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REPORT

OF THE

TECHNOLOGY TRANSFER PANEL

OF THE

COMMITTEE ON ARMED SERVICES
HOUSE OF REPRESENTATIVES

NINETY-EIGHTH CONGRESS

SECOND SESSION

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TECHNOLOGY TRANSFER PANEL

EARL HUTTO, Florida, *Chairman*

BEVERLY B. BYRON, Maryland
MARVIN LEATH, Texas
MARILYN LLOYD, Tennessee
FRANK McCLOSKEY, Indiana
JIM COURTER, New Jersey
KEN KRAMER, Colorado
DUNCAN L. HUNTER, California

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ALAN C. CHASE, *Professional Staff Member*

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LETTER OF TRANSMITTAL

U.S. HOUSE OF REPRESENTATIVES
COMMITTEE ON ARMED SERVICES,
Washington, DC, June 13, 1984.

Hon. MELVIN PRICE,
Chairman, Committee on Armed Services,
House of Representatives, Washington, DC.

DEAR MR. CHAIRMAN: I have the honor to transmit herewith the report of the full committee Panel on Technology Transfer.

The report has been unanimously approved by the panel members.

Sincerely,

EARL HUTTO,
Chairman, Technology Transfer Panel.

REPORT OF THE TECHNOLOGY TRANSFER PANEL

Introduction

The Committee on Armed Services has been long concerned about the problems associated with technology transfer. Following a series of revelations of illegal activity in this area, the chairman appointed a full committee panel on March 23, 1983, to investigate the transfer of defense-related technology to foreign countries. This panel, known as the Technology Transfer Panel, was asked to examine the present state of the transfer of U.S. technology to foreign nations, and particularly the direct and indirect transfer of such technology to the Soviet Union and other Warsaw Pact nations, as it might impact on national security.

The chairman also asked the panel, as part of its examination, to identify those technologies that, if compromised, would have a significant impact on U.S. national security, including actions of the Department of Defense in delineating a list of such technologies. In addition, the panel was asked to familiarize itself with the various means by which technology is transferred, including the means employed by the Soviet Union and other Warsaw Pact nations to acquire U.S. and other Western technologies.

The chairman specifically asked the panel to assess the effectiveness of existing law, including the Export Administration Act, in preventing the compromise of technology and defense items that significantly impact on U.S. defense capabilities. The panel was also asked to examine the effectiveness of procedures by which the Department of Defense, Department of State and Department of Commerce control the flow of critical technologies to foreign governments.

The panel's formation and hearing schedule coincided with the legislative activity associated with the expiration and amendment of the Export Administration Act of 1979. Section 109 of H.R. 3231, the Export Administration Amendments Act of 1983, was sequentially referred to the committee on June 22, 1983. Section 109 addressed the Militarily Critical Technologies List developed by the Secretary of Defense to aid in the process of control of technology. The committee reported H.R. 3231 on July 22, 1983, with an amendment to section 109 (H. Rept. 98–257, Part 2).

Summary of Findings and Conclusions

Based on its deliberations, the panel has arrived at the following findings and conclusions. These findings and conclusions are discussed more fully in the remainder of this report.

PRESENT STATE OF TRANSFER

The panel concluded that acquisition of U.S. and Western technology provides invaluable and incalculable benefits to the military capabilities of the East-Bloc.

The panel concluded that the majority of strategic goods and technology is transferred to the East-Bloc through illegal and/or clandestine methods.

The panel found that companies engaged in high technology activities are becoming significantly more security conscious than in the past regarding theft from *competitors* (industrial espionage). The panel believes firms should use the same educational techniques currently used to guard against industrial espionage to guard against Soviet acquisition methods.

The Committees on Armed Services of the Senate and House of Representatives have taken positive action in the fiscal year 1984 Defense Authorization Act to stem one avenue of unauthorized technology transfer by authorizing the Secretary of Defense to withhold certain technical information from public disclosure under the Freedom of Information Act. The panel supports this action.

DEVELOPMENT OF A CONTROL LIST

The panel found that the Department of Defense has developed a comprehensive document, the Militarily Critical Technologies List, useful in delineating those items of strategic technology that must be controlled.

The panel also believes that further attention needs to be focused on efforts to reduce the scope of the control lists so that resources can be efficiently devoted to preventing the transfer of the most critical items of technology. Two guidelines are suggested.

First, the list should focus on technology and not products. The transfer of products stimulates trade; the transfer of technology results in a permanent transfer of production capability and a loss of future trade in products.

Second, the control list should be divided into two categories—high and low technologies—with the view toward removing the licensing requirement for export of low technology items to COCOM countries. To a large extent, this delineation currently exists. The panel is concerned, however, that such a policy could result in a potential loss of control over items of low technology and, therefore, supports a requirement for documentation that would ensure a "paper trail," at the very least, and a statement to accompany the item that would specifically state that the item could not be reexported to a controlled country without the approval of the Secretary of Commerce.

EFFECTIVENESS OF CURRENT LAW

The panel concluded that the Export Administration Act of 1979 is generally effective in controlling the legal export of strategic technology from the United States. Although the licensing procedures should be made more effective in order to reduce the delays

currently being experienced, a licensing procedure continues to be needed—even for trade with COCOM allies.

The panel considered a suggestion to remove the requirement for *all* export licenses to countries to which exports are not controlled for national security reasons (West-West trade) and concluded that such a suggestion—particularly with regard to high technology trade—would pose a serious threat to national security.

The panel also considered a suggestion that would require the President to remove controls on strategic technology within an arbitrary time limit unless negotiations have been successful in eliminating foreign availability.

Under current law, the President can preclude the export of militarily critical technologies—even if available from foreign sources—if he determines that the approval of such exports would be detrimental to the national security of the United States.

The panel sees no advantage to the United States, from a national security perspective, in limiting the amount of time available for the President to eliminate foreign availability on militarily critical items of technology. The only advantages that accrue are to the Soviet Union who will be able to obtain this technology sooner, from more sources, and probably at a lower price.

The panel was told that such a provision might encourage the negotiations for the elimination of foreign availability, but this slight advantage, if it exists at all, would be more than offset by the handicap that would be imposed on the President during such negotiations and could substantially undermine the U.S. position in COCOM. The panel believes that decisions on issues of national security should be based on the merits of the argument and not automatically made because some arbitrary time limitation has been exceeded.

The panel agrees that the uncertainty of foreign availability often dilutes our ability to control technology. To this end, the panel concluded that the Administration should mount a strong and concerted intelligence effort to determine the degree of foreign availability for the most critical technologies.

EFFECTIVENESS OF U.S. PROCEDURES

The panel generally found that current procedures used by the various U.S. departments were appropriate and effective.

One area of concern to the panel, however, centers around the ongoing debate within the Administration between the U.S. Customs Service and the Department of Commerce over who should have the primary role in enforcing the Export Administration Act. In the opinion of the panel, the primary responsibility for enforcement should continue to reside with the Customs Service.

The panel found that Operation Exodus, the Customs Service program of random and surprise inspection of shipments destined for overseas, should continue. The panel concluded that funding for the effort should be increased and that the Customs Service should continue to exercise the authority to conduct random searches of outbound cargo.

COCOM

The panel found that COCOM restrictions on the transfer of technology are often circumvented by member countries either by intent or illegal diversion. East-Bloc acquisition of Western technology is especially easy in Western Europe because of the relatively simple access to such technology.

The panel supports the Department of Defense request for authority to review an export license request to countries to which exports are not controlled if the Secretary of Defense believes there may be a high probability of illegal diversion of the requested technology.

The panel found that the United States has limited means of influencing actions of countries or foreign companies with regard to COCOM restrictions and proposes several changes for increasing that influence.

