



Europäischer Metallgewerkschaftsbund
Fédération Européenne des Métallurgistes
European Metalworkers' Federation

The European Aerospace Industry

Sectoral analysis by the European Metalworkers' Federation

Preamble

The 11th of September 2001 will remain in all our minds as a black day, a day that deeply shocked all those who still believed that there was a limit to the horror that man could inflict upon his fellow man.

Using civil aircraft as human bombs in order to satisfy in this most abominable fashion the hate that the extremists have whipped up to fever pitch has opened the door to a new kind of war - a war on terrorism - and has given rise to feelings of insecurity, the backlash of which has made itself felt on air transport and consequently on the aerospace industry.

Without yet being able to properly assess the extent of the impact of the tragic events of 11th September 2001 or the time needed for the market to stabilise, we are forced to note that the increase in insurance premia paid by the transport companies, the cost of the new security measures and the slow-down in air transport activity will indubitably put the profitability of the airline companies at risk. This could be the finishing stroke as regards those whose financial structure was already shaky.

The side effects on the aerospace industry will undoubtedly be different in Europe and the US. The economic situation that prevailed before the terrorist attacks will certainly play an important role in the way that each will react to a new international context. Hence there will no doubt be a marked contrast between the substantial job losses expected at Boeing and the more moderate effects at Airbus whose commercial prospects were good and will no doubt be subject to review.

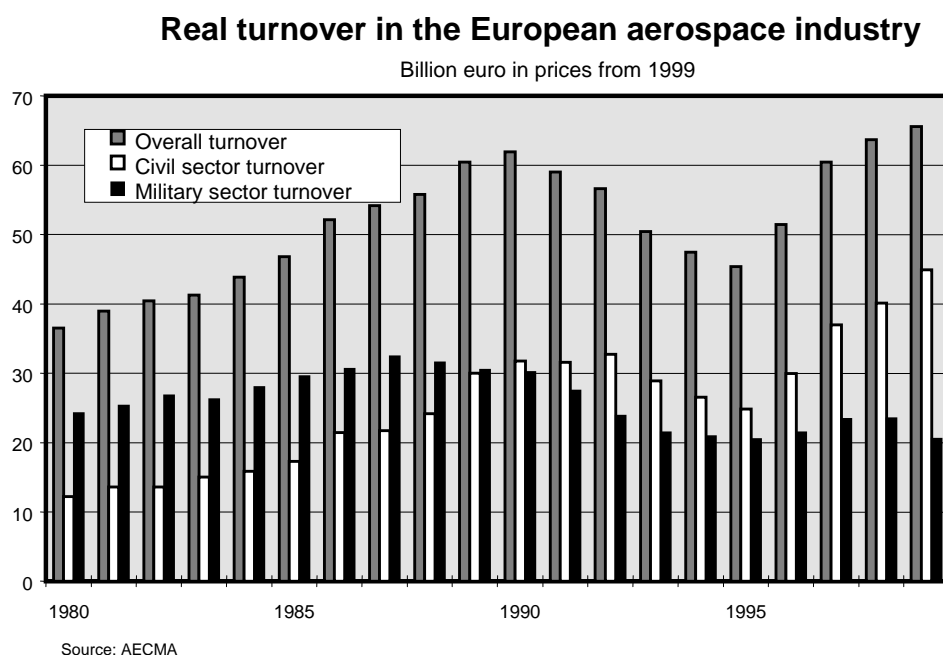
On the other hand, it is highly probable that we will see a review of the position of the defence aerospace industry, which has been declining for some years as a result of severe cuts in State defence budgets and renewal of the debate on a strategic defence policy at European level and the fight against terrorism at international level.

However, when looking at the future development of the sector, we must guard against alarmist attitudes that are simply based on the present context and fail to take into account the longer term trends and the encouraging situation that still prevailed in the aerospace industry prior to the terrorist attacks. The EMF and its affiliates would moreover consider it wholly unacceptable if certain industrialists tried to seize the opportunity provided by the current situation in order to make drastic employment cuts aimed at ensuring maximum yield.

