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# *Trade and R&D Policies*

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*An Aerospace  
Industries Association  
Proposal*

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A Proposal

# An Aerospace Industries Association Proposal on Trade and R&D Policies

## SUMMARY

### Background

Competition has long been the touchstone of American society, and a competitive spirit served the nation well as its business institutions and industrial structure developed. A part of the national legal framework, in fact, was carefully crafted to bar constraints to competition. Granted an abundance of natural resources, the American people have been amazingly ingenious in their application and, for the larger part of this century, the United States led the world in technology and innovation. A strong U.S. trading position was based in large part on this expertise.

Despite a substantial and continuing decline in trade balance beginning in the early seventies, the United States still leads in many technological areas and, as a trading economy, continues to have great influence. It is vital that the United States maintain this influence as more and more nations develop their economies and their technological and industrial capability, and rightly take solid positions in the world trading community. As this occurs, the fair trade principles that the United States has long espoused become more important than ever.

In the fifties and sixties, the United States led in the establishment of international agreements designed to promote a fair and open trading system. These agreements contributed to world economic growth and prosperity and have been a keystone of the Western alliance. But today, as national economies suffer in the volatile economic climate of the eighties, nations are building walls to protect themselves. Trade barriers—the brick and mortar of protectionism—threaten the fair and open trading environment that serves all nations best. The United States itself is in danger of succumbing—little by little—to the supposed panacea of protectionism.

Only the shortsighted and insular will fail to concern themselves with the United States' declining position in world trade and in the underlying technology that makes a solid trading position possible. Unquestionably, for too long, the United States had been lulled by its earlier strong trade performance. Most Americans are now awake to the danger as leading industries weaken and others, still strong, are buffeted and threatened. Americans are asking what can be done. They talk about rebuilding America, about industrial policy, about saving the strong and assisting the weak—but are not sure how to begin.

The bolstering of the United States' sagging trade performance is critical to a full and sustained economic recovery, and to a strong U.S. international position. Further, the nation cannot hope to retain its influence in the world trading community, unless it remains actively committed to fair trade principles. The United

States need not choose between those principles and a strong competitive position; rather, it must actively seek both.

It is time for the United States to adopt a dynamic, aggressive and positive program in order to remain a viable contender in the world marketplace.

The United States need not run scared against nations whose approaches to the marketplace are different—even when these nations are often formidable competitors because of strong government involvement in business, or international alliances. Instead, the United States must carefully choose the appropriate response, in some instances perhaps altering its traditional approach. Nor should the United States attempt to replicate mindlessly what has worked elsewhere. The nation must find its own sure footing.

Many of the needed tools are within our grasp. America has lost momentum, but not its basic strengths: enormous material resources, highly skilled manpower, a genius for innovation, a solid foundation in research and development. Let the nation concentrate on using these resources. Let us shape policies that allow and encourage us to do so.

### **National Trade and R&D Policies**

2 The aerospace industry, from its vantage point as the leading manufacturing exporter—and one that is facing increasingly strong government-supported foreign competition—believes the United States requires a strong, clear focus on the two key factors affecting the marketplace—trade policy and R&D policy. The establishment of complementary national policies in these areas can create an environment within which U.S. business and industry can flourish and compete effectively. Such policies, well-defined and aggressively pursued, will constitute the most effective of U.S. industrial policies. The aerospace industry does not believe that an industrial strategy whereby government picks winners, or involves itself in economic micromanagement, is the answer for America. The government does bear a heavy responsibility for creating the sound economic environment fundamental to the competitiveness of American industry. Bringing budget deficits under control is crucial to this effort.

Many of the elements of national trade and R&D policies are, in fact, in place—but not aggressively implemented. Key principles are often espoused—but without strong and steady commitment (or, are contradicted on a case-by-case basis). Regulations are imposed widely, but without real harmonization or clear national purpose. To be effective, trade and R&D policies must be mutually supportive and must have broad-based support from Congress, the Administration and the public. Their stated goals must be national objectives of the highest priority, and their attainment a national long-term commitment.

In the following pages, the Aerospace Industries Association has set out key areas which must be addressed in trade and R&D policies. Because much current policy discussion and pending legislation greatly affect direction in both of these areas, there is detailed attention to a number of issues. Nonetheless, it is important to separate from these specifics the essence of a national direction.

The trade and R&D policies that the aerospace industry envisions must center on a new commitment and a new philosophy—characterized by a more cooperative relationship between government and industry. In this relationship a dichotomy must nonetheless be maintained so that government and industry each fulfill the role for which it is best suited.

The strength of business is to judge the market, to create, to innovate, and to sell products. Industry must:

- Review its own international policies, practices and structures in order to give exports a high priority;
- Increase funding for research and development; and
- Increase capital investment to improve productivity, encourage innovation, enhance product quality and lower unit cost, in order to be more competitive in international markets.

Government can best support fundamental, high risk, long-term payoff research, and can create a policy environment in which business can function effectively and competitively here and abroad. Government must:

- Root out disincentives and create research, investment and export incentives for industry;
- Promote free enterprise rules in the international marketplace; and
- Intercede where foreign competition is unfair or illegal.

In addition, government and industry must both work to create greater public awareness of the realities of an increasingly interdependent world; the economic impact of exports—in terms of gross national product, foreign investment, jobs and tax revenues—in the United States; and, particularly, the importance of high technology products.

Calls for tax incentives and increased R&D spending may seem to conflict with the need to bring budget deficits under control. There is no question that regaining, and sustaining, economic momentum will require tradeoff decisions; at the same time, the aerospace industry believes that incentives and R&D funding should be viewed as long-term *investments* in the nation's innovational and productive capacity and must weigh heavily in the decision process. Then, too, the removal of disincentives, which does not absorb revenues, is of equal importance. Eliminating disincentives is itself an incentive, contributing to a more stable policy environment, and stimulating innovation, investment and productivity.

Of fundamental importance, U.S. business and industry must be able to count on stable, continuing trade and R&D policies. A solid, *long-term* policy framework with clear objectives will allow today's industries—and those of the future—to compete aggressively and successfully in the world marketplace. If such a new national purpose can be forged, America will regain its lost competitive momentum and be assured the economic health essential to stability, strength and national security.

# A National Trade Policy: A Proposal

## Introduction

The United States is confronted by an international trade situation which approaches crisis proportions. The U.S. trade balance has been in deficit with the exception of a few years since 1971. The dollar's exchange rate in relation to the currencies of other leading trading partners has made U.S. products more expensive in foreign countries, and competing goods less expensive in the United States. Oil imports remain high—though not as high nor as costly as in the recent past—and U.S. competitiveness in world markets lags across a broad spectrum of products.

In 1983, the trade deficit is expected to deepen as other countries recover less quickly than the United States from recession. Imports will thus increase before exports gain momentum. The most significant negative development in the U.S. trade situation in 1982 was the decline in trade in manufactured goods of \$16 billion—from an \$11.8 billion surplus in 1981 to a \$4.3 billion deficit. The motor vehicle, metal working and consumer electronics sectors were particularly hard hit.

The aerospace industry, on the other hand, remained the leader in 1982 among manufacturing exporters—as it has been for 20 years. Aerospace shipped \$15.6 billion abroad and imported \$4.6 billion for a net trade balance of \$11.0 billion. The 1983 aerospace trade balance should be still higher, preliminary estimates show. The industry's considerable and continuing trade surpluses have helped offset the deepening U.S. trade deficit.

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The question is whether the aerospace industry's international market strength can continue in light of the decrease in aerospace R&D spending in the last decade or so relative to the level of the sixties. There is a strong correlation between large R&D efforts and positive export balance because advanced technology, which derives from R&D, yields competitive products and costs—as reflected in high technology products being second only to agriculture in dollar volume of U.S. exports.

Although Americans can expect exports to increase with world economic recovery, an increase sufficient to eliminate the trade deficit is going to be hard won. The blunt fact is that America's economy is leveling off in many industrial sectors at a time when the world economy is becoming both increasingly more interdependent and highly competitive. American exporters operate at a disadvantage in a number of areas which have been clearly targeted by other nations as foreign market opportunities.

