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The competitive Bidding of French arms industry

Jacques Fontanel

Université des Sciences Sociales de Grenoble
Cahiers du CEDSI
Grenoble, 1989

L'industrie d'armement de la France subit une compétition internationale importante et agressive dans un secteur en profonde mutation. Il existe des accords internationaux en vue de réduire les effets dangereux de la course aux armements, avec la liste du COCOM ou la « Clause de la destination finale ». Les ventes d'armes sont très dépendantes des autorisations des Etats, et donc de la politique de défense et diplomatique des pays. Sur certaines armes, un monopole peut s'installer grâce à la qualité technologique d'une arme ou d'un composant. Dans le cadre de l'Union européenne, les questions relatives à la coopération en matière de production d'armes, ou d'achats communs regroupés, entre les Etats membres ne sont pas encore résolues, notamment du fait de la force de l'OTAN et des intérêts particuliers des firmes et des Etats.

France's armaments industry is undergoing significant and aggressive international competition in a sector undergoing profound change. There are international agreements to reduce the dangerous effects of the arms race, with the COCOM list or the "Final Destination Clause". Arms sales are highly dependent on the authorisation of states, and therefore on countries' defence and diplomatic policies. A monopoly can be established on certain weapons thanks to the technological quality of a weapon or component. Within the framework of the European Union, questions relating to cooperation on arms production, or joint grouped purchases, between the Member States have not yet been resolved, in particular because of the strength of NATO and the special interests of firms and states.

Armement européen, course aux armement, importation d'armes, exportations d'armes
European armament, arms race, arms imports, arms exports

No major changes have been introduced in contracting systems since 1981. The most important change is the decision to have an aggressive export policy in order to facilitate France's independent military technological base. The Government intervenes constantly on arms exports and it is clearly involved in the organization of national and international cooperations. It has decided to increase the responsibility of the arms industry for some programmes. For the ACT programme, for R&D, the initial decision forecast three shares in the financial statement :

- 75 % for the public budget
- 7.5 % for the arms industry
- 17.5 % for the foreign share.

But the foreign share at great risk and so the arms industry share will certainly be higher than it was foreseen. The French arms sector is very competitive. Governments give it some economic advantages, which are not the results of a perfect competition, but the political will to ensure national security. National competition on the main military products does not really exist, because of the importance of the State in enterprise and sector decisions and of scale economies.

III.1. International competition

It is difficult to distinguish whether some particular transactions, such as aircraft or electronics components which have a dual use, should be classified as civil and military. In the arms market the transaction price is rarely well defined. The transfer takes place as a part of a package involving the equipment itself, spares, training, access to technology, export credits, insurance for payment, offset agreements and counter-trade arrangements. Hence, the national export figures are very difficult to analyse. The net costs or revenues to the countries concerned may be different from the nominal prices.

Developing countries comprise the major source of demand for

internationally traded weapons. In the 1970s and 1960s weapons transactions became more commercial, as OPEC oil revenues provided an alternative source of finance for purchase. Alongside these quantitative changes, there were important qualitative changes in demand. Initially, the weapons transferred to the Third World had largely been obsolete, outdated or second-hand. During the 1970s the most modern weapons systems produced by industrialised countries were being sold. This change is a consequence of the aggressive commercial policy of French private military enterprises.

A control of arms exports is exercised by the Prime Minister and the Secrétariat Général de la Défense Nationale (SGDN), which organizes la Commission Interministérielle pour l'Etude des exportations des matériels de guerre (CIEEMG), chaired by the Secrétaire Général de la Défense Nationale, with the representatives of the Ministers of Defense, Foreign Affairs and Economy and Finance and the General Staff of Military Forces. There are the "Clause de la destination finale" (end use control, but without any analysis of re-export possibilities) and the control of export operations and more generally the Coordinating Committee (COCOM).

