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Italian Defense Industries: Striving To Compete

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A Research Paper

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A Research Paper

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Italian Defense Industries: Striving To Compete

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Summary

Information available as of 1 June 1986 was used in this report.

Through the astute use of licensed production and participation in joint weapons programs with the United States and a number of West European countries, Italy has become a major manufacturer of military hardware and now ranks as the fifth-largest non-Communist supplier in the global arms market. Participation in codevelopment and coproduction arrangements has given Italian firms access to key advanced technologies without the high costs associated with independent research and development (R&D). Moreover, using the experience gained, the Italians have developed indigenous weapons in most of the defense sectors—chiefly at the lower end of the technology range. Italy remains dependent on its US and West European partners in a number of high-technology areas and is likely to remain so for the foreseeable future:

- The Italians have gradually developed a substantial aerospace sector, which ranks second in Western Europe behind France in sales. Agusta is one of the major world helicopter producers, and Aeritalia is the prime Italian partner in the Tornado consortium and the Eurofighter projects. Italian firms have achieved relative independence in airframe design and avionics, but still rely on US and British engines and foreign suppliers for aircraft weapon systems. They also lag in advanced missile propulsion and guidance technology.

- Italian shipyards produce vessels ranging from patrol craft to helicopter cruisers, and Italian firms have developed a number of highly competitive naval weapon systems, including an OTO Melara gun system in service with over 40 navies, the Otomat missile that has been sold to some 15 countries, and a variety of sonars, radars, and electronic warfare systems. Rome has streamlined its shipbuilding industry to compensate for flagging worldwide demand, but new construction orders remain low and most work has been in ship repair.

- With the exception of small arms, the Italian land armaments industry has been the least successful defense sector in challenging the dominant positions of the United States, Britain, West Germany, and France. OTO Melara and Fiat have successfully marketed a variety of armored personnel carriers, and the artillery industry has sold towed guns throughout NATO and the Third World. Largely because foreign systems have better capabilities at competitive prices, however, the

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Italian Army is equipped with US and West European tanks and antitank systems, and it is looking to a US system to modernize its self-propelled artillery. 25X1

As it has grown, the Italian defense industrial sector has become an important economic asset, providing direct employment for up to 100,000 workers. An equal number probably are employed by firms that indirectly support the defense sector. Annual defense industry sales are estimated at $3-4 billion, and the industry is a key source of advanced technology for a country with limited R&D resources. 25X1

The Italian Government has played a key role in the development and structuring of the defense industrial complex, and over 70 percent of Italian arms manufacturers are government controlled through state-owned holding companies. This government presence has permitted Rome to restructure firms and entire sectors in an effort to enhance their competitiveness in the export market and to rationalize R&D and production. Nonetheless, bureaucratic resistance and periodic infighting between government ministries and state holding companies have limited Rome's ability to fully eliminate redundancy and develop efficient worksharing schemes. Domestic politics also have been a stumblingblock, particularly in the aerospace sector. Aeritalia, controlled by the Christian Democrats, and Agusta, controlled by the Socialists, are important sources of funding and patronage for the two parties, and the Socialists have resisted rationalization proposals that, in effect, would place Agusta under Aeritalia. 25X1

Export sales have become crucial to the health of the Italian defense industries and dominate the business of some firms. Except for weapons produced through joint programs and some electronics, Italy has not cracked the West European market. Recognizing their lower technology base, and taking advantage of a somewhat lower wage structure, however, the Italians have been successful in marketing cheaper and less sophisticated weapons in the Third World. For example, the bulk of Italian export sales since 1980 have been to Middle Eastern and North African states (67 percent of total sales). Libya, Iraq, and Somalia have been major armor customers, and Libya was a major aircraft client. Sales to Sub-Saharan Africa account for another 13 percent and equal those to Latin America and Asia. Sales in Western Europe have accounted for only 5.2 percent of total exports. 25X1

Although hampered by the lack of a centralized sales organization such as in France and the United Kingdom, the Italian Government has taken an active role in arms marketing, occasionally subsidizing export credits. Government control of the defense industrial sector has enhanced Italy's export sales position, in part because Rome can offer its clients complete packages of military hardware and associated nonmilitary goods and services provided by firms owned or controlled by the government. Rome also places substantially fewer restrictions on arms sales than its competitors and has been more willing to transfer technology to its customers.

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The future health of the Italian defense industries will depend in large part on Italy's ability to maintain its position in the export market. Although they remain relatively well placed to exploit their current status as important suppliers of cheaper and less sophisticated arms to the Third World, we believe that overall Italian export sales will decline in the next 10 years:

- A number of Third World clients are now completing modernization programs and many, particularly those dependent on oil revenues, will face increasingly tight defense budgets.

- Italy will face increasing competition, not only from established West European exporters—such as France and the United Kingdom—but also from other smaller but growing West European defense industrial suppliers such as Spain, Greece, and Turkey, and from Third World suppliers such as Brazil and South Korea.

- The next five years may also see a decline in orders from the Italian military as it completes much of its current modernization program and faces increased fiscal austerity.

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Italy's drive to increase its arms sales, its quest for greater self-sufficiency in the advanced technology arena, and its policy of equipping its own forces with indigenous weapon systems will pose challenges for the United States:

- As it attempts to maintain its position in the Third World arms market, Italy will face a growing dilemma over its policy regarding sales to the more radical Middle Eastern states, particularly Libya. On the one hand,

Italy has been willing to accede to US requests to restrict exports. Rome recently banned sales to Tripoli, has refused to sign major agreements with Tehran, and has signed no new agreements with Baghdad. On the other hand, Rome is increasingly concerned that other countries, especially France and the United Kingdom, are not restricting sales to Iran and could have an advantage over Italy should the Iran-Iraq war end. Rome also may resume sales to Libya if it becomes apparent that others are not restricting sales or if it detects a noticeable change in Tripoli or West European attitudes toward Libya.

- Although Rome has actively supported greater West European and NATO armaments cooperation, there will be increasing pressure—particularly if the export market shrinks—on the Italian military to procure indigenously designed weapon systems regardless of their capability or compatibility with other NATO systems.

- Rome probably will continue to support US policy on COCOM restrictions against technology transfer to Communist states. Italy is concerned, however, over the impact of US export controls on its competitiveness as an arms supplier—particularly given its dependence on US-designed advanced technology subsystems—and almost certainly will press for less rigid restrictions on US technology. Italy also may turn increasingly to its West European partners as a source of crucial technology and to find a way around US restrictions.

- The Italians are likely to demand heavier industrial offsets for any US arms they purchase and insist the United States make substantial purchases in Italy to help redress the chronic imbalance—about 4 to 1 in 1984, according to Rome—in US-Italian arms trade. Nonetheless, they will not completely sacrifice cost effectiveness and military capability simply to maintain their domestic defense industries.

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Contents

		Page
Summary		iii
Introduction		1
Development of the Italian Defense Industrial Base		1
	Licensed Production	1
	Codevelopment and Coproduction	2
	Independent Development	4
The Government and the Defense Industries		6
	The Role of the Government	6
	Consortiums and Consolidation	8
Italy's Position in the Defense Market		9
	Strengths	9
	Weaknesses	11
Domestic Impact of Defense Industrial Growth		12
	The Military	12
	The Economy	12
Outlook		15

Appendixes

A.	Licensed Production	17
B.	Major Codevelopment Programs	19
C.	Major Industries	21

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Italian Defense Industries: Striving To Compete

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Introduction

The Italians have developed a substantial defense industrial capability in the last 15 to 20 years and can now produce a broad range of sophisticated military equipment. This capability has brought direct benefits to Italian military forces and reduced somewhat Italy's dependence on foreign—particularly US—suppliers. Nonetheless, in order to maintain or improve its position in the world arms market and further reduce its dependence on US-developed technology, Italy will have to continue to expand its indigenous research and development (R&D) base.

This research paper focuses on the rise of the Italian defense industrial base since World War II and examines the role of the Italian Government in the defense industries. It assesses the current position of the industries in the arms market and describes the current state of the major defense industrial sectors. Finally, it discusses the impact of the rise of the defense industrial sectors on the Italian military and economy and on future US-Italian defense cooperation. Appendix C describes the major Italian defense firms.

Development of the Italian Defense Industrial Base

Following World War II—during which much of Italy's defense industry was destroyed or dismantled—the Italians began to rebuild their defense industrial base. With the exception of the less-technology-intensive shipbuilding sector, the gradual development of a substantial defense industrial capability has succeeded largely because of the Italians' astute use in the 1950s and 1960s of licensed production and codevelopment to acquire technology and production know-how from other Western countries—mainly the United States—with more mature and technologically advanced programs. The experience gained from this led directly to independent Italian designs that, in general, reflect modification and modernization of the licensed systems (see table 1).

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Licensed Production

Licensed production allowed the Italians to adopt modern systems without the heavy R&D expenditures that would have been required if they had had to develop their own systems. Equally, it allowed them to develop and maintain a cadre of skilled technicians and designers that proved essential to their eventual move into indigenous design (see appendix A).

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The United States played a crucial role in the postwar development of the Italian defense industries. Almost all of the systems that were produced under license during the 1950s and 1960s were US designs. The United States was also a major customer during this period, purchasing many of the systems and then immediately transferring them as military aid to the Italian armed forces as well as to several other allies, especially the West Germans:

- Italy's helicopter industry got its postwar start with licensed production of the Bell H-47 helicopter in the mid-1950s. The Italian firm Agusta has since license produced a number of other US helicopters. With this extensive experience, Agusta has begun to develop its own helicopters, including the A-109 transport helicopter and the new A-129 attack helicopter. Italy's jet fighter industry got its start with licensed production of the US-designed F-86 in the 1950s and the F-104 in the 1960s.

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- Italy's armor industry was reconstituted through licensed production of US and West German tanks and US armored personnel carriers (APCs). OTO

Table 1
Selected Italian Arms Production

Arms	1950s	1960s	1970s	1980s	1990s
Aerospace					
Fighters	F-86	F-104	Tornado	AMX	Eurofighter
Trainers	G-91	MB-326 SF-260	MB-339		
Helicopters	H-47	AB-204 AB-205	SH-3D CH-47 H-300 H-500 A-109	A-129	NH-90 EH-101
Missiles		Sea Sparrow Cobra Mosquito Sea Killer	Aspide	Milan Otomach Otomat	MAF
Armor	M-47	M-60 M-113	Leopard I OTO 6614 OTO 6616 VCC-1	OF-40 VCC-80	Tricolorie
Artillery	M-56	M-109	FH-70	Palmaria	

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Melara has used the M-113 APC as the basis for development of its VCC-1 APC and its experience in licensed production of the West German Leopard I tank to develop its OF-40 tank.