Foreign governments surpass that of the United States in providing their industries such benefits as:

- Sales tax and value added tax refunds on exports;
- Territorial income tax systems which result in reduction or elimination of taxes on foreign source income, including some profits related to export sales;
- Special subsidies for export-related research and development;
- Preferential export credit and insurance;
- Offsets for currency fluctuations; and
- Government-industry cooperation through marketing programs, political leverage, and concessions only governments can make.

Through these kinds of support, foreign nations seek to expand export markets for the positive effect on their trade balance, to create jobs, and—in the case of manufactured goods, especially high technology products—to strengthen and diversify industrial capabilities.

American private sector firms must compete, then, in a marketplace increasingly characterized by government support of exporters. Immediate U.S. policy action is necessary if American exporters are not to lose further ground. A great deal is at stake. The nation must maintain its economic vigor, to which exports contribute by creating jobs for thousands of Americans and a higher standard of living. A position of strength in the world community requires, too, that the United States maintain a solid position as a trading nation.

The competitiveness of American industries is, above all, dependent upon an economic environment as free as possible of unnecessary constraints and disadvantages. It is fundamental that U.S. monetary and fiscal policy strive to correct the imbalance and volatility in exchange rates, and bring budget deficits under control in order to reduce the threat of renewed increases in interest rates and inflation. The control of budget deficits will have an immediate positive impact on price competitiveness in world markets. Such improvements are essential as well to creating an environment that will allow industry to make the long-term, growth-oriented investments required to maintain U.S. leadership in technology and productivity.

While working to establish a sound economic environment, the nation cannot fail to recognize the growing importance of exports to that economy and, therefore, the need to aggressively promote exports. Unfortunately, the United States has not been sufficiently committed to export expansion and existing policy, in many instances, has served to retard rather than stimulate exports. Sound approaches to export policy and procedures—the simplification of export licensing is one example—have been spelled out in the Export Administration Act of 1979, but the United States has failed to aggressively implement them. And while the present Administration has framed a positive, U.S.-interest-based policy on sales of military equipment abroad, there is need for an assurance of policy continuity—from Administration to Administration—in this area. Further, in the absence of bilateral agreements, the effect of unilateral export restrictions has been to encourage military sales by other countries. Changes in the international situation will inevitably necessitate new instances of sales restraint, but these must be addressed within a sound, long-term policy framework.

Future policy must include the rooting out of impediments to export growth. At the same time, the United States should repudiate “negative” approaches, avoiding reliance on protectionism—tariffs, quotas, domestic content legislation, and so forth. Such policies have at best a short term positive effect and have serious long term negative consequences by encouraging similar and potentially stronger retaliatory and punitive actions by other countries, reducing innovation and efficiency and driving up prices. In the end protectionism will weaken, not strengthen the nation.

Nor should the United States mimic other nations’ approaches to industrial trade policy. It must avoid the pitfall of substituting government judgment for that of business management’s in the allocation of industrial resources to meet the demands of the marketplace. The United States must instead develop an approach based on its strengths and values. Strengths include enormous material resources, demonstrated excellence in R&D, unparalleled capacity for technical innovation and a large, highly skilled populace. A dynamic new trade emphasis should stress these “positives,” should set clearly-defined goals, and enable the United States to meet competition head-on with aggressive, consistent domestic and international policies and action. Above all, however, established policy must be aggressively pursued by the government agencies concerned.

A trade policy can only be effective if government and industry work in concert, both sectors taking measures to reshape those relationships which serve to



retard export expansion, and to create instead an environment of mutual support. The government must take the lead in establishing policy, with input from industry. To that end, the U.S. Trade Representative, Ambassador Brock, has enunciated these goals for government:

- Regularly evaluate tax policies, regulatory practices and government programs in terms of competitive opportunities, including finding an acceptable alternative to the Domestic International Sales Corporation (DISC);
- Examine and clarify U.S. antitrust laws as they affect the U.S. international competitive position;
- Remove disincentives to U.S. exports in laws such as the Foreign Corrupt Practices Act;
- Continue to be vigilant and forceful in defending exporters against predatory trade practices;
- Vigorously pursue unfair trade practices such as subsidies, performance requirements, and trade barriers that violate international treaties and agreements;
- Strengthen export credit programs and provide, where essential, innovative financial arrangements on a case-by-case basis in markets where U.S. products are challenged by foreign subsidized financing; and
- Work to implement the agreements negotiated at the GATT Ministerial and to extend trade rules further in order to smooth the adaptation of the trade system in the future.

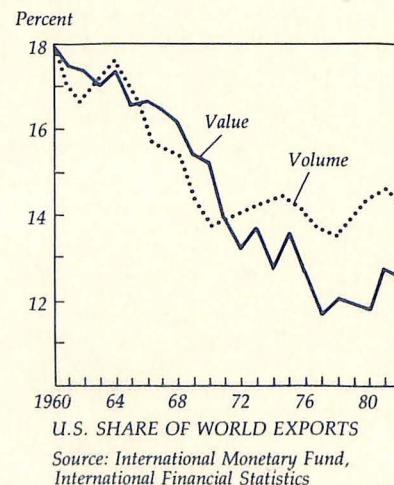
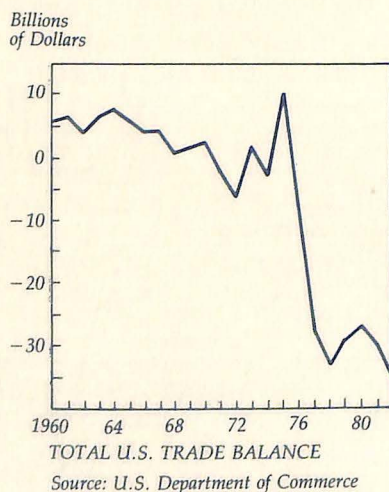
There are many areas in which certain legislative and regulatory actions would enhance exports, especially of high-technology products. A few of the more important ones are discussed in the following pages.

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### Export Tax Incentives

For decades, most developed nations, recognizing that their economic well-being is critically dependent on exports, have employed an array of export incentives for their businesses and industries. These incentives have often been tax incentives that are provided either directly by the statutory laws of the various countries or indirectly through the administration of the tax systems of those countries. The United States has during this period basically had only one export tax incen-

### As the U.S. Trade Deficit Deepens . . .



tive, the Domestic International Sales Corporation (DISC). In hearings relating to the DISC legislation in prior years, the United States Treasury Department identified many of the extensive direct and indirect tax incentives for exports provided by other major developed countries.

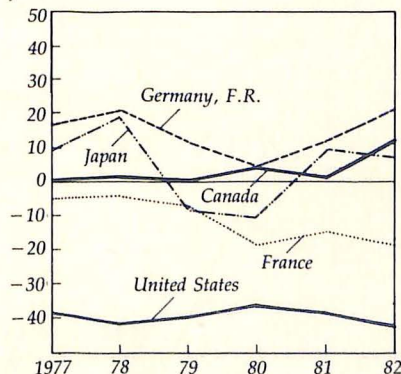
DISC has been under attack by our trading partners participating in the General Agreement on Tariffs and Trade (GATT) as illegal under that treaty, and the Reagan Administration has sent to Congress a proposal (H.R. 3810, S. 1804) for replacing the DISC provision to resolve the long-standing controversy over GATT consistency.

The aerospace industry supports the Administration's proposal in principle. On the affirmative side, the proposal eliminates some of the less desirable features of the present DISC provisions: the proposal exempts from tax the income of the export entity both when earned and when repatriated, rather than simply deferring tax; and the proposal eliminates the incremental feature of DISC, which is inefficient and discriminatory in the application of the intended tax incentive. The proposal contemplates forgiveness of the deferred tax on DISC income—a critical step.

To be balanced and truly effective, however, the Administration's proposal must be modified in three areas. First, the proposed requirements for a significant business presence abroad are complex and could result in the relocation of some U.S. jobs abroad; these requirements should be modified and clarified further to ensure that they do not unduly restrict exporters' operations and incentives, nor increase U.S. unemployment. Second, the amount of income which is exempted is inadequate; the present DISC provisions should represent the minimum commitment of the United States Government to a sound export policy, and any replacement must do better by providing a more significant incentive. Third, the proposal fails to recognize that the present DISC provisions discriminate against military sales by giving a lesser tax benefit to such sales. Military sales contribute just as importantly to our balance of trade as do commercial sales, and the DISC replacement must therefore eliminate the discriminatory treatment of military sales. With these modifications, the President's DISC replacement proposal should be an excellent incentive for exporters and yet be within U.S. international commitments under the GATT.