International sales of arms and technology were progressively detached from foreign policy and strategic objectives. The economic reasons invoked for exporting arms tend as a result to become the usual rule on the market and the buyers are able to obtain the highest technology products for conventional armament. The French government wanted to maintain an national arms industry, mainly to ensure national independence of supply and access to the latest military technologies. In these conditions, exports sales at prices above short-run marginal cost made some contribution to investment costs. In political terms, by supplying arms, France had the potential to influence directly or indirectly the behaviour of customers and to assist its friends. The 1980s have seen the beginning of a trend towards appropriate technology weapons, cheaper and better tailored to Third World needs, sometimes supplied by Newly Industrialised Countries. In 1987, although it was a good year for the weapons trade, the exports of the French arms industry were reduced by 18,6 per cent in comparison with 1986, with reductions of 14 per cent in the developing countries and 50 per cent in the industrialized countries' markets. From 1984 to 1986, French arms export orders were for 61.8, 44.5, and 25.3 billion francs respectively, because of the impoverishment of French customers, the fall of the dollar exchange rate and international competition. During this time, FRG and U.K. arms exports were growing.

1971". Arms exports need authorizations from the State, and more precisely from the Secrétariat Général de la Défense Nationale which represents the Prime Minister. The main reason for this export crisis is certainly the gamble by French arms enterprises on the development of the US market just when the State deficit obliged the US government to reduce the growth of military expenditure. It is interesting to note that the arms exports of French industry are not really in crisis yet, because deliveries lag behind orders, but present orders are very low. If we have in mind, that usually, orders are higher than deliveries, the arms industry will be in a bad way in the near future.

A supplier with an effective monopoly of a desired weapon system is able to extract a high political price. This is rarely the case for France which produces arms in competition with many alternative sources of supply. Thus its exporting position is not so powerful, because of the new competition, characterised by the absence of political conditions, between arms enterprises. During the 1970s, France made skilful use of its special status and relative independence from the two superpowers, and of the weakness of political conditions on French arms sales, to obtain a share of the international weapons market. During the 1980s this advantage has been substantially reduced by the "demonstration effect" involving both new arms producers, like West Germany, Japan and Brazil, and even the two superpowers. Thus, the competitive position of the French arms industry is declining. In 1984, for Brzoska and Ohlson¹, France exported 50 percent of its arms production (42 % for United Kingdom, 20 % for West Germany and 70 % for Italy).

Table 57 - Distribution of French exports deliveries (in percentage)

Countries	1974	1976	1979	1982	1983	1984	1985	1986
North Africa and Middle East	57	58	52	66	56	77	39	38
North America & Europe	25	23	11	9	14	10	42	42
South America	3	6	14	16	7	9	5	nc
Far-East	5	2	4	4	4	2	5	nc
Black Africa	2	2	4	1	1	1	2	nc
Others	8	8	4	1	1	1	2	nc

¹ Michael BRZOSKA & Thomas OHLSON : "The Trade in Major Conventional Weapons", in SIPRI, World Armaments and Disarmament, SIPRI Yearbook 1985, New York, Oxford University Press, 1986, p. 136.

Table 56 - French export arms deliveries (billion current and constant francs)

Year	DELIVERIES			Percentage exports/ Arms production
	current francs	1986 francs	1983 dollars	
1970	2.7	11.3		19
1971	3	11.9		20
1972	4	15		24
1973	5.2	18.4		26
1974	6.7	22.1		30
1975	8.3	24.1	2.89	32
1976	11.6	30.2	2.22	37
1977	14.7	34.8	2.58	41
1978	17.3	37.5	2.78	40
1979	20.5	40.8	2.94	40
1980	23.4	41.9	2.98	40
1981	28.5	45.0	3.21	41
1982	28.9	40.2	2.91	38
1983	33.1	41.3	3.04	38
1984	41.9	47.8	3.59	42
1985	43.9	46.5	3.56	42
1986	43.1	43.1		40

An armament export control has existed since 1939, with a classification which, at present, is defined by an "arrêté du 2 avril

1971". Arms exports need authorizations from the State, and more precisely from the Secrétariat Général de la Défense Nationale which represents the Prime Minister. The main reason for this export crisis is certainly the gamble by French arms enterprises on the development of the US market just when the State deficit obliged the US government to reduce the growth of military expenditure. It is interesting to note that the arms exports of French industry are not really in crisis yet, because deliveries lag behind orders, but present orders are very low. If we have in mind, that usually, orders are higher than deliveries, the arms industry will be in a bad way in the near future.

