Director of Central Intelligence

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National Intelligence Estimate

Potential for the Transfer of US Space Technology to the Soviet Union

Key Judgments

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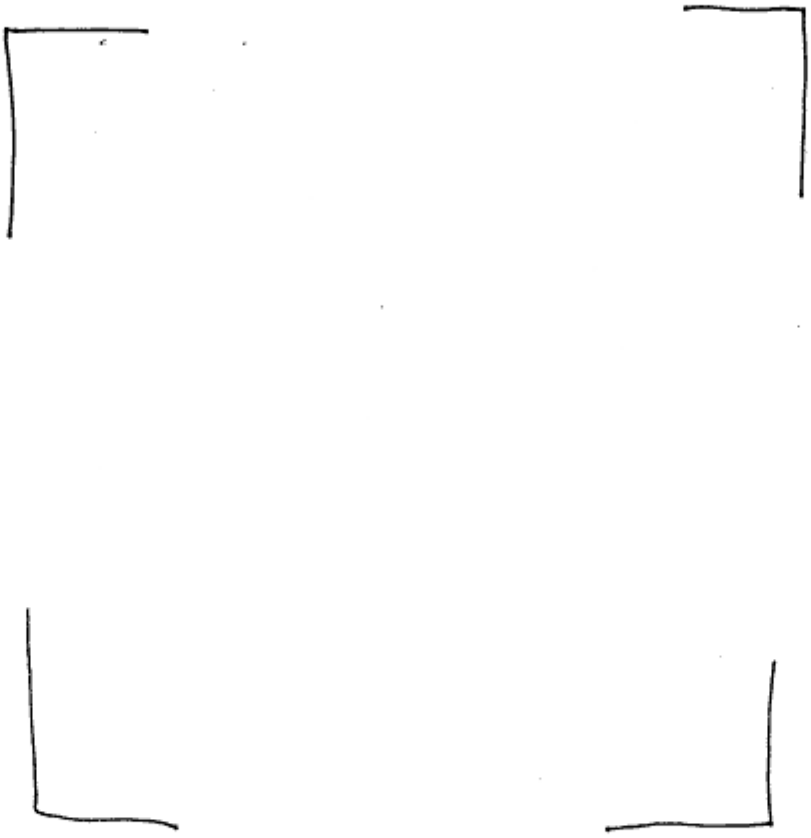

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NIE 11-1/7-84

POTENTIAL FOR THE TRANSFER OF US SPACE TECHNOLOGY TO THE SOVIET UNION

KEY JUDGMENTS

The full text of this Estimate is being published separately with regular distribution.

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THIS ESTIMATE IS ISSUED BY THE DIRECTOR OF CENTRAL INTELLIGENCE.

THE NATIONAL FOREIGN INTELLIGENCE BOARD CONCURS, EXCEPT AS NOTED IN THE TEXT.

The following intelligence organizations participated in the preparation of the Estimate:

The Central Intelligence Agency, the Defense Intelligence Agency, the National Security Agency, and the intelligence organizations of the Departments of State and the Treasury.

Also Participating:

The Assistant Chief of Staff for Intelligence, Department of the Army

The Director of Naval Intelligence, Department of the Navy

The Assistant Chief of Staff, Intelligence, Department of the Air Force

The Director of Intelligence, Headquarters, Marine Corps

SCOPE NOTE

The evolving plans for greater cooperation between the US Civil Space Program and those of US allies in Western Europe and Japan have given rise to concerns about possible technological leakage to the USSR. The projected joint programs could involve the sharing of research and development information, advanced manufacturing techniques, and operational support in programs such as the space station.

This Estimate assesses the possible military-related benefits that the USSR could derive from the transfer of specific US space technologies and identifies what we perceive to be the key Soviet needs related to space technology. It also describes the Soviet program to acquire Western technology, the methods used, and the contributions that Western space technology have made to certain Soviet military programs and military-related space programs.

The Estimate also assesses the competence and vulnerabilities of the Soviet acquisition program, the prospects for the loss of US technology by means of the joint space programs, and countermeasures to reduce these prospective losses. There are also assessments of the intelligence gaps and the limitations that affect this Estimate.

Our conclusions are general and are intended to support the development of overall policies and guidelines concerning cooperative space efforts with US allies. Specific cases will have to be reviewed for technology transfer potential as they arise and the terms of cooperation and details of control agreements are determined.