Regaining the dynamic growth of the 1980s

In the 1980s the aerospace industry enjoyed a real boom (See Fig. 1). In Europe between 1980 and 1990 real turnover rose by 5.4% per annum. Until 1987, turnover in the military sector rose continually and remained at a high level until 1990 (See Fig. 1). On average its real growth rate over the decade in question rose by 2.2% per annum.

Figure 1



Thanks to the burgeoning success of the Airbus project and a substantial commitment in the aerospace sector, added impetus to the boom in the military sector was given by an extremely dynamic development in the manufacture of civil sector products (10% per annum from 1980 to 1990). Whereas in 1980 the military share in overall turnover in the sector was still exactly two-thirds, in 1990 both sectors were almost equally strong (see Table 1).

Table 1 **Turnover and employees in the European aerospace industry**

	Year				
	1980	1985	1990	1995	1999
Real turnover ^a	36.5	46.9	61.9	45.4	65.6
Civil products	12.2	17.3	31.7	24.9	45.0
Military products	24.3	29.6	30.2	20.5	20.6
Employees ^b	547.2	558.4	561.1	386.7	436.7
Productivity ^c	66.7	83.9	110.4	117.4	150.2

€billion in prices from 1999
a) Thousand persons
c) Real turnover per employee in €thousands.

Source: AECMA.

During the crisis, until 1995, the sector's turnover dwindled by a total of 27% or 6% per annum, falling by 7.4% per annum more in the military sector than in the civil sector (4.8%). The main reason for the decline was defence cuts, which translated into stretching and hesitations in the respective procurement programmes (gap in procurement).

The decline in the civil sector can primarily be attributed to a cyclical downturn in the demand from airlines, but substantial limits imposed on aerospace activities as a result of public-sector budget cuts also played a role. The situation deteriorated into a crisis for the industry primarily as a result of the decline in demand on the civil aviation markets and in public procurement. In fact, the easing back on state expenditure on aerospace products hit the sector at a very unfavorable time, which severely aggravated the crisis.

... with a changed product structure

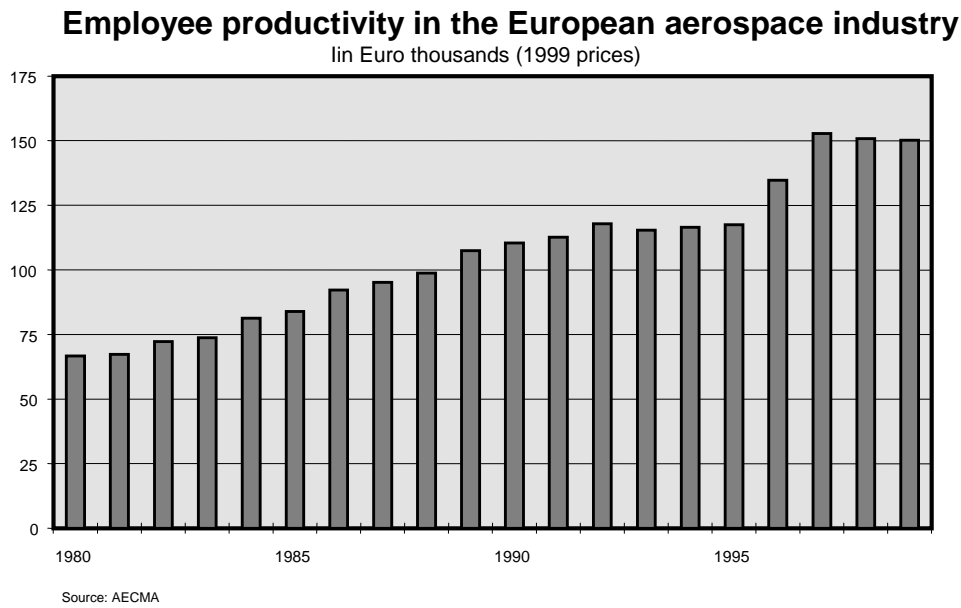
However, the powerful upturn in business in the European aerospace industry during the second half of the 1990s indicates that the sector has since found its way back onto its earlier growth path. Indeed, it exceeded its previous highest real turnover (from 1990) as early as 1998. However, this more recent recovery is essentially riding on the back of turnover from civil products (airliners), which shot up by 16% between 1995 and 1999 in real terms, enjoying an even more positive trend than the average from the 1980s.