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Table 57 - Distribution of French export deliveries (in percentage)

Year	Orders (current francs)	Orders (1986 francs)
1974	18.3	60.4
1975	16.5	47.9
1976	18.9	49.1
1977	27.4	64.9
1978	21.7	47
1979	25.1	50
1980	37.4	67
1981	33.8	53.4
1982	41.6	57.8
1983	29.1	36.4
1984	61.8	70.5
1985	44.5	47.1
1986	25.3	25.3
1987	28.9	
1988	37.5	

Table 58 - Geographical structure of arms export orders for France (1985 and 1986) in billion francs

Regions	1985	1986	1987
Europe and North America	18.5	10.1	11.8
North Africa and Middle East	17.5	9.3	11.3
South America and Caribbean countries	3.3	0.4	0.6
The Far East	2.4	3.6	2.9
Black Africa	2	1.6	2.0
Others	0.8	0.3	0.3
Total	44.5	25.3	28.9

Table 59 - Geographical structure of French arms exports deliveries in billion francs (1985,1986, 1987)

Regions	1985	1986	1987
Europe and North America	6.2	7.2	8.5
North Africa and Middle East	26.4	23.1	18.4
South America and Caribbean countries	2.1	4.6	2.0
The Far East	7.0	5.6	4.0
Black Africa	1.6	2.2	0.9
Others	0.6	0.4	0.3
Total	43.9	43.9	34.1

Table 60 - Military equipment exported (deliveries and orders)

Trade	Orders		Deliveries	
	1986	1987	1986	1987
Arms	23.0	18.2	14.4	15.6
Air	11.1	12.7	8.5	7.8
Land	8.2	3.2	2.4	5.5
Ships				

Arms production is characterised by high overhead costs for research and development, learning curves (costs decline with experience) and economies of scale. Large producers can produce more cheaply. Thus, arms exports became an economic condition for an efficient national armament industry. French companies would not undertake the deals if they did not expect them to be profitable, and profitability often depends on subsidies from the supplier government, especially in R&D, credits and official aid and approval for exports. The benefits of arms exports appear directly and accrue to particular interests. The costs are less directly obvious and depend on the alternative use of funds.

The advantages of exports are often difficult to measure. The sale of 40 Mirage - 2000 to the government of Greece was dependent of a more general agreement on industrial investments, on purchases of products and services and on tourism training. For a contract of 8 billion francs, the four firms Dassault, SNECMA, Thomson and Matra must offer 4.8 billion compensations, with 1 billion (628 million in industrial investment, 350 million for exportations and 27 million for tourism training) from June 1985 to June 1989. Thus, it is not easy to know whether the French economy really benefit from this programme.

Therefore there is powerful economic pressure for exports. Military development is a voracious user of scarce scientific and technical resources, depriving the civilian economy of skills useful for improving productivity and competitiveness. In this case, the economic value of arms must be computed and compared with a civil use of the additional resources involved in exports. It is certainly dangerous to think that, for France, the promotion of arms exports is

a profitable proposition. The growing dependence of particular interests on arms exports has created a powerful economic lobby, with enterprises, unions, parliamentarians, regional councillors, despite the lack of any established economic or commercial logic.

It is interesting that econometric models can suggest that a country's military expenditure has conflicting positive and negative effects on arms exports. For France, if total military expenditure seems to have rather a positive effect on arms exports, the annual increase of military expenditure produces a negative effect. These results indicate that when arms exports forecasts suggest the emergence of a crisis, military expenditure is increased in order to compensate the arms industry for the lack of demand. The present attempt at modernization of French armaments and the exceptional increase of equipment as against operational costs must be partially explained by the pressure of the French arms lobby, with blackmail on employment, exports problems and the argument about the destruction of the competitiveness of this industry. Usually, arms exports are analysed as a complement to national defense equipment needs, in order to reduce the collective costs of armaments. In the 1980s, additional military equipment sales to the French government have compensated the losses of the French arms industry on international markets.

Parliamentary Report on French Military industries explained the international market crisis of the weapons trade by the decrease of resources of French buyers, the emergence of new arms producers and the weakness of the French system of arms sales, with some financial rigidity and the aging of the marketing companies. Some commercial success of Great Britain are given in example with their barter agreements with Saudi Arabia (Tornado) and Malaysia. The Parliament Report recommends improvements in the financial and insurance statements of arms exports and the systematic use of certain diplomatic decisions for commercial agreements.¹ For instance, Paris will help India to design its aircraft carrier at Cochin in the Kerala State with the assistance of French technical personnel.

