
REPORT OF THE TECHNOLOGY TRANSFER PANEL

[Editor's Note: In recent years, the transfer abroad of U.S. technology -- particularly critical defense technology -- has emerged as a major national security issue, with significant implications for security assistance programs. The following reading provides extracts from a report of a special panel of the House Committee on Armed Services which earlier this year completed a study of this important matter. The complete report is cited as: U.S. House of Representatives, Report of the Technology Transfer Panel of the Committee on Armed Services, 98th Cong., 2 sess., 13 June 1984.]

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.

* * * * *

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. [International Coordinating Committee for multilateral export controls which includes all NATO countries except Spain and Iceland, plus Japan; see page 79 for further discussion.] 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 -- 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

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 -- 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 proposed 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 eight 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 navigational 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 three to five 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. designs.

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 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. Rpt. 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:

<u>Commodity</u>	<u>Group</u>
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.). [Editor's Note: Section 38 of the Arms Export Control Act (22 U.S.C. 2778) authorizes the President to designate export/import items deemed to be defense articles and defense services. The actual designations are accomplished by the Department of State with the concurrence of the Department of Defense. Items so designated constitute the U.S. Munitions List and are published in the International Traffic in Arms Regulation (ITAR) which also contains the export licensing procedures for these items. Licensing administration for items furnished through the U.S. Security Assistance Program is accomplished by the Office of Munitions Control in the Department of State. Many, but not all, of the items on the U.S. Munitions List also appear on the COCOM International Munitions List.] 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, key-stone 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 18 government agencies, including most of those agencies previously discussed. Its objective is to formulate policy and coordinate government action on technology transfer activities. Some sub-cabinet 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. . . .

[Editor's Note: The remainder of the report examines the history of changes in export administration, and provides a detailed discussion of the Panel's findings and conclusions which parallel the summary provided herein. Readers who have a special interest in this subject are encouraged to consult the complete report.]