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COMMUNICATION FROM THE COMMISSION TO THE COUNCIL

**The European Aircraft Industry:  
First assessment  
and possible Community actions**

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## 1. INTRODUCTION

1. In July 1990, the Commission adopted a Communication on the European aircraft industry. The objective was to establish, in close cooperation with the Member States and the manufacturers, an analysis of the situation of this industry and, on this basis, start reflecting on measures to set up the most favourable legal and economic environment for its development.

This forms part of the industrial policy approach as defined by the Commission in its Communication on *industrial policy in an open and competitive environment* of November 1990. In that Communication, the Commission stresses the importance of the completion of the internal market and its implications for companies' structures in connection with an increase in competition on the international market. The Commission is in favour of continuing and/or strengthening the horizontal (adjustment) policies with the objective of helping the industry to adapt to market needs and of ensuring the coherence of national policies.

Considering in particular the considerable opportunities opened up by the aircraft industry for the transfer of technologies to other industrial sectors, the Commission, in its Communication on industrial policy, considered that this industry is an important industrial sector.

2. This second Communication on the aircraft industry has two objectives:
  - \* to show the progress of thinking on the situation within the sector;
  - \* to prepare a coherent set of measures that the Community, Member States and the European aircraft industry, - each according to their respective roles -, should carry out to strengthen the long-term competitiveness of the European aircraft industry.

After a period of sustained development, the aircraft industry currently has to cope with structural adjustment problems. Despite enormous efforts, at both national and European level, the European aircraft industry is still suffering from the effects of excessively long partitioning of its industrial structures, particularly in the equipment sector. To adapt the industrial structures to the internal market and to the increasing globalization of the economy, the priority questions are: do current competition conditions allow the European aeronautical industry to be effective? What suitable measures can be taken to improve European competitiveness?

A strong aeronautical industry in Europe has to respond to the dual aims of:

- \* preserving a major economic and industrial asset in the context of international competition;
- \* remaining in the forefront as regards the acquisition and mastery of technologies to remain competitive and because of technological spinoffs on industry as a whole.

3. Developments since the first Communication have confirmed that:

- \* on the one hand, certain phenomena already perceived at the time influence current structures increasingly. This is the case in particular with the reduction of defence budgets and military programmes, and the opening up towards the countries of Central and Eastern Europe and the Independent States of the former USSR, which offers new prospects for industrial cooperation;
- \* on the other hand, the extremely fragile financial position of the airline industry in the face of cyclical phenomena which has repercussions for the aircraft industry: the drop in air traffic shown up by the Gulf war resulted in a drop in orders of 2/3.

Consequently, whereas in mid-1990 it could be expected that the impact of military conversion would be partially offset by the demand for civil aircraft, from early 1991 it clearly appeared that this would not be the case.

Based on the analysis carried out in collaboration with the European aircraft industry, the first part of this Communication aims at describing the situation in the sector and establishing a diagnosis of the competitiveness of the European aircraft industry in relation to its main competitors while taking account of the challenges with which it is confronted.

The second part of the Communication describes proposals for Community action which could help to place the aircraft industry in an economic and legal environment conducive to improving its competitiveness.

## II. THE SITUATION OF THE EUROPEAN AIRCRAFT INDUSTRY

In 1990 the European aircraft industry generated a turnover of about 37 billion ECUs, while directly employing approximately 450,000 persons, and indirectly more than a million persons. This turnover, which experienced an average annual growth rate of over 5% during the eighties, now breaks down equally between the civil and the military sectors.

Aircraft manufacturers represent about half the activity while the other half is split between the engine (20%) and the equipment segments (30%).

The analysis of the situation is limited for the moment to aircraft manufacturers. Later it could be broadened to other segments. Nevertheless, it is obvious that several problems dealt with in this Communication also concern engine and equipment manufacturers.

The following three aircraft industry sectors are more closely analysed, though the distinction between commercial and regional transport aircraft is relatively arbitrary:

- \* large commercial transport aircraft, which have a capacity higher than 130 seats;
- \* regional transport aircraft from 20 to 130 seats. A distinction is made within this range between turboprops from 20 to 70 seats and jets from 70 to 130 seats;
- \* turbine-powered helicopters.

Taking account of their limited importance, the business aircraft sector as well as the general aircraft sector are not subject to detailed analysis.

Large commercial transport aircraft represent 9/10 of aircraft activity, whereas regional transport aircraft and helicopters share the remainder.

### II.A Large commercial aircraft

Growth in the large commercial aircraft sector has been rapid over the last 25 years, as airlines have expanded their fleets to cope with growth in world scheduled air traffic of more than six per cent a year since the 1970s. Since 1985, the growth in orders for new aircraft has exceeded all records and by the end of the 1980s, the backlog in orders for large commercial transport was of more than 3,000 aircraft.

Because of low GNP growth in Europe and the US since 1989, compounded by the effects of the Gulf War and high fuel prices, the airline industry has, however, entered in a recession and has drastically reduced ordering new aircraft. There is a phase displacement between the aircraft industry, which is continuing to manufacture at a record level, and the airline companies who are experiencing the most serious financial crisis in their history. As a consequence, after deliveries of more than 600 aircraft a year between 1991 and 1993, deliveries are forecast to decline to about 400 a year. Total deliveries to the year 2000 are expected to be about 5,000.

Despite the success of the European aeronautic industry which has gained a considerable position on this market, Boeing clearly dominates the market in terms of production volume, 'family' range and production rate: Boeing has two-thirds of the deliveries on average, partly owing to the high value of its 747 aircraft. Boeing is also the only manufacturer with a comprehensive range of aircraft from 100 to 500 seats. While both Airbus and McDonnell Douglas have projects for very large aircraft, Boeing is likely to retain its monopoly in the 350+ seating category for some time, i.e. its monopoly on more than 20 % of the total market.

## II.B Regional transport aircraft

Growth in the large jet sector has been mirrored in the regional aircraft sector where annual deliveries rose from around 200 aircraft in 1984 to more than 400 in 1990.

Such growth is forecast to continue in all sub-segments : new sales are forecast to reach between 5,000 and 7,000 aircraft from 1991 to 2010.

- \* In the turboprop segment, new aircraft sales over the next 20 years are forecast to range from 3,500 to 4,300 units, but only 2/5 of the total - by value - regional transport aircraft market.
- \* In the regional jet segment, forecasts vary from 1,500 to 2,600 units over the next 20 years, but 3/5 of the total - by value - of regional transport aircraft market.

The European industry account for about half the deliveries world-wide in the regional aircraft sector. The presence of European manufacturers varies, however, across the sector. European producers dominate the turboprop subsegment while US manufacturers have the stronger position in the jet segment. In revenue, the strong US position becomes even more marked when the higher value of larger aircraft is taken into account.

## II.C Helicopters

In the helicopter sector, all the manufacturers are highly dependent on military business; almost all civil helicopters are derived from military aircraft or have an equivalent military version that boosts production volume. In value terms military sales account for 20 times as much as sales to the civil sector. As demand for military helicopters declines, the overall helicopter industry is therefore entering a difficult period.

