI management (primarily over AI's pricing policies in the early 1980s), AI has largely followed the interests of its partners.

Characteristics

Industrial decision-making within AI is based on consensus, conducted within a complex and often opaque structure where AI's shareholders are also sub contractors responsible to the consortium for the quality and efficiency with which they deliver work. The AI structure always contained the potential for tension between the partners simultaneously acting both as shareholders and manufacturing subcontractors. This has had an impact on routine managerial functions. For example, the system for negotiating transfer prices which each partner charges the consortium, and the impossibility of calculating a partner's real costs, has made it difficult, if not impossible to obtain significant increases in productivity and efficiency over the programme as a whole. The temptation is to end-load partner costs on the programme as a whole and ultimately to let several sets of European tax-payers to carry the financial load. While this might deliver gains for the partners as individual companies, it served to undermine the economic viability of the consortium over the longer term. It certainly tended to justify outside criticism of the programme as a "black" hole for public money. Airbus was certainly unable to discover whether a partner's profits were excessive and payments adjusted accordingly.

Each partner is responsible for raising its own share of programme costs. Historically, this has been provided by the four national governments in the form of repayable loans and production credits. In the course of developing the Airbus family, the proportion of state aid has shrunk. Future developments are now constrained by the 1992 GATT agreement to a maximum if 33 per cent of total non-recurring costs. Each programme has been subject to an inter-governmental agreement which in effect has guaranteed each member of the consortium against default. Monitoring these agreements, individual national launch aid contracts and trade policy issues are the only, albeit important, points of contact between national governments and the Airbus programme. This is in marked contrast to its highly politicised origins and early development. Governments may be involved in 'strategic' industrial issues such as DASA's bid to secure final assembly of the narrow-bodied members of the Airbus family and BAe's defence of its wing design and development responsibilities. Although therefore less important than in the past, the national governments do have some interest in the future of the Airbus Single Corporate Entity (SCE). We will return to this below.

The GIE under pressure

The GIE formula gave the Airbus consortium a firm foundation. Unlimited liability was particularly important in confirming AI's credibility with the airlines. It worked in the sense that the group was able to launch and sell a family of airliners and to make substantial inroads in the world market for large civil airliners. However, in the 1980s with both European governments and US trade officials beginning to look harder at the subsidies supporting Airbus, the consortium came under pressure to reform the worst of its opaque and uncommercial practices. These pressures grew even more intense during the 'long recession' in the airliner market and even more so since the Boeing-MDC merger.

The falling value of the dollar in the mid 1980s and the affect this had on AI partner accounts was the catalyst pointing the need for organisational reform. In 1988 a 'wisemen' report into the Airbus system produced some improvements, with the AI management team being given more autonomy and responsibility for taking routine decisions. More competitive tendering, including a proportion of major structural work, was introduced. Some attempts, albeit largely nugatory, were also made to make the partners' Airbus accounts more transparent. However, a British proposal for a rapid translation to independent company status - the 'Airbus Industrie Plc' solution - was rejected. As a BAe-CASA report on the Airbus system noted; "it may well be

that a fully commercial operation will only be possible when the activities of Airbus are 'ring-fenced' and identify with, and are accountable totally to, AI". [18]

The pressure for reform increased markedly during the early 1990s. At one level, the sheer scale of the programme implied a more radical approach to cost control and managerial responsibilities. More important, the continued weakness of the dollar underlined the need for major improvements in programme efficiency. The 1992 GATT agreement on civil airliner development financing and a more aggressive US view on long term subsidisation re-inforced the need for commercial rigour. The general context of European aerospace had also changed since the 1988 wisemen report. Proposals for cross-border shareholdings and transnational subsidiaries in the aerospace sector had emerged in response to changes in the European defence market and as a result of the Single Market. In short, by the early 1990s, the idea of an autonomous Airbus company, or some other form of major organisational reform, was again under active consideration.