- With its long experience in ship construction, Italy has maintained a strong indigenous naval shipbuilding capability, according to [redacted] However, many subsystems for naval combatants in the 1950s, particularly sonars and air defense systems, were license-produced US systems. Whitehead Motofides license produced the Mk 46 torpedo and used this experience to develop the A-244 torpedo for the Italian Navy and other customers. On the basis of its experience in producing GE aircraft turbines, Fiat has adapted these engines for marine use and now supplies them to a number of Italy's naval customers. [redacted]

Codevelopment and Coproduction

By the 1970s, as their production capabilities expanded and technology levels matured, the Italians became increasingly active in codevelopment and coproduction agreements (see appendix B). Codevelopment has given Rome access to advanced technologies still in the design stage and has enabled the Italian defense industries to keep abreast of major technology developments without the high costs of independent R&D, according to US Embassy reporting. Shared development programs have provided both outside funding for the enhancement of indigenous R&D capabilities, and additional markets for the Italian defense industries. In turn, Italy has provided R&D funding support and an assured market to its partners. [redacted]

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Most of Italy's codevelopment projects have been with the United States, the United Kingdom, and West Germany, although the Italians have recently signed

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Figure 1. EH-101

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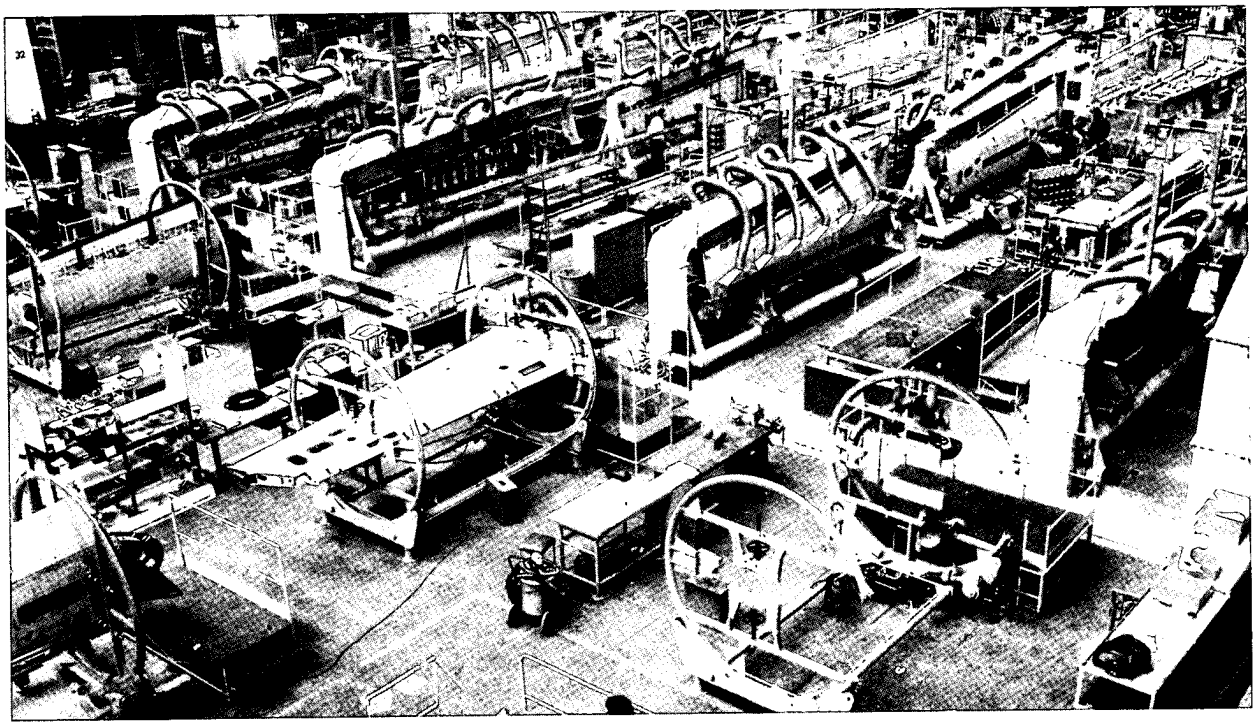

Figure 2. Tornado assembly by Aeritalia

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cooperation agreements with several other West European and Third World countries. Most major co-development programs have been established through government-to-government agreements; some firms, particularly Fiat and OTO Melara, have been active in developing industry-to-industry programs as well. The Italians also have actively supported recent attempts to revitalize West European arms cooperation organizations—particularly the Western European Union (WEU) and the Independent European Program Group (IEPG)—out of a desire, we believe, to maintain access to European technology and to preserve the competitive position of their indigenous defense industry.

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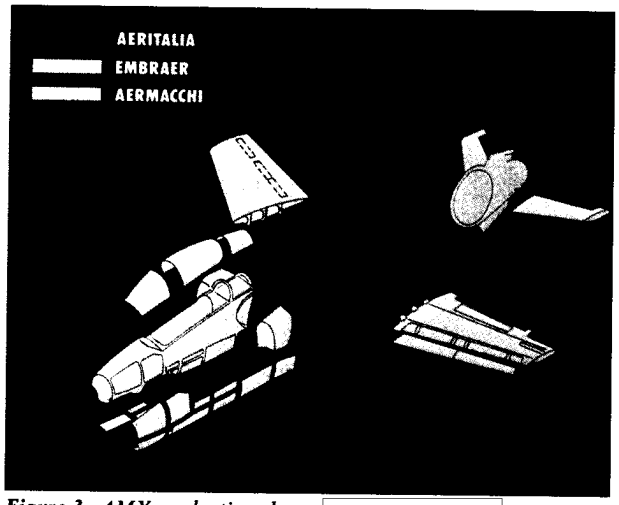

Figure 3. AMX production shares

Italy's largest and most ambitious codevelopment program has been the Tornado multirole combat aircraft, a joint project with the United Kingdom and West Germany under the Panavia consortium. The Italians received nearly 15 percent of the workload on the basis of their share of total Tornado procurement and costs—100 out of about 830 aircraft. Italian firms produce the wings for all of the aircraft, and Aeritalia is responsible for assembly of those Tornados slated for the Italian Air Force. The same countries jointly developed the FH-70 towed 155-mm howitzer that is entering service in all three countries.

Italy is a member of a six-nation consortium—with the United States, the United Kingdom, the Netherlands, France, and West Germany—that is developing NATO's Multiple Launch Rocket System (MLRS). The Italians, through Selenia, are also participating in a European program to develop a new short-range, antiradiation missile and are seeking to coproduce the US-developed Maverick air-to-ground missile. In the aerospace field, the Italians have signed agreements with Westland of the United Kingdom to develop the EH-101 helicopter and the A-129 attack helicopter and are moving into the commercial aircraft field, cooperating with the French and the United States on several projects. The Italians are also members (with West Germany, the United Kingdom, and Spain) of the consortium for the new European Fighter Aircraft, which is still in an early design stage. In addition, they are involved in the NATO frigate replacement program, an attempt by the Alliance to develop a common frigate for the 1990s, which, according to NATO reporting, is still in a very early design phase. In general, however, most Italian naval programs are national projects, in part because of the need to maintain employment in Italy's depressed shipbuilding industry and also because of Italy's tradition of naval construction and its relatively lesser dependence on foreign technology in this area. 25X1

The Italians also have become increasingly active in arms cooperation with Third World states, chiefly as a means of securing export markets and foreign funds for R&D. Rome has used production licensing as a major inducement to attract Third World customers. The MB-326 trainer, for example, was license produced in Brazil, Australia, and South Africa; and Italy has recently signed a number of general arms cooperation agreements with Argentina, Chile, China, and Greece. While specific cooperation programs have not been outlined, the pacts are designed to enhance Italy's defense industrial relationship with these countries. The biggest Third World cooperation project they have undertaken to date is the joint development of the AMX fighter aircraft with the Brazilians (see inset). 25X1

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Independent Development

Using the experience gained in licensed production and codevelopment, the Italians have been able to develop indigenous weapons in most major areas. In general, however, these systems tend to be less sophisticated than those produced by other West European countries or the United States. 25X1

Aircraft. In the 1950s, the key area of independent development was in trainer aircraft. Italian trainers were highly successful competitors for export sales throughout the 1950s and 1960s, although increased competition—particularly from France, the United

AMX

The AMX light fighter aircraft is a joint development project of Aeritalia and Aermacchi of Italy and Embraer of Brazil. The plane is being developed in response to an Italian Air Force requirement to replace its aging inventory of G-91 and F-104 ground attack aircraft in the late 1980s. Current plans call for a total production run of nearly 270 aircraft—79 for Brazil and 187 for Italy.

The Italians originally approached the Swedes in the late 1970s to codevelop a new fighter aircraft. When this project collapsed because of conflicting requirements, Italy turned to Brazil, which had license produced the MB-326 trainer, and, in early 1980, Brazil and Italy signed a memorandum of understanding for the codevelopment of the AMX. This government-to-government agreement was followed in July 1980 by an industrial cooperation agreement between Aeritalia, Aermacchi, and Embraer. Under the current agreement, production work will be divided, with 70 percent going to Italy and 30 percent to Brazil. Aeritalia will be the project leader and will produce 46 percent of the aircraft including the center fuselage, nose radome, fin and rudder, elevators, flaps, ailerons, and spoilers. Aermacchi will build 24 percent including the forward fuselage, canopy, and tail section. Embraer will provide 30 percent of the AMX including the air intakes, wings, wing leading edge slats, tailplane, wing pylons, and fuel tanks (see figure 3). There will be two final assembly lines, one in Italy and one in Brazil, with each country providing components to the other. The plane will be powered by a British-designed Spey 807 turbofan engine. Each country will install its own avionics and weapons delivery systems. So far, six prototypes have been constructed, the first of which crashed. Series production is slated to begin later this year.

Kingdom, Switzerland, and Brazil—has severely cut into their market, 25X1

Italy's most successful early design was the G-91 ground attack/trainer aircraft begun in the late 1950s. Fiat developed the aircraft using a US engine, and the G-91 was selected as a standard NATO aircraft. Some 630 were built from the late 1950s to the early 1970s, including about 300 built by West Germany under license. Successful trainers have also been extensively exported by Aermacchi and Siai-Marchetti:

- Aermacchi began development of the MB-326 jet trainer/ground attack aircraft in the mid-1950s, and more than 800 have been built and sold to over 15 countries since production began in 1961. Aermacchi also began development of the MB-339 trainer/ground attack aircraft in the mid-1970s and, since production began in 1976, has built almost 200 for five countries.

- Siai-Marchetti began production of the SF-260 prop trainer/utility/strike aircraft—developed by Italy's Aviamilano—in 1967 and produced some 1,400 of these aircraft for over 10 countries.

Another major independent program has been the G-222 transport aircraft, developed by Fiat's aircraft division (now part of Aeritalia) and in production since 1975. Nearly 100 have been built. Most G-222s have gone to the Italian Air Force, but some have been shipped to countries such as Dubayy, Argentina, Venezuela, Nigeria, and Libya. As with most major Italian military aircraft programs, nearly all of Italy's aircraft firms produce significant parts of the aircraft: Aermacchi produces the outer wing; Piaggio, the wing center section; and Siai-Marchetti, the tail unit. 25X1 25X1

Agusta made several attempts to develop helicopters in the 1950s, but none were a commercial success. In 1971, it began development of the A-109 utility helicopter, with production beginning in 1975. To date, over 500 have been built, mostly for the Italian Government. Agusta also has developed the A-129 attack helicopter, and full production is expected to 25X1

Figure 4. Otomat missile

begin in late 1986 or 1987. Since the A-129 is the only non-US attack helicopter likely to enter production in this decade—the Franco-German PAH-2 is still under development—it could be a strong contender on the export market, both in Europe and the Middle East.

Missiles. Italy's first major missile program was a joint effort by the Italian firms Contraves Italiana and SISTEL to develop the Sea Killer antiship cruise missile in the late 1960s. More than 500 were produced, with the bulk delivered to the Italian Navy; exports went only to Iran, Current programs include two antitank systems scheduled to enter series production by the end of the decade—the Folgore rocket by Breda Meccanica and the MAF (Missile Anticarro per Fanteria) antitank guided missile (ATGM) by OTO Melara—and the Spada mobile air defense system (under development by Selenia for the Italian Ministry of Defense), which uses the Aspide missile and Selenia radars.

Some of Italy's attempts at indigenous design have not been successful, although the failures represent only a relatively small portion of all programs undertaken. In the 1970s, after several years of development, Breda Meccanica abandoned its Sparviero ATGM program when the Italian Army elected to purchase the Franco-German Milan system because of its proven capabilities and known price, In 1981, Officine Galileo and SISTEL abandoned development of the Indigo-MEI air defense system following several years of development because of a lack of demand resulting from the substantial number of systems already available.

The Government and the Defense Industries

The Italian Government's role in the Italian defense industries is pervasive and complex. In the 1950s, the government's chief goal, with prodding and assistance from the United States, was the reconstruction of its defense industries. Its ultimate goal now, is to make Italy self-sufficient in all major areas of weapons development. In the late 1960s and early 1970s, through the acquisition of stock by the Ministry of State Participation, the government began to acquire control of a substantial portion of Italy's defense industries. The government was able to provide needed investment funds for the modernization of the industry, as well as a guaranteed market through defense procurement. By the late 1970s, the government had also become increasingly active in the marketing of Italian arms throughout the world. The government continues to play an active role, signing numerous government-to-government cooperation agreements and mandating industrial offsets for its foreign purchases of military equipment.