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Value in Billions of Dollars



BALANCE OF MERCHANDISE TRADE

Source: U.S. Department of Commerce, International Trade Administration

Since 1970, the U.S. trade balance has been generally in deficit, and the deficit is expected to increase. Although, in absolute terms, it remains the world's largest single trader, the United States has had difficulty holding onto its volume share of world exports. It has done so by reducing the value of exports (a reduction affected by the decline in the value of the dollar). Since 1977, the United States has done far more poorly than most other major industrial nations in an important trade component: merchandise trade.

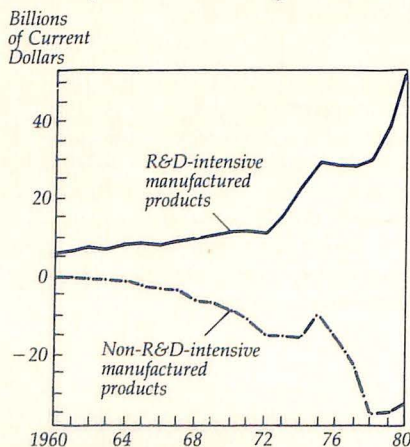
In addition to enacting a replacement for DISC, United States export tax policy should be improved in several less obvious but important ways. A bill (S. 654) has been introduced in this session of Congress to make permanent the temporary prohibition against allocating and apportioning research and development expenses to foreign source income as required by Treasury Regulations § 1.861-8. This bill should be adopted, and the Congress should make it clear that the prohibition also extends to the allocation and apportionment of such expenses to export income derived through a DISC or its replacement.

At the present time, the source of income from the sale of products can depend upon where the sale technically takes place. Where products are manufactured in the United States and sold abroad the income on the sale is considered effectively to arise 50 percent from within and 50 percent from without the United States. It is the industry's position that this rule should apply regardless of where the sale takes place. Thus, the rules of Internal Revenue Code sections 861-863 for determining the source of various items of income should be changed to provide that all income from sales of domestically-manufactured goods with an ultimate destination abroad (even if the first sale is to a U.S. export trading corporation or other governmental or unrelated private entity) should be treated as arising 50 percent from foreign sources and 50 percent from domestic sources. On such sales, the passage of title and risk of loss would not be relevant. This will relieve U.S. companies of the necessity of passing title in foreign countries, which sometimes use such a step as an occasion to impose a tax.

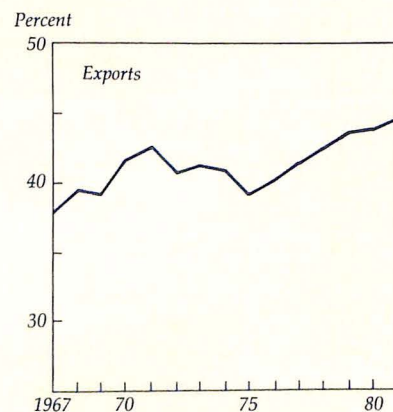
A small but important change that should be made in our export tax policy would be to defer the current taxation of advance payments received with respect to contracts to perform services abroad and, in certain cases, the manufacture of unique products for sale abroad. Although taxpayers on the completed contract method of accounting who manufacture and sell goods abroad are entitled to full deferred tax treatment of advance payments received, the regular, existing tax rules are too restrictive in the case of these other foreign transactions. In less developed countries, the legal remedies available to a contractor are restricted and may even be abrogated with a change of government, but receiving a large advance payment protects the contractor against this risk. Taxing such advance payments as income when received, prior to the recognition of related expenses

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*... The U.S. Cannot Afford to Lose Ground in Areas of Trade Strength—Such As High Technology*



BALANCE IN R&D AND NON-R&D-INTENSIVE EXPORTS  
Source: National Science Foundation, Science Indicators—1980



PROPORTION OF U.S. TRADE IN HIGH TECH PRODUCTS  
Source: U.S. Department of Commerce

which would reduce that income, operates as a disincentive to these transactions.

Finally, there is currently before the Congress a bill (H.R. 3110) that would deny the investment credit and ACRS (Accelerated Cost Recovery System) benefits to U.S. taxpayers who lease equipment to foreign governments and entities. Leasing abroad is an important adjunct to selling abroad, and the denial of tax benefits in leasing situations is certain to have an adverse impact on our balance of payments. H.R. 3110 should be amended to incorporate an exemption for leasing to foreign entities.

In addition to the above measures, the United States Government should undertake a current, formal study of the export incentives provided by other developed nations, to assure that with the replacement DISC provisions, the export incentives of the United States are comparable to those of other nations. The study should consider extending replacement DISC benefits to cover the provision of services abroad by U.S. companies. Specifically, the Departments of the Treasury and Commerce, with help from the United States Trade Representative, should report to the President within a reasonable time period, such as two years, with recommendations on an improved trade incentives policy.

### Export Finance

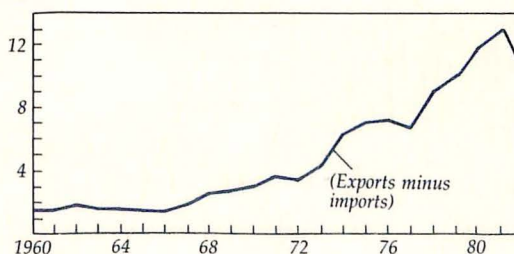
Among the many factors contributing to the U.S. balance of trade and payments problem, and one of primary concern to American industry, is the provision by foreign governments—through national export credit agencies—of an array of export financing incentives and subsidies. These include government-supported loans below market level, insurance programs which protect against abnormal cost escalations, insurance against exchange rate fluctuations, and a variety of other benefits.

In a world where comparable products, services and technology are widely available, financing terms can be the critical factor in securing and maintaining an export market. The only institution available to U.S. exporters as a means of competing with foreign government-supported financing is the Export-Import Bank (Eximbank), a self-sustaining entity which does not utilize taxpayer funds.

A major advantage of U. S. exports—and Eximbank financing—is the fact that volume production drives down unit costs to American customers; in other words,

### *Aerospace, For Example, Contributes a Substantial Positive Trade Balance Each Year*

Billions  
of Current  
Dollars



AEROSPACE BALANCE OF TRADE

Source: U.S. Department of Commerce

Among merchandise trade components, U.S. high technology products have done well in world markets—the U.S. overall balance in high technology products increasing from 1960 to 1980. The share of U.S. trade in high technology products continues to grow. Aerospace, a highly R&D-intensive industry, has been the leading manufacturing exporter for a number of years.

the more the United States develops technology and the more exports of products resulting from that technology are increased, the less an American purchaser pays for an American-built product. Future programs not based on foreign sales potential could be priced out of both U.S. and foreign markets. Thus, Eximbank financing is vital to export sales, to correction of the U.S. trade deficit and to the U.S. economy in general.

Until the expansion of Eximbank's authority by the 95th Congress, U.S. exporters were at a marked competitive disadvantage in export financing. The new legislation, coupled with the Bank's commitment to be competitive with its foreign counterparts, should have enhanced the U.S. export position. Unfortunately, this has not been true in the recent past.

Direct loan and guarantee levels have not always been sufficiently high and the government has been reluctant to utilize fully the resources of the Eximbank. Until recently, too, when a medium-term financing program was established, Eximbank financing has not been as available for smaller fixed wing aircraft and helicopters as for commercial transports. While the Administration may now be re-assessing previous decisions to restrict the Bank's activities, it is not clear that sufficient support will be forthcoming. The Administration's direct credit funding for 1984, for example, is inadequate to the projected need. Further, policies adopted by the Bank have erected a formidable set of stumbling blocks to obtaining financing for export sales: the up-front fee of two percent on all loans—effectively adding a half percent to the interest cost; and, in the case of aircraft loans, a series of stipulations severely restricting loans unless competition is both clearly and actively present. Moreover, financing for follow-on aircraft purchases has been discouraged.

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Clearly, export financing worldwide must change—with the ultimate goal of eliminating government subsidies and achieving financing at market rate and term. Yet, the Eximbank must be maintained or other nations will have no stimulus to move in that direction. Direct loan and loan guarantee ceilings sufficiently high to meet any and all financing offers seem justified in view of the anticipated increased demand for export loans as world recession ends, and the need to send strong signals to foreign competitors of the U.S. government's intention to combat the practice of officially supported export financing. They will also discourage any potential government-subsidized incursions into the U.S. domestic market.