The Airbus Single Corporate Entity (SCE)

Even in its simplest form, an Airbus SCE will have to be capitalised, with designated assets. An autonomous AI would want full commercial freedom in respect of project and production financing. It should have an untrammelled ability to control costs and to direct changes in work practices in order to maximise industrial efficiency.[19] A major problem identified from the outset was the extent to which AI could take full control of plant and facilities used to produce its aircraft but which were owned by the partners and, in some cases, used for other products. While the partners had other civil aerospace interests and ambitions, an AI SCE would also want the freedom to extend its range of civil aircraft could bring it into conflict with the plans of its shareholders. [20]

Any major change to the status of AI has to have the full support of all four partners *and* their respective. [21] In particular, the nationalised status of Aerospatiale raised additional problems. Although the French government conceded that a more autonomous Airbus organisation might be necessary, it reiterated the right to retain some form of public control over national aerospace assets and frequently hinted that it would insist on a veto over industrial decisions which might be inimical to French

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18 See K. Hayward, *European Aerospace Collaboration op. cit.*, and *The World Aerospace Industry, op. cit* , pp. 163-70, and D.W. Thornton, *Airbus Industrie, op. cit.*.

19 *Flight*, 23 May 1990, p.231; *Financial Times*, 9 May 1990.

20 This problem has largely disappeared with the bankruptcy of Fokker (DASA) and BAe's membership of the Franco-Italian AIR regional airliner group. See below.

21 *Air et Cosmos*, 19 November 1990, p.18; *Flight*, 17 October 1990, pp.30-1.

industrial interests. Aerospatiale argued that AI has no experience of running factories and should concentrate on selling aeroplanes. BAe and DASA focused more on the need to increase efficiency and argue that as sales and marketing personnel were initially seconded to AI, the same mechanism could be used to build up general managerial competence. The British and German governments have also been consistently behind the creation of a SCE.

No one had any illusions that reforming Airbus so radically would be an easy process, but matters were brought into sharp focus by the Boeing-MDC merger in November 1996. This was a powerful incentive to move at least in principle towards a creating the AI SCE. The detailed implications of the US merger for Airbus are beyond the scope of this paper, but the Airbus consortium is very concerned about the industrial, financial and political power of Boeing-MDC. Not only will it have near sole access to US indirect support for civil airframe research and development, but it could also use its market power and, to some extent, vertical integration, to block Airbus access to key supplier firms and sub contractors. The new threat from the US comes at precisely the point when AI want to launch the A3XX, a 500-550 seat long haul aircraft to compete with the Boeing 747 at a cost in the region of $8 billion. While Airbus is recording substantial profits, it will need to seek additional partners and private finance to pay for it. The search would be considerably eased if AI was able to show that it was matching Boeing for efficiency and productivity.

Agreement in principle to establish the SCE was reached in December 1996 after an eight-hour meeting of the Airbus Supervisory Board. A memorandum of understanding was finally signed on January 11 1997. AI would become fully responsible for the full range of design and development, production and customer service functions now carried out by the existing four partners. This would require control over the physical and personnel assets currently owned and operated by the partners. The easiest cases will be a question of handing over dedicated Airbus plant to AI. Matters become more complicated where the partners undertake other work using the same facilities. Where the different activities cannot be so readily distinguished, the partner could retain control of the factory, manufacturing components for Airbus as a sub contractor. Thirdly, Airbus takes over the whole factory, in effect sub contracting to the partner for any work done on another product. [22] Although the four partners aim to transform Airbus' corporate structure by 1999, a number of difficult issues remain to be resolved.[23] The main difficulty lies in reconciling Aerospatiale's position with that of DASA and, especially, BAe. Matters are further complicated by the concurrent merger

22 'Europe's air commander', *Financial Times*, 20 February 1997.
23 'Airbus to Propel European Consolidation', *Aviation Week*, 20 January 1997, pp. 25-6.

and privatisation of Aerospatiale and Dassault, the French defence and business-jet company.

Corporate philosophy

Airbus has been the core of BAe's civil operation both commercially and technically, but at the same time it has long advocated the creation of an autonomous European enterprise able to control all of Airbus development, production and sales activities. While BAe want to maximise their returns from Airbus, they accept that competitive pressures in the civil market require a stronger centralised Airbus management system capable of assigning work according to commercial principles rather than politically defined work shares. The company also invested heavily in new production systems, which have helped to reduce input costs and, according to BAe, enabled it to make money on small production runs. BAe's aerostructures operation is expected to bid for 'company' business against external benchmarks. As a result, the division has been able to compete effectively for additional business, particularly for the elements of Airbus work which have been opened up to competitive bidding.

