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The Director of Central Intelligence
Washington, D.C. 20505

NIC #5451-83
19 August 1983

National Intelligence Council

MEMORANDUM FOR: Deputy Director for Intelligence

THROUGH: Chairman, National Intelligence Council

FROM: Maurice C. Ernst, NIO for Economics
Jan P. Herring, NIO for Science & Technology

SUBJECT: Intelligence Community Research Capabilities on
Soviet High Technology Industries

1. Intelligence Community research capabilities on Soviet high technology industries are grossly inadequate. What capability exists is mainly in the CIA/DDI. Unless these capabilities can be increased, intelligence support for export control policy and the ability to assess the potential impact of new and evolving technology on future Soviet weapons systems will be seriously degraded.

2. A thorough understanding of the Soviet and East European high technology industries, including microelectronics, computers, telecommunications equipment, scientific and industrial instruments, special chemicals and nonferrous materials, numerically controlled machine tools, and robotics, is necessary to assess the rate of modernization of the Soviet economy, and especially Soviet capabilities for producing modern weapons systems. These industries produce critical components and materials for nearly all modern weapons systems, and their role is rapidly increasing. In many cases, the greater part of these industries' production is used for military purposes; indeed, their links with weapons production are so close that the Soviets treat these industries bureaucratically as being part of the defense complex. Without the rapid development of these industries, the USSR will not be able to keep up with the US and its Allies in the development and production of sophisticated weapons; reliance on a brute force approach as in the past will no longer suffice.

3. Detailed technical knowledge of these industries also is essential to intelligence support on export controls. Since weapons and their components are all embargoed, nearly all export control issues are concerned with products and technologies which are used to produce weapons, and these products and technologies have come primarily from the industries in question. Recent Soviet development of these industries has been possible

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thanks largely to massive imports of Western equipment, technology, and know-how, through both legal and illegal channels. Moscow has full access to the products and technology of the high technology industries in Eastern Europe and because of this relationship the level of high technology in the East European countries is equally important to that of the USSR itself.

4. To deal with questions such as these, the Intelligence Community needs information on critical elements of each industry: technical level of new technology; R&D projects; production equipment and technology; costs; industrial strategy; intra-CEMA cooperation; and use of legally and illegally obtained Western products, technology, and know-how. These aspects of high technology industries need to be analyzed in an integrated manner so as to obtain a clear picture of how rapidly Soviet capabilities are changing and what are the forces behind these changes. The future quality and reliability of Soviet defense production must be analytically assessed.

5. These critical Soviet and East European industries are not being studied in a systematic fashion anywhere in the Intelligence Community. There is expertise in a variety of places on aspects of these industries, and from time to time this expertise is mobilized to address particular issues on technology transfer, export controls, or the characteristics of weapons systems. However, no one is responsible for integrating the analysis of all aspects of these industries. Furthermore, without such analytical leadership, the capability to conduct such analysis is eroding and a fairly large body of IC collection resources is being expended without good analytical collection guidance. This negative trend exists despite the greatly increased emphasis on the technology transfer problem and the massive increase in the volume and sophistication of Intelligence Community collection and production on this problem.

6. Historically, production capabilities in Soviet and East European high technology industries were covered by analysts in ORR, and later in OER, while R&D for these industries was done in OSI. This effort slowly eroded during the period of detente; more recently it has been further weakened by several developments:

- o After the DDI reorganization, the responsibility to follow these industries in the Soviet Union went to SOVA, but without the necessary positions or people. SOVA does research, inherited from OSR, on Soviet military industries, but so far has done little on the high technology civilian industries.
- o Several of the former OER industry analysts went to the Technology Transfer Center and continued to respond to export control questions much as before, but have had little or no time to do basic research on the industries themselves.
- o The expansion, first in OSI, then in OGI, of the effort on

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international industrial competitiveness, which gives particular emphasis to Japanese high technology industries also has diverted positions, time, and expertise away from Soviet Bloc industrial work.

- o Several experienced analysts retired and were not replaced.
- o Responsibility for the East European high technology industries went to EURA after the reorganization, but that office has neither the positions nor the expertise to do the job. Consequently, this account is being covered incidentally by analysts in other units, or not at all.

It has become increasingly apparent that research on Soviet high technology industries is not taking place. There have been no DDI research products on these topics in the past two years.

7. The IC's current efforts to produce an NIE on Soviet military S&T (NIE 11-12) has been adversely affected by this inadequate research base. The most important key technologies that affect future Soviet weapons performance are those that are developed in the microelectronic and computer sectors. Soviet capability to actually produce and maintain the future high tech weapons will depend on Soviet progress in their production equipment and instrumentation sectors. The IC's analytical resources to address these important industrial sectors are so sparse that it often takes three to four times as long to produce the needed NIE inputs as it should. More importantly, this estimate is the one IC input that DoD must have in their current long-range procurement planning cycle to ensure that current US R&D decisionmaking is relevant to the future Soviet threat.

8. The extent and importance of this problem also was evident during the discussions in preparation for a NATO meeting attended by the NIO for Economics dealing with the NATO work plan on economic topics. To help buttress the ad hoc analysis done in COCOM, the US wants the NATO Economic Committee to sponsor a series of studies on Soviet and East European high technology industries, including the role of Western goods and technology in their development. The ball is entirely in our court, since the Europeans have very limited research capabilities. Unfortunately the best the Intelligence Community can do is produce a study next spring on the computer industry and even this will require assigning a senior technology transfer analyst full time to the task. A study on microelectronics can perhaps be completed next summer, thanks to an external contract by the Technology Transfer Assessment Center, but the Community's top expert on Soviet microelectronics is currently working on Japanese and European industries. The long waiting period for even a single study takes much of the steam out of a US initiative to which most NATO countries are lukewarm at best.

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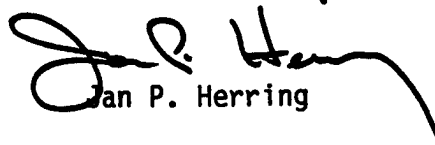
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9. A solution to this problem can only be found within the DDI. Other components of the Intelligence Community can help marginally, but have never taken on this particular responsibility. Although we are not in a position to recommend any particular solution, any solution adopted would have to take into consideration the following:

- o The need to study high technology industries in an integrated fashion.
- o The need to know the technical capabilities of the high technology industries in Western countries (including Japan), as well as those in the USSR and Eastern Europe.
- o The practical impossibility of developing an independent expertise on East European industries, given the scarcity of needed experience and skills.
- o And, to support the above analyses, the need for in-depth research on Soviet and East European industrial publications, as well as use of classified intelligence sources.

In practical terms, responsibility for these industries could be in SOVA, in the OSWR's Technology Transfer Center, or in OGI. In any event, the three units would have to work very closely together. An alternative would be to create one international industrial assessment center to support all of the DDI; it could be located in either OGI or OSWR.


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