

**DRAFT**

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**S&T Intelligence: The Intelligence  
Community's Capability to Meet New and  
Evolving Needs of National Policymakers**

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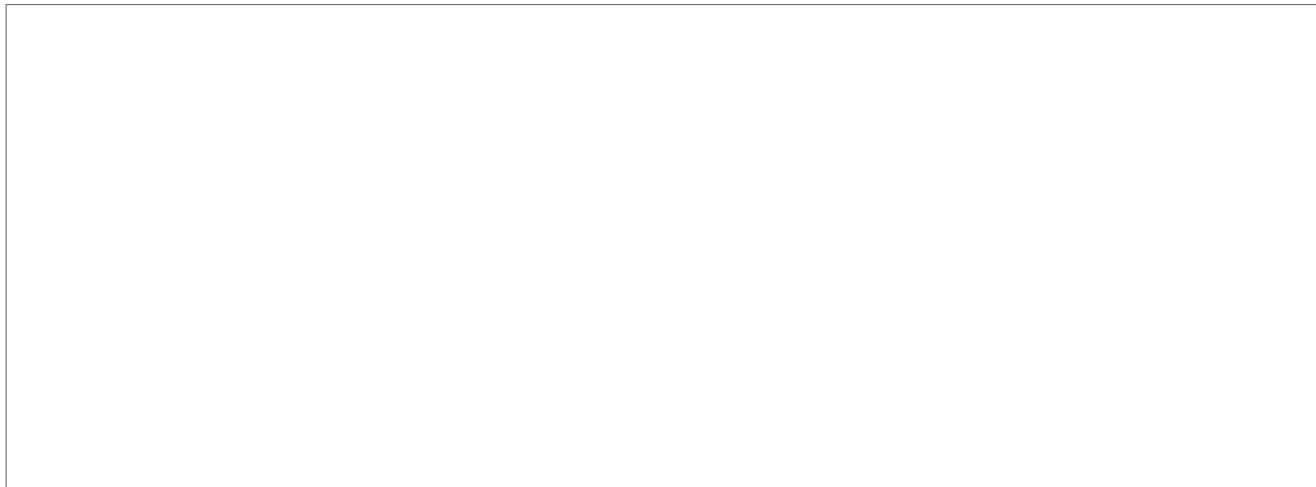
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## Introduction

In late 1978 the STAP, with the DCI approval, undertook a wideranging review of the Intelligence Community's capability to meet the contemporary needs of national policymakers for foreign intelligence concerned with international scientific and technological developments. This review stemmed largely from STAP's belief that foreign developments in science and technology in the decade ahead would become major determinants in the formulation of US foreign policy, national technology strategies, and national security planning. Of particular concern was the rate at which future developments in S&T are expected to take place, with corresponding impacts on international political, social, industrial, and economic systems. While the use of foreign S&T intelligence\* in the US defense planning was considered straightforward and generally adequate, its use in political and economic contexts called for new and innovative approaches in both collection and intelligence production. STAP was not sanguine about the IC's ability to identify such evolving policy needs and to effect the substantive and organizational changes needed to meet those future intelligence requirements in a timely fashion.

## Definition

STAP, although restricted in its charter from dealing with nuclear matters and with technology when it passes from the "6.2 to 6.3" stage, i.e. when it appears in weapons systems, recognizes the large grey areas of overlap and taken a broad view of S&T intelligence philosophically and a narrower view for organizational reasons. From the broad point of view S&T intelligence includes a spectrum for early

scientific thoughts and developments, through their technological development and production of hardware, to appearance in new systems. It includes, in addition to military S&T, S&T which may become in the future more important than military, e.g. S&T related to food, population and energy.

STAP also observed that shifts in the national level consumer community were already under way, i.e., there are increasing numbers of policymakers and decisionmakers requiring foreign S&T intelligence for non-military and diplomatic affairs. The applications ranged from the United States' S&T agreements with China and the USSR, to energy and space policy decisions and the World Administrative Radio Conference (WARC) of 1979. The collection and production of national intelligence in support of these new policy needs required new forms of analysis--often multidisciplinary, i.e., techno-economic and techno-political--and development of new consumer relations and policy support mechanisms.

STAP was concerned that the IC was not structured or oriented toward the provision of multidisciplinary analysis and that production of traditional political or economic intelligence on international issues containing significant S&T content (e.g., energy) might result in oversimplified one-dimensional assessments or in political-military positions (e.g., BW/CW assessments) based on poor technological understanding of how civil-military industrial capabilities interrelate. The significance of S&T developments and their relationship to the achievement of the political, economic, and military objectives of foreign nations are exceedingly complex issues

in both the intelligence data base and the analytical techniques in order to make the appropriate policy-related technology assessments. And in the future analysis STAP was not convinced that the existing consumer-producer relationships between national policymakers and the IC would support or guarantee the effective communication of consumer requirements and intelligence production in areas not already well established.