¹Assemblée Nationale, Première session ordinaire, Tome V, Défense, Recherche et industrie d'armement, par Jean-Guy Branger, 13 Octobre 1988. "Troisième remarque et c'est sans doute la plus importante. J'observe qu'à la différence de leurs collègues britanniques, les dirigeants politiques français ont toujours éprouvé de fortes réticences devant l'idée de tirer un certain parti commercial de certaines de nos prises de position diplomatiques. Les ministres de la Défense paraissent en général plus sensibles à ce problème, mais ils sont malheureusement perçus dans les pays tiers comme étant, avant tout, des ministres techniciens. Il serait sans doute souhaitable que les ministres paraissant plus politiques aux yeux des acheteurs potentiels partagent mieux leurs préoccupations". Page 17.

Desire for weapons does not constitute an effective demand unless finance is also available, and thus in a world crisis, it is difficult to maintain arms transfers in the long run without any financial guarantee of effective payment. But, for the French arms industry, it is vital to export and the parliamentary report pleads for a new products policy better defined for international uses, quality research, a wider geographical market, commercial attempts at direct foreign implantation, improvement of risk insurance for the military sector and improvement of French and European industrial collaborations. This is a political, not an economic decision.

III.2. The outlook for the unified European market

EEC's wider mandate to coordinate industrial policy in the field of high technology will necessarily effect arms production, because it is often impracticable to distinguish military and civilian R&D and production. "Increased Western Europeanization of seemingly civilian R&D in the wake of the creation of the Single Market increases already strong pressures for a more coordinated framework on military R&D ... Here several economic interests can be distinguished. First, we have national procurement agencies and politicians in charge of procurement, who expect lower prices from a more competitive arms market... Second, arms production companies see chances for economic gains from a more open arms market in Western Europe... Third, options for all parties involved are narrowing because of the increasing costs of weapon systems... Especially, in sectors like space, or electronics it is argued, West European companies need a combined civilian-military approach in order to compete with the highly-subsidized US and the highly-civilian-subsidized Japanese competitors"¹. There is a US demand for a higher contribution of West European member states to NATO and the European cooperation must be encouraged.

In the "General and Final Provisions" of the EEC Treaty, it is established that "no Member State shall be obliged to supply information the disclosure of which it considers contrary to the essential interests of its security. Any member State is allowed to take measures as it considers necessary for the protection of the essential interests of its security which are connected with the production of or trade in arms, munitions and war materials ; such measures shall not adversely affect the conditions of competition in the common market regarding products which are not intended for

¹ BRZOSKA Michael : "The Structure of Arms Production in Western Europe beyond 1992". ISA Conference, London, March-April 1989.

specifically military purposes (Article 223). The Commission has the right (unanimous vote of the Council) to modify the list. Title III of the Single Act deals with the provisions on European cooperation in the field of foreign policy, although these provisions remain vague and if some national delegations maintained their opposition in principle to including the armament sector in the scope of the new directives. "Similar problems seem to occur with regard to the Commissions' proposal for a Council regulation temporarily suspending import duties on certain weapons and military equipment (COM88 502 final). This proposal aims at enabling the Member States to procure for the use of their armed forces the most technologically advanced military equipment and that Community manufacturers should be able to meet the greater part of these needs"¹. There is a strong need for a cooperation. The level of duplication and waste is very high : 11 enterprises for anti-tank weapons, 18 for air missiles and 10 for ship missiles, each of them in 7 countries. There is a lack of standardization and of interoperability. The promotion of an European technological base (ESPRIT or EUREKA) is an interesting but insufficient action.

The European Parliament is a driving force for European defense cooperation. In 1975 and 1983, it adopted a resolution expressing the will to strengthen cooperation in the field of national security and giving a concept of European peace and security, founded on the principles of détente policy, arms limitation and peaceful co-existence between all states and all peoples. A resolution on arms procurement within a common industrial policy and on arms exports was adopted in november 1983. The European Parliament is more and more concerned by security needs and although it remains a relatively weak body, the new consultative powers in the Single European Act enhance its catalytic role on this subject.