In order to unilaterally protect the U.S. interests, the President has sought authority to impose import sanctions against foreign companies that violate U.S. national security controls and export U.S. technology illegally to the Soviet Bloc. The panel concluded that this authority would strengthen multilateral and U.S. unilateral controls and would place the onus on those companies who choose to ignore U.S. and COCOM controls.

The panel concluded that the effectiveness of COCOM could be increased if the agreements among the participating governments were raised to treaty status. The panel believes that a formal treaty—or even serious negotiations with a treaty as the objective—would provide the United States greater leverage to ensure that export controls are adequately enforced in other COCOM countries. The panel urges the Administration to consider formalizing the COCOM organization by treaty.

The panel believes that Congress should more closely monitor the enforcement of export controls by COCOM allies and should consider imposing sanctions against those governments that fail to enforce export controls effectively.

The panel found that facilities and capabilities at COCOM headquarters in Paris are less than satisfactory and that COCOM requires administrative modernization to improve its ability to impose and administer multilateral controls. The panel concluded that improving these facilities and capabilities should have high priority.

Hearings

The panel conducted a total of 8 hearings and received testimony from 22 witnesses including Members of Congress, government officials and representatives from academic associations and the private business sector. Open hearings were held on June 9, 21, 23 and July 13 and 14, 1983. Closed meetings were held on June 21 and 29, 1983, to discuss classified information relating to technology transfer (H.A.S.C. 98–15).

The panel sought to bring a balance of viewpoints to the hearings because it was clear from the beginning that the viewpoints of those who supported increased restrictions on licensing and trade of high technology goods would clash with opinions of those who

viewed further restrictions as unfair and inefficient restraints of trade. Consequently, the panel sought out spokesmen who could articulate both sides of the issue.

ADMINISTRATION WITNESSES

Representatives of the Administration were unanimous in their opinion that a hemorrhaging of technology to the Soviet Union was occurring and that it could only be controlled by maintaining or increasing trade restrictions. The panel learned that the Soviet Union and its allies depended upon regular infusions of the latest Western technology in their weapons development programs. Subsequent classified briefings to the panel by the National Security Agency, Central Intelligence Agency, Federal Bureau of Investigation and the Defense Intelligence Agency supported these allegations.

Specifically, the panel received testimony from the Department of Defense, Department of Commerce and Department of State and the intelligence community that clearly indicated the Soviets and their surrogates in the East-Bloc have embarked on a systematic and centrally-directed program to acquire the latest Western technology for incorporation into Soviet weapon systems.

The Soviet State Committee for Science and Technology (GKNT) establishes and identifies required technologies and attempts to acquire as much of the targeted technology as possible through legal means. When this method is not productive, GKNT tasks the Committee for State Security (KGB) and the Intelligence Directorate of the General Staff (GRU) to obtain the technology by clandestine means.

Soviet technology targets include, but are not limited to, computers, microelectronics, communications, lasers, guidance and navigation systems, structural materials, jet engine fabrication technology, acoustical sensors and radar. As an example, one witness estimated that Soviet acquisition of computer and microelectronic technology over the past decade has allowed the Soviets to reduce the U.S. lead in these technologies from 10 to 12 years in the mid-1960s to 3 to 5 years currently. The panel was told that at least 30 percent of the known integrated circuits used by the Soviets are direct copies of U.S. design.

The panel was told that a former Soviet intelligence officer had revealed that the acquisition of U.S. technology was assigned the highest priority for collection including the technology required for the weaving of carbon filaments to produce heat shields for intercontinental ballistic missile reentry vehicles.

Administration witnesses generally supported continuation of existing law with certain changes but strongly opposed suggestions that would lessen the controls on the export of technology. Specifically, Administration witnesses were opposed to any change that would eliminate national security controls on critical technology trade between Western countries. Additionally, they objected to any change that would automatically eliminate national security controls on goods if the President were unable to limit the foreign availability of those goods. The Administration officials cited numerous instances of illegal diversion of U.S. high technology goods

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from Western European countries. These witnesses supported a change that would allow the President to impose import sanctions on those foreign firms that violate U.S. export laws.

INDUSTRY WITNESSES

Generally, witnesses from industry favored less restrictions on trade. Industry witnesses suggested the elimination of U.S. license requirements for high technology trade with other Western countries. In order to offset this loss of control, these witnesses suggested that all Western nations exercise greater control on trade across Western borders in order to preclude unauthorized diversion to Eastern countries. They also suggested that the President remove trade restrictions on goods that were available from foreign sources. Additionally, industry witnesses generally supported the position that the Department of Commerce, rather than the U.S. Customs Service, should have the primary role in enforcing the control of technology transfer. Industry witnesses were critical of Operation Exodus, a Customs Service search and seizure operation targeted against illegal technology transfer. These witnesses stated that the delays experienced as a result of these Custom Service searches were disproportionate to the few illegal articles seized.

In general, industry witnesses recognized a need to control critical technologies but emphasized that such control should not interfere with trade with traditional trading partners and that American industry should not be prevented from trading in certain items if these items are available from foreign sources.

The Control Process

The technology control process is complicated, involving many government agencies and the International Coordinating Committee (COCOM). The controlled items are described in various lists generated by these organizations. Examining the content and importance of these lists and the responsibilities of the government agencies involved in the control of technology transfer is instructive. The following discussion was included in a previous committee report on the Export Administration Amendments Act of 1983, H.R. 3231 (H. Rept. 98–257, Part 2), but is repeated here for convenience.

A summary of the changes to the laws governing the export administration process is also included.

COMPARISON OF CONTROL LISTS

Various control lists affect the transfer of strategic technologies. The three major lists of interest are the Commodity Control List, the COCOM List, and the Militarily Critical Technologies List. Each is described in turn, and the relationship among the lists is discussed.

The Commodity Control List

The Commodity Control List is the document developed and used by the Department of Commerce to control exports. The list is

publically available and can be used as a guide by potential exporters.

All technologies exported from the United States require an export license. Two types of export licenses exist: a general license and a validated license. Most commercial transactions involving U.S. exports (90–95 percent) of commodity and technical data may be conducted under a general license without the necessity of submitting a formal application or obtaining a license document for each transaction. The remainder of the transactions are subjected to a rigorous applications process in order to obtain a validated license. The items involved in the latter transactions are delineated in the Commodity Control List.

The Commodity Control List contains technologies, products, or commodities that are controlled for the following reasons:

—National security
—Short supply
—Foreign policy
—Nuclear non-proliferation
—Crime control (foreign policy)

License applications for the export of items to COCOM countries are reviewed only by the Department of Commerce and are, in almost all cases, routinely approved. This licensing procedure has several advantages. First, it provides an audit trail for enforcement officials to monitor traffic in militarily critical technologies. Second, it highlights restrictions on exporting those items to countries that are controlled for national security purposes. Third, it serves as a powerful deterrent to firms who may, without the license, be less careful to whom they ship items that are militarily critical.

The Commodity Control List contains about 200 entries, many of which embody strategic technology. The entries are grouped into 10 categories:

Commodity	*Group*
Metal working machinery	0
Chemical and petroleum equipment	1
Electrical and power-generating equipment	2
General industrial equipment	3
Transportation equipment	4
Electronics and precision instruments	5
Metals, minerals, and their manufacture	6
Chemicals, metalloids, and petroleum products	7
Rubber and rubber products	8
Miscellaneous	9

Each entry on the Commodity Control List contains a general description of the item controlled (including a listing or partial listing of the specific products or technologies), the countries for which validated licenses are required and, in some cases, value limitations on exports restricting the number of dollar value of items that may be exported.

For the purpose of export control, all foreign countries except Canada (for which minimal restrictions apply) are categorized into seven country groups. Most Communist countries are included in country group Y. However, the People's Republic of China will be included in country group V with many Western nations; Romania (country group Q) and Hungary and Poland (country group W)

have most favored nation status and are treated separately. Also treated separately is North Korea, Vietnam, Kampuchea, and Cuba (country group Z) to which most trade is embargoed.