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The Role of the Government

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Today some 70 percent of Italian arms manufacturers are government controlled, largely through Rome's prime holding companies: the State Holding and Finance Company for the Manufacturing Industry (Ente di Partecipazione e Finanziamento Industria Manufacturiera—EFIM) and the Institute for Industrial Reconstruction (Istituto per la Ricostruzione Industriale—IRI) under the Ministry of State Participation, (see figure 5). The government-industry relationship is complicated by the fact that a substantial share of the stocks of many defense firms is also in the hands of private investors, according to US Embassy reporting. As a result, the true relationship between the government and these firms is often nebulous because, even when the government has majority control of the firm, the wishes of private investors can often play a substantial role in company decisions.

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Another complicating factor is that the two holding companies are, in effect, independent entities often in

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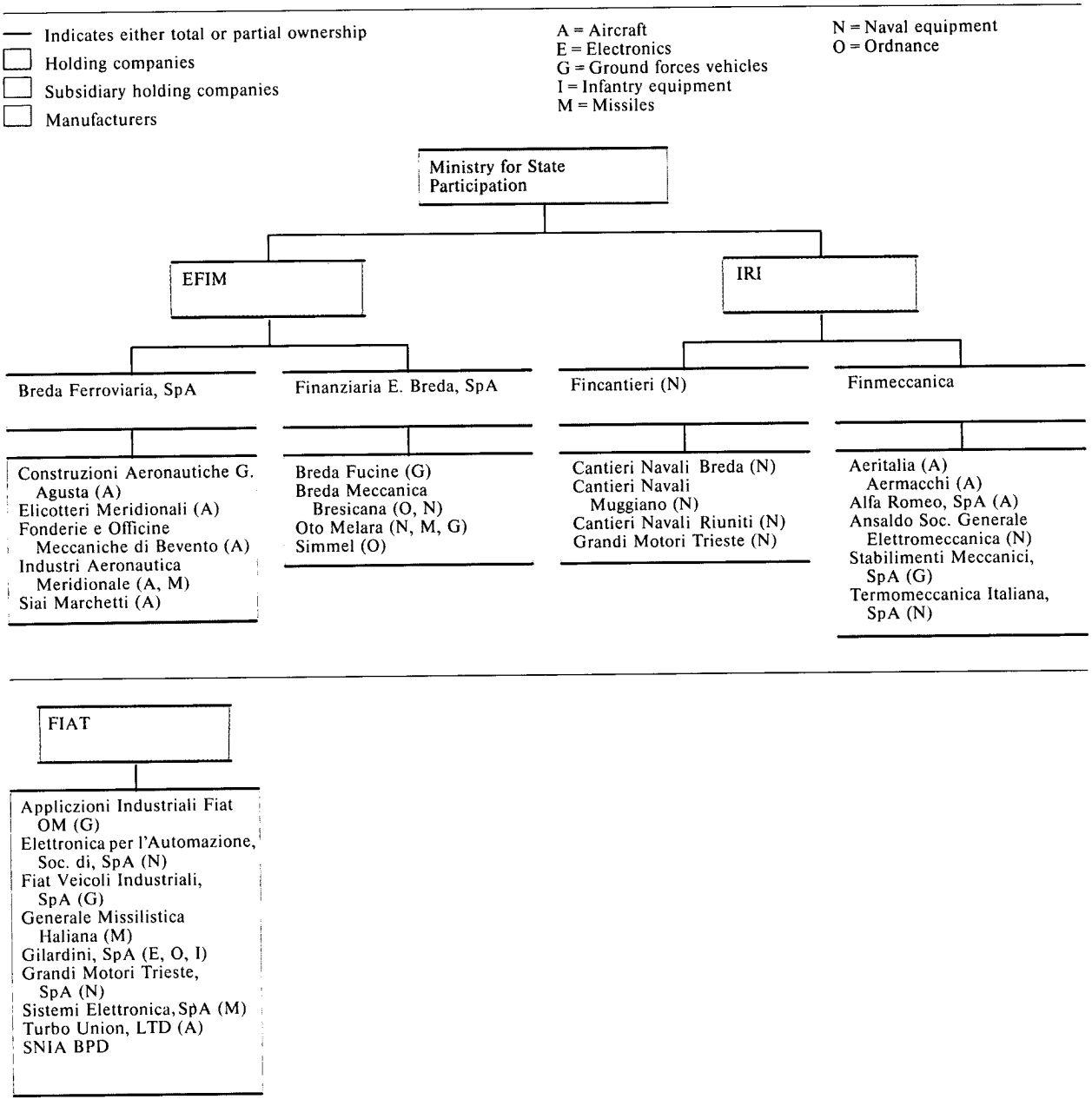
Figure 5
Ownership of Selected Italian Arms Industries



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competition with each other, which has led to frequent squabbling and some industrial redundancy.

the Ministry of State Participation attempted to end years of bitter bureaucratic infighting between EFIM and IRI over control of the aerospace industry. Each was attempting to gain a greater market share for its subsidiaries, IRI's Aeritalia and EFIM's Agusta. In the end, Aeritalia was given control over most of the industry, particularly heavy aircraft; Agusta was to take control of helicopter and light aircraft production.

The 1982 agreement went only part way in rationalizing the aerospace industry, chiefly because of domestic politics. Recent proposals to place the entire aerospace sector under a single holding company—IRI—have been hampered by the fact that Aeritalia and its holding companies are traditionally controlled by the Christian Democrats; Agusta is controlled by the Socialists, and Agusta's holding company, EFIM, is controlled by the Social Democrats. These firms have become important sources of funding and patronage for the individual parties, and the Socialists have protested any move that would effectively place Agusta under Aeritalia.

The pervasive role of the government—particularly the state holding companies—nevertheless gives Rome the opportunity to restructure firms to enhance Italian competitiveness in the world market and rationalize R&D and production efforts. Attempts at government intervention by the Ministries of State Participation and Defense, however, have frequently run up against bureaucratic obstacles, as government-owned firms have resisted having their production lines declared redundant, according to US Embassy reporting. This resistance has forced the Ministry of Defense and the individual state holding companies to design complex worksharing formulas on major arms programs to ensure that all the government-owned firms receive some benefit. While this maintains employment for the firms involved, it tends to be more inefficient than if production were undertaken by a single company. In the Tornado program, for example, Aeritalia is responsible for overall aircraft assembly, but firms such as Bredanardi, Siai-Marchetti, and Aermacchi are responsible for the production of a number of subassemblies.

On the positive side, government control has enhanced Italy's export sales position, particularly in naval systems, because Rome can offer clients complete packages including not only ships produced by government-owned shipyards but also subsystems such as missiles, radars, and guns produced by government-owned firms. Equally, a client can be offered a package of military hardware and associated nonmilitary goods and services produced by government-owned firms. The government has also used its control of the defense industries to implement domestic economic programs such as attempts to relieve unemployment in depressed areas. In the 1970s, for example, it announced a policy of moving industries to the poor, southern regions of Italy, and the firm Elicotteri Meridionali was formed by Agusta to manufacture helicopters at a new plant built in the south. In general, however, such programs have proved to be only marginally successful.

Rome has also taken an increasingly active role in arms marketing, . The Ministry of State Participation has begun to negotiate arms contracts directly, the Minister of Defense has signed a number of general arms cooperation agreements in an attempt to promote sales, and the Ministry of Foreign Affairs has set up a coordinating service in an attempt to prevent Italian firms from competing with each other for the same contract. Government-owned banks also have occasionally offered export credits at subsidized rates to Italian arms customers. Despite all this activity, Italian military exports are still hampered by the lack of a centralized government arms sales organization, such as at the Ministry of Defense level in the United Kingdom and France.

Consortiums and Consolidation

One of the major stimulants in the growth of Italy's defense industry has been the formation—frequently under government leadership—of a variety of consortiums to produce weapon systems. The government has also mandated the consolidation of a number of firms under more broadly based holding firms in order to rationalize management in some defense

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sectors. Such arrangements have attempted to encourage specialization among individual firms and reduce costly duplication and competition, particularly in R&D. These teaming arrangements, although certainly not unique to Italy, try to make better use of limited R&D resources, support employment in key firms, and improve specialization. As a result, in most major weapon system development programs, three or four Italian firms are responsible for different portions of the project:

- Most of the major defense industrial groups, such as Aeritalia and Agusta, have been formed out of a number of smaller firms. SISTEL, one of Italy's two missile manufacturers, resulted from combining the efforts of Montedison, Fiat, Contraves Italiana, and SNIA-Viscosa. OTO Melara and Fiat, and now Lancia, have joined to produce most of Italy's armored vehicles in the last 15 years. Selenia and ELSAG were recently joined to strengthen their capabilities in electronics. A group of Italian aerospace equipment manufacturers have formed a consortium—Italian Group of Aerospace Equipment Companies (CIRSEA)—to move toward greater collaboration between equipment firms and aircraft manufacturers. Three consortiums have been formed recently in response to the call for West European participation in the Strategic Defense Initiative.

- An example of the establishment of a consortium to develop a specific system is the Albatros naval SAM system. The overall system was designed by Selenia, originally based on the US Sea Sparrow missile, and now on the Italian Aspide missile. The Aspide, in turn, is a joint product of Selenia, SNIA BPD, and Microtecnica. The fire-control system was developed by ELSAG, and the missile mount is produced by OTO Melara. The system has been sold to over 15 countries and is being license produced in Japan.

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Italy's Position in the Defense Market

Italy is one of Western Europe's leading arms producers (see figure 6). Although Italy has yet to develop a competitive position in the high-technology sector, it has established itself as a producer of more basic weapon systems—such as infantry weapons, artillery, armored vehicles, and trainer aircraft—at lower costs than those available from most other West European suppliers. Most of Italy's success on the world arms market has come in sales of less expensive systems, often to countries unwilling or unable to purchase weapons from the major arms suppliers. This position, however, is coming under increasing pressure as other countries, such as Brazil and Spain, are moving into the world arms market offering weapons comparable in price and technology to those produced by the Italians. Despite their success, the Italians still are seldom serious competitors with the United States in the world's arms market. Italy's current share of world arms sales is still only one-fifteenth of the United States' share, and Italy cannot offer the technology or the financing currently available from Washington.

