
Tools of the Trade: Why Offsets, Outsourcing, and Joint Ventures Are Crucial to U.S. Aerospace

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Foreign governments want some type of flow-back from U.S. aerospace contracts, because an aerospace capability can enhance national prestige, serve as a technology driver, or help a country gain greater defense autonomy.

The U.S. aerospace industry is in a period of unprecedented change. Since 1990, aerospace demand has fallen sharply, triggering corporate downsizing and a wave of mergers and acquisitions. At the same time, U.S. companies now find themselves operating in a global market that features a new set of opportunities and challenges. To remain competitive, companies are outsourcing work to foreign suppliers, initiating joint ventures, and using offset programs to allow manufacturers to exploit opportunities in technology, capital, and cost reduction that exist overseas—opportunities that cannot be ignored by companies that want to be world-class. These approaches also satisfy a growing demand among foreign customers for jobs and technology as a condition for market access. This is important because foreign demand accounts for a growing share of U.S. sales.

Critics charge that offsets, outsourcing, and joint ventures hurt U.S. payrolls at a time when U.S. aerospace employment is shrinking, and that U.S. industry is creating future competitors. Yet market realities leave companies with few choices. If an offset or outsourcing helps a U.S. company to win a sale, U.S. jobs result; if a sale is lost, there are no jobs. And while some U.S. jobs may be adversely affected by programs such as offsets, the link between the two has not been credibly demonstrated. On the contrary, recent U.S. government studies conclude that the net impact of offsets on the U.S. economy is positive. Also, a review of several cases—where companies used offsets, outsourcing, and joint ventures—indicates that these tools have benefited U.S. aerospace interests over the long term.

TODAY'S AEROSPACE MARKET

Since the end of the Cold War, defense budgets worldwide have dropped, with U.S. defense procurement decreasing 60 percent. Concurrently, world airlines have suffered through a protracted recession, losing \$16 billion. As a result, demand is declining sharply in the aerospace industry's two key product areas: defense equipment and commercial transports. These conditions are hurting aerospace sales and are exerting a downward pressure on product prices.

At the same time, aerospace demand is shifting overseas, with the importance of foreign markets increasing as U.S. producers search for new customers to compensate for shrinking sales at home and fight to retain existing business. This shift also is under way because new markets in Russia and China recently have opened up and growth rates in Asia have gotten stronger. Already, the ratio of exports to total sales for U.S. aerospace defense products is rising, and more than 60 percent of U.S. commercial transports on order are for foreign customers. Yet, this is

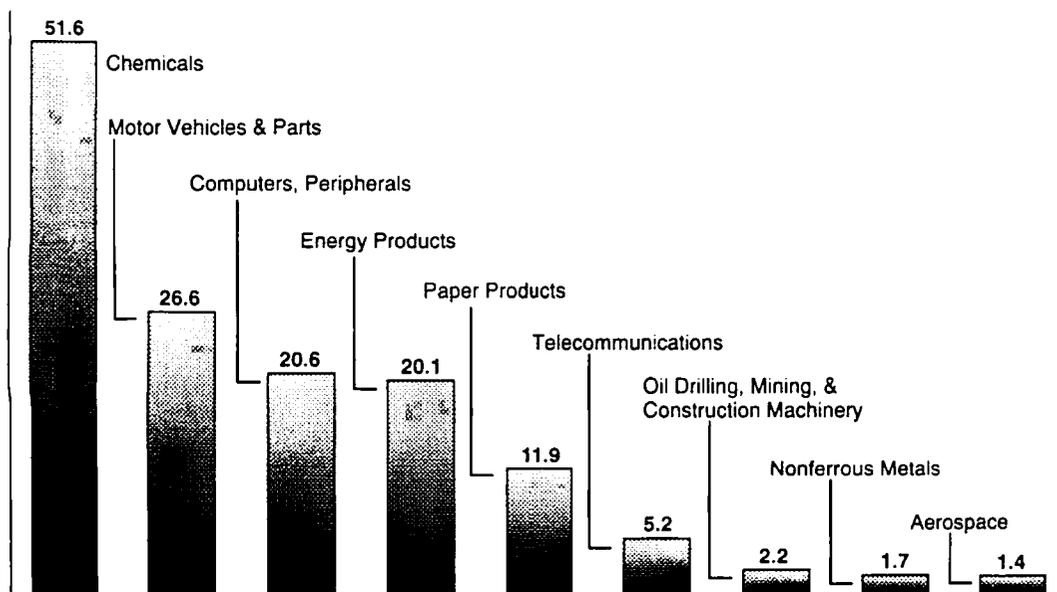
only the beginning. Economic growth rates overseas are expected to be unmatched into the next century, and two-thirds of future commercial transport demand is projected to originate overseas.