The majority of civil turbine powered helicopters are operated in the utility sector, which comprises the oil and gas, public service, emergency medical service and executive air taxi sectors. The market for civil turbine powered helicopters has been in depression since 1982. Rapid pre-1982 sales growth had been driven largely by the needs of the off-shore and public service sectors. Demand plummeted in the early 1980s because of the downturn in the overall economic climate, the world-wide oil glut and the drastic reduction in oil prices. Annual deliveries are now about 450 units. Projections are, however, for renewed growth in the civil helicopter sector, with a world market of 5,000 new turbine helicopter deliveries from 1991 to 2000.

There are seven main manufacturers of turbine powered helicopters, three in Europe and four in the US. European manufacturers account for slightly more deliveries than US manufacturers.



### III. DIAGNOSIS OF COMPETITIVENESS

Companies will improve their competitiveness by pursuing a dynamic approach: innovation with regard to the technologies applied, the products developed, production processes, training methods ...

The aircraft industry has to supply products which meet the airlines' requirements. Leaving aside '*political purchases*', the airlines select an aircraft on the basis of a mixture of technical, economic and commercial criteria.

Certain factors are involved in the cost concept linked to economies of scale, e.g.:

- \* the *price* and
- \* the '*family*' concept, which makes it possible to adapt the size or the type of aircraft to ever-changing requirements up to the very last moment.

Other criteria, which are mainly determined by the industry's technological level, include:

- \* the *yield from the aircraft*: the expected aircraft operating revenue, including freight revenue;
- \* *reliability* and maintenance requirements
- \* the *company's* image as perceived by the passenger, and
- \* the *performances*.

Finally, the financial '*package*', i.e. the financing and commercial techniques and mechanisms, which have to fulfil the requirements of the airline, play a decisive role in the selection process.

Within several of these areas, the European aircraft industry has strong assets, but this cannot hide sometimes alarming weaknesses and gaps. The Commission, in close cooperation with the industry, has carried out in-depth analyses, which have enabled the sector's strong and weak points to be defined. Certain weaknesses are due to the industry's environment and heritage, which still influence the companies' development conditions.

The main factors highlighted within the framework of studies and analyses referred to above are examined below.

#### III.A The essential role of economies of scale

All three European aircraft industry sectors are at different stages of their structural development. However, the impact of economies of scale plays a major role in each of them. The economies of scale apply both on the supply side, making it possible to reduce development and production costs, and on the demand side, making it possible to reduce maintenance and training costs, etc.

The European aircraft industry consists of several thousand companies, mainly equipment manufacturers and subcontractors. A very broad industrial base is a key element of a healthy industrial structure.

However, the increasing complexity of products is leading to a reduction in the number of programmes and prime contractors capable of being simultaneously viable on this market. Being aimed at fragmented markets and not having a sufficiently large military market, the European aircraft manufacturers have made more limited economies of scale than in the US, by means of integration on a national basis and recourse to cooperation programmes. The need for transnational integration is now becoming increasingly urgent.

1. Large commercial aircraft

The heavy investment required to develop new aircraft and maintain the critical mass to stay in the industry has forced a restructuring over the last 25 years in both the US and Europe. In the US, the result has been the emergence of two large commercial transport manufacturers - Boeing and McDonnell Douglas. The single European competitor - Airbus - is a partnership of four companies, Aérospatiale, British Aerospace, DASA and CASA. Each of these companies has developed through a series of mergers and acquisitions. However, compared to its US competitors, the European aircraft industry is still disadvantaged on economies of scale.

While the overall market to the year 2000 is expected to represent about 5,000 deliveries, different segments have to be considered when assessing the situation in terms of economies of scale. Based on broad estimates of the number of aircraft to be produced to get adequate returns - from 1,500 units for a short-haul narrow-body aircraft (150 seats) to 700 units for a long-haul wide-body aircraft (400+ seats) - it would appear that in the present situation - where the 3 producers compete world-wide with 11 products - there are too many programmes on the market, except on the large aircraft segment (400+ seats) where Boeing enjoys the monopoly situation. This question needs to be gone into in more detail.

This situation, combined with the threat of re-engined entrants from Central and Eastern Europe and the escalation in new aircraft costs - particularly for new 450+ seat aircraft, and potentially in the longer term for supersonic aircraft - is putting increasing pressure on manufacturers to increase scale and efficiency.

2. Regional transport aircraft

While many producers of regional transport aircraft have been able to coexist up to now, the question of the impact of economies of scale appears to become critical for some of them because of increasing product complexity leading to greater costs of new aircraft development.

Competition is spread among a number of competitors world-wide - and is particularly intense within Europe : 11 manufacturers compete world-wide with 21 products and 9 projects, out of which 5 European companies with 12 products and 6 projects - in particular the proposed new regional jet programmes. Broad estimates of the market share required to get adequate returns on investment within 12 years can be derived from market forecasts and financial models of typical cash flows for new aircraft programmes. On this basis it would appear that the number of direct competitors, i.e. of families of aircraft, that can succeed on the world market of regional aircraft would be limited to a half dozen.

This is likely to result in further rationalization, either by merger/alliance or by conversion to a 'sub-prime'/component supplier position.

### 3. Helicopters

In terms of economies of scale, because of the close links between military and civil helicopter design, development and manufacture, the European helicopter industry has an overall disadvantage to the US, which produces twice more military helicopters.

While US manufacturers have targeted mutually exclusive market sectors, thereby minimizing direct competition, European manufacturers still compete with each other in some civil markets. Moreover, the European helicopter industry is widely diversified, with some companies having a very small presence in the civil market.

Despite recent European rationalisation, more collaboration and more mergers might be required to eliminate duplication in some civil sectors and allow manufacturers to remain competitive or even viable in the face of strong US competition.

### Conclusion

The issue of economies of scale is key to all three industry sectors, but its relative importance may vary by sector and hence the degree to which the European aircraft industry has to consolidate to survive.

## III.B The necessary technological base

### 1. Technological needs

Aeronautics exerts a knock-on effect on the acquiring and mastering of a very broad range of leading-edge technologies (materials, structures, data processing, design and manufacture) and of know-how (integration, systems aspects), which are applicable to other sectors later.

To meet varied requirements which have to be coped with and to ensure the preservation of long-term competitiveness on the world market, the European aircraft industry requires a considerable research effort so as to simultaneously:

a) *ensure safety and reliability of air transport*

Air transport users demand efficiency, flexibility and safety. The introduction of new technologies and procedures in aircraft requires an increased research effort so as to validate them, particularly where safety is concerned (see point III.G.1).

b) *improve operational performances of air transport*

Air transport operators (airlines and airport authorities) require improved operational performances of aircraft and reduced real costs.

Airlines in particular, which are confronted with increased competition because of the liberalization of air transport in Europe and elsewhere, require a reduction of DOE [Direct Operating Expenses], greater flexibility of air transport, and better ground and air traffic management.