By contrast, in recent years turnover in military products was subdued. For despite the slight upturn in intra-European procurement, falling exports in this sector led to a situation in which real turnover in 1999 was no higher than its mid-1990s low. In 1999, military business still accounted for 31% of the sector's overall turnover. In other words, between 1980 and 1999 a fundamental change in the product structure of the European aerospace industry took place. Whereas on average over the 20 years of that period turnover in civil products rose by 7% per annum, turnover in military products declined by 1% (overall turnover: 3% per annum).

A strong surge in productivity...

On the basis of steady prices in 1999, in 1980 each employee generated a turnover of €6,700. By 1990, this productivity figure had risen to €10,400. And although this development initially failed to continue to rise by the same rate of 5.2% per annum during the crisis years, the rationalization measures that had started to be implemented during that phase did manage to push up productivity further in 1996 and 1997 (see Fig. 2). In 1999, real turnover per employee was €150,200. This corresponds to an average annual increase of 4.4% between 1980 and 1999. Between 1995 and 1999 the average figure was 6.4%.

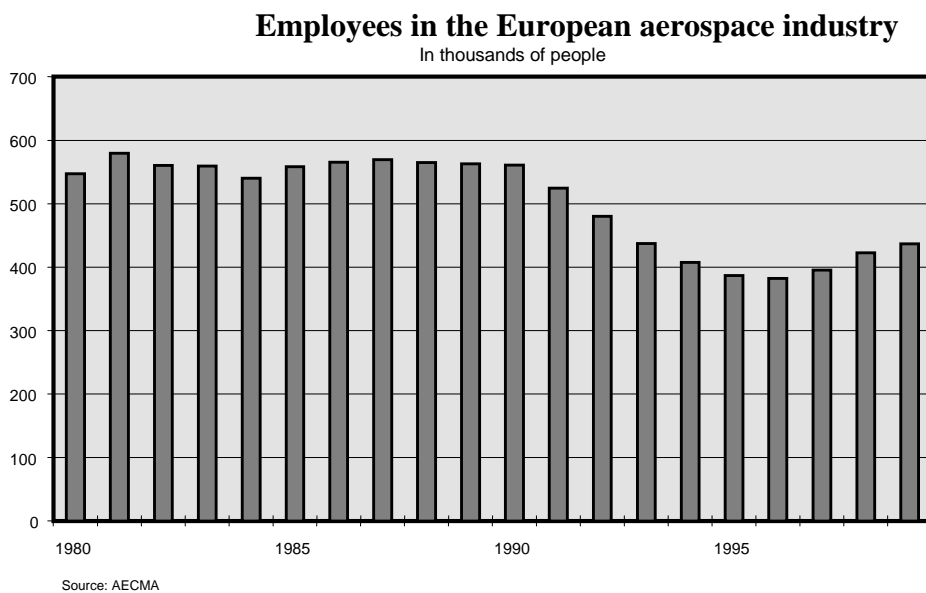
Figure 2



...led to a decline in employment until the mid-1990s, despite the growth in turnover

In the 1980s growth in the sector was sufficient to retain the level of employment at a stable level, despite the considerable gains in productivity. In fact, in 1990 the level was even slightly higher than the figure for 1980 (see Table 1). However, in the crisis years up until the mid-1990s a change in the number of employees was inevitable, and an extraordinarily steep decline (-31%) between 1990 and 1995 resulted. This decline bottomed out in 1996 (382,000 employees). In recent years, however, the return to growth has resulted in a positive development in the level of employment: in 1999 the sector had 13% more staff on its payroll in Europe than at the peak of the sector's crisis back in 1995.