The COCOM List

The United States has entered into multilateral agreements with the countries of NATO (less Iceland and Spain) and Japan to place export controls on certain goods and technologies that are mutually agreed would significantly improve the military capabilities of the Soviet Union and other Warsaw Pact countries. The forum for the multilateral discussion is called COCOM (the International Coordinating Committee for multilateral export controls).

The COCOM list is developed through a largely informal process and is used to guide the individual COCOM countries in controlling exports. The COCOM list is not publically available, but the national lists of controlled items (such as the Commodity Control List) are based, in most cases, on the COCOM list and contain virtually identical information. The Department of State has the primary responsibility on the international level for maintaining the COCOM list. A formal list review is conducted once every three years, and multilateral negotiations are conducted periodically as required.

The COCOM list consists of three parts:

—An industrial/commercial list containing dual-use (military-civilian) items
—A munitions list containing all direct military-use items
—An atomic energy list containing sources of fissionable materials, reactors and reactor components.

The Militarily Critical Technologies List

As originally conceived in the late 1970's, the Militarily Critical Technologies List was intended as an effort to develop a set of militarily critical technologies that would be small in number and relatively stable over time; that could have strict export controls applied to deny these technologies automatically to Communist countries; and that would ultimately replace the Commodity Control List and COCOM list. As work on the Militarily Critical Technologies List has proceeded, however, it has become more of a generic document listing critical technologies but, at the same time, describing why these technologies should be considered critical. It has been characterized as an encyclopedia to be used to supplement and support the Commodity Control List rather than as a separate list or one that eventually will replace the Commodity Control List.

The Militarily Critical Technologies List is a classified document (secret) in large part because of the sections discussing the rationale for considering why an item should be considered critical. The document is developed and maintained by the Department of Defense.

Relationship Among the Three Documents

Although considerable testimony before the panel focused on the problems inherent in three lists developed and used by different agencies, the contents and form of the documents are relatively consistent.

The Commodity Control List contains all of the items on the COCOM list. In fact, when agreement is reached to modify the COCOM list, the regulations promulgating the Commodity Control List are changed to conform to the informal international agreement. Some items appear on the Commodity Control List (currently about 30) that are unilaterally controlled for national security reasons by the United States. The unilaterally controlled items have been reduced substantially; in the past, several hundred items were unilaterally controlled. The unilaterally controlled items receive a strict review, and substantial efforts in the past have been responsible for obtaining agreements with foreign governments to incorporate unilaterally controlled high technology items into the COCOM list. These efforts continue with regard to the remaining unilaterally controlled items.

Other items on the Commodity Control List are controlled for foreign policy or short supply reasons, not for national security reasons.

The Militarily Critical Technologies List and the Commodity Control List are largely similar with respect to items controlled for national security purposes. Some items controlled unilaterally by the United States for national security reasons are on the Militarily Critical Technologies List and the Commodity Control List but not on the COCOM list. The rationale contained in the Militarily Critical Technologies List is used to attempt to persuade U.S. allies of the need for control of particular items and for their inclusion in the COCOM list. Similarly, some technologies contained in the Militarily Critical Technologies List are not found in the Commodity Control List or the COCOM list, primarily because of the more frequent updates in the Militarily Critical Technologies List.

Of course, items controlled because of short supply or for foreign policy reasons are not incorporated in the Militarily Critical Technologies List.

Given the current use of the Militarily Critical Technologies List as a generic document that is updated once a year as new technologies emerge as critical and as others become non-critical, it should not be identical to the Commodity Control List. Differences should be expected, and in fact, the Militarily Critical Technologies List should incorporate changes before they are considered in the Commodity Control List or the COCOM list.

ORGANIZATIONAL RELATIONSHIPS AND RESPONSIBILITIES

The *Department of Commerce* has overall responsibility for controlling the transfer of technology and the implementation of the Export Administration Act of 1979. The department has jurisdiction over control and reexport of most commodities and unclassified technical data. The Department of Commerce prepares and maintains the Commodity Control List consisting of goods or commodities subject to export controls and awards or refuses license applications for the export of controlled commodities. The department has responsibility for educating U.S. businessmen on the specifics of foreign sales of critical technology. Its prime enforcement arm is the Office of Export Enforcement. The Department of Commerce refers violations of the Act to the Justice Department.

The *Department of State* advises the Department of Commerce on the foreign policy implications of export control and is the lead agency in the government's attempt to implement multilateral export controls. As such, the Department of State represents the United States at COCOM reviews and processing of cases. The Department of State has collateral responsibility for informing U.S. and foreign businessmen on specific aspects of technology sales and has responsibility for developing the International Traffic in Arms Regulations and the Munitions List which, for the most part, derive from the Arms Export Control Act. This list consists of military articles (firearms, tanks, military vehicles, etc.). The Department of State also reviews the programs and itinerary of visiting scholars and exchange students who may be exposed to critical technologies and regulates VISAS for such individuals.

The *Department of Defense,* with the assistance of other pertinent agencies, develops and maintains the Militarily Critical Technologies List which contains descriptions of arrays of design and manufacturing know-how, keystone manufacturing, inspection and test equipment, and data which, because of its military significance, must be controlled. The Department of Defense reviews the military and strategic impact of the release of technology/data/equipment and recommends to the Department of Commerce approval or disapproval of license requests requiring Department of Defense review. The Department of Defense assesses foreign availability of critical technology and participates in COCOM reviews.

The *Department of Energy (controlling nuclear exports), Nuclear Regulatory Commission, National Aeronautics and Space Administration,* and the *National Bureau of Standards* provide technical assistance and recommendations on questions concerning critical technology in their areas of expertise.

The *U.S. Customs Service* has been assigned export control enforcement responsibilities and recently initiated Operation Exodus—an aggressive program of domestic cargo searches and seizures and intelligence gathering operations at home and abroad. The objectives of Operation Exodus are to assess the threat of technology loss to the security of the United States and to actively disrupt the illegal flow of technology. The Customs Service works closely with the Department of Commerce and the Department of State in determining whether outgoing items are approved for export and receives intelligence data from the intelligence agencies. The Customs Service maintains strong liaisons with custom services of other countries and gathers intelligence on illegal technology transfer and diversions through these sources.

The *intelligence/enforcement agencies (Central Intelligence Agency, Defense Intelligence Agency, Federal Bureau of Investigation, National Security Agency)* provide information to the Department of State, Department of Commerce, Department of Defense and to the U.S. Customs Service relating to illicit technology transfer and diversions, foreign availability, and East-Bloc technology targets. The Central Intelligence Agency possesses the capability to assess the extent of technology leakage.

The *Coordinating Committee (COCOM)* is a multinational body consisting of all NATO members (less Spain and Iceland) plus Japan established to coordinate the control of exports to the East

Bloc. The organization is unchartered and voluntary, with each decision requiring unanimous agreement. COCOM maintains a control list of about 150 items that is reviewed every three to four years. However, there is almost continuous activity at COCOM in Paris, as member nations bring "exception" cases for resolution. The U.S. Department of State is the lead agency for U.S. participation in COCOM activities, but it is supported at various times by the agencies previously discussed.

The Senior Interagency Group on the Transfer of Strategic Technology is a senior-level group made up of representatives of eighteen government agencies, including most of those agencies previously discussed. Its objective is to formulate policy and coordinate government action on technology transfer activities. Some subcabinet agencies (e.g., U.S. Customs Service) are represented as full members along with the parent agency (e.g., Department of Treasury) in order to produce more direct communications and involvement in the effort. The Senior Interagency Group is chaired by the Under Secretary of State for Security Assistance, Science and Technology.