Government influence on the marketplace also is growing. In Asia, governments are attempting to capitalize on their regional economic growth by encouraging their companies (many of which are state-owned) to enter aerospace to spearhead industrial development. In Russia, the aerospace sector faces enormous hurdles due to low product demand and the changes required to adjust to Western market disciplines. Given Russia's 70-year legacy of state support, government aid to aerospace probably will not end anytime soon. In Europe, aerospace companies are falling behind competitively as the U.S. industry restructures its operations more quickly. European governments may increase state support to keep their industries afloat.

Government influence also is being manifested in other ways. Foreign suppliers are being pressured to provide their customers with technology and/or work as a condition for market access. This situation is not limited to aerospace. Nevertheless, aerospace companies are particularly susceptible to this pressure because their products are sold disproportionately to governments or entities that are owned or are strongly influenced by the state. These efforts often are used to spur local industrial development. Also, when a government makes an expensive purchase of a foreign product, state officials want to show the positive impact this investment has on local jobs.

In addition, all aerospace companies face the ongoing challenge presented by high nonrecurring costs and a relatively small customer base. This combination makes launching a new aerospace program a high-stakes venture. For example, a new transport aircraft can cost more than \$5 billion to develop and build, while the auto industry can deliver a product to market for around \$1 billion. In 1993, automakers sold 47 million motor vehicles worldwide, while transport deliveries totaled 548.

1994* U.S. FOREIGN DIRECT INVESTMENT (in billions of dollars)



(*Latest data available: Source: *Survey of Current Business*, August 1995.)

In short, the competitive pressures on the industry are increasing, and companies must look for new ways to compete. This throws a spotlight on foreign markets, because they represent a growing share of total demand for U.S. products. Foreign markets also offer opportunities to cut costs, raise capital, and access technology. As government influence in the market grows, U.S. companies must take advantage of the opportunities in which their goals are complementary to government/customer demands. The issue for U.S. aerospace companies is not whether to implement a global strategy, but rather which approaches will facilitate that strategy.

EXPORTS

U.S. aerospace companies place great emphasis on promoting exports, and the industry consistently has been one of the nation's top exporters. During 1995, U.S. aerospace exports totaled \$33 billion. Yet these results do not always come easily. U.S. companies would prefer to win foreign sales based on product and price alone. But the realities of today's market are not that simple. Many customers want jobs and technology as a condition for a sale, and given today's competitive market such demands must be addressed.

FOREIGN DIRECT INVESTMENT

One way to access foreign markets is to establish an offshore subsidiary. This type of capital outflow is called foreign direct investment (FDI) and it occurs when one company takes a controlling interest in an overseas firm through an acquisition or merger, or when it sets up a new facility. FDI can satisfy customer demands for jobs and technology by putting capital to work in the targeted country and by hiring indigenous personnel to staff the affiliate.

Although the United States led the world in FDI in 1995 (\$95 billion), aerospace companies tend not to use this approach. FDI would only exacerbate industry's current overcapacity problem. Also, aerospace has a high requirement for physical assets (machinery, etc.) that are not easy to transfer overseas. Aerospace also is closely tied to national security, and governments are not receptive to foreign control of these assets in their market. Due to these drawbacks, aerospace companies lean more heavily on other approaches, such as offsets, to meet customer needs and achieve global objectives.

WHAT ARE OFFSETS?

Offsets are activities, used most frequently by military exporters, that provide the buyer with economic benefits that help offset a portion of the item's cost. Offsets usually are required as a condition of purchase. For the sellers they are used as a tool to win a specific sale. Offsets fall into two categories: direct and indirect. A direct offset is an obligation that relates specifically to the product being purchased, such as subcontracting work on that product. An indirect offset is not related to the product.

Licensing involves the transfer of know-how, patents, or trademarks from one company to another in return for a fee or royalty payment. Many firms license technologies outside of offset programs. Yet many offsets do contain licensing provisions. Coproduction occurs when one company, through a licensing agreement, gains the ability and rights to manufacture and/or assemble all or part of a product that is also being produced by the originating company. Coproduction also can be part of an offset program.

The U.S. government first used offsets after World War II to help allies rebuild their war-torn economies. Offsets now are commonly requested by customers to satisfy domestic objectives. The Bureau of Export Administration reported that new offset obligations averaged \$2.4 billion per year during 1993-1994. Those offsets were tied to sales contracts totaling \$4.4 billion. Overall, offsets accounted for 13 percent of total U.S. arms agreements for that period.