STAP initially undertook the review of the S&T intelligence cycle\* with the objective of completing it (on a part-time basis) in about one year. However, due to the burden of other tasks the project stretched out to about two years. Even at that, not all aspects of the cycle were looked at in as much detail as would have been desirable. The approach taken, both functional evaluation of individual cycle elements and contemporary case studies (dynamic), permitted an assessment of the IC's current capabilities to meet the new and evolving needs of policymakers; STAP used its best judgment in the extrapolation of those capabilities to meet future needs. The study results, of course, have their limitations. The recommendations made are functionally oriented and not organizationally specific. Implementation of those recommendations will require elaboration to make them specific. STAP is prepared to provide assistance in this context.

## II. STAP FINDINGS AND RECOMMENDATIONS

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\*The S&T intelligence cycle studied by STAP comprises the identification and prioritization of problems, collection against them, processing of collected data for analysis, the analysis itself, the publication and dissemination of results, and, very important, feedback from consumers to the producers of S&T intelligence.

## A. OVERALL FINDINGS AND RECCMMENATIONS

As a result of numerous briefings, interviews, and reading, STAP concluded that S&T intelligence, by itself, is a naked product. Few high-level consumers need or appreciate foreign intelligence products solely devoted to the technical aspects of foreign S&T developments. In order for S&T intelligence to be meaningful and relevant, it must be properly interpreted in terms of its political, economic, and/or military implications.

STAP feels S&T intelligence is key to anticipatory analysis in the military and economic areas and can be of importance in US foreign policy initiatives that seek to obtain US political objectives by using US science and technology.

Further, S&T intelligence becomes increasingly important as S&T advances are made in countries other than the United States. We note that in the mid-50s, the United States contributed three-quarters of S&T advances, but now contributes less than one-third.

It also becomes important as natural resource constraints limit economic growth; as economic competition or as some term it economic warfare intensifies among industrialized countries; and as Western technology developments--paced by commercial not military needs--widen the gap between the West and both Communist and LDC countries and access to Free World sources becomes easier for foreign military planners.

to achieve foreign policy objectives, particularly in cases that conflict with US national security and economic interests, the need for S&T intelligence increases.

STAP feels that the structure of the Intelligence Community (IC) must be improved if it is to meet the new and evolving S&T intelligence needs of policymakers, as well as anticipate their future needs.

Lastly, the collection means of (principally HUMINT) and analysis of S&T intelligence has progressed little over the last 20 years. STAP feels the IC analytical community is not well prepared to meet the new complex and sophisticated needs of contemporary policymakers.

#### Recommendations

With respect to the above overall findings, STAP makes the following recommendations:

- o A dedicated effort must be made by the NSC and NFIB to increase the level of awareness within the IC of the increasing importance of S&T intelligence to broad US national security and foreign policy needs.

- o S&T intelligence should be collected and produced as an integral part of political, economic and military intelligence.

- o The responsibility of identifying priority national S&T intelligence issues, coordinating IC collection and S&T intelligence

○ production on national issues, and serving as the DCI's principal adviser on S&T intelligence matters should be assigned by the DCI to an NIO/S&T, STIC, STAP or a combination, with clear lead responsibilities.

o In order to fully realize the IC S&T collection capabilities, a small, dedicated, technically qualified tasking element should be established in the National Collection Planning Office (NCPO); S&T collection guidance on national-level issues should be provided by STIC, and, where relevant, in coordination with WSSIC, JAEIC and EIC.

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o STIC, in consultation with the DDS&T and STAP, should systematically identify totally new areas for technical collection,

[Redacted]

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o The IC must develop a program and, if necessary, an organization comparable to NPIC and NSA, to process open source information for subsequent use by the analytical community.

○ o NSA and NPIC should be encouraged to participate in analysis that involves the merger of COMINT, HUMINT, PHOTINT, and open source



o The IC needs to develop a general approach or methodology for assessing the long-range implications of foreign S&T developments that will provide the basis for anticipatory analysis in the economic and political areas.

o The IC should establish a mechanism to assess the quality of community S&T intelligence products, both in terms of consumer values and substantive merit; outside assistance from academe or knowledgeable contractors should be sought on the latter

#### B. SPECIFIC FINDINGS AND RECOMMENDATIONS

The following more detailed findings and recommendations indicate the steps needed to 1) organize the IC's S&T elements and processes, 2) organize for a given task, and 3) package in an integrated way S&T intelligence of importance in the military, economic and political areas.

##### 1. Identification - National Issues with Major S&T Content

STAP found that no one is assigned primary responsibility for identifying such issues. There is no NIO/ST or NCOP/ST, the DCI's STIC is only partially responsible, and there are no requirements on STAP. The current NITs and DCID 1/2 are not adequate, as they lack specificity, require analytical interpretation for which no one has responsibility, and they are not appropriate for time-urgent issues.

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STAP found that key policymakers (NSC, OSTP, State, Defense, Commerce, Treasury, etc.) must seek their own channels to the IC. There are few, if any, identified points of contact. Only the NSC staff and OSTP have used NIT's or equivalents to communicate their needs concerning key S&T issues. High-level consumers who have had prior experience with the IC use their own private channels--a form of "old boy network."