HISTORY OF CHANGES IN EXPORT ADMINISTRATION

A summary of the changes to the laws governing the export administration process is shown in the accompanying chart. As can be observed in this chart, the attitudes and policies affecting these laws have changed as the formal and informal relations with the Soviet Union have evolved.

HISTORY OF CHANGES

	Export Control Act of 1949	Mutual Defense Assistance Control Act of 1951	1962 Amendment	Export Administration Act of 1969
General Policy	• Policy of U.S. to "exercise the necessary vigilance" over exports to ensure national security. • Exporting privilege; not a right. • National security took precedence over economic advantages of trade.	• Reaffirmed original objective by stating a policy in which trade was to be used as a weapon against Soviet Union and its satellites.		• "To encourage trade with all countries with which [U.S. has] diplomatic or trading relations" and "to restrict the export of goods and technology which would make a significant contribution to the military potential of any other nation...detrimental to...security of the U.S."
Reasons for Control	• Purpose to deny militarily useful exports to Soviet Union and its allies.	• To regulate the export of commodities other than arms, ammunition and implements of war, "to oppose and offset by non-military actions acts which threaten the security of the United States and the peace of the world."		• Language implying that trade might be used for economic warfare was deleted.
Items Controlled	• Any articles, materials, or supplies, including technical data, except under such rules and regulations as the President may prescribe. • Controls extended to (1) exports of commodities and technical data; (2) reexports of U.S. origin commodities and technical data between foreign countries; and (3) U.S. origin parts and components used in a foreign country for an end product for export. • Included anything as long as President determined that item would contribute to military potential • List was long and comprehensive and included economic items also.		• Licenses were to be denied for any export making a "significant contribution to the military or economic potential" of nations threatening U.S. security.	• Export controls became exceptions limited to the purposes to (1) protect the national security, (2) protect goods/commodities in short supply, and (3) further foreign policy goals determined by the President.
Administration	• President could delegate power to determine which articles to control to departments and agencies concerned with domestic and foreign policy aspects of trade. • Licenses for western countries easily obtained; communist destinations singled out for proscriptions. • Responsibilities lodged with Office of Export Control in the Department of Commerce.			• Secretary of Commerce authorized to revise the organization and procedures in order to change control regulations and to shorten lists of controlled items.
Sanctions		• Authorized President to end all forms of military, economic and financial assistance to a nation knowingly permitting sale of U.S. embargoed goods to a country "threatening the security of the U.S."		
Relations with Allies		• Announced intent of U.S. to seek multilateral cooperation in implementing this policy. • Stipulated that U.S. negotiate with countries receiving U.S. aid to undertake a program to control exports to Soviet Union and its satellites.		
Relations with Industry				• Exporters given right to obtain information on the criteria for export licenses, to learn reasons for delays or denials and to provide evidence to support application in regulatory proceeding. • Agencies urged to consult with industry on revision of lists.
Foreign Availability				

.N EXPORT ADMINISTRATION

1972 Amendments	Export Administration Act of 1974	Export Administration Act Amendments of 1977	Export Administration Act of 1979	
* Emphasized the adverse effect on U.S. balance of payments of excessive export controls, particularly those that are more restrictive than those imposed by COCOM allies.			* Ability to engage in trade a fundamental concern * Exports contribute to security * Overcontrol may be detrimental * Export without regard to military contribution may adversely affect security * U.S. policy is to minimize uncertainty and to encourage trade	General Policy
			* Controls are to be utilized only after full consideration of economic impacts and only to extent necessary to protect U.S. national security, to further significant foreign policy goals or to protect domestic economy in cases of short supply * President encouraged to consider alternative actions, the probability that controls would achieve desired ends, the reaction of foreign countries, the effect of controls on U.S. economy, and ability of U.S. to enforce controls for foreign policy purposes	Reasons for Control
	* Directed report on the reasons for export controls already in effect or contemplated.	* Secretary of Commerce required to review export regulations and lists in order to simplify and clarify and to report to Congress within one year	* Authorizes the Commodity Control List to be indexed (items can be added or deleted) * Requires firms entering into commercial agreements with controlled countries to report these agreements to the Secretary of Commerce if they cite intergovernmental technical cooperation agreement and will result in export of unpublished data	Items Controlled
	* Required action on license application within 90 days. * If not met, applicant given reason for delay and estimate of time needed for decision. * Required report by Secretary of Commerce on steps taken to expedite process. * Required reviews by Secretary of Defense of all exports to controlled countries who could recommend disapproval to the President if export would significantly increase military capability of controlled country. * Presidential decision to override Secretary of Defense must be submitted to Congress within 30 days.	* Applicant permitted to respond fully to questions raised by application and to review documentation generated for interagency review * Applicant to be provided statutory authority for denial * Limited Secretary of Defense review to applications for export to countries "to which exports are restricted for national security purposes" * Limited the grounds on which the Secretary of Defense could recommend against export for national security reasons to those cases where the export would "make a significant contribution, which would prove detrimental to the national security of the United States, to the military potential of such country."	* Established and encouraged use of a "qualified general license" to permit multiple shipments to a particular consignee or for a specified end use * Established detailed procedure for review, to include a 90-day limit on single agency review and 180-day limit when more than one agency is involved, provisions for multi agency consultation, and applicant notification and consultation	Administration
			* Provisions of 1951 amendments superceded * Authorized Secretary of Commerce to deny all further exports to end users responsible for diversion of dual-use items to military use	Sanctions
			* Authorized U.S. participation in COCOM * President urged to negotiate with COCOM governments to reduce scope of export controls, to publish COCOM lists and documents, and to hold periodic high-level meetings	Relations with Allies
* Required government to consult with qualified private industry, exports on all licensing decisions * Directed Secretary of Commerce to appoint Technical Advisory Committees on substantial segments of industries affected by controls * TAC's composed of representatives from government and industry. * TAC's to be consulted regarding questions involving technical matters, worldwide availability, and utilization of production and technology and licensing procedure	* Directed representation by Commerce, Defense and State on the Technical Advisory Committees.	* Extended terms of service on TAC's from 2 to 4 years * Requires TAC's to review multilateral as well as unilateral controls * Directed Secretary of Commerce to report semi-annually on consultations with TAC's		Relations with Industry
* Directed Secretary of Commerce to remove, so far as national security permitted, unilateral controls on commodities available "...without restriction from sources outside of the United States in significant quantities and comparable in quality" to U.S. commodities. * Allowed Presidential discretion in imposing national security controls "regardless of the availability".		* Directed Secretary of Defense to include evidence demonstrating that absence of controls on goods available from foreign sources would prove detrimental to national security in annual report * Required President to initiate negotiations to eliminate foreign availability in such cases	* Directs Secretary of Commerce to continuously review foreign availability in consultation with other agencies and TAC's and to establish an office to gather information on this issue * Waived requirement for validated licenses in cases where foreign availability has been demonstrated unless provision waived by President (in which case, Secretary of Commerce must publish details).	Foreign Availability

Discussion of Panel Findings

HISTORY

The use of technology transfer by the Soviet Union as a means of advancing its military might is not new. Nor has the Soviet Union relied entirely on any one nation as its source for technology. For example, by 1924, based on purchase of Fokker drawings, a De Havilland prototype, and foreign engines, the Soviets produced their own wooden aircraft. Machine tools were provided by a Danish firm and spruce was imported from Washington State. An all-metal Junkers aircraft was manufactured in the Soviet Union in 1933—ten years before Lockheed and Douglas produced their first model.

Following the forced landing of a B–29 bomber in the Soviet Union after a raid on Japan, the Soviets fielded an exact copy, the Tu-4, in substantial numbers. The designer, Tupolev, allegedly referred to it as the "locally built Boeing product."

German missiles and technicians were seized in the Soviet-occupied section of Germany at the end of World War II leading to the launch of the world's first successful intercontinental ballistic missile in 1957.