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Strengths

The major advantage of Italian industry in the global market is its ability to produce a wide variety of weapon systems and subsystems at lower prices than most other producers. In the 1970s, recognizing the need to expand their arms sales, both to support a growing defense industry and to reduce the indigenous cost of weapon systems, the Italians began producing low-technology systems. In effect, accepting that they would have difficulty competing with the United States and the major West European manufacturers, the Italian firms made a virtue of their limited high-technology base by moving into the world arms market with less sophisticated and less expensive weapon systems that were more attractive to Third World customers. In addition, wages in Italy tend to be somewhat lower than in most other West European countries, making it easier for the Italians to produce these systems at a lower cost than their competitors. The Italians also place substantially fewer restrictions and controls on exported weapons than, for example, the West Germans, and they have tended to offer competitive and attractive coproduction and licensing arrangements, according to US Embassy

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Figure 6
Arms Production by Major West European Countries

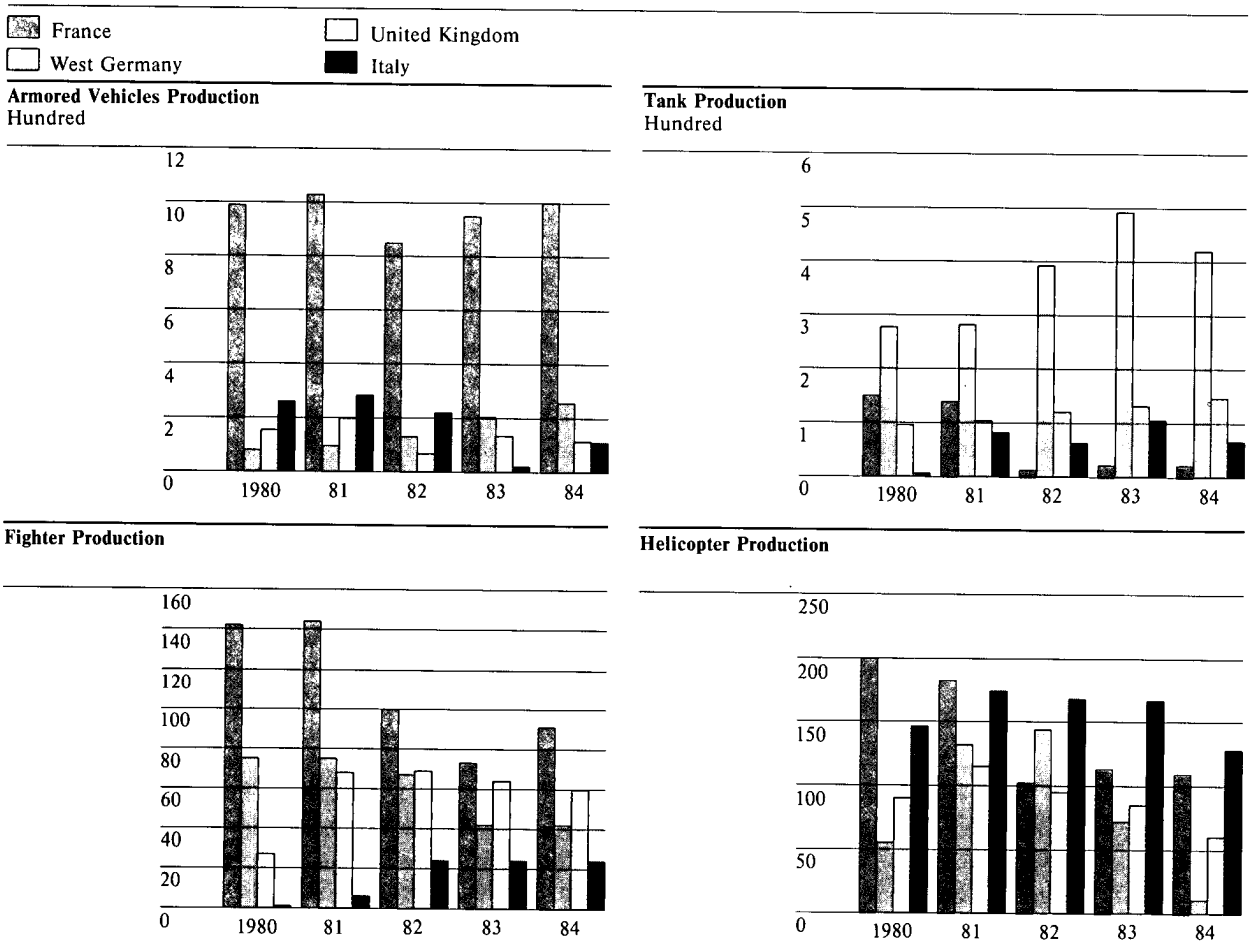

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Table 2
R&D Expenditures

Million 1985 US $
(except where noted)

	1980	1981	1982	1983	1984
Gross domestic R&D					
France	3,276	4,586	6,281	7,819	9,395
West Germany		11,133	12,543	13,475	
United Kingdom		6,004			
Italy	741	1,254	1,837	2,739	3,436
Gross R&D as a percentage of GDP					
France	1.84	2.01	2.11	2.16	2.19
West Germany		2.49	2.58	2.56	2.58
United Kingdom		2.46			
Italy	0.86	1.01	1.05	1.20	1.19
R&D funded by MOD					
United Kingdom			2,404	2,553	2,563
France	2,600	2,562	2,645	2,462	2,537
West Germany		560	584	694	720
Italy	156	146	106	136	174

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Weaknesses

Italy's key weakness is its technological base. Italian weapons generally are not at the leading edge of technology, in part because of Italy's relatively weaker position in advanced technology R&D, [redacted] In general, the Italians do not enjoy a significant technological lead in any of the major defense industrial sectors. According to a number of contractor studies, they are at least competitive with other firms in Western Europe and the United States in a few areas, particularly in composites (the combination of two or more distinct materials bonded together, such as new glass-reinforced plastic) and manufacturing processes (the assembly of weapon systems). [redacted]

Italy spends substantially less than the other major West European countries—as a percentage of GDP and in absolute terms—on R&D, and R&D funded by the Ministry of Defense is only a fraction of that in the other major West European countries (see table 2). Moreover, Italian military R&D is hampered by a lack of central direction: each service is responsible for its own development programs, and there is no overall ministerial-level agency to coordinate the programs. Data on funding by individual firms are generally unavailable, but, overall, privately funded R&D appears to lag that in other countries [redacted]

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The Italians have a substantial R&D infrastructure— 25X1
the Ministry of Defense, for example, has over 20
research and experimental institutes, [redacted] 25X1
[redacted] —but the work remains fragmented. 25X1
The Italians, like most West Europeans, also suffer
from a continuous outflow of scientists and research-
ers to the United States. The Italians have been
attempting to redress this problem, and defense- 25X1
funded R&D has grown from some $30 million in
1975 to nearly $175 million today. Nonetheless, gov-
ernment spending is still so limited that Italy probably
will remain dependent on licensed production and
joint ventures to stay abreast of state-of-the-art tech-
nologies. [redacted] 25X1

Figure 7. M-56 105-mm howitzer assembly

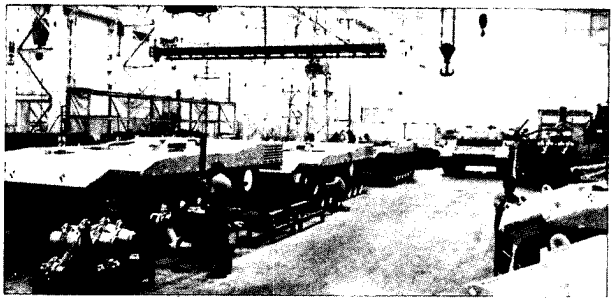

Figure 8. OF-40 assembly line

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Domestic Impact of Defense Industrial Growth

The advent of a substantial domestic defense industry has aided the military in its quest for modern arms, but has weakened its standardization with the rest of NATO. The growth of domestic arms firms has also provided substantial employment throughout Italy, particularly in high-technology fields, and the defense sector has become an important exporter.

The Military

Italy's armed forces have been able to take some advantage of the growth in the Italian defense industrial base. The military modernization program begun in the mid-1970s placed strong emphasis on the domestic manufacture (largely successful) and design (still largely unsuccessful) of weapon systems, Because of this priority on indigenous systems, we believe military procurement requests have been more favorably considered by the government than they would have been if Italy were more heavily dependent on foreign suppliers.

Italy has gone a long way toward meeting its domestic manufacturing goals, but the lion's share of Italian Army and Air Force military hardware is still foreign designed. This situation should change fairly significantly over the next several years. The modernization effort is far from completed, and a substantial share of the current inventory was procured in the late 1960s and the 1970s—before Italian firms began to build up their domestic design capabilities. Because Rome is almost certain to maintain its emphasis on domestic production and design, the share of indigenous Italian tanks, APCs, missiles, and aircraft in Italy's military inventory will increase.

Development of an indigenous defense industry, however, has not been without its cost to the Italian military. By opting for domestically developed weapons, the Italians, in effect, have paid a surcharge reflecting the lost economies of scale they would have received had they purchased standard NATO systems. Moreover, different Italian military requirements and standards have led to the development of systems that require their own logistic infrastructure and a unique supply of spare parts whose cost has increased substantially as weapon systems have grown increasingly sophisticated. Equally, average unit costs increase sharply for most major weapon systems because Italy cannot amortize the large startup and R&D costs required to manufacture modern armaments with its short production lines. Codevelopment and coproduction arrangements eliminate some of the additional costs, but the prices of weapons procured through such programs can be as much as 20 percent higher than they would be if the partners were to buy from a single source, according to a number of private surveys. These increased costs place an additional strain on the defense budget and restrict the military's ability to modernize as quickly or as much as it feels it needs to maintain its capbilities. For NATO, Italy's independent efforts—and those of most other West European countries—have been detrimental to Alliance attempts to increase weapons standardization and interoperability.

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The Economy

As the defense industries have grown, they also have become an important economic asset. They provide direct employment for some 80,000 to 100,000

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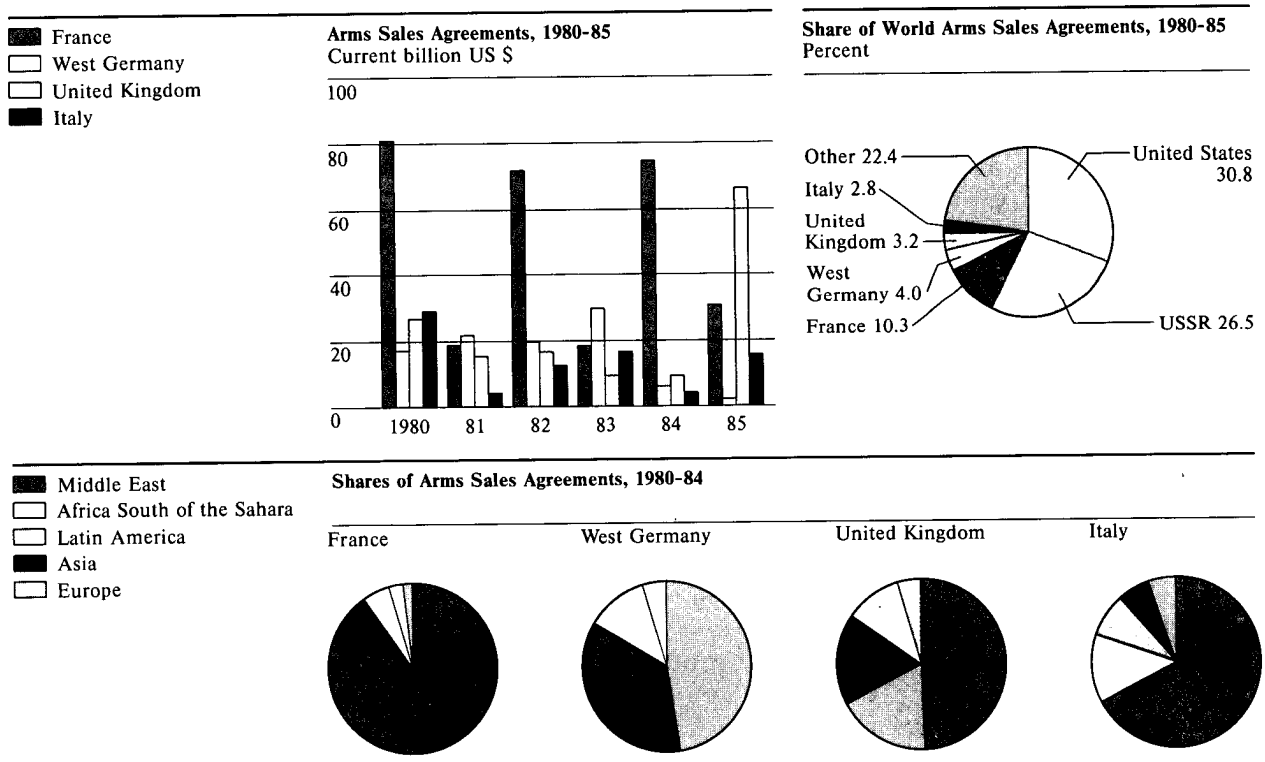
Figure 9
Italy in the World Arms Market



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persons—about 2 percent of all manufacturing employees—and a similar number are probably employed in firms that indirectly support the defense sector. This is roughly one-third to one-fourth of the number and percentage of those directly employed by defense industries in the other major West European countries—France, the United Kingdom, and West Germany. These jobs have taken on added importance as Italy faces continued high unemployment in most other sectors of the economy. According to US Embassy sources, annual defense industry sales are estimated at some $3-4 billion, an estimated 60 percent of which is exported. The defense industries also provide a key source of high technology for a country with small R&D resources.