The creation of an Airbus SCE fits in with BAe's vision of European aerospace grouped according to sector - 'horizontal integration'. BAe has already hived off its missile and space business in a trans-national subsidiary with Matra. This is at variance with the 'vertical integration' strategies adopted by the French. [24] BAe argue that 'horizontal mergers would create more effective European structures than 'vertical', national organisations which might encourage a more nationalistic stance and obstruct the creation of more efficient and productive industrial units.

Aerospatiale's prospective merger with Dassault is complicating the formation of the AI SCE, but the issue goes deeper than just French internal industrial politics. The prospective loss of control over assets such as Airbus and the AIR regional airliner consortium could deprive Aerospatiale of its bargaining power over Dassault. [25] The issue of the two companies' respective assets will have to be resolved before Aerospatiale can give real consideration to Airbus re-organisation and its associated valuation. The French government has referred the issue to the national privatisation panel because the banks advising both firms came up with different figures. Lazard

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24 Not entirely, BAe is also prepared to adopt a vertical strategy in deepening its defence electronics and other military activities. A possible merger with the British defence electronics giant GEC, would also form a major UK national champion in the European defence/aerospace industrial base. 'British Aerospace is on course to consider vertical integration', *Flight*, 5 March 1997, p.21

25 The AIR group comprises BAe (Avro) and the Franco-Italian ATR (Aerospatiale and Alenia).

values Aerospatiale at 25 billion francs (4.4 billion dollars) and Dassault at 10 billion francs. Paribas said Aerospatiale and Dassault were both worth around 12 billion francs. As matters stand, Dassault will probably assume a 20-25% share in the joint company when the privatisation panel makes its final arbitration. [26] Removing Aerospatiale's civil activities significantly reduces its critical mass and its main revenue-earning capabilities (the company's return to profitability in 1996 was largely attributable to the performance of its commercial division). Although French aerospace will not necessarily lose capacity by the merger, the present Aerospatiale management team would have little to match Dassault's core military and business jet operations, which would inevitably dominate the joint firm. [27]

However, Aerospatiale's general view of the future of European aerospace reflects a more national stance than that of their UK partners. By contrast with BAe, Aerospatiale envisages closer national control over any transnational grouping of core activities like large airliner production. This could bring all aspects of aerospace, including combat aircraft and missiles, under the same industrial umbrella -- possibly Airbus itself. This would imply a much more collegial decision-making system where commercial factors would still be tempered by concern for industrial and technological policies.

Ownership and control

In principle, ownership of the Airbus SCE should reflect the existing pattern of shareholding. However, this will require compensation for companies which contribute more than their share in assets. How this might be achieved has yet to be agreed. With 15 per cent of turnover derived from Airbus, BAe depends less on Airbus work than either of its French and German colleagues. BAe Airbus employs around 4,000 directly and another 2,500 on Airbus-related activities. Its Airbus assets are worth about $1-1.5 billion and are concentrated on two well-defined sites. DASA Airbus employs 13,000 people in five factories with a turnover put at $2.5 billion. Aerospatiale derives some 40 per cent of its sales from Airbus, worth about $4 billion. These assets include the massive assembly infrastructure at Toulouse and two other aerostructure factories. [28]

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26 'Merger will lend muscle to Euro defence industry', *Jane's Defence Weekly*, 15 January 1997, p. 25.

27 ibid.

28 'Airbus gets ready for tough talks', *Flight*, 22 January 1997, p. 4.