The government decision to construct Rafale is very important, for many reasons :

- For Dassault-Bréguet, the production of Rafale is essential, both for the economic activity of the enterprises of the Group and for the maintenance and improvement of military aircraft technology. In June 1989, twenty-five pilots tested the Rafale and after transformation of the M88 jet engine, new flights are forecast for Spring 1990, with two monoplaces for Airforces, a biplace for training and two monoplaces for naval aeronautics. The operational service of Rafale-D (D for its ability to escape electromagnetic and optic infra-red

¹ GRUNERT Thomas : "Sécurité Cooperation in the European Community".
Joint Annual Convention of the BISA and the ISA, London, 28 March-1 April
1989.

detections) is programmed for 1996. The development and industrialization costs for eight years should be 40 billion francs, of which 25 % are financed by the constructors themselves. At present, the programming is fairly well realized. The European aircraft has a development cost two-fold higher than the Rafale and the US decision to abandon the Agile-Falcon and Super-Hornet 2000 programs certainly creates an opportunity on future international arms markets.

- The Ans (supersonic antinaval missile), which might succeed Exocet was a good project in collaboration with FRG. This programme between Matra and Mbb has been interrupted for 4 years by Mbb under pressure from German pacifist opinion which condemned it as an offensive weapon. Thus the complete programme is under threat and even the unions accept that France is in danger of technical delays. The question now is whether it is possible to develop this missile alone, as France will have probably to do for the Super-Asmp missile project which is meant to re-equip Mirage IV, Mirage 2000 and Super-Etendard. If the national military industry abandons these projects, technical leadership will definitely be lost.

- The French unions are clearly in favour of the Rafale project, with a forecast total cost of 130 to 180 billion francs (between 20 to 30 billion dollars) because Amd-Ba (Avions Marcel Dassault-Breguet Aviation) is very involved in military programmes (75 to 80 per cent of total turnover) and to drop the project would add 10,000 to the unemployment figures. The Reagan-Gorbachev process of disarmament is still modest and it is not possible to have defense credibility without national space control. France needs 336 units (250 for the Airforce and 86 for the Navy). Thus the forecast scale of production are not negligible. National independence has a price and unions think that it is useful to maintain technological know how for the long run.

- The European programme did not offer as much economic leverage. The United Kingdom, the FRG, Italy and Spain will have to pay 340 billion francs (55 billion dollars) to produce the programme and in this case, cooperation does not reduce the costs. With each country's specifications to take into account its own defense, the Ace aircraft is not adapted to the logic of the deterrence strategy which dominates France's defense effort. The German and British armies want a heavy offensive aircraft (14 tons), even though the French army would prefer a light defensive aircraft (8 tons). If the project had to take account of the French basic specifications, the unit cost would rise and then an economic comparison between Ace and Rafale would not necessarily be in favour of the European project. This is

why the Délégué Général pour l'Armement exhorts the arms industrialists to pay attention for cost overruns.¹

- The missile Mica for Rafale is not clearly defined and nothing has been decided on the location of the plant. It is possible that Matra will decide to produce them in a foreign subsidiary. Matra which is clearly suffering from the crisis of Dassault (it was the main arms equipment supplier for Dassault), has, for example, a project to build, in competition with the U.S. Stinger, the Mistral, a light anti-air missile, which can be launched by an infantryman. For many years, the Mistral will represent the major part of the Matra's activity. More than one thousand eight hundred units per months would be built, but Matra's chairman does not want to invest in new plants, although national capacity does not exceed 500 units. Thus the French Mistral could be kit assembled in Italy or Spain.

The European Single Act is very important for civilian industry and it is foreseeable that it has some consequences for the military industries. European unity had been badly shaken with the "Sale of Century", the sale by the US of the F16 fighter to Belgium, the Netherlands, Denmark and Norway. For France which wanted to sell the Mirage F-1 this was a major blow. The Eurogroup is weak, because it is unable to harness the French arms industry as a main part of the European effort to challenge the USA, and if it were to challenge the US without French participation the result would be disastrous for European co-operation and unity.

III.3. Armament cooperation

With weapons collaboration, the typical pattern is that development costs are shared between the partners, cutting the costs to each, if and only if the defense organisations need exactly the same weapons. The arguments for the French military industry are based on the idea that French weapons are superior, tailored exactly to the needs of French forces and that a domestic defense industrial base is essential for strategic independence and that "unfair trade" arguments justify protection.