During the development of new models, an increased effort will have to be devoted to aspects such as:

- \* *the aircraft design process*: the needs of airlines in terms of configuration and performance develop all the time, which makes long-term fleet planning difficult. Accordingly, airlines require tailor-made aircraft, a request that manufacturers hurry to fulfil in the hope of gaining market shares. The incorporation of all the specific airline requirements entails considerable extra costs and manufacturers are starting to recognize that greater standardization of aircraft configuration would make it possible to reduce the initial cost while easing resale on the second-hand market.
- \* *the interface with airport terminals*: airport terminals have been developed with the aim of reducing ground immobilization to a minimum. All the implications of this have not yet been taken on board, to ensure that aircraft are conceived as a component part of the terminal in their own right. Accordingly, gate control and logistical systems require improvement.
- \* *freight handling*: because freight profitability is still underestimated, it is regarded as a marginal income rather than as a fully-fledged activity. The design of freight compartments, and in particular of the doors, could be improved to take operational requirements into account. More generally, air freight has to be part of an integrated approach combining different transport modes.
- \* *the flexibility of cabin configuration*, including cabin elements.

c) *meet environmental requirements*

The main environmental aspects affecting the air transport system (i.e. airlines, airports and aircraft industry), are noise, gas emissions, other pollutants and land-use planning. Up to now, the biggest impact of air transport on the environment has been noise. Recently attention has been drawn to the problem of the gas emissions in the upper atmosphere. This is connected with a growing awareness of the greenhouse effect and a need to protect the ozone layer. For the foreseeable future these two topics will dominate the environmental aspects of air transport.

In this context, projects for supersonic transport aircraft raise concerns which manufacturers will inevitably have to address to ensure that a future supersonic transport aircraft will be acceptable and commercially viable.

Considerable research is necessary to arrive at realistic legislation, respecting at the same time the legitimate concerns expressed regarding global climate changes, and safety requirements which represent the number one factor governing engine design. The Commission already finances research on different aspects connected with gas emissions. There are also links with the United States where important research is currently being carried out on that topic.

Medium and long term developments in air transport will need the extension of existing airports and the creation of new ones. This will only be acceptable from an environmental point of view if tangible progress is made in terms of noise and gas emissions, and this will need increased research in this area.

d) *develop new technologies and design and production methods*

Manufacturers themselves require sophisticated tools and systems for the design, integration, validation and manufacture of highly complex components and systems, so as to shorten the lead times between the design and marketing of products and the production cycle as such.

Most sectors are trying to exploit new potential connected with Electronic Data Interchange [EDI] and concurrent engineering techniques [CE] so as to reduce the time it takes to put a product on the market, by achieving correct design from the outset and by improving reliability.

Mastering these new production tools such as EDI, CE, computer-aided manufacturing [paperless production] and common standards, which will make it possible to improve the efficiency of the production process, will be a decisive factor for the

future competitiveness of the European aircraft industry. In this respect, Europe cannot allow itself to be outstripped by its main competitors, in particular the United States where an important CALS programme [Computer-Aided Acquisition and Logistic Support] is in hand.

It also seems that extra productivity gains can be achieved by the use of new management and organisation methods and principles applicable to the whole or part of the design-manufacture chain (simultaneous engineering, lean production systems, etc).

## 2. Financing of R&D [research and development]

To enter the market, an aircraft company has to make an enormous initial investment (up to 10 billion dollars for large commercial transport aircraft), then has to suffer cash-drain for several years and finally has to wait more than ten years before breaking even.

Additionally, to stay on the market under good financial viability conditions requires the development of an aircraft family, whose initial development costs cannot be completely covered by the manufacturer, unless it is present in different segments with several models whose life cycles overlap.

A company cannot, therefore, enter the aircraft market without public support during the period between the decision to launch the initial programme and the generation of a sufficient cash-flow.

The situation of the European aircraft industry is now being made more difficult by:

- \* the appearance of new technological priorities (see point III.B.1 above);
- \* the need to continue, in parallel with these new priorities, research and development activities already started under various programmes;
- \* the growing burden of large programme R&D costs, which increasingly exceed the financial and human capacities of a single company and a single country;
- \* the *greater pressure of international competition*, which benefits from the effects of industrial structures from which Europe does not yet benefit (see point III.A.);
- \* the *increasing difficulties involved in financing R&D* and products due to a reduction in military budgets and orders and the reduction in public support in general;
- \* *the low level of the dollar against European currencies.*

### a) *public financing systems for R&D*

The public financing systems for R&D in the United States and in Europe are based on different approaches. Moreover, their respective aircraft industries are at different stages of their development.

The strength of the US civil aircraft industry was built up in the immediate post-war period and developed until the beginning of the '80s in a quasi-monopoly situation. On the other hand, the European aircraft industry, and in particular the large civil transport aircraft industry truly emerged only with the launching of the Airbus Programme, i.e. with a differential of several decades compared with the US aircraft industry.

Owing to its strategic importance, the US civil aircraft industry has grown in symbiosis with the State which continues to support it through three major financing techniques: DoD [Department of Defense], NASA [National Aeronautics and Space Administration] and the taxation system.

\* DoD

Technologies which have proved useful to the civil air transport sector have been financed through military programmes. Thus the entry of Boeing on to the commercial jet market in 1957 with the 707 was made possible by the development of the military transport aircraft KC-135. In this particular case, the spin-offs of military R&D for the civil sector were virtually 100%.

Over the last 15 years, the DoD has devoted approximately 50 billion dollars to aircraft R&D. Taking into account reimbursements by companies to the government for civil applications derived from their participation in military programmes, the direct impact on the US civil aircraft industry is estimated at about 20% of the military R&D budget.

Moreover, DoD compensates US companies for their civil research when it has military applications. The effects on companies are significant since, as the research fields are chosen by them, they have a better idea of the benefits that they can derive from certain dual technologies. This research often covers the validation of new expensive and high-risk technologies.

\* NASA

In accordance with its objective of promoting the USA's technological lead in the air transport sector, NASA finances new technology development in particular. Over the past 15 years approximately 9 billion dollars have been devoted to technological development. The civil aircraft industry has benefited directly from a large proportion of it, due to NASA's aim to concentrate especially on the genuine dual technologies.

\* **Effects of the US taxation system**

This involves especially the FSC system [Foreign Sales Corporation], which in 1985 replaced the DISC system [Domestic International Sales Corporation]. This system makes it possible to exempt part of the export turnover, provided that products with at least 50% US content are involved. Although accessible to all US exporters, the complexity of the system makes it attractive only to exporters whose products are of very high value, such as aircraft products.