Those agreements averaged \$17.6 billion a year, according to the Congressional Research Service.

OFFSETS AND JOBS

One way to assess the impact of offsets on U.S. jobs is to look at several cases where they have been used. In 1975, four European countries wanted a lightweight fighter. The United States offered the newly designed F-16, while the French promoted their Mirage F1E. The F-16 was selected. The U.S. package included an offset which provided the Europeans with technology and allowed them to assist in aircraft assembly. They also were granted permission to produce portions of the aircraft throughout the life of the F-16 program.

The win added 348 European orders to the initial U.S. Air Force purchase of 650, giving the program a solid start. The international endorsement of the program prompted other U.S. allies to place orders, causing total European orders to rise to more than 800. This, in turn, has enhanced NATO interoperability. Almost 4,000 F-16s have been ordered or delivered to the U.S. services and their allies, and exports are helping to keep the production line open. Had the French won that initial sale, the story today might be different.

Twenty years later U.S. companies squared off against two European competitors to sell attack helicopters to the Netherlands. On the U.S. side the Apache AH-64D and Super Cobra Venom AH-1W were offered. The Europeans promoted the Eurocopter Tiger and the Italian Agusta A129. The Eurocopter group offered an offset valued at \$694 million. The Apache package included an offset worth \$585 million. The Dutch selected the Apache, and as part of the offset they will develop and produce avionics bay composite structures for both Dutch and U.S. Apache models and provide some of the avionics content.

The order for 30 helicopters provided a much needed boost to an Apache production line that in 1994 existed solely on export orders. Furthermore, the win gave the Apache a strong foothold in Europe that helped pave the way for an order later that year by the United Kingdom for 67 Apaches.

The U.S. government does not officially request offsets on foreign-based military products sold in America. Nevertheless, in 1975 the U.S. Marines needed an aircraft that was only available overseas: the British designed Harrier. Through U.S. and British collaboration, the Harrier was developed into the AV-8B Harrier II combat aircraft. Its production continues today as the Harrier II Plus. During the program, U.S. companies received advanced vertical take-off and landing technology, and coproduction lines were set up in both countries.

In 1981 the U.S. Navy selected a trainer aircraft based on the British Hawker 60. Again, through a collaborative effort, U.S. companies received technology and set up a production line in St. Louis, Mo. The aircraft under production is now called the T-45 Goshawk.

These cases highlight several important points: offsets have been around for a long time; they have become a normal part of doing business; they can have positive long-term implications for U.S. jobs and security; and they are de facto used by the U.S. government.

OFFSETS, LICENSING, AND TECHNOLOGY

America has transferred technology to its allies via offsets for more than 40 years, and allied industries have benefited from this transfer. Yet the issue must be kept in perspective. Even given this passage of time, the United States has maintained its technological leadership in aerospace. U.S. front line military programs such as the B-2 stealth bomber, V-22 tiltrotor, F-22 air superiority stealth fighter, joint strike fighter, C-17 transport, and regional missile defense

systems have no foreign counterparts. Furthermore, U.S. government studies have failed to establish a definitive link between offsets and lost U.S. industrial capacity.

After reviewing Japanese participation in the F-15J program, the General Accounting Office (GAO) said that many factors contribute to a company's competitiveness in aerospace and that Japanese companies have benefited from U.S. military and civil programs. Yet GAO also said it found "no single, causal relationship . . . between the Japanese companies' participation in the F-15 coproduction program and their involvement in the production and development of Boeing and Douglas airplanes."

In addition, a report issued in June 1996 by the Presidential Advisory Board on Arms Proliferation Policy said, "There should not be governmental constraints on . . . offsets. The overall economic and employment impact of foreign trade is highly positive, and any attempt to dictate or curtail pricing, work share, or 'countertrade' agreements between buyers and sellers is counterproductive."

OUTSOURCING AND JOINT VENTURES

Outsourcing and joint ventures also are used widely by aerospace companies, particularly those in Europe. Outsourcing occurs when one company subcontracts work to another company that might specialize in a given area. It is not used to win a specific sale but to accomplish an overall business objective, such as lowering costs. A joint venture is a risk-sharing arrangement that can include development, manufacturing, or marketing. Participants often contribute resources that are merged into a new company, with the parent companies assuming shares in that company.

These approaches reflect each participant's capabilities and strategic plans. Their objectives could include indirect market access, the need to cut costs, raise capital, or gain access to technology. While U.S. aerospace companies have applied these approaches worldwide, their efforts in Japan tend to receive the most attention.