Figure 3



The situation in Europe before 11th September 2001

The European aerospace industry is on a major economic high

After the low of 1995, the European aerospace industry is once again enjoying vigorous growth. According to the European Industry Federation (AECMA), real growth between 1995 and 1999 rose by an average of 9.6% per annum. In nominal terms this corresponds to an annual increase of around 12% (see Table 2).

In 1999, the (consolidated) turnover of the European aerospace industry amounted to roughly €55.6 billion (DM 128.2 billion). This is approximately half the turnover achieved by the US aerospace industry (€130.1 billion or DM 254.4 billion). In the USA, real growth in the sector between 1995 and 1999 amounted to 8.4% and nominal growth to 9.6% per annum. In other words, the European aerospace industry grew slightly more quickly than its counterpart in the USA over the same period.

According to AECMA, the value of the orders received by the European aerospace industry in 1999 was around 17% higher than the value of current turnover, taking account of both civil and military products. This would appear to suggest that the sector will continue to experience growth.

However, it should be borne in mind that the growth rate in 1999 compared with the comparative figures from previous years has clearly tailed off (see Table 2). In addition, in 1999 the number of surplus orders was not as high as it had been in 1998, when the value of the of orders received had exceeded turnover by nearly 60%.

Table 2 Key economic data applying to the European aerospace industry

Variable	Growth rates in %		
	Average 1995/1999	1998	1999
Turnover (nominal)			
Aeronautical products	.	14.8	8.5
Space products	.	-6.7	-13.8
Missiles	.	6.0	-21.4
Total	12.1	12.4	5.5
Share of EU turnover	.	24.6	13.6
Exports	.	3.7	-1.3
Civil turnover	18.7	18.7	14.8
Share of EU	.	30.4	14.0
Exports	.	12.1	15.3
Military turnover	2.0	3.0	-10.3
Share of EU turnover	.	18.4	13.0
Exports	.	-12.0	-40.3
Total number of employees	3.1	6.8	3.4

Source: AECMA.

The slowdown in growth in 1999 can be attributed to a very substantial dip in turnover in two areas: Firstly, exports of military products continued to fall away steeply. In 1997 this area still accounted for 20.5% of overall turnover in the sector, but by 1999 its share had dwindled to just 9.0%. Secondly, there was a marked decline in the turnover from space products. In fact, the share of space products in overall turnover plummeted from 9.5% in 1997 to 6.5% in 1999. All the other turnover figures in areas of the European aerospace industry continued on a positive trend in 1999.

Airbus is the mainstay of growth

The sector's mainstay was civil aviation production, where Airbus continued to consolidate its position on the world market, as it has done in recent years. There has been a very sharp rise in overall demand. Whereas hardly any aircraft were ordered in the crisis year of 1993, by 1995 there were already orders for over 500 planes. By 1998 demand had more than doubled (see Table 3). And in 1999, although the number of orders declined somewhat, 2000 looks like being a very good year for aircraft once again. Indeed, by the middle of the year the order books had requests for 3,000 planes, a figure that corresponds to three times last year's production.

Table 3 World market for large commercial airliners

Manufacturer	Aircraft (number)			
	1995	1998	1999	1st half of 2000
Net orders.	508	1,130	776	552
Airbus	87	529	430	234
Boeing, McDD	421	601	346	318
Deliveries	380	788	914	387
Airbus	124	229	294	145
Boeing, McDD	256	559	620	242
Orders	1,869	3,095	2,957	3,122
Airbus	578	1,309	1,445	1,534
Boeing, McDD	1,291	1,786	1,512	1,588

Source: AIA.

However, the European Airbus consortium did not only benefit from growing market volume, but also from increased market share. Whereas Airbus' share in overall net orders was just 17% in 1995, by 1999 the European manufacturer netted 55% of all orders, notching up more than its American rivals for the first time. However, Boeing again proved more successful during the first half of 2000 (see Table 3). Having said that, Airbus' very full order book relative to its manufacturing capability should also be of some consequence, for taking the deliveries made in 1999 as a reference, the company's production capacity will be completely booked out for five years. Boeing can turn out almost twice as many aircraft per annum as Airbus. In mid-2000 the order books of both manufacturers were roughly equally full.