At the same time, where the European aircraft industry, which does not benefit from instruments like those of the United States to channel the research effort (NASA, DARPA [*Defense Advanced Research Projects Agency*], etc.), is concerned, the public support granted in the form of reimbursable advances has allowed the initial investment to be covered and especially the risk connected with the launching of new programmes. With the commercial success of certain European aircraft programmes, the refunding of advances should accelerate very quickly.

b) *fragmentation of the public financing of R&T [research and technology]*

A major problem which still penalizes the European aircraft industry is the excessive fragmentation of the public support for R&T. It results in particular from the initial goal of countries to support their national champion in the field of aeronautics, and considerations of national strategy connected with the dual character of the aircraft industry. It results in a certain duplication of programmes and research infrastructures and in contradictory national strategies.

Whereas in the United States NASA concentrates most civil aeronautical R&T in three centres, the Community has 7 main centres for public aeronautical research. Despite a certain amount of specialization, each centre covers the same range of basic research, with duplication of overheads and infrastructures. There are almost twice as many wind tunnels in Europe as in the US, although initiatives like the European Transonic Wind Tunnel have been taken to reduce their number. The rate of duplication of research infrastructures is estimated at 20 to 30%. If duplication of operating expenditure is also taken into account, the loss is estimated at 20% of total budgets at least.

Several cooperation mechanisms have been set up to reduce the disadvantages of the fragmentation of public R&T. Their efficiency is, however, reduced by the dispersed approach to the coordination of public R&T. Taking account of the considerable amounts in question, an improvement in this situation would permit better allocation of public resources available so as to meet increased R&T needs.



### III.C Financial and commercial techniques and mechanisms

Today it is rare that a big aircraft order results from competition based purely on technical and economic criteria. The commercial factors, which play an increasingly decisive role in sales, can be summarized as follows:

#### 1. Financing and financial guarantees

As the financial cost has become the most significant element of aircraft operating costs, considerable attention is paid to the methods making it possible to reduce it. But this does not necessarily involve the choice of the lowest financing cost, since other criteria can come into play such as the structure of the airline's balance sheet or the national balance of payments.

Recourse to a combination of financial and operational leasing is becoming the norm, as is recourse to the fiscal advantages provided by financing via countries like Japan. The structure of financing aircraft is intricate as a result, involving several banks, in several countries and in several currencies all finally converted back into dollars. Finally, the manufacturer's skill in coordinating financing by a bank consortium can be as important as the sale itself. Since manufacturers are increasingly involved directly in the financing of sales, knowledge of financial techniques is vital for them.

Given the intense market competition, manufacturers are constantly being prompted to give better and more flexible performance guarantees, which enables airlines to reduce risks borne by them. This practice is becoming general not only for short-term sales but also for the launching of new programmes, i.e. performance guarantees are given several years beforehand.

#### 2. Industrial offsets

Industrial offsets, which are not limited only to aeronautics, are one of the most commonly used techniques, with major political implications. Industrial offsets are given for aircraft sales but also for the launching of new programmes. In view of the low cost of its labour force and its growing market, Asia is increasingly attractive from this point of view.

#### 3. After-sales service

After-sales service, and especially its flexibility, plays an increasingly important role in concluding contracts. The extensive guarantees granted to airlines help to reduce their maintenance costs up to 5 years after sale, when, for example, replacement parts and engines are provided free. The most attractive guarantee is to take back the aircraft with little or no penalty exchange for a new model. Technical staff or crew on loan also ease the introduction of a new aircraft.

#### 4. Fixed prices

The basic price of the aircraft, as fixed at the order, is normally adjusted at delivery according to a price index. A significant commercial concession is to maintain the initial contact price without indexation, for final delivery.

All these commercial concessions granted by the manufacturers owing to the intense competition between them obviously penalize their profitability.

### III.D "Détente"

"Détente", and in particular the upheavals which have taken place in Europe since 1989, affect the world and European aircraft industry in two ways:

- \* on the one hand, the activity of the military aircraft industry is reduced; in view of the considerable interaction between the civil and military segments, this development will have significant repercussions on the civil aircraft industry;
- \* on the other hand, competition is reinforced on shrinking defence markets and on the civil markets, on which the conversion of the defence industry simultaneously causes a refocusing of some companies and the entry of new competitors;
- \* finally, although marked by significant political and economic instability, the opening up towards the countries of Central and Eastern Europe and the Independent States of the former USSR will drastically change the prospects for and the context of industrial cooperation.

In any event, in comparison with the United States, Europe is at a disadvantage in facing up to this new situation, because of the dispersion of its resources and its structures.

#### 1. Conversion of the military aircraft industry

"Détente" has led to a fundamental revision of defence policies towards a reduction in both domestic and export defence markets.

For the aircraft industry, the question arises of the impact on the civil segment of the significant reduction in defence production. The civil and military aircraft sectors are mutually dependent, even though not to the same degree. The alternation of their respective economic cycles has made it possible up to now to ensure the permanency of the aircraft production potential. Besides, while the defence activity benefits from the economies of scale made possible by a parallel civil activity, the civil activity benefits from the repercussions of the technological progress achieved in the defence field. Any reduction in military R&D activities will therefore have long-term effects on the technological capacity and on the competitiveness of the civil aircraft industry.

For the military aircraft industry "détente" has, however, only been the catalyst of a development which started at the beginning of the '80s. Indeed the current crisis within the military aircraft industry is explained mainly by the explosion of development costs of most of the recent defence programmes, which exceeded the initial budgetary estimates substantially. These increases lead to a reduction in the number of aircraft ordered.

If the development phase of the EFA [European Fighter Aircraft] and RAFALE programmes runs its full term - i.e. until the middle of the '90s - military R&D activities should be affected less dramatically than the military aircraft industry as a whole. Therefore, if the R&D activities linked to the current defence programmes are continued, and if the civil aircraft market stabilizes, the total amount of resources allocated to European aircraft R&D could be reduced to a lesser extent than the contraction of military aircraft industry would lead one to expect.

Overall, it is estimated that to compensate for the effects of the reduction in defence R&T, civil R&T expenditure should be increased substantially in the future.

In addition, owing to the reduction in defence activity, which guaranteed cash-flow and profitability, the financial performance expected of civil programmes is likely to be increased to make it possible to maintain the companies' profitability. This could result in reallocating the resources towards a redirection of civil R&T activities to less speculative fields.

2. Aircraft industries of Central and Eastern Europe and of the Independent States of the former USSR

a) *aircraft industry of Central and Eastern Europe*

The upheaval which followed the fall of the Berlin wall has had an enormous impact on the aircraft industry of Central and Eastern Europe. In 1991 the rate of production, including spare parts and components, slowed down dramatically. The aircraft industry of Central and Eastern Europe suffers from a serious handicap in terms of efficiency, organization and overmanning. In the short term its very viability is at stake.

The demise of any aircraft policy has weakened an industry previously accustomed to a high level of public subsidies: day-to-day operations and the very solvency of the companies are seriously affected. In most cases, technical and managerial assistance from the former USSR is being or has already been withdrawn. The reforms in defence policy, and in many cases the lack of a defence policy, leave most companies without resources in the short term.

The replacement of imports from the Independent States of the former USSR by imports of Western equipment provides significant opportunities in terms of offset, but at the same time raises considerable production problems since the aircraft industry must adapt to new standards, procedures and practices.