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Exports have become crucial to the health of the Italian defense industries and dominate the business of some defense firms—for example, 80 percent of

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Figure 10. Lerici minesweeper

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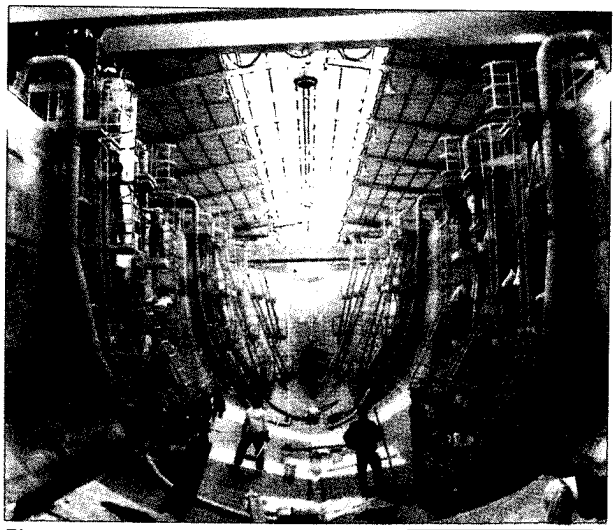

Figure 11. Manufacture of Lerici GRP hull

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OTO Melara's 1984 sales. From 1980 to 1984, annual Italian military export agreements averaged $1.3 billion, fifth among Western exporters (see figure 9). Except for weapons developed through joint programs and some electronics, however, Italy has been unsuccessful in cracking the West European market, and the bulk of Italian arms sales in recent years have been to the Third World. Such sales are likely to decline in the next 10 years, as most countries complete their modernization programs or suffer from tight defense budgets.

This dependence on arms exports affects Italy's relations with the United States in a number of different areas. With the Third World market becoming questionable and because of Italy's difficulties in cracking the West European market, Rome is looking to US purchases of Italian weapons as important to sustain its domestic defense industry. It also wants Washington to balance Italy's heavy procurement from the United States, the so-called two-way street. In 1984, the balance in arms trade was about 4 to 1 in the United States' favor, according to Italian figures, although the US Government places it at about 1.5 to 1. The discrepancy is chiefly a function of the Italians looking only at sales of complete weapon systems, whereas the US figure includes substantial purchases of subsystems. The Italians, and most West Europeans, argue that the United States must increase its purchases in order for the West Europeans to maintain a viable defense industrial base, according to press reports, US Embassy reporting, and comments made at NATO forums. The demands for US procurement of Italian military goods are likely to continue in the foreseeable future.

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We believe the willingness and ability of Italy to control arms sales to radical Third World states will come under increasing pressure in the next five to 10 years and lead to some conflicts with the United States as the global arms market continues to contract. With increasing competition from other states, such as Spain and Brazil, Italy may feel forced to offer increasingly sophisticated weapons to its established customers, such as Libya and Iraq, and may be less supportive of Western embargoes on sales to other states, such as Iran. Equally, Italian willingness to engage in coproduction with Third World countries will diminish the effectiveness of other nonmilitary measures, such as cutting off the flow of spare parts to limit the warfighting capabilities of belligerents.

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The Italians face a considerable dilemma in their quest for Third World markets. On the one hand, the need to maintain and expand their sales has increased Italy's requirement to sell modern arms to radical

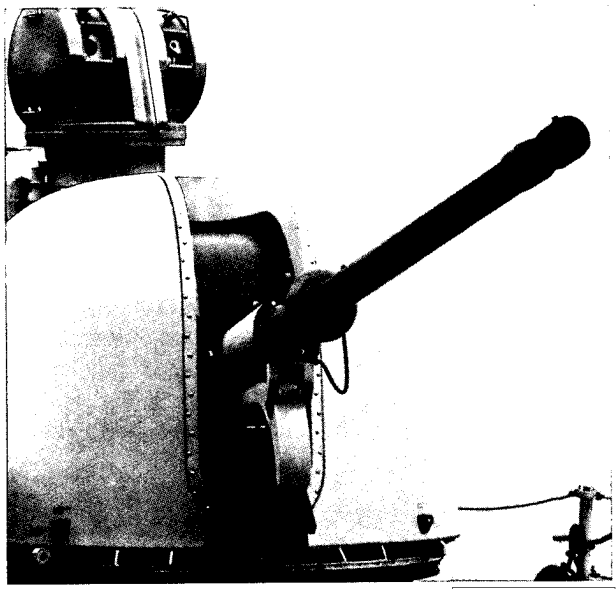

Figure 12. OTO Melara's OTO 76/62 naval gun

Middle Eastern states, particularly Libya. Despite an official embargo, Italian firms continue to offer weapon systems to Iran, and some shipments have probably slipped through the Italian bureaucracy. Equally, Italy has insisted on being able to deliver weapons to Iraq under existing contracts. The Italians have expressed increased concern that other countries, especially France and the United Kingdom, are not restricting their sales to Iran and that these other states would be in a more favorable position in these markets should the Iran-Iraq war end.

Nonetheless, Rome proved willing to accede to US requests to restrict arms sales to radical states. The Italian Government recently banned sales to Tripoli. Despite intense pressure from Tehran and Baghdad, the Italians have refused to sign any major arms agreements with the Iranians and have signed no new agreements with Iraq. We believe the Italians will continue to restrict sales to Iran and Iraq, but also will allow firms to continue sales visits in order to maintain their access. Equally, they may resume sales to Libya if it becomes apparent that others are not restricting their sales, or if they feel that there has been a noticeable change in Tripoli or in West European attitudes toward Tripoli.

Outlook

The production capacity and level of technology in the Italian defense industries are likely to expand and improve over the next five to 10 years. But we believe it is improbable that they ever will achieve complete self-sufficiency, particularly in high-technology systems such as aircraft engines, airborne radars, military application of computer technology, and state-of-the-art armor technology—areas in which France, West Germany, the United States, and the United Kingdom have a substantial lead. Italian R&D remains fragmented, and funding is inadequate for Italy to achieve leadership in any major field. 25X1

Over the near term, Italy should be able to exploit its position as an important supplier of cheaper and less sophisticated systems to the Third World. It also will continue to play an important role as a supplier to those states that are unable or unwilling to purchase weapon systems from the other major suppliers or as a second source of weapons to countries attempting to ensure against being cut off from supplies from a single source. Italy will face increasing competition, however, in a declining arms market over the longer term. The rise of other industries in Western Europe (particularly in Spain, Greece, and Turkey) as well as Third World suppliers (such as Brazil and South Korea) will undercut the Italian position as a supplier of simpler and less costly weapon systems. The next five years also may see a decline in orders from the Italian military as it completes much of its current modernization program. 25X1 25X1

Attempts to rationalize the Italian defense industries, particularly the aerospace sector, will continue as the government attempts to bolster Italy's competitiveness. However, domestic political considerations will continue to encourage individual parties to fight to preserve their control over defense firms. This resistance will be overcome in some cases, but sweeping changes in the armaments industries are extremely unlikely. 25X1

25X1

Long-term growth in Italian defense industrial capability will be heavily dependent on the success of several arms cooperation projects currently under development, particularly the Eurofighter, AMX aircraft, and EH-101 helicopter programs. These programs, in which Italy currently plays a substantial development and design role, also provide access to key technologies and manufacturing processes developed by the other partners. If these programs survive with a significant Italian role, Italy should be able to maintain a measure of independence in high-technology R&D. The capability to develop and produce high-technology weapons will become increasingly critical as competition for sales in the Third World market heats up, and particularly if the demand for more sophisticated weapons from Middle Eastern countries—still the largest arms purchasers—grows.

We believe the US role in Italian defense industrial programs is likely to decline over the next decade. The Italians have expressed increasing dissatisfaction with tight US export controls that have prevented completion of a number of arms sales. Although the Italians will continue to participate in US-NATO coproduction agreements, we believe they will attempt to design indigenous systems that minimize their dependence on US subsystems or allow for the ready substitution of other countries' subsystems. The G-222 transport aircraft, for example, can use either a US engine or one designed in the United Kingdom. The Italians will also increasingly turn to West European partners as a source of crucial technology and for cooperative programs, according to US Embassy reporting.

At the same time, the Italians are attempting to hedge their bets by participating in the US Strategic Defense Initiative and have recently signed a government-to-government Memorandum of Understanding on SDI.[1] The Italians are eager to gain access to US technology and to use US funds for domestic R&D, although several independent contractor studies have indicated that Italy is not competitive in most areas of SDI technology. SDI funds may give a small boost to Italian technology, but we doubt that Italy's participation will alter substantially its lagging technological position.

25X1

On those occasions when Rome does decide to buy US arms, it will demand increasing industrial offsets from the United States to support the Italian defense industries. Italian officials will also become even more insistent that the United States make substantial purchases in Italy to redress the chronic imbalance in US-Italian arms trade. Nevertheless, the Italians will not completely sacrifice cost effectiveness and military capability for the sake of maintaining their domestic defense industries.

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Appendix A

Licensed Production

Aerospace

The Italians produced under license British Vampire and Venom jet fighters in the early 1950s, but the key boost to the rebirth of Italian aerospace firms came in 1953 when the Italian Government signed an agreement to license produce the US F-86 jet fighter under the US Military Assistance Program. Fiat Aviation (later combined with two other aviation firms to form Aeritalia) was the chief Italian manufacturer. Eventually, over 230 of the aircraft were built in Italy—the first 50 from parts supplied by the US manufacturer—for the Italian, French, West German, Norwegian, and Dutch Air Forces. This program was followed by a license to produce F-104s. Again Fiat was the major Italian manufacturer, and eventually some 200 were built (primarily for the Italian Air Force), although some were supplied to Turkey as well.

Agusta's entry into helicopter manufacture was accelerated by an agreement with Bell to license produce the H-47 light helicopter in 1952. The agreement gave the Italians exclusive marketing rights in Western Europe and the Middle East, greatly aiding Agusta's competitiveness in the export market. Eventually, over 1,000 were produced and supplied to countries throughout Western Europe and the Middle East. Agusta has also license produced over 1,000 AB-206 helicopters, as well as over 650 AB-205s, over 300 AB-212s, and several hundred AB-204s. It now is manufacturing the AB-412 in both civil and military configurations. In 1967, Agusta also began licensed construction of the Sikorsky S-61 (civil) and SH-3D—to date, close to 200 have been built in Italy—and Agusta assisted in forming Elicotteri Meridionali (EM), which in 1968 acquired the rights to license produce the Boeing Vertol CH-47. Thus far, EM has produced more than 160 for a number of customers including the Italian military services, Egypt, and Libya. EM has since been taken over by the Agusta Group, and CH-47 airframes are now produced by another Agusta subsidiary, Siai-Marchetti.

The manufacture of aircraft engines remains a key area of licensed production. Fiat began production of the British de Havilland Ghost engine shortly after World War II, and in 1953 it began building the Allison J35 turbojet. In the 1960s, it built the British Orpheus 803 and was part of a European consortium, which included Alfa-Romeo, for the construction of GE J79 engines for the F-104. Alfa-Romeo produced the J85-GE-13A engine for the Italian G91 jet fighter. Piaggio produced the Rolls-Royce Bristol Viper 11 turbojets for the MB 326 jet trainer. Piaggio also license produced a number of Avco Lycoming engines for Agusta's helicopters. Today, licensed production still makes up the lion's share of Italy's aircraft engine industry, with Fiat and the Rolls-Royce Viper 600. Piaggio continues to produce Avco Lycoming engines as well as the Rolls-Royce Gem 2 for the A-129 attack helicopter. Alfa-Romeo works with Fiat in the licensed production of a number of GE engines as well as work on the Rolls-Royce Spey 807 for the AMX aircraft.