Eximbank must also be strengthened in key policy areas. Above all, Eximbank's first priority should be placed on being competitive; its second, on being self-sustaining. Eximbank should address new ways to assist U.S. aircraft exporters in adapting to changing market conditions, including financing or guarantees of used equipment and leasing arrangements. Finally, the Bank must be strengthened in its ability to provide against unfair financing practices employed by foreign competitors in the U.S. domestic market.

The aerospace industry does not advocate that the United States emulate the kind of government/industry cooperation and support which have come to characterize its trading competitors' efforts. Yet foreign government consortia, targeted industries and the like are here to stay. Only an institutionally strong and adequately funded Eximbank will provide the United States' foreign competitors with a true incentive to adopt non-subsidized market rate and market term financing, thus neutralizing the effect of government supported financing in product selection.

### **Multilateral Trade Negotiations**

Even though the United States is facing tough competition from abroad in high-technology markets, it can maintain its current position in a fair and open

trade environment. If, however, foreign governments limit U.S. industry's access to markets through tariff and non-tariff barriers, export credits or other inducements, further U.S. market share declines can be expected.

In the aerospace industry, the great majority of countries producing civil aircraft—the United States, the European Economic Community, Japan, Canada and Sweden—are functioning within an "Agreement on Trade in Civil Aircraft," part of the package of Agreements and Codes accepted in April 1979 as a result of the Multilateral Trade Negotiations (MTN). This Agreement was approved by the Congress (Trade Agreements Act of 1979) and took effect on January 1, 1980. The Agreement sets forth policy objectives encouraging the continued worldwide development of the aeronautical industry with fair and equal opportunities, on a commercially competitive basis, for all manufacturers and operators, free from the adverse trade effects of governmental support of civil aircraft development, production and marketing. In addition, the Agreement eliminates tariffs on all civil aircraft and engines and on most parts. Duties on flight simulators, foreign civil repairs and parts for civil aircraft classified for customs purposes under numerous specific tariff headings have also been eliminated.

The Aircraft Agreement incorporates many important nontariff provisions which indicate that purchase decisions should be based on commercial and technical factors. Specifically, it states that governments should not apply unreasonable pressure on airlines to purchase from particular sources; require offset production; nor attach inducements, such as landing rights or economic sanctions, to sales of civil aircraft. The Aircraft Agreement does not address the matter of export financing. Instead, the four major free world aircraft producing nations—France, Germany, the United Kingdom and the United States—function under the Commonline Agreement. The Commonline is an informal understanding, confirmed by letters among governments, that they will adhere to certain minimum rates and terms. If market rate and market term cannot be achieved through the Commonline, it may be necessary to raise the issue of export financing to that of a multilateral treaty, placing it in the hands of the highest level of government officials. The Agreement might become part of the subsidy clause of the Agreement on Trade in Civil Aircraft, or be addressed under the financing clause of that treaty.

The industry strongly supports the Civil Aircraft Agreement on the basis that everything possible should be done to reduce or eliminate market distorting practices by governments in civil aircraft trade. At the same time, the government should act to strengthen the Aircraft Agreement and other General Agreement on Tariffs and Trade (GATT) codes on which enforcement of the Aircraft Agreement depends. Without discipline in the market, severe trade distortions can arise which will adversely affect the interests of the aerospace industry. Market discipline should be sought through multilateral trade agreements.

Specific changes to the Agreement on Trade in Civil Aircraft should include: (1) the expansion of duty free treatment of parts of aircraft; (2) wording listing specific actions from which signatory governments agree to refrain while major airline procurement decisions are under consideration (e.g., directed procurements, demands for mandatory subcontracts, and political inducements such as offers of landing rights); (3) agreement on the elimination of all subsidies in official government direct loan export financing. In addition, the industry recommends that the U.S. government negotiate an agreement among the countries to reduce or preferably eliminate differing technical requirements and interpretation of requirements on such items as aircraft certification, quality control approvals, and application of standards.

Until such changes to the Aircraft Agreement can be achieved, the U.S. gov-

ernment should act in a timely fashion and at a high political level to counteract foreign government marketing practices that distort trade. The government should make clear that the U.S. will match to neutralize those practices. Such action may be necessary to counter unfair practices in the near term, but may also be the only means of leverage to achieve improvements in the government-supported Agreement on Trade in Civil Aircraft and the Commonline financing agreement.

### Technology Transfer

Technology transfer is an essential and desirable concomitant of international trade which plays a critical and growing role in the economic vitality of the U.S. and other Free World nations. Technology is transferred in many ways . . .

patent literature, university training, government and private publications, conferences, trade shows, career development programs, reverse engineering, product exports, licensing, direct foreign investment, joint ventures, and both government and industry programs for co-production and co-development.

. . . much of this transfer is desirable in the interests of stimulating innovation and technical progress.

In recent months, national security concerns have heightened the dialogue on the sensitive issue of technology transfer. Obviously, the possible transfer of highly critical technology to Eastern bloc nations necessitates the imposition of certain technology controls. Nonetheless, this need must be balanced by the recognition that advanced technology is not the sole province of the United States. While the total level of R&D effort and the supply of technological know-how of the United States exceeds that of its principal competitors, the rate of growth in many key areas of industrial innovation by some competitors, particularly Japan, has surpassed that of the United States over the past decade. The fact that other nations have been able to come abreast or take the lead in several important areas gives rise to many policy implications in this area. The United States must recognize that:

- Efficient access to foreign technology is now more important than ever to the U.S. economy and the defense establishment;
- The ability of the United States to control the international flow of leading-edge, militarily critical (dual use) technology has been reduced; consequently,
  - The importance of multilateral agreements to control the export of militarily critical technology to the East Bloc has increased, and
  - Unilateral controls on free world trade by the United States not only are generally ineffective in accomplishing their objective but can result in loss of competitiveness of U.S. industry and place the U.S. military in a position of increased dependency on foreign nations for leading-edge technologies;
- The efficient transfer of technology is critical to the success of technology-oriented firms in international trade. Novel international business relationships are being developed for intra-industry cooperation which improve business prospects for their participants while providing jobs, income and access to the rapidly growing technology of other nations to the U.S. domestic economy. These agreements work without violating proprietary information of each participant or security controls on U.S. exports.

Although it recognizes the paramount concern of national security, the aerospace industry is concerned that trends in the development of controls on technology exports may undermine economic and technology leadership. The approach exemplified by the Department of Defense Draft Directive 2040.xx on

international technology transfer broadens the scope of technology control by adding "sensitive" and "significant" technologies in addition to "critical" technologies. Such measures could severely impact aerospace exports, one of the few areas of U.S. international trade that consistently shows a large surplus, and it could limit U.S. companies' opportunities to compete in multinational ventures. A more balanced approach from the standpoint of both national security and national economic interests is to limit the scope of controls on technology transfer to a manageable, truly critical set of technologies to which access by U.S. adversaries can actually be denied.

The Export Administration Act of 1979 struck a sound balance in its objectives between the use of export controls for national security, foreign policy or short supply considerations and the need to promote exports. The Act's interpretation and implementation, however, has often had a negative impact on trade without substantial gain for national security and foreign policy. Among the problems encountered, the Militarily Critical Technologies List is at the heart of matters. Overly long and detailed, this list should be kept to a minimum, determined to a great extent by the foreign availability of technology and goods. Further, application of export restraints must be multilateral, since unilateral controls seldom achieve the desired effect and would leave the market open to U.S. competitors. This is best accomplished through a strengthening of COCOM—the coordinating committee of all NATO countries, except Iceland and Spain, plus Japan—which has developed policies and practices for the control of goods having a strategic military value in Communist countries. The U.S. Government should take steps toward strengthening COCOM in such a way as to improve the consistency and uniformity of interpretation of the rules by all members, and to strengthen enforcement mechanisms.