The development of the planned A3XX super-jumbo should continue to enhance Airbus' market position. However, the associated development costs – at €10 billion –

are very high. Since the other product lines will have to continue to be developed and complemented, to begin with the company's earning capacity may well be considerably reduced.

Postponed military procurement programmes are gradually being implemented in Europe

During the early 1990s, turnover for products manufactured for military applications nose-dived, tailing off by around one third between 1990 and 1995.

But just recently, the long-postponed procurement programmes within Europe have gradually been implemented (Eurofighter, helicopter programmes). Accordingly, turnover within Europe for military air and space products in 1998 and 1999 once again broke into double-digit growth rates (see Table 2). Their share in the sector's overall turnover rose by just under 20% (1997) to 22.4% (1999). The ongoing procurement programmes and the likely imminent decision in favour of going ahead with the production of a large European transport aircraft (FLA) and possibly military or dual-use space equipment give good cause to expect this segment to continue to develop favourably.

The profit situation of the European aerospace industry has improved...

The profit situation of the European aerospace industry continued to stabilize in 1999. Whereas, the operative result in 1995 still amounted to a loss of 0.2% of turnover, the sector's performance in this respect steadily improved over the next few years. In 1999, with an operative result of just under €4.6 billion, the quota had reached a level of 7% of turnover (1998: 6.65%, 1997: 3.8%).

...the number of employees has risen...

In 1999 the European aerospace industry employed around 436,700 staff, over 14% more than in 1996, the year with the lowest number of employees in recent decades (382,000). However, during the previous sectoral crisis, the workforce of European aerospace companies had been severely slashed: Between 1990 (561,100 employees) and 1996 the number of staff decreased by nearly one third, or 6.2% per annum. Seen in that light, the annual increase of 4.6% up to 1999 was rather muted.

...and productivity rose clearly

The basis for the clearly improved income situation was a marked rise in productivity in recent years. Turnover per employee went up from €107,500 in 1995 to €150,200 in 1999. This corresponds to an average annual increase of 8.7%, with the greatest progress being made in 1996 (11.8%) and 1997 (16.4%). The improvement made in 1999 (2.1%) was modest by comparison.

European corporate structures

Europe's aerospace industry has so far been characterized by national fragmentation

In the 1950s, the European aerospace industry consisted of a number of smaller companies that did not meet the requirements of a business activity geared towards a world market already characterized by very strong US competition. Accordingly, the next few years saw a shift towards concentration in the sector. In fact, in some cases, that trend continued unabated into the 1980s.

The characteristic of these processes of concentration was that they all, without exception, occurred within a national framework. Thus, in the leading European aerospace countries relatively large corporate entities took shape, the so-called 'national champions'.

These major players were the following:

in France:	Aérospatiale,
in the United Kingdom:	British Aerospace (BAE),
in Germany:	MBB (subsequently DASA).
in Italy:	Alenia (subsequently Finmeccanica).
in Spain:	CASA,
in Sweden:	Saab AB.

At the same time, in Dassault Aviation France had another well-known aircraft manufacturer; Rolls-Royce (in the United Kingdom) and SNECMA (France) were two major engine producers; while GEC-Marconi (United Kingdom), Lagardere (Matra; France) and Thomson-CSF (France) were three companies that featured prominently in space travel and aerospace electronics.

The reason why this activity took place at national level was not just historic, but had to do with political considerations as well: the aerospace industry's relevance to security and technology policy meant that its development was subject to strategic considerations, and was in the past essentially dependent on public-sector funding. However, up to now – and this is still the case – these resources were largely geared towards expenditure at the national level. The corporate landscape was correspondingly structured; some of the major manufacturers were wholly or partly state-owned (Aérospatiale, CASA, Alenia, MBB).