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Armor

Italy's armor industry was given an initial boost by licensed production of the US M-47 tank in the late 1950s by OTO Melara. Eventually, over 500 were built. In 1965, OTO Melara and Fiat signed an agreement for licensed production of 200 US M-60 tanks, with Fiat responsible for the chassis and OTO Melara building the turret. In 1974, these two firms were joined by Lancia in a program to license produce over 700 West German Leopard I's. All of these tanks were produced for the Italian armed forces, although some M-47 models have since been transferred to Somalia. OTO Melara also signed an agreement in 1963 for licensed production of the US M113 armored personnel carrier, eventually manufacturing over 4,500 (chiefly for the Italian Army), although some have been supplied to Greece and Turkey. OTO Melara also has recently signed an agreement to

25X1

produce the Franco-German Milan antitank guided missile (ATGM) system and eventually will manufacture over 1,500 launchers and 35,000 missiles. The firm also has license produced over 250 US M-109 155-mm self-propelled howitzers since 1970. [redacted] 25X1

Naval Systems

In general, naval systems, both ships and most major subsystems, have been of domestic design or directly purchased; however, most of the radars and sonars on Italian ships manufactured in the 1950s were license produced by Selenia from US designs. Whitehead Motofides has license produced the Mk-46 torpedo for the Italian Navy and other customers since the 1960s. [redacted] 25X1

Appendix B

Major Codevelopment Programs

Italy made its first major moves into codevelopment in the late 1960s when it joined with Britain and West Germany to develop the FH-70 155-mm howitzer and the Tornado aircraft and with France to develop the Otomat antiship missile. The Italians have also participated in a number of programs sponsored by NATO and the IEPG, including production of the Sea Sparrow SAM and Sidewinder AAM and development of NATO's third-generation antitank guided missile.

FH-70

The FH-70 was originally to be developed jointly by the United States, the United Kingdom, and West Germany, but Italy joined the consortium in 1970 after the United States withdrew. More than 450 howitzers were eventually produced. OTO Melara is responsible for final assembly for Italy, but component production has been divided among the three partners.

Otomat

The Otomat missile program began as a private venture between OTO Melara and Engins Matra of France to develop an antiship cruise missile. Development began in 1969, and production in 1975. Engins Matra directed design and production as well as final assembly. In 1982, final production was transferred to OTO Melara following the French Navy's decision to purchase the Exocet missile system rather than Otomat. Italy has produced over 300 of the missiles for a number of customers, and production will continue for several years.

Tornado

The Tornado aircraft project, at a total cost of some $20 billion, is the largest codevelopment program in recent West European experience. Aeritalia, British Aerospace, and Messerschmitt-Boelkow-Blohm formed Panavia Aircraft in 1969 to develop Tornado as an outgrowth of a 1958 NATO study calling for a new fighter aircraft and following the failure of the French and British to agree on a common aircraft. The engine was developed by a consortium of Fiat, Motoren Turbo Union, and Rolls-Royce. Production workshares were based on the number of aircraft each country was planning to purchase, with the Italians receiving 15 percent. 25X1

The manufacture of Tornado components is divided among the three participants, and each assembles its own aircraft. West Germany produces the fuselage center section, the Italians produce the wing sections, and the British produce the rest of the fuselage and tail sections. Overall, some 500 firms employing over 70,000 workers are involved in the program. In Italy, Aeritalia is responsible for the overall assembly of the Tornado; Aermacchi, Nardi, Piaggio, and Siai-Marchetti are involved in the manufacture of subsystems. 25X1 25X1

EH-101

In 1980, Italy's Agusta and Britain's Westland formed a joint venture—EH Industries, with each partner holding 50-percent ownership—to develop a helicopter designed primarily as an antisubmarine warfare platform but also available in several civil versions. Westland is to take design leadership for a commercial version and Agusta for a rear-loading general utility version. Each company will develop a naval version to meet its own Navy's specifications. Series production is not expected to begin until the end of the decade. 25X1 25X1

Appendix C

Major Industries

The Italians have developed a broad defense industrial base, but weapons manufacturing is generally dominated by 15 firms, and some sectors are significantly more developed than others. The aerospace sector, for example, is the second largest in Western Europe on the basis of sales, trailing only the French. Other sectors, such as armor and missiles, are still heavily dependent on outside design capabilities and represent a smaller portion of the world market. 25X1

This appendix describes the major defense sectors and provides descriptions of the major firms. Many firms are involved in several different aspects of arms manufacture; they are described primarily in the sector in which they are most heavily involved. 25X1

Land Armaments

Italy's armor industry has grown substantially and produces about 250 tanks and armored personnel carriers (APCs) annually (see table C-1). It is dominated by OTO Melara and Fiat, with OTO Melara generally responsible for armaments and Fiat for hulls and engines. On the basis of their experience in license producing foreign-designed tanks, particularly the Leopard I, OTO Melara and Fiat have developed the OF-40 tank to compete on the export market. Sales, however, have been disappointing—only 36 were sold to the United Arab Emirates—chiefly because of the dominant position in the armor field of the United Kingdom, West Germany, and France. The Italian Government has expressed interest in a new tank, the Tricolorie, based on the OF-40, and the Italian Army is likely to order an "all-Italian" tank in the 1990s, 25X1
. Much of the design, however, will almost certainly be derived 25X1
from license-produced systems and will be dependent on imported technology, particularly engine technology, modern armor, and fire-control systems. OTO Melara and Fiat also have produced a number of APCs, which have been more successful on the export market, and the Italian Army is likely to buy the new VCC 80 from a consortium of OTO Melara, Lancia, and Fiat. 25X1

The artillery industry is well established, and the Italians have been successful in marketing towed weapons, particularly the 1950s-vintage M-56 105-mm mountain howitzer, which appears in the inventory of many of the NATO Allies and is still sold throughout the world. The FH-70 towed 155-mm howitzer—codeveloped with the British and the West Germans—also has been sold to Saudi Arabia and is being produced under license in Japan. 25X1

Attempts to develop self-propelled howitzers have been less successful. The Palmaria—a self-propelled 155-mm howitzer developed by OTO Melara—has only been purchased by the Libyans and the Nigerians. OTO Melara also is working with its West German and British partners to develop and market a self-propelled version of the FH-70 howitzer, but it is increasingly likely that the effort

will be abandoned because of escalating costs and technical difficulties. [redacted] 25X1
[redacted] is, in fact, looking to the US- 25X1
designed M-109A2 to modernize its self-propelled artillery. [redacted] 25X1

Beretta is an acknowledged world leader in small arms. Its submachineguns and pistols are in service throughout the world, and it recently won the competition for the new US Army sidearm. Small arms, however, make up only a small portion of overall Italian arms production and sales, and, in general, involve fairly simple technology. [redacted] 25X1

Major Firms

OTO Melara	Armored personnel carriers (APCs): OTO 6614, OTO 6616, VCC-1; Tanks: M-47, M-60, Leopard I, OF-40, Tricolorie
Fiat Veicoli Industriali	APCs: OTO 6614, OTO 6616 Tanks: Leopard I, OF-40, Tricolorie
Lancia	Tanks: OF-40, Tricolorie

Table C-1
Armor Industry Production and Sales,[a] 1980-84

Number of units

	1980	1981	1982	1983	1984
Production					
Leopard I		70	50	100	66
OF-40	6	12	13	5	
OTO 6614	114	150	150	10	
OTO 6616	67	25			100
VCC-1	80	109	70	10	10
Sales					
Italy [b]					
Leopard I		70	50	100	66
OTO 6616	37				
VCC-1	80	109	70	10	10
Somalia					
OTO 6614	90	10	20	20	
OTO 6616	30	11			
Saudi Arabia					
VCC-1					20
UAE					
OF-40		10	8		8
Iraq					
OTO 6614			230		
Libya					
OTO 6614		50			
OTO 6616					100?
Peru					
OTO 6614		14			
OTO 6616		14			

[a] Production and sales may not equal because some vehicles are produced for future sales. Some vehicles delivered may come from production from previous years. There is a lag between production and delivery as customers receive training on new systems. Production includes development of prototypes that will not enter service. Data on arms sales are frequently incomplete, and not all sales may be captured in these data.
[b] Includes systems procured by paramilitary forces.

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OTO Melara

OTO Melara was originally formed in 1905 as Vickers Terni to produce weapon systems for the Italian armed forces and adopted its present name in 1951. The company is now part of the state-owned EFIM group. Activities are centered around the development and manufacture of gun and missile systems, fire-control systems, and armored vehicles. The company holds shares in a number of other defense firms including the electronics firm Officine Galileo and the missile manufacturer SISTEL. OTO Melara works closely with Fiat in the development of armored vehicles and with Breda Meccanica in weapons development. [redacted] 25X1

Company Data

	1980	1981	1982	1983	1984 [a]
Sales *(million US $)*	229.4	252.6	319.8	526.2	443.0

Work force: 2,500
Activity breakdown: Army systems, 50 percent; Navy systems, 41 percent; R&D, 9 percent
Location: La Spezia
Products: Armored vehicles, artillery, missile systems, naval guns [redacted] 25X1

[a] Exports accounted for about 80 percent of total sales.

Fiat

Fiat is Italy's largest private employer and controls over 120 different firms. Founded in 1899, it is an international holding company headquartered in Turin. Its total work force is over 350,000. Two of its subsidiaries are major defense industrial firms. Fiat Aviazione, formed in 1976 when Fiat sold its airframe manufacturing firm to the Italian Government, specializes in aircraft engines and produces a number of jet engines under license. Fiat IVECO manufactures a wide variety of civil vehicles, heavy-lift military trucks, and armored vehicles. Fiat has announced that it will purchase back the 15 percent of its shares previously held by the Libyan Government. [redacted] 25X1

Fiat Aviazione: Company Data

	1980	1981	1982	1983	1984 [a]
Sales *(million US $)*	171.6	182.0	221.6	224.5	205.4

Work force: 3,500
Location: Turin
Products: Aircraft and marine engines

[a] Exports accounted for 70 percent of sales.

Fiat IVECO: Company Data

	1983	1984
Sales (*million US $*)	2,974.0	2,612.6

Location: Turin
Products: Trucks and armored vehicles [redacted] 25X1

Breda Meccanica

Breda Meccanica was founded in 1925 and by the early 1940s had become a major arms manufacturer responsible for the production of automatic weapons of various calibers for the Italian Army and Navy. The company is now part of the state-owned EFIM holding group. The firm has a longstanding licensing agreement with Bofors of Sweden and produces a range of systems based on that firm's L70 40-mm cannon. Breda Meccanica specializes in the development and manufacture of antiaircraft (AA) cannons, antitank rockets, mortars, and naval rocket launchers. [redacted] 25X1

Company Data

	1982	1983	1984 [a]
Sales (*million US $*)	82.2	83.7	87.7

Work force: 850
Location: Brescia
Product: AA cannons, rockets, mortars, rocket launchers [redacted] 25X1

[a] Exports accounted for 50 percent of sales.

Pietro Beretta

Pietro Beretta was officially founded in 1680, but traces its origins back to the 15th century. It is Italy's largest small arms manufacturer and produces a wide variety of sporting rifles, shotguns, pistols, and submachineguns. 25X1

Company Data

	1981	1982	1983	1984 [a]
Sales (*million US $*)	75.0	67.5	56.3	57.7

Work force: 1,200
Location: Brescia
Products: Small arms 25X1

[a] Defense accounted for about 15 percent of total sales.