The United States should acknowledge the concept of contract sanctity, prohibiting the application of unilateral foreign policy controls to existing contracts for the term of the contract. U.S. companies will not be accepted as reliable sources of supply if they are required by the Government to default on their contractual obligations, or if there is a possibility of default. West/west trade with COCOM countries should be eased as well by new and simplified license procedures. Consideration must be given to a more general license category as a possible alternate to the individual validated license for many types of technology transfer among all free world countries. Such a license could be assigned to firms that demonstrate ability to control militarily critical technology, and it could cover only long-term, well-defined business relationships such as with affiliates, co-venture partners, licensees, and foreign national employees. It could authorize multiple exports and re-exports over an extended period where adequate transaction records exist for audit. By making use of the commercial safeguards for proprietary data and know-how which are applied by companies that operate internationally, such a license could reduce the nonessential administrative load on export control agencies and free them for higher priority export cases.

The ability to control exports is an extremely powerful weapon which must be used with extreme caution. The best balance of security and economic interests can be achieved only through full knowledge of the impacts of controls on national security, the economy and foreign relations. A variety of public and private sources must have input to this essential process.

### **Summary and Recommendations**

Current world circumstances underscore the fact that the economic, political and military futures of the United States are inextricably linked. Unfortunately, the United States' economic difficulties are compounded by lack of consistent, effec-



tive and aggressive export expansion policies. The situation can be corrected if government and industry work together to develop and vigorously implement such a policy. A national export policy must:

- Establish exports as a high national priority;
- Endorse free trade and repudiate protectionism;
- Reflect a view of trade as a national investment in higher employment levels, increased tax revenues, faster GNP growth and as a means of arresting trade deficits and inflation;
- Minimize regulatory procedures and other disincentives that inhibit export expansion;
- Expand programs to offset and work toward elimination of tax and other advantages of foreign competitors;
- Provide tax and other incentives to encourage industry investments which improve productivity, encourage innovation, improve quality and lower unit cost in order to be more competitive in international markets;
- Enforce the Multilateral Trade Negotiation agreements to insure American companies are not unfairly penalized by measures employed by other nations to increase exports;
- Work for the further extension of trade rules in order to achieve a fair, competitive world trade environment;
- Strive to reduce the excessive credit competition that characterizes international trade and take firm retaliatory action against countries that provide exporters with preferential credit terms;
- Include well-articulated plans and programs to use weapons sales abroad in furtherance of U.S. foreign policy;
- Provide an assurance of policy continuity on sales of U.S. military equipment abroad as well as sales of military equipment produced through multinational programs. New instances of sales restraint, necessitated by changes in the international situation, must be addressed within a sound, long-term policy framework;
- Promote broader acceptance—by the Federal Government, industry, organized labor and the public—of the beneficial relationship between increased exports and a healthy economy.

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Specifically, the aerospace industry recommends inclusion in a national trade policy of the following actions that would significantly enhance the competitiveness of the U.S. aerospace industry in world markets:

- With respect to Tax Incentives
  - Replace DISC with an export incentive within U.S. international commitments under GATT;
  - Make permanent the temporary prohibition against allocating and apportioning research and development expenses to foreign source income, extending the prohibition to the allocation and apportionment of such expenses to export income derived through a DISC or its replacement;
  - Change IRS rules to provide that all income from sales of domestically-manufactured goods with an ultimate destination abroad be treated as arising 50 percent from foreign sources and 50 percent from domestic sources;
  - Defer the current taxation of advance payments received with respect to contracts to perform services abroad;
  - Continue to permit use of the investment credit and Accelerated Cost Recovery System benefits by U.S. taxpayers who lease equipment to foreign entities;

- Undertake a formal, government study of the export incentives provided by other developed nations to assure that with the replacement DISC provisions, the export incentives of the United States are comparable to those of other nations. The study should consider extending replacement DISC benefits to cover the provision of services abroad by U.S. companies. An outcome of the study should be recommendations on an improved trade incentives policy.
- With respect to Export Financing
  - Expand the concept of the Eximbank to include the role of active promoter of U.S. exporting;
  - Work to neutralize financing as an element in foreign competition; i.e., push for market rate and market term and obtain similar rates and terms for small fixed wing aircraft and helicopters as now exist for transport aircraft.
  - Make Eximbank more effective as an export credit agency by substantially increasing its funding level and loan guarantee authority;
  - Give Eximbank authority to meet any and all financing offers in accordance with its mandate to be competitive;
  - Support export sales more actively through Eximbank by the elimination of restrictive loan policies;
  - Strengthen Eximbank's ability to provide for the financing of sales of domestic aircraft manufacturers and subsystem suppliers to U.S. carriers in competition against unfair financing practices of foreign producers;
  - Direct Eximbank to investigate immediately the potential to support foreign sales of used equipment as well as the need for funding or guarantees for leasing.
- With respect to Multilateral Trade Negotiations
  - Support and enforce the Trade Agreements Act of 1979 and the Civil Aircraft Agreement vigorously, particularly with respect to subsidies;
  - Act to strengthen the Aircraft Agreement and other General Agreement on Tariffs and Trade codes on which enforcement of the Aircraft Agreement depends, seeking market discipline and enforcement through multilateral trade agreements;
  - Make clear that the U.S. government will match to neutralize trade distorting practices until improvements in the Civil Aircraft Agreement and the Commonline Agreement on aircraft financing can be achieved;
  - Raise the issue of export financing to that of a formal multilateral agreement through GATT or the OECD if the Commonline Agreement on export financing does not achieve market rate and term.
- With respect to Technology Transfer
  - Initiate steps toward strengthening COCOM to improve the consistency and uniformity of interpretation of the rules by all members;
  - In revising the Export Administration Act of 1979:
    - Ensure that export control decisions consider foreign availability, and are multilateral within COCOM;
    - Respect contract sanctity in foreign policy controls;
    - Limit the scope of controls on technology transfer to a manageable critical set of technologies to which access by adversaries actually can be denied;
    - Develop a license category for multiple exports of technology as an alternative to the individual validated license for exports within those free world countries that agree to reexport controls on militarily critical technologies;
  - Expedite decisionmaking on license applications.

# A National Industrial R&D Policy: A Proposal

## Introduction

For most of this century, the United States dominated world trade. There were many contributing factors but one cannot be overstated: the United States was able to offer better products at lower prices because it enjoyed broad technological superiority.

That picture has changed dramatically over the past quarter century. In Europe, Japan and elsewhere, governments and their manufacturers have invested heavily, over a period of years, in upgrading their technological capabilities. By and large, their efforts have borne fruit. Generally speaking, the United States is still the free world's technology leader, but in some industries it has ceded top ranking; even among high technology industries, where the U.S. trade performance has been most impressive, the technology gap has narrowed to the point where it is sometimes difficult to measure.

In addition to improved technological posture, foreign manufacturers have something else going for them in international competition: they get an extra measure of competitive strength from a variety of supportive measures provided by their governments—development subsidies, direct promotional aid, tax incentives and financial assistance in marketing, for example—that undeniably improve the salability of their products.

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Thus, the United States faces a two-pronged challenge from abroad. The technological challenge seems more likely to intensify than abate; having tasted success in some areas of export trade, foreign competitors are seeking to broaden their trade vistas by improving their technical competence in new areas. As for the non-technical aspects of the challenge, it is likely that foreign governments will continue to provide some kind of support to their industries despite American efforts to negotiate a more equitable trade environment; it is not realistic to expect that we can negotiate out of existence the advantages our foreign competitors enjoy.

Clearly, it is time for a strong American response, a two-pronged response to a two-pronged challenge. First, the United States must develop countermeasures to neutralize, to the degree possible, the competitive advantages accruing to foreign manufacturers from the support of their governments. However, given the fundamental differences between the U.S. and foreign economic and political systems, we cannot expect that the U.S. government can or will provide its export industries the degree of support that foreign competitors get.

Therefore, the best response to the challenge, the best opportunity for revitalization of the U.S. international trade performance, lies in a traditional American strength: technology. We must effect a bold, new technological thrust to reestablish U.S. product superiority in the world marketplace; we must surmount the competitive disadvantages by bringing to the marketplace products of such clear-cut superiority that their technical excellence outweighs whatever non-technical marketing attractions the opposition may offer, and we must support the technology with a new, positive trade policy.

Those goals are capable of accomplishment. The United States has not lost its technological *capability*, only its momentum. A first requisite to regaining lost momentum is recognition—by the Administration, the Congress and the American

people—that American preeminence in science and technology is of paramount importance to the U.S. economy, the nation's security and its standard of living. There is a parallel need for a comprehensive government policy concerning the conduct of industrial research and development; a policy that accords a higher national priority to R&D; a policy that encourages more effective cooperation among government, industry and the academic community; a policy that stimulates industrial R&D aimed at creation of superior products for the marketplace.