Aerospatiale want the valuation to be based on the tangible and intangible values of the partners' assets, which should reflect French investment in building up the company. BAe and DASA argue that valuation be based on the net present value of future cash flows. Other problems primarily concern asset valuation, and the specific relationship between Airbus and its industrial 'shareholders'. The partners will want compensation for a transfer of assets, especially if their value does not fully reflect shareholding. The problem will no doubt be subject to arbitration. BAe and DASA would prefer a more hands-off relationship with an independent AI, whilst Aerospatiale wants to maintain some direct involvement in the company's affairs. In addition to reflecting the greater politicisation of French civil aerospace, Aerospatiale's position also reflects its concerns over amalgamation with Dassault and the privatisation of the joint company.

Management recruitment

BAe and Aerospatiale differ over the selection of a future managerial team for the Airbus SCE. BAe wants to see Airbus leadership chosen entirely on merit, and not according to nationality. However, the French have historically provided AI's chief executive, with a German number two. AI's general management team has been drawn either from the partner companies or recruited directly. BAe, as the 'British' representative, although strongly represented in the lower tiers and in the technical and commercial structure since AI's inception, has only recently had a representative at the senior decision-making level. For prestige and political reasons, the French would like to retain the status quo. The Germans may also share French reservations about losing direct personal participation in senior Airbus management

The Airbus military arm

BAe and Aerospatiale differ over the extent to which AI should develop a defence arm. Airbus has already assumed responsibility for managing the five-nation FLA military transport programme. The governments wanted a tight and commercially-oriented operation to control FLA costs, and there is some synergy between large military transports and commercial aircraft production. However, the future of the FLA is increasingly uncertain and might not survive. There are several proposals for using Airbus airframes for tanker-transports and surveillance platforms. More tentatively, AI could be associated with a C-141 replacement programme in collaboration with Lockheed-Martin. Aerospatiale wants AI to develop a more extensive military capability including combat aircraft in order to match Boeing-MDC. BAe and DASA want to confine AI to military transports. CASA, as the other nationalised firm tend to side with Aerospatiale. Aerospatiale points to the Boeing-MDC merger where, as a

result of expanding its defence work, defence cash-flow will enable Boeing to fund civil programmes and to provide a hedge against the next down-turn in the civil market.[29]

French intransigence

At the time of writing, the French are still resisting the formation of a fully autonomous Airbus organisation. Aerospatiale wants AI to be turned into a union of national aircraft makers. The French argue that the four companies must have their own manufacturing and research facilities if they are to persuade their governments to invest in future aircraft programmes. Aerospatiale is also concerned that if all research is taken over by Airbus, links with research institutes and other companies in the four countries will be lost. [30] The last point is fatuous, given that the European aerospace research community is looking to integrate its own activities and sub contractor links would follow natural commercial channels. In this respect, a more autonomous AI might seek more competitive tendering for both equipment and structural components, leaving high cost firms in France (and Germany) struggling to meet more stringent terms. A more independent purchasing policy might also break the dominance of French equipment suppliers which dates from the formation of AI.

The problem of 'national' launch aid is also a more valid concern. The UK government believes that this can be resolved, but in the absence of a European-wide investment bank able to assume this level of risk, the link between state-funding and AI might have to be subject to inter-governmental agreements. In general, however, the French view of AI is more consistent with a nationalistic interpretation of European rationalisation. French government opposition to foreign participation in the current privatisation of Thomson, the defence electronics company, would tend to confirm a reluctance to concede control over the national aerospace industry, civil or military. [31]

Airbus Expansion

What ever the outcome of the SCE negotiations in the short term, AI will need to expand its partnership base in order to extend its range. This may also include some form of link with the AIR regional consortium to create a single European civil aerospace entity. AI could increase its sub contractor base without becoming an SCE,

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29 'Market realities Driving New Order in Aerospace', *Aviation Week and Space Technology*, 17 March 1997, pp. 44-6.

30 'Make Airbus a "Union of national companies", *Financial Times*, 4 April 1997.

31 'Courtship rebuffed', *Financial Times*, 6 April 1997.

these could also assume some of the risk. However, it would be much easier to incorporate more substantial contributions - industrial and/or financial - through shareholdings in an AI SCE. An autonomous SCE should also be more able to distribute work and to choose amongst competing bids according to commercial criteria than as a GIE beholden to its 'partner-owners'.