PROCESS

Today, as in the past, technology transfer between nations is accomplished through a variety of legal and illegal methods:

—Scholarly, business, and technical exchanges;
—Government-sponsored programs in science and technology;
—Personal contacts and observations;
—Copying and industrial espionage;
—Screening of Western literature;
—Technical assistance and cooperative agreements, joint ventures and projects, subcontracting, joint tendering, coproduction, and turnkey plants; and
—Traded goods.

The last category—traded goods—respresents the major source of acquisition of technology.

Much of the technology transfer that occurs throughout the world is international. The transfer enhances the world economy, and both the creator-transmitter and the receiver-user benefit. It is the unauthorized transfer of technology within the environment of the total transfer that is of concern. And within the category of unauthorized transfer, the transfer of militarily critical technologies to the adversaries of the United States is of greatest concern.

The Soviet Union aggressively pursues simultaneous acquisition techniques to obtain the technologies of greatest interest, including many of the techniques used for the intentional transfer of technology. The strategy includes all of the following methods:

—Legal purchase of licensed items;
—Exploitation of open sources, such as patents and copyrights, technical agreements, academic conferences, scientific exchanges, industrial tours, visits to advanced technology exhibitions, scientific and technical publications, and congressional documents;
—Illegal acquisition of embargoed items;

—Industrial espionage, bribery or cooption; and
—Use of front or dummy companies in allied or neutral countries to channel items indirectly to the Soviet Union.

These sources are coordinated by a Soviet high priority intelligence system keyed to emerging technologies of high military value. Legal methods are used where possible; but illegal methods are used where legal methods fail.

The goal of the acquisition strategy used by the Soviet Union is to modernize Soviet infrastructure with the intent of strengthening the Soviet military machine. Thus, not all technologies sought have a direct linkage to military hardware; however, the priorities for acquisition are set based on the end effect on military power. Any benefit to the economic circumstances of the Soviet Union is secondary. This ordering of priorities is the reverse of those held by other nations or companies seeking the transfer of technology.

The West, ironically, assists much of the transfer of technology by providing generous credits and technological assistance within the framework of expanding trade. As a result, the West finances, indirectly, the military machine against which the North Atlantic Treaty Organization (NATO) is designed to defend.

Placing the transfer of militarily critical technology in perspective is important. The conduct of foreign policy involves use of diverse strategies ranging from military deterrence to political containment to economic pressure. Western exports to the East contribute marginally to an overall favorable balance of trade and have the potential for expanding dialog between East and West, but they contribute substantially to Soviet military power. Thus, the West, as a whole, gains relatively little in the exchange, while the East garners greater benefit. On the other hand, although the West, as a whole, receives little benefit, the specific firms that deal in strategic technology benefit greatly from its sale, and therein lies the dilemma that must be addressed when restrictions on such trade are considered.

Within this context, the question that must be answered is not *whether* to transfer technology but *when*. In today's complex and dynamic world, no long-term monopoly on technology exists.

OBJECTIVES

Although, on the surface, the objectives of the Western nations would appear to be the same—keeping militarily critical technologies out of Soviet hands—deeper investigation leads to the discovery of significant viewpoints not commonly shared. For example, the United States and the Europeans have a somewhat different definition of security. The U.S. focus is primarily military. The Europeans, on the other hand, believe security is based as much on economic as military considerations. This European perspective has developed as their economic health and trade-related employment have led to post-war security. Industry must survive because it also is essential to national security.

These different definitions, or at least different emphasis in the definitions, of security have led to different policies regarding technology transfer. The policies, in fact, affect where the line is drawn defining when trade either threatens or enhances security.

Differing objectives are also understandable when the relative importance of trade with the East is considered. As the following table shows, trade is relatively more important to European countries than to the United States:

EAST-WEST TRADE IN 1980

	United States	European Economic Community	Federal Republic of Germany [1]	France
Volume (billion dollars)	5.28	56.80	23.80	10.21
Share of foreign trade (percent)	1.14	4.14	6.20	4.20
Share of GNP (percent)	.20	2.00	2.90	1.58

[1] Includes intra-German trade ($5.9 billion).

Source: OECD–UN.

Of course, specific categories of manufacturers and specific manufacturers within U.S. and European countries have an even greater reliance on East-West trade (just as U.S. farmers have a greater reliance on grain sales).

In addition, the European countries aver that technology *transfer* is not the same as technology *leakage*. Many Europeans view the open nature of U.S. society as the principal reason for the theft of technology.

Also, many of the examples used in describing the trade in technology were a result of political decisions during detente. The much discussed ball-bearing grinder was not stolen or illegally traded; it was sold after specific approval at the highest levels of the U.S. government. Approved exceptions to export controls increased during the period of detente as shown in the following table:

Approved Exception Requests, 1967–77

Year	*Millions*
1967	$11
1968	8
1969	19
1970	62
1971	56
1972	124
1973	106
1974	119
1975	185
1976	162
1977	214

Source: "Special Report on Multilateral Export Controls by the President," Report to the Congress, 10 July 1978, p. 6.

Although these exceptions represented less than 1 percent of East-West trade, the United States was the source of most of the exceptions.

The U.S. position on technology transfer oscillates between liberal and stringent depending on the status of relations with the Soviet Union. On the other hand, the European position has remained relatively consistent. Although the U.S. position has caused consternation in Europe, much of the burden of the variation has fallen on U.S. business.

IMPACT OF TECHNOLOGY TRANSFER

The assessment of the impact of technology transfer depends on the perspective from which the impact is viewed. Lenin said,

> They will furnish credits which will serve us for the support of the Communist Party in their countries and, by supplying us materials and technical equipment which we lack, will restore our military industry necessary for our future attacks against our suppliers. To put it in other words, they will work on the preparation of their own suicide. (I.U. Annankov, *Novyi Shurnal,* No. 65, 1961, p. 147)

The Soviets clearily benefit from the transfer of technology. These benefits include:

—Saving billions of dollars by acquiring proven technology;
—Saving years of research time;
—Narrowing technological gaps;
—Manufacturing counter systems to neutralize U.S. weapons;
—Avoiding costly and time-consuming mistakes and errors; and
—Acquiring the knowledge that new systems will work.

The impact of technology transfer is felt also by the United States. The panel is convinced that the $265.3 billion appropriated for the Department of Defense for fiscal year 1984 is affected substantially by the flow of technology.

Were it not for the flow of technology that has occurred in the past and continues to occur, the $265.3 billion could be used to improve the balance of forces more rapidly to the point of being reasonably assured of providing adequate deterrence. Alternatively, the current balance of capabilities between the United States and the Soviet Union could be maintained for a lower level of defense spending. Defense spending does not exist in a vacuum. It is affected by the threat we face, and that threat has increased dramatically as a result of the Soviet's ability to rely on U.S. technology as a major resource of its own.

Although the transfer of technology, in general, has probably not hurt the United States economically, the transfer of specific technologies, particularly in recent years, could very well have been damaging. The panel is seriously concerned that perhaps the United States is ". . . work(ing) on the preparation of (its) own suicide."

ALTERNATIVES

An attempt on the part of the Soviet Union to obtain technology of military value is undeniable. Much of the technology is acquired through trade. The allies exhibit different objectives with regard to trade with the East, and this difference generates a tension in West-West relations. The benefit of the transfer of the strategic technology to the Soviet Union, however, requires action to restrict its flow. What alternatives are available?

The panel believes an approach, more flexible than that in effect today, is needed. The approach must give less attention to the ideology exhibited at each end of the spectrum and more attention to methods of making export controls work. Businesses that reject all

export controls are misled. Strong defense advocates who see military criticality in every nut and bolt overburden the system.

Different mechanisms are available to control the transfer of technology from various sources. The effectiveness of each mechanism is a function of the source of the technology transfer. The following table relates each mechanism to the sources of transfer against which it is most effective.