Compared with a current fleet of less than 300 large transport aircraft, the civil aircraft market in Central and Eastern Europe, which is estimated around 150 aircraft between now and the year 2000, offer very limited prospects. This market is based primarily on the needs of fleet renewal and not on growth. It is difficult, therefore, to see how it could generate the volumes of traffic and the incomes necessary for the launching of new programmes.

Under these conditions, the opportunities for the aircraft industry of Central and Eastern Europe would mainly seem to lie in subcontracting, and the efforts made by the European aircraft industry on the market in these countries would seem to be justified more in terms of long-term positioning. The attraction of selling aircraft products there, even in limited quantities, would therefore be the prospect of their airlines becoming long-term regular customers.

In the short term, despite extremely low wage costs, the organization and production management problems, capital shortages, and the obsolescence of civil production equipment constitute substantial obstacles to investments by the European aircraft industry.

b) *aircraft industry of the Independent States of the former USSR*

As a result of the political and economic disintegration of the former USSR, combined with a considerable reduction in defence sales and exports, its aircraft industry is in ruins. This is due to the dissolution of the central authorities, to the isolation of certain aircraft companies in the Independent States, to the dismantling of the defence production system and to overcapacity and inefficiency in the aircraft industry itself. The aerospace industry is, however, the only high-technology industrial sector which offers interesting opportunities to the West in terms of industrial and technological cooperation.

The prospects for the aircraft industry, which is primarily located in Russia and the Ukraine, are better than those for the Central and East European aircraft industry. This is due primarily:

- \* to the extent of the need for renewal of the domestic fleets;
- \* to the increasing number of skilled engineers becoming available with the reduction in defence production;
- \* to a high standard of technology and facilities in certain factories;
- \* to the attraction of the aircraft industry of the Independent States of the former USSR to Western aircraft companies involved in offset operations and in search of joint ventures.

Interesting complementarities are emerging, in particular as regards the technological potential, especially in view of the shortage of engineers with which the European aircraft industry is likely to be confronted around the year 2000 (see point III.G.2.).

A recovery in activity is expected from 1994 as a result of the development of joint ventures - in particular involving the Western modernization and re-engineering of Russian-designed aircraft.

Despite a certain handicap in terms of performances, maintenance and reliability, Russian aircraft are becoming increasingly competitive and new models, in particular the TU204 and the IL96, could well overcome these problems, especially if they are equipped with Western engines and instrumentation. However, most sales will continue to be on the domestic market, because most large Western airlines have already made their choice concerning their next generation of aircraft and these companies are not yet ready to buy Russian aircraft even if they are less expensive. Their prospects of entering the world market are therefore still remote.

### III.E Handicap of the dependence on the US dollar

Since 1971 the dollar has been fluctuating in relation to the Community currencies independently of the trend in purchasing power parities. Consequently, during their lifetime, aircraft programmes have to face considerable fluctuations in exchange rates, which affect their financial risk and their viability. Since 1986, the European aircraft industry has consistently been penalized by the low level of the dollar.

The European aircraft industry is particularly dependent on the dollar exchange rate because its sales prices are expressed in dollars, whereas most of the costs are expressed in national currencies.

Overall, the dollar fluctuations have a threefold impact on the aircraft industry:

- \* first, the European aircraft industry may need to launch a new programme at a time when the dollar rate is insufficient to guarantee long-term viability for the programme. It may well happen that a programme has to be launched at a given time because it forms part of a family of aircraft. The first Communication on the competitiveness of the European aircraft industry explained the reasons why the development of a family of aircraft is of primary importance in relation to economies of scale;

- \* secondly, if an aircraft programme is launched on the basis of a dollar exchange rate which ensures the viability of the programme, it may happen that when the aircraft are actually ordered the dollar has weakened and that it is impossible to achieve the expected yield. Thus the decline of the dollar since 1986 has damaged the European aircraft industry considerably. Commercial cover for the exchange risk is possible - but at a given price and within limits - for a maximum of three to four years - a period which is quite insufficient for aircraft programmes of a duration of approximately 20 years;
- \* finally, even if the aircraft are ordered at a viable dollar rate, it may happen that when the aircraft are delivered and actually paid for the dollar is lower and that sales are made at a loss.

For a new programme, the first deliveries take place approximately five years after the initial order. Thereafter aircraft are delivered about two years after the order, i.e. commercial cover for the exchange risk for such a period is possible. In the current situation, however, an increase in orders at the end of the '80s led to a considerable build-up in the order book. This means that until the middle of the '90s more than two years will elapse between the time of the order and the time of delivery. This period could even be as much as four to five years. Accordingly, the aircraft industry could have difficulties in obtaining commercial cover for the exchange risks associated with its sales.

Obviously in the opposite circumstances the profitability of a European aircraft programme can be favourably affected. In the same way fluctuations in the dollar exchange rate affect in the opposite sense European airlines which benefit from a weak dollar exchange rate at the time of delivery.

To conclude, the impact of the volatility of the dollar constitutes an excessive handicap for the European aircraft industry. Relocation towards the dollar zone for purely monetary reasons is not a satisfactory solution, involving as it would a loss of existing and potential jobs in the Community and jeopardizing the viability, and therefore the very existence, of the European equipment and subcontracting industry.

### III.F The environment

Various international agreements have already led to the withdrawal of older aircraft, entailing considerable financial implications for the airlines.

The Commission cooperates closely with the ECAC [European Civil Aviation Conference] to define noise regulations aimed at the gradual withdrawal of the noisiest aircraft:

- \* thus, in December 1988 the Council adopted Directive 89/629 aiming at prohibiting, from 1 November 1990 onwards, the registration within the Community of aircraft which do not meet the most stringent international standards (Chapter 3 of Annex 16 to the Chicago Convention);
- \* a new Directive aiming at the gradual withdrawal, between 1995 and 2002, of aircraft not meeting the standards of Chapter 3, was adopted in December 1991. This Directive takes account of environmental factors, technical feasibility, and economic spill-overs.

The Commission, however, sees the need to strengthen current environmental standards. On the one hand, intra-European air transport will soon face competition from high-speed trains. On the other hand, current standards are not adequate to meet new environmental requirements:

- \* regarding noise, the growth in air traffic itself, combined with an increase in the size of aircraft, is likely to erode the benefit deriving from regulations implemented during the last decade. In the absence of a further reduction in aircraft noise, the foreseeable restrictions around airports in the next century may well supersede current standards;
- \* regarding gas emissions, the current standards also seem inadequate since they do not take into account all aspects of flights. During a long-haul flight more than 90% of the gas emissions are not covered by current standards. The Commission is studying this problem jointly with the Aviation Environmental Protection Committee of the ICAO [International Civil Aviation Organization]. More recently, the Commission has decided to study the particular implications of future supersonic transport aircraft.

### III.G National heritage

Apart from the fragmentation of the public financing of R&T, the European aircraft industry suffers from the dispersion of national efforts, in particular with regard to technical standards, training and air traffic control.