Aerospace

The Italian aerospace sector, currently struggling through a worldwide slump, is dominated by Agusta and Aeritalia (see tables C-2 and C-3). Both firms have a degree of independence in fuselage design and avionics, but still require outside assistance for engine technology; most Italian-built aircraft use US or British engines. 25X1

After significant growth in the late 1970s, the Italian aerospace sector has been depressed over the last several years because of the worldwide decline in demand, according to open source reporting. Funds for aerospace R&D have fallen by nearly 30 percent from their 1981 peak. 25X1 The Italians also have been less successful in developing indigenous weapon systems for their aircraft, and the only current Italian system in production is the Aspide air-to-air missile. The Italians were responsible for the design of the wings on the Tornado aircraft and have a substantial avionics industry, but much of this work is based on US systems or is dependent on US subsystems. 25X1

The long-term health of the Italian aerospace industry will depend heavily on the success of the new Eurofighter aircraft. Italian participation in Eurofighter is critical because it will afford Italian firms continued access to high technology. If the Eurofighter partners can develop and produce a competitive aircraft, Italy should be able to maintain a substantial role in the worldwide aerospace market. The Italians also will be dependent on Eurofighter to keep their production lines open and indigenous design teams working. Although projects such as the AMX help the Italian aerospace sector in terms of employment and profits, the multi-European projects are key to Italy's ability to maintain a state-of-the-art capability. 25X1

Major Aircraft Firms

Aeritalia	Fighters: F-86,[a] F-104,[a] AMX Tornado Transport: G-222
Aermacchi	Fighters: AMX Trainers: MB-326, MB-329
Piaggio	Transport: P-166-DL3, aircraft engines
Siai-Marchetti	Trainers: S-211, SF-260
Alfa-Romeo Avio	Aircraft engines
Fiat Aviazione	Aircraft engines

[a] The F-86 and F-104 were produced by a component of Fiat that was later sold to the government and became part of Aeritalia.

Major Helicopter Firms

Agusta	B-47, AB-204, AB-205, AB-206, AB-212, S-61/SH-3D, A-109, EH-101, A-109, A-129
Bredanardi	NH-300, NH-500
Elicotteri Meridionali	CH-47

Table C-2
Aircraft Industry Production and Sales,[a] 1980-84

Number of units

	1980	1981	1982	1983	1984
Production					
MB-326	25	20	24	20	15
MB-339	31	35	35	30	30
Tornado	1	6	24	24	24
SF-260	49	48	58	53	68
Sales					
Italy [b]					
MB-326	9	9	20	20	7
MB-339	26	27	32	27	27
Tornado	1	6	24	24	24
SF-260	15	20	20	10	15
Burma					
SF-260	5				
Singapore					
SF-260	6				
Malaysia					
MB-339			3	9	
Libya					
SF-260	12	12	12	12	12
UAE					
MB-326			4		
Burundi					
SF-260		3			
Central African Republic					
MB-326	2				
Ethiopia					
SF-260				10	12
Ghana					
SF-260				8	
Nigeria					
G-222				4	
MB-339				8	
Somalia					
G-222	4				
SF-260		6			
Zaire					
SF-260		12			
MB-326	4				

Footnotes appear at end of table.

Table C-2 (continued)

	1980	1981	1982	1983	1984
Zimbabwe					
SF-260				17	
Argentina					
MB-339		5	5		
Brazil					
MB-326	20	10 [c]			
Haiti					
SF-260				6	
Peru					
MB-339		2	12	2	

[a] Production and sales may not equal because some aircraft are produced for future sales or inventory. Some aircraft delivered may come from production from previous years. There are lags between production and delivery as customers receive training on new aircraft. Production includes development of prototypes that will not enter service. Data on arms sales are frequently incomplete, and not all sales may be captured in these data.
[b] Includes aircraft procured by government agencies other than the Ministry of Defense.
[c] Assembled in Brazil.

25X1

Table C-3
Military Helicopter Industry
Production and Sales,[a] 1980-84

Number of units

	1980	1981	1982	1983	1984
Production					
A-109	30	30	20	21	16
AB-205	21	29	20	20	12
AB-206	20	30	35	39	30
AB-212	25	45	40	25	10
AS-61/SH-3D	20	15	25	30	30
CH-47	15	10	12	15	15
H-500	15	15	15	7	5
AB-412			1	10	10
Sales					
Italy [b]					
A-109	30	30	20	21	16
AB-205	10	15	20	20	10
AB-206	20	30	30	26	15
AB-212	6	14	26	23	10
AS-61/SH-3D	18	12	25	30	15
CH-47	7		1	15	8
H-500	15	15	15	7	5
AB-412				1	2
Bahrain					
AB-212	3	9			
Egypt					
CH-47		5	10		
AS-61			3		
Iraq					
AS-61/SH-3D	1	5			
Lebanon					
AB-212		3	3		
Libya					
CH-47	5				
A-109			2		

Footnotes appear at end of table.

Table C-3 (continued)

	1980	1981	1982	1983	1984
Morocco					
AB-206			5	13	
AB-212		2	2		
CH-47			1		
Oman					
AB-205		2		4	
Saudi Arabia					
AS-61/SH-3D		3			
Tunisia					
AB-205	11	4			
UAE					
AB-206					4
Austria					
AB-212	12	12	2	2	
Finland					
AB-412					1
Greece					
AB-205		5			
AB-212	2	2	2		
CH-47		4	4	4	
Brazil					
AS-61/SH-30				4	
Peru					
SH-3D	2				
Venezuela					
AB-212	2	2	1	1	
A-109			5	6	
Somalia					
AB-212			3		
AB-202			3		
Sudan					
AB-212			6		
Zimbabwe					
AB-412				2	

[a] Production and sales may not equal because some helicopters are produced for future sales or inventory. Some helicopters delivered may come from production from previous years. There is a lag between production and delivery as customers receive training on new helicopters. Production includes development of prototypes that will not enter service. Data on arms sales are frequently incomplete, and not all sales may be captured in these data.
[b] Includes procurement by government agencies other than the Ministry of Defense.

25X1

Aeritalia

Aeritalia is Italy's principal aerospace company engaged in the development and manufacture of aircraft, avionics, remotely piloted vehicles (RPVs), missiles, and space systems. It was formed in 1969 from a merger of Fiat's aviation division Aerfer and Salmoiraghi, with the objective of coordinating their aerospace activities. Stock was initially held equally by Fiat and the state holding company IRI-Finmeccanica, but in 1976 IRI bought out Fiat. Aeritalia began to expand its operations after the government assumed full ownership. In 1981, it purchased Partenavia, the light aircraft firm; 50 percent of Meteor, Italy's only RPV manufacturer; and Finmeccanica's 25-percent share of Selenia. Aeritalia is divided into seven main operating groups: combat aircraft, transport aircraft, general aviation, avionic systems and equipment, RPVs and missiles, space and alternative energies, and overhaul modification and maintenance. 25X1

Company Data

	1980	1981	1982	1983
Sales [a] (*million US $*)	350.0	464.5	599.6	570.8

Work force: 12,300

Main Plants	Location	Products
Combat Aircraft Group	Turin	Combat aircraft
Transport Aircraft Group	Pomigliano D'Arco	Civil and military transport aircraft
	Naples	Same as above
	Foggia	Same as above
General Aviation Group (Partenavia)	Casoria	Light aircraft
Avionics Systems and Equipment Group	Turin	Avionics
	Milan	Avionics
RPVs and Missiles Group	Naples	RPVs
	Monfalcone	Same as above 25X1

[a] Exports account for about 60 percent of sales.

Agusta

The Agusta Group was formed in the late 1960s by combining three major firms—Construzioni Aeronautiche Giovanni Agusta, Elicotteri Meridionali, and Siai-Marchetti. In 1973, the state holding firm EFIM acquired a substantial share of the Agusta Group as part of a government plan to develop the aerospace industry.

The Agusta Group acquired two major firms—Fonderie ed Officine Meccaniche di Benevento (FOMB) (specializing in avionics) and Industria Aeronautica Meridionale (IAM) (an aircraft manufacturer)—in the late 1970s. In 1981, it acquired another avionics firm, Ottico Meccanica Italiana (OMI), and in 1983 the aircraft manufacturer Caproni Vizzola. In 1980 Agusta and Westland formed EH Industries (EHI) to undertake joint development of the EH-101 helicopter. 25X1

Several of the firms in the Agusta Group date from the early 1900s. Agusta was founded in 1907 and produced aircraft before and during World War II. Siai-Marchetti—originally known as Savoia-Marchetti—was established in 1915 and has produced a variety of military and civil aircraft as well as flying boats. Caproni Vizzola was founded in 1910. 25X1

Currently, the Agusta Group is divided into three main divisions:
- Helicopters: Agusta, Elicotteri Meridionali, EHI
- Aircraft: Siai-Marchetti, IAM, Caproni Vizzola
- Systems: Agusta Sistemi, OMI, FOMB, Meccanica Verghera 25X1

Group Data

	1980	1981	1982	1983	1984 [a]
Sales (*million US $*)	524.3	614.0	493.2	569.5	512.2
Defense sector	NA	94.7	118.9	177.5	NA

Work force: 6,500
Activity breakdown (*percent of 1984 sales*): Helicopters, 65; aircraft, 25; systems, 10

Main Plants	Location	Products
Agusta Helos	Samarte	A-109, S-61, AB-412, A-129
Elicotteri Meridionali	Frosinone	AB-206, components for CH-47, AB-205, AB-212, SH-3, A-109
Siai-Marchetti	Sesto Calende	SF-260, S-211, SF-600, components for G-222, CH-47
IAM	Brindisi	Avionics
Caproni Vizzola	Milan Vizzola Ticino	Light aircraft C-22J trainer
Agusta Sistemi	Milan	Avionics
OMI	Rome	Avionics
FOMB	Benevento	Subsystems 25X1

[a] Exports accounted for 68 percent of total sales.

Aermacchi

Aermacchi was formed in 1913 as SA Nieuport-Macchi to produce Nieuport aircraft under license. It changed its name to Aeronautica Macchi in 1923 following the establishment of the Italian Air Force. In 1981, Aeronautica Macchi took control of a group of enterprises including two aerospace firms, Officine Meccaniche Gerenzano (OMG) and Societe Italiana Construzioni Aeronautiche Martin Baker (SICAMB), and became a holding company. As part of this move, a wholly owned subsidiary, Aermacchi, was set up to undertake all airframe manufacture for the group. Aermacchi is privately owned, but in 1982 state-owned Aeritalia acquired a 10-percent share in the company. 25X1

Company Data

	1981	1982	1983 [a]	1984
Sales (*million US $*)	107.8	135.5	142.5	125.9

Work force: 2,500

Main Plants	Location	Products
Aermacchi	Varese	Headquarters and material preparation
	Venegono	Aircraft assembly
OMG	Gerenzano	Aircraft parts
SICAMB	Latina Scalo	Airframe components and ejector seats 25X1

[a] Exports accounted for 65 percent of sales.

Missiles

Using the experience they have gained from licensed production of other missile systems, Italy's major missile firms, Selenia and OTO Melara, have been able to achieve a degree of design independence although they continue to lag in state-of-the-art technologies such as propulsion and seekers—the subsystems that search out targets [redacted]. Only one indigenously designed system is currently in production, but five other missile systems, including a new antiship cruise missile and a new antitank guided missile, are in various stages of research and development (see table C-4). [redacted] 25X1 25X1

Major Firms

OTO Melara	Milan, Otomat, MAF
Selenia	Aspide, Sea Sparrow, Maverick
SISTEL	Sea Killer, Marte

Table C-4
Missile Industry Production

Number of units

	1980	1981	1982	1983	1984
Sparrow	50				
Sea Sparrow	50				
Aspide	350	350	350	350	350
Otomat	25	130	140	140	140
Sea Killer	10	10	10	10	10
[redacted]					

25X1

Sistemi Elettronica (SISTEL)

SISTEL was established in 1967 as a result of joint financial, technical, and technological collaboration between Montedison, Fiat, Contraves Italiana, and SNIA-Viscosa for the design, development, and manufacture of missile systems. The company is now part of the EFIM holding group. Its principal shareholders are Selenia (40 percent), OTO Melara (27 percent), Contraves Italiana (18 percent), and Breda Meccanica (15 percent). Its chief products are the Sea Killer and Marte antiship missiles, and it is currently collaborating with Selenia in the development of other antiship missiles. 25X1

Company Data

	1982	1983
Sales (*million US $*)	9.6	8.8

Work force: 230
Location: Rome
Products: Design, development, and manufacture of missile systems 25X1

SNIA BPD

BPD, founded in 1912 for the manufacture of munitions, was taken over in 1968 by SNIA-Viscosa, a major Italian chemical firm. Renamed BPD Difesa-Spazio, the firm acquired interest in a number of other firms active in munitions, including Simmel (ammunition) and SIPE-Nobel (explosives and pyrotechnics), and expanded its line to include solid rocket motors. In 1983, SNIA-Viscosa underwent a major reorganization that included the transfer of shares to Fiat, which recently increased its holdings to over 30 percent, and a merger with BPD Difesa-Spazio to form a new holding company, SNIA BPD. Major defense activities of this new firm include rockets/propellants, unguided weapon systems, and ammunition. Defense activities now account for about 40 percent of total group sales. 25X1

Company Data

	1980	1981	1982	1983
Sales (*million US $*)	140.9	135.2	194.5	248.7 [a]

Work force: 2,500 (not all of whom are engaged in defense activities)

Main Plants	Location	Products
BPD	Rome	Rocket motors, propellants, unguided weapon systems, ammunition
Simmel	Castelfranco Veneto	Ammunition
SIPE-Nobel	Gallicano	Powder and propellants
	Orbetello	Same as above
	Spilamberto	Same as above 25X1

[a] Total group sales after reorganization. Exports accounted for 75 percent of sales.