MAJOR MECHANISMS FOR CONTROLLING TECHNOLOGY TRANSFER FROM VARIOUS SOURCES

Mechanisms for controlling transfer	Covert				Overt	
	Theft		Diversion		Illegal Exports	Unintentional Exports
	From U.S. Source	From Foreign Source	From U.S. Source	From Foreign Source		
Individual licenses	.....	.....	.....	X	X	X
Fines	.....	.....	.....	.....	X	X
Export restrictions	.....	.....	.....	.....	X	X
Import restrictions	.....	.....	.....	X	X	X
Investigations	X	X	X	X	X	.....
Inspections	X	.....	X	.....	X	X
Improved COCOM	.....	.....	.....	X	.....	.....

The sources of technology transfer can be divided into two broad categories: covert and overt. Covert transfers can be further divided into two major categories: theft and diversion. Theft entails acquiring technology through bribes, blackmail, or cooption and might be accomplished in the United States or overseas. Diversion might also be accomplished using the techniques underlying theft; however, the diversion generally reflects an initial transfer that is legal (from the producer to a dummy firm, for example) followed by an illegal transfer to the Soviet Union. Covert transfers, conducted outside of the licensing process, are generally not affected by the process or sanctions that can be brought to bear against governments or economically established firms. However, validated licenses do provide a mechanism with which to preclude diversions or to track an item after it has been exported.

Overt transfers, on the other hand, may be illegal—in which a product is claimed to be something it is not (by misleading information on an application or shipment under a general license granted for a different product, for example)—or they may be entirely unintentional. Because the transactions are conducted generally within the licensing process, they can be controlled through the process and through sanctions against governments and firms.

The solution to the problem of technology transfer lies in three general mechanisms: licensing, penalties, and enforcement. Within each mechanism, a range of applications exist. For example, licensing may be very restrictive on all exports or restrictive only for a small subset of exports. Licensing may be required for trade with all partners or only for those partners outside of COCOM. Penalties may take the form of fines, export restrictions on U.S. firms or import restrictions on foreign firms or governments. Enforcement may consist of improved investigatory activities by the Department

of Commerce and the intelligence community or greater control and inspection by the U.S. Customs Service. Outside of the United States, enforcement can be improved by strengthening COCOM.

The most pervasive mechanisms across the spectrum of sources of transfer are investigations and inspections. In combination these two mechanisms can impact on all forms of transfer.

The question of where additional resources should be devoted to be the most effective can only be answered based on the relative magnitude of the transfers from each source. The panel attempted to obtain information on the magnitude of transfer from each source but was dissatisfied with the response. However, there is evidence to suggest that the majority of the transfers are covert. If this is the case, increasing resources for investigations, inspections and COCOM appear to be policies that would result in the greatest measure of control of technology transfer. In addition, strengthening individual licenses and authorizing import controls on violations of COCOM procedures would be particularly helpful.

Most enforcement officers view covert sales as COCOM's greatest problem. Reducing the scope of the controls to include only items of the greatest importance—high technology—would permit greater concentration of resources on this problem. However, enforcing controls on any set of items in a dynamic high-technology world is extremely complex; and an effective effort will require substantial resources. The greater the scope of controls, the greater the additional resources required.

Findings and Conclusions

Based on the deliberations of the Technology Transfer Panel, the following findings and conclusions are reported to the full committee.

PRESENT STATE OF TRANSFER

The panel concluded that acquisition of U.S. and Western technology provides invaluable and incalculable benefits to the military capabilities of the East-Bloc. Evidence confirms that the Soviets and their East-Bloc allies are mounting a dedicated, coordinated effort to acquire such technology in order to increase the capabilities of selected systems and to avoid the expenditure of millions of dollars in research and development.

The panel concluded that the majority of strategic goods and technology is transferred to the East-Bloc through illegal and/or clandestine methods. However, the Soviets place a high priority on collection through legal means such as trade journals, symposia and scientific and technical agreements with the West.

The panel found that companies engaged in high technology activities are becoming significantly more security conscious than in the past regarding theft from *competitors* (industrial espionage). These companies generally recognize the danger from this source because of the impact on their own financial circumstances. The loss of the technology to the Soviets does not have the same direct *economic* impact because the principal use to which it will be put in the Soviet Union is military. However, the dangers to the firm are no less simply because the effect is indirect. The panel believes

firms should use the same educational techniques currently used to guard against industrial espionage to guard against Soviet acquisition methods.

The Committee on Armed Services of the Senate and House of Representatives have taken positive action in the fiscal year 1984 Defense Authorization Act to stem one avenue of unauthorized technology transfer by authorizing the Secretary of Defense to withhold certain technical information from public disclosure under the Freedom of Information Act. This authority closes a significant loophole through which militarily useful data could be obtained if it were not classified. The provision of this authority exhibits the ability to effectuate controls that, on the one hand, serve national security objectives while, on the other hand, ensure the flexibility to permit the free access to information for legitimate ends, for example, for use by small businesses to prepare in contract proposals to support existing weapon systems. The panel supports this action.

DEVELOPMENT OF A CONTROL LIST

The panel found that the Department of Defense has developed a comprehensive document, the Militarily Critical Technologies List, useful in delineating those items of strategic technology that must be controlled. Although some differences exist between the Militarily Critical Technologies List and the Commodity Control List—the document used by the Department of Commerce to control export of items including militarily critical technologies—these differences arise in large part because the former list is a dynamic document used to address the rapidly changing technological environment. However, the differences have caused concern within the business community, and the panel supports the recommendation of the full committee to amend the Export Administration Act of 1979 to require that the two lists be completely integrated (H. Rept. 98–257, Part 2).

The panel also believes that further attention needs to be focused on efforts to reduce the scope of the control lists so that resources can be efficiently devoted to preventing the transfer of the most critical items of technology. Two guidelines are suggested.

Objectives of the List

The fundamental objective of this list is to deny to the Soviet Union those technologies that would have an adverse impact on U.S. military efforts.

If the economic impact of export controls were not a consideration, the list could conceivably include all items with even the most remote relation to military capabilities. However, trade is a consideration—an important consideration. Consequently, the list must be restricted to balance the economic and military considerations.

The panel believes the list should focus on technology and not products. The transfer of products stimulates trade; the transfer of technology results in a permanent transfer of production capability and a loss of future trade in products. On the other hand, if the

technology can be extracted from the product—through reverse engineering, for example—such products must be controlled.

Scope of the List

Under current law, all exports—regardless of destination—require a license if they are on the Commodity Control List. Within other COCOM countries, only high technology items require an individual validated license before they are shipped; low technology items can be shipped upon simple notification. In other words, current U.S. licensing procedures are more restrictive than licensing procedures used by the other countries subscribing to multilateral control agreements regarding exports of high technology items.

The panel was torn between a strong feeling that perhaps some U.S. controls are too stringent, on the one hand, and an equally strong feeling, on the other hand, that some of the COCOM countries are providing, through lax export controls, a resource of incredible value to the Soviet military machine. This dichotomy is agonizing because the concerns underlying both perspectives are valid.

The panel, from the point of view of national security, would prefer greater control over the broad range of technologies that to varying degress are militarily critical. Of course, it is impossible to know what level of technology or what item of technology might be the deciding factor in hostility that breaks out between the United States and the Soviet Union. The panel is concerned, however, that, as a result of less restrictive licensing procedures, the Soviet Union would be permitted to acquire a capability that would weaken deterrence. In view of this, the panel would tend to err, if necessary, on the side of stricter controls.

But the panel was faced with a decision for which there is no single answer. A judgment must be made between restrictions that have national security implications as well as economic ramifications. Regardless of the assertions surrounding the course of the debate, the panel can not know for certain the correct balance.

Technology transfer is a complex subject with many uncertainties. In such a situation it is often best to move in incremental stages.