#### 1. Technical standards

##### a) *Industrial standards*

Standardization is a significant factor in the competitiveness of the aircraft industry, owing to the economies which it generates. Standardization makes it possible to reduce production costs for the products concerned by approximately 20%.

An estimated 10,000 international, European, national and company standards are necessary for the implementation of a European aircraft project. Currently, two-thirds of these standards are still company standards while European and national standards account for 10% and 20% respectively.

Before the year 2000, however, the role of the international and European standards will grow appreciably. About half of the standards required for an aircraft project will be international or European, while the remainder will be made up of company standards. At the same time national standards will gradually disappear. Consequently, the standardization effort should be redirected away from national and company standardization towards European standardization.

Over the next few years, European standardization needs are estimated at approximately 3 500 standards. This will entail stepping up the production of standards from 100 standards per year at present to 600 standards per year in 1996.

b) *airworthiness certification regulations and procedures*

The technical requirements and procedures, which apply to aviation as a whole, to aircraft construction, operation and maintenance, to airworthiness certification and to air traffic control, contribute to aviation safety.

While being an essential guarantee of air transport safety, airworthiness certification entails a considerable cost for the European aircraft industry. In this area it suffers from a handicap in comparison with its main competitor, the US aircraft industry.

In the United States a single agency, the FAA [Federal Aviation Administration], implements a coherent set of airworthiness certification rules. Moreover, most of the costs of airworthiness certification are borne by the federal budget, the remainder being covered by a tax on passenger tickets.

In Europe, while JAA [Joint Airworthiness Authorities] have been set up, not only is the aircraft industry still confronted with the need to obtain airworthiness certification for its products in each Member State, but also the airworthiness certification cost is charged to the aircraft industry, to an extent which varies from one country to another.

This situation hampers the competitiveness of the European aircraft industry. To have access to the European market, aircraft products of US origin are subject to the European airworthiness certification procedures. However, the US aircraft industry pays only for the supplementary actions required in addition to those already carried out free of charge within the framework of the US airworthiness certification. On the other hand, for the European aircraft industry exporting to the United States, only the additional US airworthiness certification is free.



2. Vocational training

The availability of skilled personnel is an important aspect of competitiveness. The European workforce is generally more highly skilled than that of competitors, though there is less mobility owing to disparities between national training programmes and constraints with language and culture.

In view of the small number of new entrants, it is considered that the majority of personnel who will be in activity in the year 2000 already form part of the labour force of the European aircraft industry. This means that most training in new skills, new technologies and advanced production methods will be undertaken within the companies.

3. Air traffic control

Congestion of airspace and of airports - in particular in Europe and in the United States - constitutes an obstacle to the development of air traffic and therefore to the development of aircraft demand. In Europe, air traffic congestion alone causes airlines and passengers damage estimated at around ECU 4 billion per year. This situation critically affects certain categories of flying, such as business flights, with the risk of the virtual disappearance of the market for this type of aircraft.

Forecasts available point to risks of growing saturation of airports and air traffic control centres in Europe in the next 10 to 15 years.

Although the exponential growth in air traffic is the fundamental cause of its congestion, a large proportion of it results from the disparate division of European airspace between a multitude of centres with non-compatible equipment which control air traffic according to non-harmonized procedures.

#### IV. PROPOSALS FOR COMMUNITY ACTION

The measures to be taken to strengthen the aircraft industry's competitiveness depend primarily on the initiative and the responsibility of manufacturers themselves and their capacity to exploit the opportunities presented to them. Within the framework of long-term strategies, companies must continue their productivity improvement drive, adapt their structures to competition conditions, anticipate technological progress and users' needs, strengthen their complementarities where necessary, and decide on European and world-level industry links in compliance with Community competition rules.

The Commission considers it equally opportune for there to be a dialogue between the social partners to complement industry's efforts, so that - by their active participation in the common effort - workers can provide an additional measure of success.

Apart from such commitments from the manufacturers, it is the responsibility of the Community and the Member States, within the framework of the principle of subsidiarity, to help to provide an environment conducive to the improvement of the aircraft industry's competitiveness. The Community should, in particular, help to set up trans-European networks for transport, telecommunications and energy.

On the basis of the above analysis, the Commission proposes the following lines of action, the order of which does not prejudice of their relative importance:

- \* create a favourable framework
- speed up organization of technical standards
- create a common legal framework: the European Company statute
- promote training
- set up trans-European networks
- promote social dialogue
- \* assure the existence of competition
- \* maintain technological levels
- \* face up to the dollar issue
- \* guarantee environmental balance
- \* consolidate cooperation with Central and Eastern Europe

#### IV.A Create a favourable framework

##### 1. Accelerate harmonization of technical standards

The Member States are responsible for the development of technical standards and airworthiness certification regulations. The Community for its part is responsible for the harmonization of these standards, to guarantee freedom of movement for aircraft and passengers and also a high level of safety throughout the Community.

a) *industrial standardization*

The stepping-up of common standardization will involve a transfer of resources from national and company standardization to European standardization and the overall cost of standardization will therefore not increase significantly.

The Commission will, however, continue its support for the standardization activity of the ABCMA [European Association of Aerospace Manufacturers], which, as a body associated with the CEN [European Committee for Standardization], works out the European standards for the aerospace sector. This contribution corresponds essentially to covering the expenses incurred by the application of CEN/CENELEC common rules to standards worked out by the ABCMA.

b) *airworthiness certification regulations and procedures*

So as to reduce the handicap created by the current multiplicity of national airworthiness certification regulations and procedures, the Commission is attempting to harmonize regulations by relying on the technical expertise of the JAA [Joint Aviation Authorities] to work out a complete set of common technical regulations as JARS [Joint Airworthiness Requirements]. A first step was taken with the adoption by the Council on 7 October 1991 of a Regulation on the harmonization of technical regulations and procedures for their implementation. The plan is to complete the implementation of all the common regulations by 1993. Subsequently, these technical requirements will have to be adapted in the light of the development of new technologies or procedures, so as to maintain an adequate safety level. Ultimately, JARS will contribute to the harmonization of airworthiness certification rules world-wide.

In addition to the harmonization of airworthiness certification regulations and procedures and bearing in mind progress already made within the framework of the JAA, the Commission is in favour of the establishment of a single European authority for all aviation safety matters, able to face competition from the US aircraft industry under equitable conditions in this area. To this end, it would be necessary at Community level for the interested parties to carry out promptly an analysis covering:

- \* the goals that such an organization should pursue;
- \* the procedures to be followed to achieve these objectives;
- \* the problems that the establishment of a single organization would cause.

2. Create a common legal framework: the European company statute

With the European company statute, the Community will provide the European aircraft industry with a legal framework for adapting its industrial and legal structures to the conditions of global competition.

The amended draft Regulation on the European company statute and the related proposal for a Directive on the position of workers in the new European company are both before the Council. The Commission will do all it can to ensure that these provisions are adopted before the end of 1992.