From the standpoint of near-term national competitiveness, the policy should be broad enough to include R&D that might be termed "implementing technology," the effort embracing such fields as applied research, exploratory development, advanced development and manufacturing technology—in short, the bridge between basic research and the emergence of a product.

In aerospace, where U.S. industry still maintains a technological edge, there is opportunity for revitalizing American competitiveness through emphasis on technologies with the greatest payoff potential. An Aerospace Industries Association study analyzes a broad array of technologies and identifies those that offer very large improvements in the cost and performance of aerospace products that will be in service a decade hence.

Entitled *Aerospace Technology for the 1990s*, the study report details the benefits that might be expected from such a focused technology thrust. For example, concentration on 19 technologies involved in development of a large subsonic transport for the 1990s could provide a 50 percent increase in payload/range and a 30 percent reduction in life cycle cost—about \$4.5 million savings per airplane per year. Similar R&D focused on a short haul transport aircraft could effect a 43 percent reduction in direct operating costs, saving \$3 million per airplane per year. And in the case of a typical helicopter, there is opportunity for cutting operating costs in half while effecting speed and range increases of 30 percent. For an advanced tactical fighter of the '90s, focused R&D promises a twentyfold improvement in mission effectiveness coupled with a 25 percent reduction in life cycle cost—\$14 billion for 1,000 aircraft over 20 years.

Gains of this order mean immense benefits to U.S. competitiveness and national security, but developing the essential technology will be costly. The industrial R&D policy should recognize that regaining lost momentum will require substantially increased investment by both government and industry. Insofar as government-funded R&D is concerned, the Fiscal Year 1984 budget calls for moderate to generous increases in various categories of research. That is a step in the right direction, but it must be remembered that funding for R&D declined as a percent of the gross national product for more than a decade before achieving a moderate upswing. In the 1970s, Federal R&D expenditures dropped well below the levels of the mid-1960s in constant dollar terms and, although on the rise, have not again reached the peak levels of the sixties. In order to redress long-term neglect, the policy should advocate really significant increases in government support of R&D as a long-term proposition.

Additionally, the policy should advocate incentives that would encourage industry to make the large investments demanded by the focused R&D thrust. Certain legislative and regulatory actions would provide the essential incentives and considerably enhance the industrial R&D process. They are detailed on the following pages.

### **R&D Tax Incentives**

Increased U.S. industry investment in R&D will help to strengthen the technological position of the U.S. in international competition. This is particularly true among high technology industries, such as aerospace, where R&D expenditures

must be increased and sustained at high levels if the United States is to cope successfully with the competitive challenge it faces.

In the Economic Recovery Tax Act of 1981, the Administration and the Congress recognized the need for additional research by providing a 25 percent credit for certain research costs. This credit, however, has proved to be inadequate in the aerospace industry. First of all, the credit operates as an incentive only for *increased* research expenditures, above a company's historic level of outlay; it provides no incentive for companies to maintain continued, sustained research programs. Economics is a critical factor in undertaking every research program, whether the program represents a higher level of effort or continuation of an existing effort. The arbitrary denial of the credit based upon continuing research activity will mean that many meritorious projects will not be undertaken, and what would otherwise lead to an increase in total U.S. research activity will not occur.

Most research programs in the aerospace industry are of a long-term nature, spanning three years or longer. Allowing a credit only for "incremental" costs discriminates against long-term research programs. Once a new long-term program is undertaken, assuming other programs remain constant, the credit will apply only to the beginning costs. The full costs of new, short-term programs will qualify.

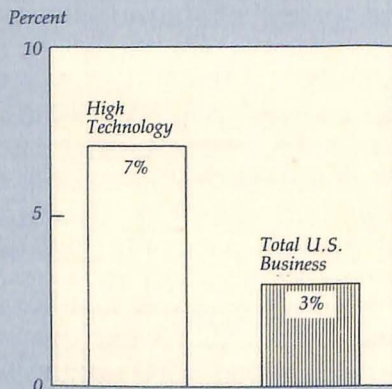
The incremental feature of the credit works to the detriment of the typical aerospace company whose expenditures, though high, may fall below an earlier level due to cyclical peaks and valleys in R&D outlays. The credit can have a distorting effect by providing an incentive for more work to be performed at the beginning stages of a new program where normally such work would be performed at a later stage. There may be an incentive to defer a project until a following year. There is an element of unfairness here in that companies which have maintained their research activities over the years are penalized vis-a-vis those companies which have not.

The law should be modified to provide a meaningful credit for continued, sustained research activity. The country needs a strong incentive at this time for increases in research activity, but it also needs to be assured that research undertaken is maintained at a continued, sustained level.

Another problem with the existing credit is that some expenditures necessary

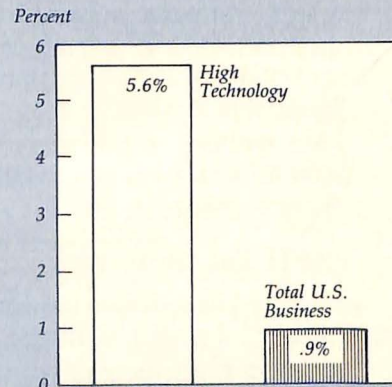
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### High Technology Is Important to the U.S. Economy



GROWTH IN REAL OUTPUT<sup>1</sup>

Source: U.S. Department of Commerce  
<sup>1</sup>Period 1970-1980



PRODUCTIVITY GROWTH<sup>1</sup>

Source: U.S. Department of Commerce  
<sup>1</sup>Average annual growth, 1970-1980

for a successful research program are excluded, for example, certain IR&D and computer software development. *All* research and experimentation expenditures should qualify for the credit or else unfair application of incentives among programs will result.

The R&D credit is scheduled to terminate at the end of 1985. Such a "sunset" provision, even with periodic extensions, undermines its effectiveness. From a business planning standpoint, there must be certainty that the credit will be available when the research is performed.

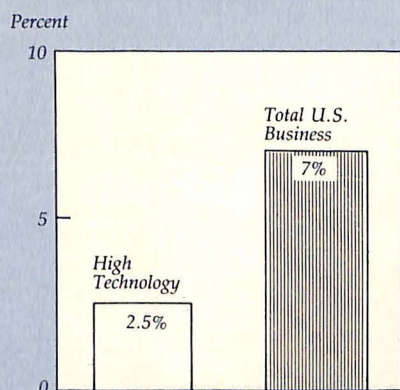
For R&D to have real value, it must be translated into new and improved products. Frequently, the person performing the research is not the same person who undertakes its commercial application. Under present law, purchased technology is treated as an asset and is subject to a relatively long period of amortization. To encourage accelerated translation of R&D into successful products by companies best able to do so, the cost of acquired research, including unpatented know-how, should be subject to amortization over 60 months.

In the short run, effective incentives will involve an obvious cost to the Treasury, as well as to the companies undertaking the research. In the long run, however, the incentives will pay off in increased tax revenues from successful products as the competitive position of the United States improves.

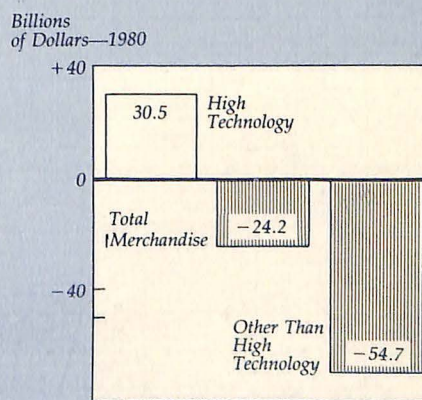
### Independent Research and Development

In any policy intended to stimulate American technological advancement, one of the most important areas for consideration is Independent Research and Development (IR&D), a government term for that part of a company's total R&D program that is company-initiated, company-directed and company-funded to improve the company's competitive posture. The cost of IR&D is allocated to overhead and is generally recovered in the price of all products of the company, both government and commercial.