THE JAPANESE CONNECTION

U.S. aerospace companies have worked with the Japanese on civil aviation projects for more than 25 years. During that time the Japanese contributed significant risk capital to U.S.-led projects and proved to be high-quality providers of aerospace parts and sections. The Japanese began as parts manufacturing subcontractors for the Boeing 747. In 1977 they assumed a risk-sharing joint development role on the Boeing 767 program, with responsibilities for designing and producing the fuselage, the wing to body fairings, and the wing ribs. In 1983 Japan and four other countries, including the United States, joined efforts to develop the V2500 turbofan engine. In 1991 the Japanese became program partners in the Boeing 777 program, accounting for 21 percent of the airframe content and risk capital.

BUSINESS ALLIANCES AND JOBS

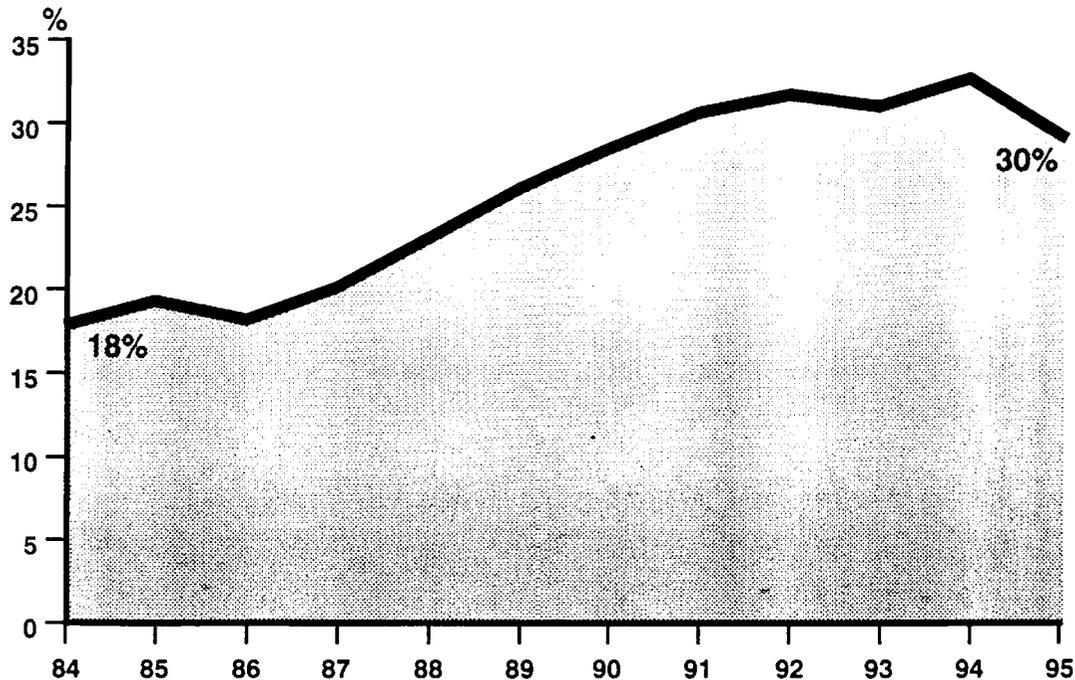
Japanese airlines are major players in the Asia-Pacific market, the fastest growing region in the world. U.S. commercial transports account for more than 80 percent of Japan's fleet. Japan also is the largest customer for the Boeing 747 and the largest foreign customer for the Boeing 767.

The primary factor behind these impressive results is having the right product at the right price. Nevertheless, U.S. industry's long-term business relationship with Japan also has undoubtedly helped. Currently, more than 30 Japanese companies are participating in U.S. civil aircraft programs, compared with four that are working with Airbus.

BUSINESS ALLIANCES AND TECHNOLOGY

Since 1952, U.S. aerospace companies have engaged the Japanese as partners. This has allowed U.S. companies to control the transfer of technology, while also receiving some technology in return in such areas as composites and manufacturing processes. While the Japanese have strong positions in niche technologies, they do not pose a competitive threat to any U.S. aerospace products at this time.

U.S. EXPORTS AS A PERCENTAGE OF TOTAL SALES



In contrast, U.S. companies have had fewer relationships with European companies. European manufacturers have tended to develop regional relationships, keeping the technology to themselves. They have produced the Ariane launch system, the Airbus family of transports, and the Tornado fighter—products that directly compete against U.S. products today.

From a technology standpoint, these two situations suggest that offsets, outsourcing, and joint ventures have worked in favor of U.S. interests, not against them.

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