On the other hand, most of the major projects typical of the sector's activity could not be justified from the economic point of view by any one nation (the position for the USA was different, because of its size). As a result, the sector was characterized by a mixture of multinational project programmes (from Airbus to Eurofighter, Eurojet and various space-related projects that were handled via the ESA) and the respective national companies. A large number of different forms of cooperation with growing partnerships arose.

Accordingly, so far Airbus has been a consortium operating under French law which organizes the Airbus programme, whereas the production of individual components and the assembly work take place in companies belonging to the industrial partners,

working on their own. Similar comments apply to major military projects (Tornado, Eurofighter, Eurojet, Hubschrauber NH 90), Europe's Ariane launcher and the regional aircraft project ATR. A further step was taken with the establishment of joint ventures for certain products: e.g. for helicopters the subsidiary Eurocopter (Aerospatiale and DASA) and in the satellite construction sector Matra-Marconi-Space (MMS). Such structures, especially solutions in consortia, should only represent an economic solution. They demand considerable efforts in terms of negotiations, coordination and administration, make partners in one project into competitors in another and are, in some cases, subject to different regulations (e.g. provisions governing exports of military equipment).

The crisis in the sector is accelerating structural streamlining

Competition on the world market intensified markedly as a result of the sectoral crisis in the early to mid-1990s. The leading US companies started to rise to the challenge of public-sector budget cuts for aerospace products by concentrations. For example, Northrop and Grumman joined forces, Lockheed and Martin Marietta merged and Boeing took over McDonnell Douglas. The latter two mergers created companies of unprecedented size.

To keep pace with these newly created giants and adapt profitability to the new conditions, in the end the European manufacturer had no other option but to break through the old barriers of the national framework. The driving force in this process was DASA. Initially a merger with British Aerospace was considered, but it failed. In France, in the meantime Aerospatiale and the Lagardere Group merged to form Aerospatiale Matra, with the state-owned share in the French champion being scaled back subsequently. This merger opened up the political way for an even bigger European merger in which the leading Spanish aerospace company, CASA, was involved alongside the French and German champions. The new group is called the European Aeronautic Defence and Space Company (EADS) and is domiciled in Amsterdam. Furthermore, the Airbus consortium, in which the British concern BAE Systems is involved alongside the partners belonging to EADS, has been transformed into a fully operational group.

This merger at European level, into which further partners may possibly yet be integrated, and the structural change at Airbus have together improved the position enjoyed by European manufacturers on the world market. The fragmentation of the range of products and services on offer in Europe has been significantly curbed. Two out of the four groups active in the sector notch up an annual turnover in excess of \$20 billion from Europe (see Table 4).

Table 4 **The biggest aerospace companies in 1999**

Companies	Home country	Turnover in \$ billions	Aerospace turnover in \$ billions	Staff in 1,000s	Turnover/employee in \$ thousands
Boeing	USA	58.0	57.2	197.0	294
Lockheed Martin	USA	25.5	24.5	147.0	174
Aerospatiale Matra	F	13.7	12.8	52.4	262
DASA	D	9.8	9.8	46.1	212
CASA	E	1.3	1.3	8.2	158
EADS companies	EU	24.8	23.9	106.7	233
BAE Systems	UK	20.6	20.6	83.4	248
Raytheon	USA	13.7	12.8	105.3	188
United Technolog.	USA	24.1	11.5	.	.
General Electric	USA	111.6	10.6	.	.
Honeywell Int.	USA	23.7	9.1	.	.
Northrop Grumman	USA	9.1	9.1	44.6	202
Rolls-Royce	UK	7.7	6.1	40.9	188
TRW Aeronautics	USA	17.0	5.6	.	.
Thomson CSF	F	7.3	5.5	.	.
Bombardier	CND	9.2	5.5	.	.
SNECMA	F	5.4	5.4	23.5	220
Finmeccanica	I	6.4	4.0	.	.
Saab AB*	S	2.2		15.3	144

Source: Flight International

*Source: Svenska Metall

However, these rankings also make it clear that the dominance of the USA as the world leader has remained unaffected. Furthermore, they show that it is also still way ahead in terms of productivity. However, the new structures described above should succeed in creating the preconditions for a gradual catching-up process.