Much of industry's IR&D offers exceptional benefits to the Department of Defense. It has been pointed out in Congressional testimony that almost none of the major new technologies of this century was conceived as a result of a military requirement; the conception and initial exploration of most major defense tech-



Source: U.S. Department of Commerce  
<sup>1</sup>Average annual increase, 1970-1980



Source: U.S. Department of Commerce

nology advances were carried out by scientists and engineers in industry and the academic community, working in an environment that allowed and stimulated novel thought, enabling them to make independent decisions regarding new R&D thrusts. Through IR&D, a pool of industrial talent applies its imagination and expertise to future defense needs; additionally, DoD benefits from stronger competition among defense contractors.

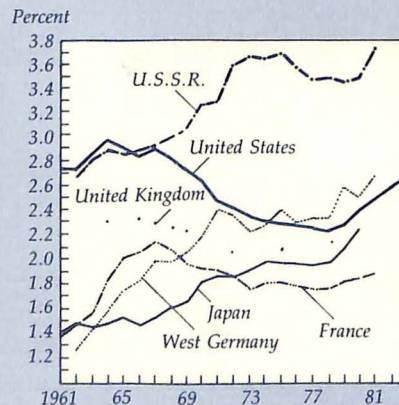
One might think that IR&D, clearly of great benefit to the nation, would be universally lauded. Unfortunately, the process is little understood, and this lack of understanding has resulted in persistent criticism and the lack of strong support necessary to maintain healthy IR&D programs. DoD has reacted to criticism by levying heavy administrative requirements and stringent negotiating postures.

Under existing government procedures, the process works like this: larger contractors are required to negotiate "advance agreements" in which IR&D costs allowable under defense contracts are limited; historically an average of only 70 to 80 percent of costs have turned out to be allowable for inclusion in overhead under DoD contracts. The industry average for recovery under DoD contracts is about 40 percent of total IR&D costs. DoD's leverage comes from the fact that if a company does not accept the ceiling offered by DoD, then,—by law and regulation—the amount which would otherwise have been established as a ceiling is reduced by an additional 25 percent, a penalty on the contractor for failing to agree with the government's proposed ceiling. Such forced cost sharing and heavy administrative involvement can only work to reduce potential benefits in both national defense and U.S. competitiveness. Because of its value to national interests, IR&D should be stimulated rather than restricted.

The national industrial R&D policy should strongly affirm that IR&D is an absolutely essential foundation for expanding both a company's and the nation's technology base, and that its outlays are necessary costs of doing business; IR&D costs should be fully allocable as an element of recognized overhead costs in the pricing of government contracts. A national R&D policy should favor continuance of IR&D with special effort to retain the "independent" factor; it should eliminate unnecessary administrative burdens and paper work that give rise to wasteful costs and direct funds from technical effort. In aerospace industry's view, forced

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*Yet U.S. Support for R&D Has Lagged . . .*



AS PERCENT OF GROSS NATIONAL PRODUCT  
 Source: National Science Foundation, Science Indicators—1980

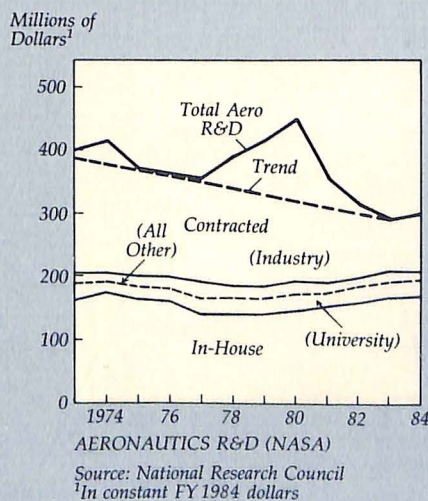
cost-sharing should be eliminated—preferably now and certainly within the reasonably near-term—and contractors should recover 100 percent of their IR&D expenses allocable to DoD contracts. In short, the aerospace industry supports the summary recommendation of the Grace Commission, which states: “Independent Research and Development costs should be recoverable by defense contractors in the same manner as other bona fide overhead expenses.”

### Collaboration

A major reason for the improved competitiveness of foreign producers is the consortium, an amalgam of manufacturers banded together in a common development, production and marketing effort. Such arrangements are particularly important in high risk, high cost, high technology developments—commercial aircraft and engines, for example. The consortium approach permits companies—or countries—to share the risk, to pool their capital, technology and skilled personnel, and to broaden the market for the end product.

The laws under which foreign competitors operate do not restrict consortium programs. Japanese antitrust law did not prohibit firms from conducting collaborative research and development in targeted areas such as computers, microelectronics, electronic instruments, lasers, optical communication, robots, and aerospace. French antitrust law did not bar joint research and development projects in such areas as aerospace, telecommunications, microelectronics, energy, and conservation equipment. Similarly, West German firms have not been prevented from conducting joint research and development.

In recent years, due to changes in the world marketplace and dramatically rising development costs, U.S. aerospace manufacturers have increasingly entered into cooperative relationships with foreign companies in order to gain market share and reduce financial risk. Some types of developments could benefit from collaboration among two or more U.S. manufacturers, possibly with some foreign participation as well. This would provide the same basic advantages as a U.S. foreign partnership but would offer some bonuses: more U.S. jobs; companies looking for collaborative arrangements would have a wider and possibly more beneficial selection of partners; American companies conducting duplicative research,



The U.S. ratio of R&D to gross national product peaked in 1964 and generally declined throughout the seventies—at the same time that R&D expenditures grew in other leading industrial countries and the USSR. While R&D spending has increased, it has not reached the levels of the sixties. The general downward trend in R&D is illustrated by Federal spending on civil aeronautics R&D through the last decade. The R&D spending lag of the seventies must be redressed if the United States is to remain competitive.



draining limited capital and personnel resources, would be reduced.

However, manufacturers claim they are discouraged by antitrust laws from forming an American consortium to develop a product. American firms have consistently expressed the view that U.S. antitrust laws inhibit joint research and development. Such projects call for heavy investment; the risk of treble damages and criminal sanctions under existing antitrust law adds to the deterrent. These barriers must be removed.

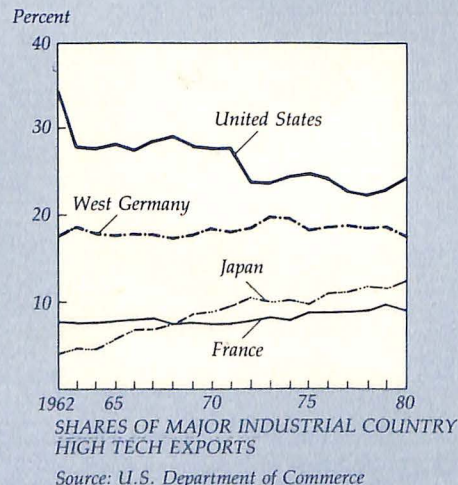
The U.S. perception of high risk in joint research and development efforts has persisted despite publication by the Department of Justice of the *Antitrust Guide Concerning Research Joint Ventures*, which attempts to clarify how the antitrust laws apply to a given set of facts. Guidelines by their very nature allow room for flexibility of enforcement policies, which vary from one administration to the next. There is a limit to how much any given statute can be clarified by guidelines or through the review procedure to get desired results in the antitrust area, given the role of the courts and the general language of the Sherman and Clayton Acts.

Similarly, the Business Review Procedure of the Department of Justice also has not dispelled industry's fear in this area. The Business Review regulations provide that upon a request setting forth proposed business conduct, DoJ may issue a letter stating its present enforcement intention but this does not shield the venture from future DoJ challenge and it is not binding on the courts in private suits. Moreover, there is no assurance that the enforcement policy stated therein will not change from one administration to the other. This is particularly significant to the aerospace industry; the end product, from drawing board through contract negotiations to complete manufacture, can—and often does—cover the span of several administrations.

Recognition by the government of the restraints on U.S. companies is seen in a recent Administration proposal to be considered as a part of an international trade bill. In essence this proposal would clarify that joint R&D may not be condemned as *per se* illegal under the antitrust laws and treble damage liability would be eliminated except for "egregious" offenses. For joint R&D ventures that are fully disclosed to the government, the proposal would provide immunity from all private antitrust suits and from government antitrust damage suits. Additionally,

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*... While High Tech Exports Are Strongly Challenged and High Tech Imports Increase*



the proposal would require courts to consider the procompetitive benefits of a licensing arrangement before finding that it violates the antitrust laws. Such an amendment would inform the courts that intellectual property licensing arrangements generally enhance, rather than impede, innovation and productivity and that the antitrust laws must be sensitive to this fact.