This Estimate does not address the impact of not having cooperative space programs with US allies.

Our findings and analysis for this Estimate are in two volumes:

— Volume I : Key Judgments and Summary.

— Volume II: The Estimate.

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KEY JUDGMENTS

We believe that joint space programs between the United States and its allies will, under current conditions, serve as conduits for the increased leakage of sensitive US technology to the Soviets. These technologies would be applied directly to future Soviet military space and nonspace military systems developments. To be sure, a vast amount of valuable space-related technology already has been and continues to be obtained directly from US sources and used by the Soviets in applications ranging from their satellite data relay system to their developmental space transportation system. We expect that Western technology *not controlled* for national security, foreign policy, or competitive reasons will continue to be acquired by the Soviets. Our primary concern with respect to cooperative space programs with US allies is that the transfer to allies of *controlled*[1] US technology substantially increases its vulnerability to Soviet collectors. [redacted]

[redacted] the Soviet technology acquisition program is large, well organized, well funded, and has in place the means to collect both controlled and uncontrolled technologies—such means including espionage, trade diversions, and scientific exchange.

Our expectation for continued Soviet acquisition and use of US space technology is based, in part, on the record of Soviet activity in this area—activity that has already greatly benefited Soviet space and military space system developments:

- There are several instances where certain Soviet spacecraft systems and subsystems are so similar to US spacecraft systems or subsystems that we can confidently assess that they have at least benefited greatly from, if not actually copied, Western technology or systems. [redacted]

[redacted]

[1] Controlled technology is technology included under the provisions of the Export Administration Act, the Munitions Act, the Atomic Energy Act, and COCOM. Foreign policy decisions may also control sales through embargo. For competitive reasons, some technologies are controlled as company proprietary information.

— We believe the Soviets acquired considerable information on the US shuttle orbiter's thermal protection system from the surface heating data obtained from the second and third shuttle flights. These data were released to the public in June 1982. NASA estimates that the data could save the Soviets the equivalent of $750 million in R&D cost and considerably reduce development time.

We estimate that Soviet attempts to acquire space technology will be in areas needed to support development of future systems or follow-ons to existing space and nonspace military systems rather than for systems in current production or in an advanced state of development. Current assessments of Soviet technological capability identify 13 technology areas that are critical to possible Soviet space programs. These 13 "space technology" areas affect some 75 space systems or system options for which we believe there are Soviet military needs and corresponding intelligence collection requirements. The Soviets probably will not be able to satisfy all of these requirements through access to US-allied cooperative space programs.

A number of countermeasures are available, some of which are being applied by the United States and to a lesser extent by the allies to protect sensitive technologies. With respect to the unclassified and uncontrolled technology, the most effective countermeasure is an awareness program coupled with security and distribution procedures to introduce uncertainty and time lags in the Soviet and East European technology acquisition process. As for trade, most key space-related hardware is already controlled, and efforts of COCOM members currently under way to reduce diversions will enhance COCOM's effectiveness, even if the measures are only partially successful. Counterespionage efforts by the West over the past two years have reduced, to some extent, the effectiveness of Moscow's clandestine technology acquisition operations.

The Soviets regard all acquisition of Western equipment and scientific and technical information in support of requirements set by their Military-Industrial Commission (VPK) as an intelligence operation, regardless of who collects it or how it is collected. These operations focus on technology that enhances Soviet military efforts, including space programs. Open-source publications (particularly NASA documents and NASA-funded contracted studies) constitute the Soviets' largest and most important source of US space technology. Soviet collection requirements that cannot be satisfied by open sources, exchanges, or legal purchases become clandestine targets to be reached by either illegal purchases or by traditional espionage methods.

Faced with the intensification of the military-technological competition with the United States, and the growing importance of the space arena, the Soviets will continue to increase their collection efforts to overcome Western controls covering space-related technology. Moreover, the proliferation of commercial space capabilities among the Western allies and the establishment of cooperative space programs with them will widen the available targets for Soviet access. It is possible that, as the Western allies develop and apply technology in their own space programs, they will become more cautious in their exchanges with the Soviets and more security conscious. It is likely, however, that the Soviet and East European S&T collectors will continue to find the allies to be inviting targets.