3. Promote vocational training

The European aircraft industry requires personnel capable of developing and using new technologies. The setting up of networks of excellence composed of academic and industrial teams and spread across the Community should be pursued so as to produce mutually complementary "critical masses" of knowledge and expertise, and to ensure a better allocation of resources.

Cooperation between aeronautics schools and the aircraft industry should be strengthened. The setting-up of partnerships would make it possible to ensure, on the one hand, that the curriculum of aeronautics schools is geared to the future needs of the aircraft industry and, on the other hand, the continuous training of personnel already employed. Such partnerships have already been successfully established thanks to the Community's COMETT programme that supports transnational advanced technology training involving both industry and universities. For instance, European sectoral industry-university consortia such as STAR and CSAMI specifically deal with aeronautics and have been operational for a number of years and are increasingly involved in a range of European-based training projects.

Community initiatives relating to training within the air transport sector concentrate on harmonizing qualifications throughout Europe, while improving the level of skills by means of continuous training.

Harmonization of qualifications will have a significant impact on the competitiveness of the European aircraft industry since, while increasing standards of qualifications and ensuring a European dimension, it will further the structural development of the aircraft industry.

The development of common post-graduate level qualifications is already the subject of an initiative coordinated by universities and the European aircraft industry with Community support. This programme, ECATA [European Consortium for Advanced Training in Aeronautics], which covers cooperation aspects in the technical management of aircraft projects, is aimed in particular at young European aircraft engineers. Other advanced training activities so far supported by COMETT have demonstrated the variety of training approaches that can be devised to respond to the needs of the aircraft industry: development of advanced training packages suitable for wide dissemination in the aerospace sector (including advanced training tools such as computer based training, video, simulation, CD-ROM and interactive video), organization of crash training courses on highly specialized topics resulting from recent aeronautics-related R&D, establishment of new curricula in aeronautics and space for both initial and continuing education, and exchanges of students and staff for technology transfer and training.

The Commission also proposes to examine to what extent use could be made, within the framework of exchanges, of highly skilled personnel, in particular engineers and research workers

from the aircraft industry of the Independent States of the former USSR. This item is examined more thoroughly in the communication from the Commission to the Council and to Parliament on the development of industrial cooperation with Central and Eastern Europe, and the Independent States of the former USSR.

4. Set up trans-European networks

In the field of transport, there is interaction and complementarity between the various means of transport, and improving the operation of the trans-European networks for transport, telecommunications, energy and vocational training will have a favourable impact on the European aircraft market and on the European aircraft industry itself. This item has been examined more thoroughly in the Commission communication on trans-European networks.

Air traffic control is a key element of the trans-European air transport network. However, the current air traffic control system seems saturated and unable to absorb the predicted growth in air traffic. Therefore, it is indispensable that the processes begun with the different specialist bodies (Eurocontrol, ECAC, ICAO) be improved and speeded up, in order to arrive at the setting up of an air traffic control and management system, capable of meeting current and future needs, in the best possible conditions of safety and effectiveness.

Such a step should:

- \* have as its objective a continuous improvement in current systems, whereby they can evolve towards an effective unified system, but with the conditions which are essential to guarantee service continuity;
- \* maintain such a European system open to the systems in operation in the rest of the world.

The important thing is to define and to put in place, in a resolute way, a coherent European strategy to which all interested parties in the Community (Member States, industry, operators) can commit themselves at political, operational, legal and financial level. The Community will work with the specialist organisations on the definition of an action plan designed to achieve this objective, with the contribution of its political framework and its instruments (regulations, research, trans-European networks, transport policy, telecommunications, etc).

The introduction of new technologies - the FANS concept [Future Air Navigation Systems] and satellite transmission - to enable these problems to be solved will be a gradual process, but in the transitional phase (which could last 10 to 15 years) the system could nevertheless be improved. The Commission has submitted proposals to the Council in view of the harmonisation of air traffic control equipment, in particular concerning telecommunications between air traffic control centres and harmonization of radar data-processing programmes. Other possible measures concern the improvement of air traffic controllers' workstations and ground/air telecommunications. All these measures will contribute to reducing the workload of controllers and indirectly to increasing air transport control capacity.

The Commission also proposes, in cooperation with Eurocontrol, to adopt technical and performance standards for air traffic control equipment and procedures.

5. Promote social dialogue

The Commission is of the opinion that all these initiatives need - not only at the time of their conception, but also when they are being put into practice - the active participation of the social partners acting in common agreement. As far as the Commission is concerned, it will - in application of Article 118B of the Single Act - make efforts to facilitate such agreement, by creating favourable conditions so that the dialogue between the social partners on these different subjects can be undertaken in the most effective way. In accordance with the engagement the Commission made on this subject in its action programme aimed at the setting up of the Community charter on the fundamental social rights of workers (COM (89) 568 final of 29th November 1989, Part II, point 6), the Commission is currently preparing a Communication on the role of the social partners in collective bargaining at Community level.

IV.B Ensure a level playing field

With the intensification of international competition all companies have to perform under the same competition conditions. Given the increasing globalization of the aircraft market, this principle applies as much to competition within the Community as to competition with its external competitors. In this context, the Commission considers that all elements likely to affect competition have to be considered, in particular both direct and indirect public support.

To ensure the international competitiveness of the European aircraft industry, the Commission considers that competition rules must be applied inside the Community and guarantee a fair international competition be guaranteed.

1. Apply competition rules inside the Community

The Commission is receiving a growing number of notifications from the aircraft industry which are analysed as Article 85 and 86 cases. Several cases have also been assessed under the Council Regulation (EBC) Nr. 4064/89 of 21 December 1989.

When applying competition rules in this sector, the Commission takes account of specific viability conditions in this sector, such as the high level of investment needed in this area, the degree of cooperation necessary and the relatively small number of producers.

Furthermore, as regards the specific economic and industrial features of the aircraft industry, the Commission bears in mind that certain sectors of the industry are characterized by:

\* the world dimension of the markets whereby domestic markets are proving too small to sustain companies of sufficient strength to compete internationally;

- \* industrial operations on such a scale that no existing European company can master all the technologies and the production facilities needed to handle a complete programme in industrial and business terms;
- \* financial requirements that have risen to a level at which no single actor can cover all its needs on its own;
- \* the high level of integration of the European industry's chief competitors.

Cooperation between enterprises of this sector can benefit from block exemptions for specialisation, R&D and patent and know-how licensing.

As regards mergers in particular, it is essential that their impact is evaluated from the correct geographical market perspective - usually the world market for the aircraft industry - and the correct market perspective in terms of products. Therefore a merger combining most of the Community's supply capacity in certain sectors of the aircraft industry does not necessarily imply the creation of a dominant position incompatible with the common market.

State aids to the aircraft industry are subject to Articles 92-94 of the EEC Treaty. There is currently no sectoral aid framework establishing special principles to guide Member States in granting aid to the aircraft industry.