The A3XX

AI's most important new project is the A3XX, 550 seat, long haul airliner to take on Boeing's 747-400 series. Launch costs will exceed $8 billion and could be as high As $14 billion. With state aid capped, AI must find risk sharing partners and, if it becomes an SCE, new shareholders, to cover this risk. AI is actively seeking partners in the Far East, North America and in the rest of Europe. Aerospatiale is especially keen to establish links with US firms. Late in 1996, the company held talks with Lockheed Martin about collaborating on future military transports. These expanded to include the A3XX , but any links would have to involve the Airbus partners. [32] However, the Boeing-MDC merger may make it difficult for AI to find other US sub contractors; Airbus have already accused Boeing of pressuring American companies who also work for Boeing not to deal with the Europeans. [33]

Alenia, the Italian aerospace national champion is planning to join Airbus Industrie when the Airbus SCE is formed. While the Italian aerospace industry has participated as a sub contractor in several Airbus programmes, it has reluctant to join AI as a full partner. Indeed, the bulk of Alenia's civil work was as sub contractor to MDC. However, the uncertainties over MDC's future, culminating in the merger with Boeing, led Alenia -- part of the Finmeccanica group (controlled by the state-owned IRI holding company) -- to re-evaluate its position. Alenia was conscious of becoming a peripheral actor in European aerospace as major players rationalised and the industry overall moved towards integration. Alenia's movement towards the Airbus team was re-inforced by Italy's participation in the FLA military transport programme which Airbus is managing, as well as membership of the overlapping AIR regional airliner consortium. Alenia will acquire a shareholding in Airbus when it is transformed into a single corporate entity in late 1999 or 2000. In the short term, it will be taking a 10% share of the A340-600. The Italians also expect to become a full partner in the A3XX programme once they have joined AI .[34] Saab, the Swedish aerospace company, has also expressed an interest in participating in both AI and AIR.

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32 'Aerospatiale explores US tie-up', *Financial Times,* 14 January 1997.
33 'Boeing Accused of Blocking Airbus Suppliers', *Financial Times,* 14 February 1997.
34 'Alenia to Join Airbus Industrie', *Aviation Week* 16 December 1996, pp. 20-1.

Airbus and AIR

The creation in 1996 of AIR (an amalgamation of BAe Avro and the Franco-Italian ATR group), the regional airliner consortium was itself an important step in the rationalisation of the European civil aircraft industry. [35] Alenia's participation in the Airbus programme will also bring the membership of the AIR in line with Airbus. Although in the short term the two groups are to operate autonomously, a merger of the two is not ruled out. With the exit of DASA-Fokker from the market, this would bring the bulk of European civil aerospace under the control of one company. Of the remainder, the British Short Bros. are part of the Canadian Bombardier company and Saab may join AIR as a risk sharing partner in the proposed 80 seat RJ 70 regional jet.

Currently, AIR operates as a Groupement d'Interets Economique (GIE) like Airbus, and has no direct control over its members' production costs. However, new programmes will be subject to tighter central management. AIR also intends to deploy design and production techniques similar to those introduced by Airbus. The organisation faces a major task in increasing its capacity to finance sales, and has announced its intention to form a leasing company during 1997. (another motive for expansion). The AIR group is already moving towards creating a fully autonomous company, which its members view as a potential prototype for Airbus restructuring. Its founder members will not win automatic selection for work on the proposed RJ 70 regional jet airliner, but will have to bid for a proportion of major work packages. AIR spares and training activities have already been centralised and, later this year, the partners will begin to pool the remainder of their customer support assets; and a jointly owned asset management operation is in the pipeline. [36]

If the AIR valuation issue is resolved and it becomes an autonomous company, this would certainly help prepare the ground for its eventual integration with Airbus. [37] Officially, both Airbus and AIR have stated that they have no intention in the short term of merging the two operations. This seems reasonable given that launching Airbus as an autonomous company will absorb much of the partners' energies over the next two-three years. However, an eventual fusion of the two consortia would offer both some commercial advantages. On the one hand, Airbus would possess the ability to offer potential customers both feeder aircraft and small airliners. On the other, AIR would

35 'European Airframers Merge to Build Muscle', *Aviation Week*, 1 January 1996, p. 20.
36 'AIR founders will have to bid for Air Jet work', *Flight*, 12 February 1997, p. 4.
37 'AIR hunts for Jet risk-sharing partners', *Flight*, 29 January 1997, p. 6.

be clearly linked with Europe's major civil manufacturer, thereby enhancing its ability to raise private capital and sales financing.