The panel supports an approach under which items of great importance from a strategic point of view continue to receive the attention they deserve. Counterbalancing the continuation of controls for this category, however, would be relaxation of controls on items that would impact less significantly on our national security.

Clearly, any item that is exported from the United States or the rest of the free world that ends up unintentionally in the Soviet Union exhibits some cost because it decreases security. On the other hand, items that are not exported because of restrictive licensing procedures also have a cost from the perspective of the economy.

The panel suggests dividing the control list into two categories—high and low technologies—with the view toward removing the individual validated licensing requirement for export of low technology items to COCOM countries. To a large extent, this delineation currently exists. The panel is concerned, however, that such a policy could result in a potential loss of control over items of low

technology and, therefore, concomitantly supports a requirement for documentation that would ensure a "paper trail," at the very least, and a statement to accompany the item that would specifically state that the item could not be reexported to a controlled country without the approval of the Secretary of Commerce.

EFFECTIVENESS OF CURRENT LAW

The panel concluded that the Export Administration Act of 1979 is generally effective in controlling the legal export of strategic technology from the United States. Although the licensing procedures should be made more effective in order to reduce the delays currently being experienced, a licensing procedure, particularly for high technology items, continues to be needed—even for trade with COCOM allies.

Licensing for West-West Trade

The panel considered a suggestion to remove the requirement for *all* export licenses to countries to which exports are not controlled for national security reasons (West-West trade). However, the panel is concerned that such an action would open a gaping loophole through which critical technology could be exported indirectly to the East-Bloc.

The panel concluded that the removal of licensing requirements for all West-West trade—particularly high technology trade—would pose a serious threat to national security. The panel found that countries in Western Europe often serve as illegal conduits of high technology equipment. The removal of the requirement for a license for export of items to our Western allies could eliminate the paper trail necessary to discover potential diversions and past losses. Under present law, the United States has the authority and ability to block such exports. However, the suggested change would seriously weaken control. The panel concluded that this capability to track exports through licenses must be maintained.

Foreign Availability

The panel also considered a suggestion that would require the President to remove controls on strategic technology within an arbitrary time limit unless negotiations have been successful in eliminating foreign availability. The panel found such a suggestion incompatible with the efforts to control the flow of technology to hostile governments.

The world is highly diversified. Although the United States, at one time in its past, could boast of unsurpassed capabilities to produce goods and technologies of all kinds, the circumstances have changed and other highly competitive countries have devoted efforts in specific areas to narrow or eliminate our lead. As a result, technologies and goods are available from foreign sources that are often, on the surface, comparable to U.S. products. It is hard to argue, that in such a case, U.S. business concerns should be hampered in selling that good or technology if the Soviets can acquire identical capabilities from other sources.

The panel is seriously concerned, however, by a suggestion to eliminate the requirement for export licenses in those circum-

stances where the President cannot negotiate away foreign availability in the course of an arbitrary period of time.

Under current law, the President can preclude the export of militarily critical technologies—even if available from foreign sources—if he determines that the approval of such exports would be detrimental to the national security of the United States. If that determination is made, why after some arbitrary passage of time should the circumstances be required to change? An artificial deadline on the President implies that for some reason if foreign availability cannot be eliminated by the end of a specified period, national security would not then be hampered by the release of the technology.

The panel sees no advantage to the United States, from a national security perspective, in limiting the amount of time available for the President to eliminate foreign availability on militarily critical items of technology. The only advantages that accrue are to the Soviet Union who will be able to obtain this technology sooner, from more sources, and probably at a lower price.

The panel was told that such a provision might encourage the negotiations for the elimination of foreign availability, but this slight advantage, if it exists at all, would be more than offset by the handicap that would be imposed on the President during such negotiations and could substantially undermine the U.S. position in COCOM.

The proponents of eliminating license requirements in view of foreign availability argue that the arbitrary period provides incentive for the foreign source to stop sending such technology to the Soviets. The panel looked closer at the real incentives.

From the point of view of the foreign source, if he agrees to cease exports, he loses all profits from his sales to the controlled country. If, on the other hand, he waits the arbitrary period of time, negotiations to stop his sales to the controlled country fail, and the United States enters the market, he may lose *some* profits but not all profits. As a business, would the foreign source rather lose *all* profits or just *some* of his profits? The panel believes the answer is clear. A foreign source has no incentive to eliminate availability if he knows he will lose *all* profits.

Negotiations must be conducted using incentives other than profits. These negotiations must appeal to other interests shared by the foreign source and the United States. These kinds of negotiations are not amenable to resolution within a specific period of time.

In addition, the issues involved are made even more complex by the difficulty of assessing the relative performance characteristics of these high technology items. Exports should be controlled as long as they are militarily critical and as long as they are not functionally equivalent to items that are available from a foreign source. However, several ways of accomplishing the same function may exist; and a technology should be considered to be "available" from a foreign source *only* if it accomplishes the same function in a way that has the same military utility. If such is not the case, the technology should not be considered functionally equivalent and should not be transferred from the U.S. source.

The panel is also philosophically opposed to a policy that basically says: Even though exporting an item of high technology will be

detrimental to the national security of the United States, no restriction shall preclude this from occurring. The United States is faced today with a situation not unlike the one in which a customer who wants to buy a gun has indicated that he is going to shoot the seller. He tells the seller he can buy a gun from some other source. If the seller cannot eliminate the availability of that gun from some foreign source, should he then sell the customer the gun himself?

The panel believes a matter of principle is overriding in this case. The assessment that an export of an item would be detrimental to our national security—even though it may be available from other sources—should be sufficient to deter us from *wanting* to export it.

Finally, the suggestion could have a "snowballing effect." Once the determination has been made that foreign availability of an item cannot be eliminated within a specified period and once that item is thereby released for export, continuation of negotiations that would lead to restricting foreign availability in the future would be impossible. Once an item is gone, it is gone forever; and a specified period is simply insufficient to engage in a series of complex negotiations in an attempt to restrict its availability from a foreign source.

The panel believes that decisions on issues of national security should be based on the merits of the argument and not automatically made because some arbitrary time limitation has been exceeded.

On the other hand, the panel was told that the inability to determine foreign availability of certain technologies often dilutes the effectiveness of unilateral and multilateral controls.

Many witnesses before the panel urged further relaxation of trade restrictions concerning foreign availability.

The panel agrees that the uncertainty of foreign availability often dilutes our ability to control technology. To this end, the panel concluded that the Administration should mount a strong and concerted intelligence effort to determine the degree of foreign availability for the most critical technologies.

EFFECTIVENESS OF U.S. PROCEDURES

The panel generally found that current procedures used by the various U.S. departments were appropriate and effective. The Senior Interagency Group on the Transfer of Strategic Technology has effected improved interrelationships among and use of more effective procedures by the responsible departments and the United States and COCOM.

One area of concern to the panel, however, centers around the ongoing debate within the Administration between the U.S. Customs Service and the Department of Commerce over who should have the primary role in enforcing the Export Administration Act. In the opinion of the panel, the primary responsibility for enforcement should continue to reside with the Customs Service.

Over the years, the Customs Service has developed a very effective international organization for this purpose and has had very impressive results in controlling illegal exports. The Customs Serv-

ice—and only the Customs Service—has built up a vast network of overseas contacts in foreign custom services and law enforcement agencies that are invaluable in enforcing laws relating to illegal technology transfer. For example, the Customs Service has 21 agents assigned to eight foreign countries and Hong Kong, and these agents regularly travel to other locations to conduct investigations. They are well known to foreign customs services and law enforcement agencies and have established a firm foundation of information exchange.

The Customs Service has, since October 1981, pursued a domestic effort known as Operation Exodus which entails random and surprise inspections of shipments destined for overseas. Operation Exodus has been a remarkable success. 346 cases of attempted illegal exports have been accepted for prosecution from these surprise inspections; there have been 220 indictments to date and 211 convictions. Since October 1981, forty-four criminal indictments for export violations have been returned against foreign nationals and one was returned against a foreign corporation. Four criminal cases were initiated as a result of random searches of export cargo.