Electronics

Italian industry is involved in the development of a wide range of defense electronics systems (see table C-5), and studies by US defense contractors have assessed them generally as at least competitive—although not leading—in most areas. Elettronica has been highly successful in electronic warfare (EW) systems and is one of the largest manufacturers of EW equipment in Western Europe. Selenia has sold air traffic control radars to over 10 countries—including Denmark, Austria, and Sweden—in the last five years and developed the Goldhaube air defense radar network for Austria. Given Italy's limited R&D funds, however, these firms could have difficulty in expanding their markets without technological inputs from other West European or US firms. [redacted] 25X1

Table C-5
Selected Electronics Firms

	Military Product Lines
Compagnia Generale Di Elettricita	Fire-control systems, radars, sonars, laser rangefinders
Contraves Italiana	Super Fledermaus fire-control system, Skyguard fire-control system, LPD/20 search radar
Selenia-ELSAG	Naval radars, fire-control systems, sonars, air traffic control radars, surveillance radars, torpedo guidance
Elettronica	Electronic warfare equipment
FIAR	Avionics, radar and optical fire-control systems, radars, sonars, electro-optics, laser rangefinders
Microtecnica	Data acquisition and processing equipment, optics and electro-optics
Montedison Sistemi	Military communications equipment
Officine Galileo	Fire-control systems
Ottico Meccanica Italiana	Avionics
[redacted]	

25X1

Selenia

Selenia has been active in the electronics field since its formation in 1960 and is part of the state-owned IRI-STET group of companies with stock held by STET (71.7 percent), Aeritalia (25.75 percent), and IRI (2.55 percent). As part of a major reorganization of the Italian aerospace industry, it was announced in September 1982 that Selenia and ELSAG (see separate entry) were to group their operations in order to coordinate activities. This new consortium is led by Selenia, which acquired 51 percent of ELSAG from STET. A new company, Selenia Spazio, has been formed by combining the space divisions of Selenia and Italtel and merging them with Compagnia Nazionale Satelliti to control the group's space activities. Selenia's main activities are development and production of missiles, radars, electronic warfare equipment, air traffic control systems, and space and naval systems. The company also works in the commercial telecommunications and information processing sectors. 25X1

Selenia's military activities are divided into two divisions. The defense systems division is primarily concerned with the manufacture of air defense equipment, including the Aspide missile and the Albatros and Spada air defense systems, and also is involved in the manufacture of ground radar, command and control equipment, electronic warfare systems, and avionics. The naval systems division produces naval radars, shipborne missile systems, and naval command and control systems. 25X1

Company Data

	1980	1981	1982	1983	1984 [a]
Sales (*million US $*)	195.0	267.4	289.0	315.0	339.8

Work force: 6,600

Main Plant	Location	Products
Selenia	Rome	R&D
	Guigliano	Command and control equipment
	Fusaro	Air traffic control systems, missile systems
	Pomezia (Rome)	Avionics, electronic warfare equipment 25X1

[a] Exports accounted for over 60 percent of total turnover.

Elettronica San Giorgio (ELSAG)

ELSAG was formed in 1969 as the electronics and systems division of Nuova San Giorgio. Its parent firm has been active in the development and production of fire-control systems since 1928. ELSAG specializes in the development of naval fire-control systems, sonars, minehunting equipment, torpedo launchers, and torpedo guidance systems. In 1983, it signed a consortium agreement with Selenia (Raggruppamento Selenia-ELSAG) for joint development and production of naval systems. ELSAG is part of the state IRI-STET holding company with shares held by Selenia (51 percent) and Ansaldo (49 percent). 25X1

Company Data

	1980	1981	1982	1983 [a]
Sales (*million US $*)	95.6	101.2	167.8	129.3

Work force: 1,800

Main Plant	Location	Products
ELSAG	Genova	Naval fire-control systems, naval radars
	Naples	Sonars, torpedo launch and guidance systems, mine countermeasures equipment 25X1

[a] Exports accounted for 30 percent of sales.

Fabbrica Italiana Apparacchiature Radioelettriche (FIAR)

FIAR was formed in 1941 to manufacture radio equipment for both civil and military markets and subsequently merged with the Compagnia Generale di Elettricita (CGE)—a subsidiary of the US firm GE—to become the latter's electronics division. In 1979, this division became a separate company but remains a wholly owned subsidiary of CGE. FIAR manufactures a wide range of military electronics equipment including ground and airborne radars, avionics, electro-optics, sonar, communications, and training equipment. It is also active in the civil sector in space systems and data processing. It has three main divisions: defense, space and automation, and logistic support. 25X1

Company Data

	1980	1981	1982	1983	1984 [a]
Sales (*million US $*)	25.9	30.5	47.7	48.1	45.5

Work force: 1,000, of whom 570 work in the defense sector
Activity breakdown: Defense, 78.2 percent; space and automation, 16.2 percent; support, 5.6 percent

Main Plants	Location	Products
Defense Division	Milan	Radars, sonars, air defense, communications
Space and Automation	Milan	Space systems, robotics
Logistics Support	Milan	Product support

25X1

[a] Exports accounted for 60 percent of total turnover in 1984.

Elettronica

Elettronica was founded in 1951 primarily to provide electronic warfare equipment to the Italian armed forces. In the early 1970s, it began an expansion program aimed primarily at the export market. It is one of the few firms in Western Europe that specializes almost exclusively in electronic warfare equipment. In 1984, the British electronics firm Plessey acquired some 35 percent of Elettronica. Elettronica has an extensive product line that includes airborne and naval electronic countermeasures, passive search, and electronic counter-countermeasures equipment. It has a subsidiary in West Germany that provides support to a number of systems sold to the West German military. It also owns Meccanica Per l'Elettronica (MPE), which specializes in electrical assembly, and Elettronica Ingegneria Sistemi (EIS), an engineering and software firm.

25X1

Company Data

	1982	1983	1984 [a]
Sales (*million US $*)	95.9	95.5	85.0

Work force: 1,600

Main Plants	Location	Products
Elettronica	Rome Bonn	EW equipment Support
MPE	Rome	Engineering and electronic assembly
EIS	Rome	Software

25X1

[a] Defense accounted for over 80 percent of sales.

Naval Industries

The Italian naval industries, like most of Western Europe's naval shipbuilding industry, remain depressed. Nevertheless, Italy has been comparatively successful in securing some Third World sales, helped in large part by a $1.9 billion sale of four frigates, six corvettes, and an oiler to Iraq [2] (see table C-6). The Italians also have sold minehunters to Malaysia and Nigeria, and an Italian-designed minehunter is currently under consideration by the US Navy. Italian shipyards can produce a variety of naval vessels from patrol craft to helicopter cruisers. Although Italian ships are generally of high quality, a number of countries, particularly Malaysia and Ecuador, have suffered long delays in deliveries and some quality control problems with the ships they purchased, 25X1 25X1

In 1983, the shipbuilding industry underwent a major reorganization in an attempt to compensate for the worldwide decline in demand for both commercial and naval shipping. Under the new structure, 25X1 , Italian shipyards are organized into four divisions—merchant construction, military construction, ship repair, and mechanical—compared with the previous pattern of independent yards manufacturing all systems. One shipyard has been closed, and several thousand workers have been laid off. The government hoped that the reorganization would improve Italy's competitiveness in the world shipping market by controlling costs and reducing redundant production capacity. With worldwide demand for new construction depressed, however, most work has been in ship repair. The workload at the Palermo shipyard, for example, currently is only at about 25 percent of its peak capacity, 25X1 25X1

Italian firms produce a number of highly competitive naval weapon systems. The OTO Melara 76/62 naval gun has become virtually the standard weapon system throughout NATO and is in service with more than 40 navies, including the US Navy. The Otomat missile also has been sold to 15 countries. The Italians also produce a number of naval subsystems including radars and sonars. Elettronica has marketed a variety of electronic warfare systems in a number of countries including West Germany. Fiat has successfully marketed its LM 2500 engine, derived from a GE aircraft turbine, and is currently developing a larger model. 25X1

[2] Although several of these ships have been built, none have been delivered due to the Gulf war. 25X1

Table C-6
Naval Production

Number of units

	1980	1981	1982	1983	1984
Production					
Submarines (Sauro class)	1	1	1		
Frigates					
Lupo class	1	3	2		
Maestrale class				2	2
Patrol combatants	1	4	5	6	3
Minehunters (Lerici class)				3	1
Sales					
Italy					
Submarines (Sauro class)	1	1	1		
Frigates (Maestrale class)				2	2
Patrol combatants (Sparviero class)		2	3	1	1
Minehunters (Lerici class)				1	1
Libya					
Patrol combatants (NR 550)	1	2			
Ecuador					
Patrol combatants (NR 600)			1	3	2
Venezuela					
Frigates (Lupo class)	1	3	2		
Thailand					
Patrol combatants (MR 400)			1	2	
Malaysia					
Minehunters (Lerici class)				2	

25X1

Fincantieri-Cantieri Navali Italiani

The Fincantieri-Cantieri Navali Italiani Group was formed in late 1983 to further rationalize the Italian naval shipbuilding industry. It controls nearly 80 percent of Italian shipbuilding. Its three main subsidiaries are Cantiere Navali Breda, Cantieri Navali Riuniti, and Italcantieri. Cantiere Navali Breda was founded in 1923 in Venice and joined the Fincantieri government holding group in 1979. Its primary products are small/medium vessels such as patrol craft for the Thai Navy and corvettes for the Iraqi Navy. Cantieri Navali Riuniti dates back to 1889 and currently has six shipyards. It was acquired by the Italian Government in 1970. It specializes in larger naval ships including frigates and coastal submarines. Italcantieri is the largest Italian shipbuilding company. In the past, it has largely produced commercial vessels, but it is currently responsible for building the Sauro-class submarines, and it built Italy's new helicopter carrier—the Giuseppe Garibaldi. [redacted] 25X1

Company Data

	1984
Sales (*million US $*)	716.6
Defense sector	260.7

Work force: 26,000

Main Shipyards	Location	Products
Cantiere Navali Breda	Venice	Patrol craft, corvettes
Cantieri Navali Riuniti	Genoa	Ship refitting
	Leghorn	Ship refitting
	Riva Trigoso	Frigates, corvettes
	Ancona	Frigates
	Muggiano	Patrol craft
	Palermo	Ship refitting
Italcantieri	Monfalcone	Submarines, helicopter carriers [redacted] 25X1

Intermarine

Intermarine was established in 1970 and is Italy's largest privately owned shipyard. It produces a variety of small patrol craft and glass reinforced plastic (GRP) minehunters. [redacted] 25X1

Company Data

	1981	1982
Sales (*million US $*)	31.7	68

Work force: 500
Location: La Spezia
Products: Minehunters, small patrol craft [redacted] 25X1