¹ "C'est le programme-phare des dix à vingt prochaines années pour l'aéronautique française. C'est un outil absolument remarquable, un nouveau fer de lance à l'exportation. Nous devons nous fixer de respecter les coûts et tenir compte de nos récents précédents cuisants en matière de service après-vente. Il faut fournir à nos clients une documentation normalisée en anglais ou dans la langue du pays, des pièces détachées à temps et non surdimensionnées, et une assistance technique sérieuse à des prix raisonnables. J'ai confiance en ce grand programme".

On the economic side, it is argued that domestic procurement creates employment, boosts tax revenue, improves the balance of payments and produces technological spin-off for civilian production. If cooperating countries do not want exactly the same weapon, new costs occur in meeting the needs of each partner, and then the advantages of large scale production can be insufficient to compensate for the increase in costs. Production takes place on a national basis and there are losses if compromise designs are more expensive to produce. Collaboration itself adds a cost penalty arising from co-ordination expenses and transport needs. There are always complicated, politically rather than economically negotiated, work sharing and compensation arrangements.

The cooperation objectives are :

- the need to obtain specialized, high and varied technical competences which are difficult to develop for a single enterprise,
- the necessity to reduce research and development investments for each firm,
- the desire to spread substantial risks,
- The possibility of enlarging the markets, developing mass production and reducing unit costs of each products.

National self-sufficiency and independence in arms is a policy which can prove both expensive and dangerous. That is why, for cost reasons, it will be necessary for France to call for cooperation or specialization with its European partners, unless it wishes to increase its defense spending to achieve the same level of security, with the consequent risk of burdening the national economy with inadequate industrial productivity which, in the long run, would reduce growth opportunities and national security itself. In a democratic country, good defense is never built on an economy in crisis or recession.

The Délégation Générale pour L'Armement is directing France's military policy towards the twin goals of independence and solidarity. Independence implies autonomy as regards decision-making, in spite of the great complexity of current weapons systems ; it is therefore striving to harness national energies and skills with a view to providing the foundations of her defense from the nation's own resources. Solidarity implies that once a large measure of autonomy as regards decision-making has been obtained, France should collaborate with its allies, at least in the design and introduction of new weapons useful for their mutual security. Under these conditions, the decision to develop an arms industry primarily satisfies the requirements for national independence.

The economic aspects set the limits to industrial activity, in order to control in the best way the investments committed and also to involve arms firms and sectors in the modernization and industrialization of the French economy. But it is more difficult to support a national arms industrial policy, because of the needs for technical progress in high technology and the risks of investment. Co-production is a way to increase competence in arms production, although the different strategies imply various kinds of weapons.

European industry has a deteriorating position in high technology, since between 1975 and 1985, the rate of foreign penetration was increased by 8 per cent while exports declined by 2.5 per cent. Thus, there is a need for European cooperation in military research, in order to reduce the technological gap in armaments (especially a strategic computing programme, on design automation, on emerging technologies). The EEC programmes like ESPRIT, BRITE or EUREKA are very advantageous for civil research and military applications will not be negligible. The Groupe Européen Indépendant de programmes (GEIP) is strengthening cooperation for the structural rationalization of european resources, but the results are not yet sufficient. On specific programmes, French cooperation with individual EC countries seems to be more rewarding.

New agreements with the FRG on fighting helicopters, with european partners on future antitank missiles and with Atlantic Alliance partners on multiple "lance-roquette" or rocket-launcher (MLR) were recently signed. SNECMA and General Electric are to produce C.F.M 56 engines with dual technology and Thomson and G.T.E. are partners on the american version of RITA. There are two military industrial projects with Canada on Drone CL 289 (with the FRG) and an antitank missile (Eryx) for French needs. The success of cooperation projects implies very close common needs on the technical characteristics of materials, well-structured official and industrial organization, serious forecasts of costs in order to measure the advantages of cooperation, an improvement in or maintenance of the competitiveness of the national industries involved in the programme and a good prospect of national initiatives on exports.