A key link between AI and AIR is the AE-100 project. In 1996, AIR and Airbus signed a preliminary agreement with the Chinese to develop the 100-110 seat AE-100. [38] This was against strong competition from Boeing and MDC, as well as several other contenders including a Asian partnership brokered by Daimler-DASA independently of Airbus. Although there might be some overlap between larger versions of the AE 100 and the A319, China insisted on linking Airbus with the programme, wanting to ensure that the jet was compatible with the Airbus family. Beijing also wanted Airbus to be involved in marketing and supporting the aircraft. About 46% of the funding for the aircraft, which would be built in China, will be provided by the Chinese partner, the state-owned Aviation Industries of China (AVIC) and Singapore Technologies Aerospace STA.

Airbus has established a new subsidiary company, Airbus Industrie Asia (AIA), to act as an Asian-based partner to China and Singapore. [39] The five Airbus and AIR partners will jointly own AIA; Alenia will hold a 38% stake and Airbus the remainder. The AIA team will draw heavily on Airbus design and development personnel. Production between AIA and the Chinese group will be shared according to financial contribution, but Airbus wants AIA to be responsible for programme management in order to ensure quality control.

AIR and Airbus work in two quite separate markets and Airbus might want to see a more rationalised AIR product range before agreeing to integration. As Boeing found with its acquisition of de Havilland of Canada, a sales and corporate strategy appropriate for the large airliner market does not necessarily suit the regional-feeder airliner sector. However, this may have been due to Boeing's lack of experience in the regional sector whereas the Airbus partners clearly have more expertise in this field. At the moment, the AE-100 serves as a natural break point between the two company's interests. The AE-100, particularly as there are plans to develop larger versions, is aimed at longer range and higher density operations than regional services and is more clearly at the bottom end of the Airbus family and will be marketed as such.

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38 'AIR woos China with regional-jet proposal', *Flight*, 24 April 1996, p. 6.
39 'Airbus sets up an Asian subsidiary for AE-100', *Flight*, 5 march 1997, p. 4.

Conclusions

In an often poor field, AI has been viewed as a model of European aerospace collaboration. However, even AI has not so far been able to break-out of the consortium structure and achieve full commercial autonomy - to become a genuine trans-national enterprise. In the late 1980s and early 1990s, market pressures and external political factors forced the Airbus consortium to adopt a stricter commercial regime which led to increased sub contractor competition and a limited degree of inter-partner competition for structural work. However, even this is insufficient to meet the renewed challenge posed by the Boeing-MDC merger. With revenues from military work in sharp decline, the partners must also fully to capitalise on their investment in Airbus and this means achieving consistent profitability. Proposals for transforming AI GIE into a SCE existed before the American merger, but it precipitated the 1997 agreement in principle to create an Airbus SCE.

The transformation of AI would reflect a clear economic and industrial logic. However, Airbus has become more than an aircraft programme, it is at the heart of three European aerospace national industrial strategies. As a result, there are major political-industrial qualifications attached to the economic rationality of reform. For much of the last two decades, the potential for conflict between political and economic interests has been muted by the contest to secure a place in the world market and to mount a credible challenge to the likes of Boeing and MDC. Periodically, there has been a re-emergence of national competition for influence and control within the consortium. While it would be too strong to suggest that these underlying tensions and the current struggle to create the AI SCE could unravel the deep and fundamental industrial linkages forged over 20 years of co-operation, they may undermine to a degree the consortium's stability and hurt the prospects for a necessary reform of the Airbus system. At worst, should French intransigence remain a barrier to commercial sense, BAe for one, might be tempted to look elsewhere for more promising joint ventures. If this was to occur, European high-technology industrial integration would receive a massive 'spill-back' and would certainly undermine Europe's efforts collectively to maintain its place in the world aerospace market.