The panel supports the current procedure of making random, surprise searches. This technique is essential to the continued success of Operation Exodus. The random search and seizure effort of Operation Exodus has resulted in 2,108 seizures of attempted illegal exports worth over $134 million. Critics of the Customs Service claim this record is insignificant compared to the unnecessary delays caused by the searches. The panel disagrees on this point. The panel found that the total number of Operation Exodus detentions in fiscal year 1982 (2,495) represents approximately 0.025 percent of total number exports and about 0.6 percent of the total number of licensed exports. This is a small price to pay if any part of what has been described as a "hemorrhage" of technology to the East-Bloc can be stopped.

In addition, the panel believes that the minor delays caused by the Operation Exodus program of search and seizure are more than compensated for by the deterrent effect of such searches.

The panel found that Operation Exodus should continue. The panel concluded that funding for the effort should be increased and that the Customs Service should continue to exercise the authority to conduct random searches of outbound cargo.

COCOM

The panel found that COCOM restrictions on the transfer of technology are often circumvented by member countries either by intent or illegal diversion. East-Bloc acquisition of Western technology is especially easy in Western Europe because of the relatively simple access to such technology.

The panel received testimony that indicated that Western European countries did not generally exhibit the same level of concern about the flow of technology to the Soviet-Bloc. A witness stated that "Western European countries, whether members of COCOM or not, have increasingly become reexport conduits of U.S. strategic technology to the Bloc."

The following list details some ongoing investigations into illegal diversions of licensed commodities exported to COCOM countries:

a. A bubble memory computer factory licensed to France but diverted to Bulgaria. Value of export: $1.1 million.

b. A sophisticated computer and related peripherals diverted from their licensed destinations in West Germany and Greece to the Soviet Union. Value: More than $1 million.

c. A number of computer systems licensed to West Germany and the United Kingdom but diverted to Bulgaria and Czechoslovakia. Value: More than $2 million.

d. Integrated circuit testers and automated photo-resistance developers licensed to the United Kingdom and Spain diverted to Poland, Romania and Bulgaria. Value: Almost $1 million.

e. Automatic emulsion processor licensed to West Germany but diverted to the Soviet Union. Value: $65,000.

f. Surveillance receivers and other critical technology items licensed to West Germany but diverted to East Germany and the Soviet Union. Value: $15 million.

g. Industrial carbon dioxide laser licensed to Italy but diverted to East Germany and the Soviet Union. Value: $76,000.

h. Mask aligners to manufacture integrated circuits licensed to Switzerland but diverted to the Soviet Union. Value: $500,000.

i. Computer and miniature electronic technology licensed to Sweden but diverted to East Germany. Value: Unknown.

j. Microwave device and integrated circuits licensed to West Germany and Austria but diverted to the Soviet Union. Value: Almost $13 million.

The panel found that the Administration has stepped up enforcement activity against illegal diversions. Seizures of illegal diversions in fiscal year 1983 were up almost 50 percent over those in fiscal year 1982. Witnesses attributed this record seizure rate to the requirement for the licensing of West-West trade.

The panel supports the Department of Defense request for authority to review an export license request to countries to which exports are not controlled if the Secretary of Defense believes there may be a high probability of illegal diversion of the requested technology.

The panel also found that the United States has limited means of influencing actions of countries or foreign companies with regard to COCOM retrictions and proposes several changes for increasing that influence.

Import Sanctions

In order to unilaterally protect the U.S. interests, the President has sought authority to impose import sanctions against foreign companies that violate U.S. national security controls and export U.S. technology illegally to the Soviet-Bloc. The panel concluded that this authority would strengthen multilateral and U.S. unilateral controls and would place the onus on those companies that choose to ignore U.S. and COCOM controls.

Treaty Status for COCOM

The panel concluded that the effectiveness of COCOM could be increased if the agreements among the participating governments were raised to treaty status. The panel believes that a formal treaty—or even serious negotiations with a treaty as the objective—would provide the United States greater leverage for ensuring that export controls are adequately enforced in other COCOM countries. The panel urges the Administration to consider formalizing the COCOM organization by treaty.

During its hearings, the panel received testimony highlighting the problems of diversion of militarily critical technologies from COCOM allies. The adequacy of controls imposed by COCOM allies varies considerably between countries and even between industries within particular countries. The panel believes that a formal treaty would lead to more uniformity in the application of these controls.

To the extent that licensing procedures currently in effect are vitiated with regard to licensing of individual exports, ensuring that the export controls provided by other nations within COCOM are strengthened becomes even more critical.

The panel observed a trend to redraw the boundary around the technology transfer problem. Currently, tight controls (licenses) exist on the individual items being exported; commensurately weaker controls exist at the boundaries of COCOM. One suggestion—opposed by the panel—would remove the controls on individual items within COCOM. The intent of a formal treaty is to provide incentive for strengthening the controls around the boundaries of COCOM, thereby attempting to ensure the same degree of *overall* control of the flow of technology to the Soviet Union in recognition of the freer trade within COCOM.

The panel believes that a formal treaty would provide the COCOM allies with greater leverage to enforce controls within their countries and between their countries and other COCOM allies. The treaty, or even the negotiations, could provide substantial rationale for obtaining additional resources for enforcement purposes.

In addition, regardless of how much confidence is placed in the enforcement abilities of COCOM allies at this time, in the future, circumstances may change, and that confidence may erode. However, a treaty could bolster that confidence.

Finally, a treaty could result in additional benefits depending on its provisions. Illegal exporters could not find refuge in other Western countries as they do now if the treaty contained provisions for reciprocal extradition and prosecution. In addition, data and information exchange on violators could be formalized, automated and shared; and a treaty could lead to improved cooperation among national law enforcement agencies.

Congressional Oversight

The panel believes that Congress should more closely monitor the enforcement of export controls by COCOM allies and should, based on that oversight, consider imposing sanctions against those governments that fail to enforce export controls effectively.

This position could be viewed by COCOM nations as an implied threat. The position, however, is not intended as such but rather as an indication that the United States expects cooperation from its allies at the same time as more trust is being placed in them.

Sanctions might result from failure to improve or a deterioration in enforcement capabilities. Sanctions, of course, must be a considered policy decision, receiving full deliberation. Hopefully such sanctions would be unnecessary, but the Congress should, through continued oversight, demonstrate the importance of this issue.

The panel believes that increased Congressional oversight would strengthen the President's hand in negotiating with COCOM allies to improve their enforcement capabilities.

COCOM Facilities

The panel found that facilities and capabilities at COCOM headquarters in Paris are less than satisfactory and that COCOM requires administrative modernization to improve its ability to impose and administer multilateral controls. The panel concluded that to improving these facilities and capabilities should have high priority.

The panel was encouraged to learn that the Administration plans to upgrade the administrative capabilities of COCOM headquarters in Paris. Testimony and a visit highlighted deficiencies in the administrative and functional capabilities of COCOM. For example, there is no simultaneous translation capability; no permanent military or legal advisors; no analytical capability (to assess results of controls); no data processing capability, etc. A small initial investment of $0.5 million and an annual operating budget of $1.5 million (up from the current level of $0.5 million) was estimated to be sufficient for this augmentation. The panel supports the provision in the Defense Authorization Act for fiscal year 1984 (Public Law 98–94, section 1206) that authorizes the reprogramming of $2 million for upgrading and improving the logistical support of COCOM.

Military Representation

Military representation in the decision making process regarding export licensing is significant in the United States. Such representatives bring to the process a particular perspective essential to the determination of good public policy. Other COCOM allies currently lack such representation and should seek to increase the number of military representatives involved in the process, especially at COCOM.

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