In analysing the compatibility of aids granted by Member States with the common market, the Commission will particularly take into account on the one hand the need for aids for the completion of the aided project - and this must contribute to the achievement of the objectives of the Community's general policy - and on the other hand the distortive effects of the aids in terms of other competitors on the market.

As concerns more particularly state aids related to R&D, the Commission applies the rules of framework on state aids to R&D. It takes account of the particularities of the sector, characterized by the high-technology element of the products, the strong international competition and eventually the aspect of collaboration in supported research.

## 2. Guarantee fair international trade

The GATT [General Agreement on Tariffs and Trade] sectoral agreement on international trade in civil aircraft, which took effect on 1 January 1980, has lifted most tariff and non-tariff barriers to aircraft trade. This agreement governs in particular various forms of public support for the aircraft industry.

Because the US and European situations are basically different and are founded on different principles, the signatories interpret this agreement in different ways.

On 31 March 1992, Community and United States negotiators reached ad referendum agreement on the long-standing dispute concerning trade in large civil aircraft. They now intend to pursue the negotiations of a multilateral agreement covering all types of aircraft and all major aircraft producing countries so as to arrive at multilaterally binding rules for this sector.

#### IV.C Maintain the technological level

With the aeronautical research undertaken within the framework of the BRITE-EURAM programme, and extended in the Industrial Technologies and Materials and EURET programmes, the Community is striving to attain three objectives:

- \* to improve the efficiency of R&T in aeronautics by strengthening industrial cooperation;
- \* to support - as already proposed in the Commission's first communication - the transition of research from military to civil areas;
- \* to contribute to the solution of problems of general interest regarding aeronautical activities and air transport (impact on the environment, improvement of air traffic efficiency and safety, etc.).

To increase the efficiency of the public financing allocated to aeronautical R&T, better coordination and integration of the national programmes is necessary. This involves providing the aircraft industry with a coherent framework for cooperation and mobilization of R&T upstream of industrial projects.

The aircraft industry will also benefit from the reorientation of research policy proposed in the recent Communication from the Commission "Research after Maastricht. Statement. Strategy".

According to the new approach, technological priority projects (TP projects) will be set up alongside traditional programmes, and the objective of these will be the development of key technologies and the strengthening of the effects of investment in RDT on industrial competitiveness.

TP projects will bring substantial benefits to the aircraft industry essentially in three ways:

- a) the availability and the management of generic technologies which are crucial in maintaining the competitive advantages of the aircraft industry. These technologies could concern notably the fields of new and improved materials, telematics for the control and management of air traffic, improvements in energy use;
- b) the development of technologies where research expenditure is at its highest. At this stage, companies are only partly benefiting from the advantages which they are creating for other companies and for consumers. Increased cooperation and Community support for research needs could therefore be decisive. As far as the aircraft industry is concerned, this could be, for example, certain superlight materials or certain advanced propulsion systems;



c) access to technologies with environmental objectives. In the aircraft sector, appropriate examples are of combustion systems which reduce pollution like gas emissions or noise. Particular attention must be to the analysis of sub- and super-sonic flights. Technologies aimed at strengthening air transport security and reliability should also be favoured.

Community R&T activity in the field of aeronautics and air transport should be included under the 4th R&T Framework Programme (1994-1998). Work could cover some or all of the technologies usable in aeronautics (airframe, engine and equipment manufacturers), for the enablement of future generations of aircraft, engines and systems on board and on the ground.

#### IV.D Cope with the dollar issue

In the long term only the establishment of a stable world monetary system will make it possible to resolve the dollar problem. At the Community level, Economic and Monetary Union will contribute significantly to the achievement of this goal.

In the short to medium term, however, the Commission - aware that the fluctuations of the dollar exchange rate and its current level constitute an excessive handicap for the European aircraft industry and jeopardize its continued existence - considers that a specific solution for the aircraft industry could be necessary.

Although recent developments in exchange risk cover opens up the prospect of such risks being covered over longer periods and with a more significant volume of cover, such developments will not allow European industry to surmount the very important difficulties in the face of fluctuating exchange rates. An exchange risk insurance system would make it possible to cover the risks for periods corresponding to the cycle of aircraft programmes. Any system of insurance must of course be in conformity with the Community's obligations in the framework of the GATT. Insurance could take the form of a guarantee fund to reduce the impact of fluctuations in the dollar beyond certain limits, and could therefore be conceived as a European aircraft industry cooperation system. The fund would be self-financed by the aircraft industry. This would allow the system to become stable, whilst at the same time tackling the problem of its financing.

Initial studies by Commission staff have, however, highlighted the complexity of such mechanisms and the difficulty of getting them off the ground at a time when the US dollar is weak. Therefore, the Commission has set up a joint working group with the aircraft industry and financial experts to examine the feasibility and the possible methods of setting up such mechanisms.

#### IV.E Guarantee balance with the environment

Community policy regarding aircraft noise and gas emissions will continue to be based on close cooperation at European level with the 28 nations of the ECAC and at international level with the ICAO.

Concerning environment policy at airports, the Commission services have worked out an inventory of noise standards in force, relating to areas situated around airports in the various Member States. This inventory will aid the deliberations of the Council on the advisability of establishing a Community framework in this field, which should take account of the individual characteristics of airports.

On 19 February 1991 the Commission adopted a "green paper on the impact of transport on the environment: a Community strategy for sustainable mobility" (COM/92/46final) in which the environmental aspects of air transport mentioned above were dealt with.

#### IV.F Launch cooperation with Central and Eastern Europe

Given the strategic nature of the aircraft industry, and especially the enormous size of the aircraft industry of the Independent States of the former USSR - 10 times larger than the European aircraft industry - the question of cooperation with these industries arises.

The aircraft industry in these countries is the subject of many initiatives, involving in particular European aircraft companies and the Member States. In view of the complexity of the current situation, of the diverging interests of the airframe, engine and equipment manufacturers and also of the long-term implications of such industrial cooperation, the Commission considers it essential to adopt a coordinated approach at Community level.

The Commission proposes to set up a joint working group with the aircraft industry so as to establish, as a matter of priority, a detailed diagnosis of the situation and of the prospects for the aircraft industry of Central and Eastern Europe and the Independent States of the former USSR, before technical assistance projects or industrial initiatives are launched.

#### IV.G Pursue the dialogue with the European aircraft industry

The Commission wishes to continue and deepen the dialogue with the European aircraft industry, while widening it to include other players on the air transport scene.

To create conditions conducive to the development of the European aircraft industry, information, in particular statistical information, about the European aircraft industry needs to be improved. the Commission intends to work with the aircraft industry to ensure more transparency so as to improve exchanges of information.

FINANCIAL IMPACT

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By its very nature, this communication has no financial impact. Where necessary, such impact will be given in detail when the Commission makes specific proposals for the implementation of the proposed action.

IMPACT ON SMALL BUSINESS

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The action described in this communication will have no positive impact on all sectors relating to aviation, and especially the SME which are already making sizeable contributions to this industry's hi-tech achievements.

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