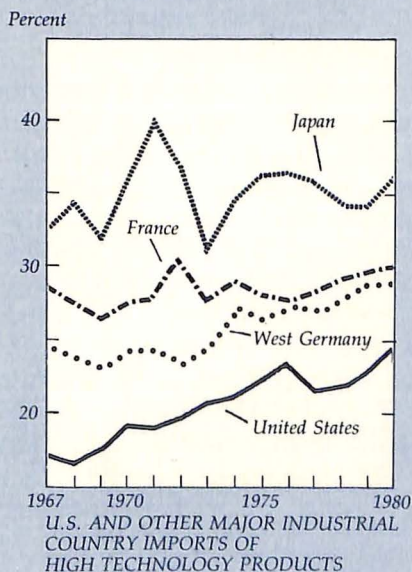
The Administration's approach would also change the patent and copyright doctrines of misuse for much the same reason. Currently, some courts employ the misuse doctrine to deprive an intellectual property owner of his exclusive rights on the basis of vague notions of what seemed "unfairly" anticompetitive, without engaging in the careful economic analysis that the antitrust laws should employ. The Administration's proposal would prevent this possibility.

Finally, the proposal would improve the protection afforded to process patents by plugging a loophole in the current law that allows unauthorized importation of products made outside the United States by employment of the patented process, thus providing a means to circumvent the exclusivity that the present laws otherwise provide to a process patent holder. This loophole reduces the returns to owners of process patents and thereby diminishes the incentive to invest in efficiency-enhancing process innovations.

Aerospace Industries Association supports the Administration's position and those legislative proposals that seek such changes. The association believes that it is in the national interest to remove unnecessary barriers, in order to permit high technology companies to be better able to compete in world markets through joint ventures and licensing projects.

### Patent Policy

Patent rights represent a stimulus to R&D in two ways: first, they encourage investment by providing a protected market, over a limited period of time, for an invention that may result from the R&D, and second, a patent in one area stimulates competitive R&D through the necessity for "inventing around" it, finding a different approach to product development than the one already patented, or improving upon the inventive concept. Contractor retention of patent rights made in the course of government-sponsored R&D is a stimulus for the follow-on R&D essential to bringing the invention to market.



While the United States continues to lead absolutely in world high technology exports, there are strong contenders, particularly Japan, for world market share. U.S. imports of high technology products are also increasing. These trade trends are important since high technology products constitute a significantly greater share of manufacturing exports for the United States than for any other major economy.

The U.S. government has operated for years under a variety of patent policies; there are 28 policies established by statute and policy promulgations and varying interpretations of such policies in implementing regulations. A step toward a uniform system was taken by the 96th Congress with promulgation of Public Law 96-517, under which small businesses, universities and domestic non-profit organizations may retain title to inventions made in the performance of R&D under government contract, grant or other funding arrangement. The Administration has moved one step further in a direction long advocated by industry with a policy statement that the provisions of PL 96-517 should be extended to *all* contractors by government agencies not statutorily precluded from doing so. One more step remains in the evolution of patent policy: there is need for superseding legislation that authorizes all federal agencies to allow all contractors to retain title to inventions made in the course of government-funded R&D.

### Technical Data

There is also need for a policy regarding allocation of rights to the technical data first generated under government R&D contracts and the use of a contractor's proprietary data in the performance of such a contract. Such a policy—which does not exist today—would represent an additional stimulus to R&D and, more particularly, to utilization of the technology developed under government funding.

In many instances, commercialization of a patented invention depends largely upon—or is facilitated immeasurably by—the availability of the associated technical data. Further, although much of the technology developed under a government contract may not be patentable, it nevertheless has potential commercial value. Additionally, in the performance of government R&D, appropriate recognition and protection of a contractor's proprietary data is essential to protect valuable property rights from loss.

Such recognition and protection of proprietary data should be incorporated into a policy under which the contractor has title to technical data first generated under a federally-funded contract; the government's interest could be protected by assigning the government a license for use of the data for governmental purposes and the right to authorize others to use the technology for the same purposes.

### Technical Manpower

If the aerospace industry is to expand its commercial export-related R&D, and simultaneously conduct the R&D necessary to the Administration's planned improvement of the national defense posture, it is of prime importance that greater attention be focused on the U.S. research and technology foundation and on the availability, adequacy and utilization of scientific and engineering manpower. Specifically, there is need to strengthen the entire U.S. educational system—from secondary schools upward—as well as the interface between the aerospace industry and the American university system, which performs most of the nation's basic research and provides its engineers.

Various studies indicate substantial demand for scientists and engineers in the 1980s, particularly in aerospace. However, it seems clear that secondary schools generally are not offering adequate technical education and that the universities will not be able to graduate technical manpower in the numbers required; the number of enrollees electing technical majors, and staying with them, is limited. There is a related question as to whether technical graduates will have an up-to-date education, because schools are finding it increasingly difficult to obtain qualified teachers and modern training equipment. Additionally, there is a need—from industry's standpoint—for greater university focus on the practical problems associated with applied research and development.

Improved industry/university interface would benefit both partners in the relationship. For the universities, it would provide an alternative to uncertain federal funding and the problems frequently attendant upon government funding; it could broaden the experience of university personnel, compensate for loss of university talent to industry and significantly improve university access to modern equipment. Additionally, successful cooperative projects with industry would enhance a university's prestige and further its ability to attract quality faculty and students.

Improved interface with the academic community would allow industry to take greater advantage of university research talent, identify promising students and promote more industry-oriented research. Effective university/industry cooperation in basic research could provide cost savings for industry. In addition to industry-funded, university-conducted contractual effort, there are a number of different support mechanisms—from research consortia to grants to loans of equipment—that might profitably be expanded. However, supporting these programs is expensive. An AIA survey of 33 member companies showed it was \$118 million in 1981.

In the interest of increasing the output and quality of graduates in the technical disciplines, the aerospace industry should develop a strategy for improving the industry/university relationship and identifying the ways in which industry can best support universities for maximum payback to industry. The government should encourage greater industry/university collaboration by providing incentives that would make the required additional outlays more palatable to industry. One measure that would be helpful is expansion of the 25 percent tax credit for industry-funded R&D to include contracted work by universities. Currently, only 65 percent of contracted research or basic research grants to universities is allowable in calculating the tax credit. Another possible incentive measure is permitting allocation of industry IR&D funding for universities as a fully allowable cost.

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### Summary and Recommendations

The United States is facing an international trade challenge of unprecedented dimension. The best response to the challenge lies in a resurgent technological thrust designed to reestablish U.S. product superiority in the international marketplace. That goal is capable of accomplishment, but a first requisite is a comprehensive government policy on R&D that

- Accords a higher national priority to R&D;
- Encourages more effective cooperation among government, industry and the academic community;
- Maintains the strengths of competitive, decentralized decision-making by industry.

Specifically, AIA recommends inclusion in the proposed national industrial R&D policy of the following actions that would significantly enhance the conduct of R&D in the aerospace industry:

- With respect to new incentives for R&D, the policy should
  - Make the 25 percent R&D tax credit permanent;
  - Provide a meaningful credit for continued, sustained research activity;
  - Allow all research and experimentation expenditures to qualify for R&D tax credit;
  - Advocate accelerated amortization of the cost of acquired research.
- With respect to Independent Research and Development (IR&D), the policy should

- Reaffirm that IR&D is a necessary cost of doing business and that all reasonable IR&D costs should be fully recoverable in government work;
- Eliminate unnecessary administrative burdens and paperwork associated with IR&D in order to get more research per dollar spent.
- With respect to possible collaboration among U.S. companies, the policy should
  - Support the Administration's position and pending legislative proposals that would modify the antitrust laws to remove uncertainty regarding collaboration among U.S. firms on research programs.
- With respect to patent and technical data policy, the policy should
  - Require that all federal agencies authorize *all* contractors to retain title to inventions and technical data occurring in the course of government-funded R&D;
  - Recognize and protect contractor's proprietary data.
- With respect to technical manpower, the policy should
  - Expand the 25 percent R&D tax credit to include all work performed by universities under industry contracts;
  - Permit allocation of industry R&D funding for university work as a fully allowable cost.

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