Table 61 - European military programmes involving France over the last ten years.¹

Programmes	Finance(%)	Enterprises	Deliveries	Orders	Technology transfers
Missile Hot	France 50 FRG 50	- Aérospatiale - M.B.B.	1974-1991 and beyond	France 17000 FRG 25000 Export 27000	NO (2.1)
Missile Milan	France 50 FRG 50	- Aérospatiale - M.B.B.	1974-1991	France 64000 FRG 90000 Export 62000	U.K. Italy (3.8) India
Missile Roland	France 50 FRG 50	- Aérospatiale - M.B.B.	1977-1988	France 7000 FRG 14000 Export 3500	USA (10)
Minesweepers Tripartite (CMT)	France 33 Netherlands 33 Belgium 33	- D.C.N. - Van der Geissen - Mercantile & Béliard	1983-1989	France 10 Belgium 10 Netherlands 15	NO (2.5)
Helicopters Lynx-WG 13	France 31 U.K. 69	- Aérospatiale - Turboméca - Westland - Rolls Royce	1978-1984	France 40 U.K. 218 Exports 71	NO (2)
Helicopters S.A. 341-342 Gazelle	France 74 U.K. 26	- Aérospatiale - Turboméca - Westland - Rolls Royce	1973-1990	France 343 U.K. 282 Export 426	NO (2.2)
Helicopters SA 330 Puma	France 92 U.K. 8	- Aérospatiale - Turboméca - Westland - Rolls Royce	1969-1989	France 185 U.K. 48 Exports 247	Romania Indonesia (2.7)
RITA (Communication System)	France 95 Belgium 5	- Thomson - Bell Telephone Manufacturing Co	1981-1985	France 1 Belgium 1 Export USA 1	NO (8.3)
Jaguar Aircraft	France 50 U.K. 50	- AMD.BA - Turboméca - B.Ae - Rolls Royce	1972-1982	France 200 U.K. 203 Export 94	NO (9.2)
Alpha Jet Aircraft	France 50 FRG 50	- AMD.BA - Turboméca - SNECMA - Dornier - Rolls Royce	1976-1984	France 175 FRG 175 Export. 151	NO (7.8)

¹ Assemblée Nationale, Première Session Ordinaire 1987-1988, Tome X, "Défense. Recherche et industrie d'armement par Jean-Pierre BECHTER, 8 Octobre 1987. page 35. Senat : Tome IV Défense Section Commune par Xavier de Villepin Session ordinaire de 1987-1988". The figures in brackets into the last column give the financial balance-sheet of the programmes.

There are also management companies that offer products which are the results of joint developments with various companies of the EEC countries and then contract out production competitively. (for instance, Euromissile in 1972 in Paris, for France and FRG and Euromissile Dynamics in Paris for France, FRG and UK in 1976). There are some risks in the definition and implementation of industrial cooperations with other countries :

- The basic needs of the military staff are not exactly similar, either on the time horizons or on the strategic interest for each State.
- The French administrative and financial procedures are not often in keeping with those of other countries.
- The difficulty of deciding on agreed export policies
- The tendency of each government to support its national industry, although national competitiveness is not very good.
- The delays in the conception and execution of the programmes,
- The magnitude of the costs.

French trade-unions are very suspicious of European military arms cooperation which is accused of being the main cause of the loss of manufacturing activities, to the detriment of regions and workers. For example, the European Space Agency is dependent on co-finance agreements and, as a result, countries call for participation in the production process. There is technology transfer without any counterpart being received by French industry. Thus, there is a strong tendency for the ESA to produce unequal relations among European countries to the detriment of France. For the trade unions, arms industry cooperation between the countries of EEC is not very advantageous in terms of employment or the technology gap in the space industry in favour of France's partners. "West Europeans have relied heavily on collaboration to sustain their military-industrial-scientific-technological system (MISTS). Foreign support is sought not only for specific weapons projects but also for national organizational structures themselves and for their continuing technological advancement. These organizational structures, while indigenously based, depend critically on external technological know-how and on guaranteed markets among collaborating states. The cost of weapons research and development and the high unit costs of exclusively national production, in the absence of available global marketing outlets, generate strong incentives to cooperate. This is so despite the inevitably higher average costs of multinational versus national programs. Thus, the market drives a major portion of Euro-defense production, although individual states seek general political autonomy in arms production as well"¹

¹Edward A. KOŁODZIEJ : "The political economy of making and

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