Most consumers do not know or understand the IC or how to use it, but those few with intelligence officers on their staffs (e.g., OSTP and Energy) can make better use of the community.

STAP recommends that responsibility for identifying priority national issues for S&T intelligence action be assigned to an NIO/S&T, the DCI's STIC, to STAP, or to a combination of the above, with clear lead responsibilities identified. A multilevel approach is required with interaction between the IC and consumers at high and middle levels.

## 2. Intelligence Production Planning Tasking

STAP found that there is no IC mechanism or designated official responsible for translating high-level consumer needs for S&T intelligence into IC production guidance. The task apparently is left to individual production units and these efforts are uncoordinated.

principal consumers tend to make direct production/support requests to various IC producers. Products tend to be reactive (not all bad) and not anticipatory. Products are usually drawn from single production units, not the IC as a whole.

Current production planning does not realize the full potential of S&T intelligence as a multidisciplinary element. S&T contributions to economic and political, as well as military, assessments are not being fully considered. The long-range anticipatory nature of S&T intelligence is mainly being used in making military assessments and only on a sporadic basis. S&T intelligence could provide long-range input for some political and economic assessments as well.

STAP recommends that the national S&T production planning responsibility be assigned to a technically qualified central authority--an NIO/S&T, STIC, or other entity. STAP should play an active advisory role.

### 3. Collection Tasking

STAP feels that national tasking on S&T issues requires both substantive expertise on a variety of issues and detailed knowledge concerning IC collection systems. In this area, the NCFE has requested STIC to provide substantive expertise.

STAP found that national tasking on S&T topics continues largely to focus on military, rather than politico-economic, threats. Present tasking tends to result in the collection of a large but not always usable data base on military S&T, whereas in the non-military S&T

area, issues are not as well defined or are undefined. Technical collection tasking (PHOTINT and SIGINT) is generally well organized and responsive to military S&T intelligence tasking, but is on an "as available" basis for non-military tasking.

HUMINT collection tasking is much less well organized and even though it is recognized as a potentially significant source of S&T intelligence, there needs to be even more effort by the analysis and production community to exploit it more fully.

There is too little interaction between HUMINT collectors and S&T analytical organizations--feedback has been nearly nonexistent so that collectors have little incentive and analysts are unaware when their requests are not feasible for one reason or another.

STAP recommends that a small but dedicated S&T tasking element be established within the NCPO which could also serve as a link to the principal S&T consumer organizations. In addition special S&T collection priorities and collection guidance should be developed by the IC--under STIC leadership--for HUMINT tasking, particularly for clandestine collection.

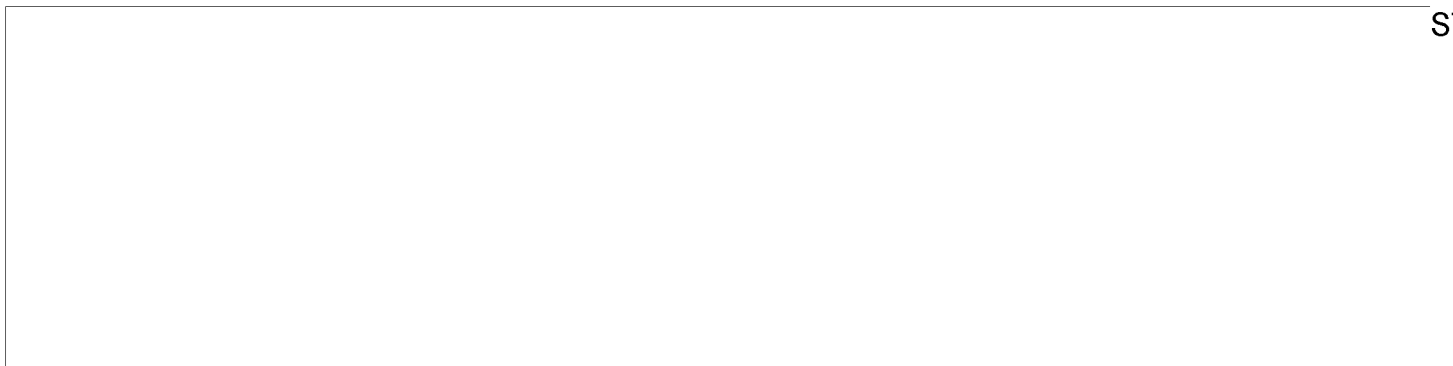
#### 4. Collection: HUMINT

STAP feels that HUMINT offers extremely high potential for foreign S&T intelligence collection. While overt collection could satisfy more S&T intelligence requirements, it is not adequately tasked nor guided on national issues, and clandestine collection

suffers from the absence of national S&T priorities and collection

○ guidance.

Few HUMINT collectors are trained concerning S&T intelligence and HUMINT collectors often do not realize their full potential because consumers, particularly analysts, are not fully exploiting what they are now collecting.



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○ To solve these specific problems, STIC, in consultation with STAP, should prepare specific S&T collection guidance on national issues for HUMINT collectors; special S&T intelligence training should be developed for HUMINT collectors; S&T collection priorities and collection guidance should be prepared for clandestine HUMINT collectors;



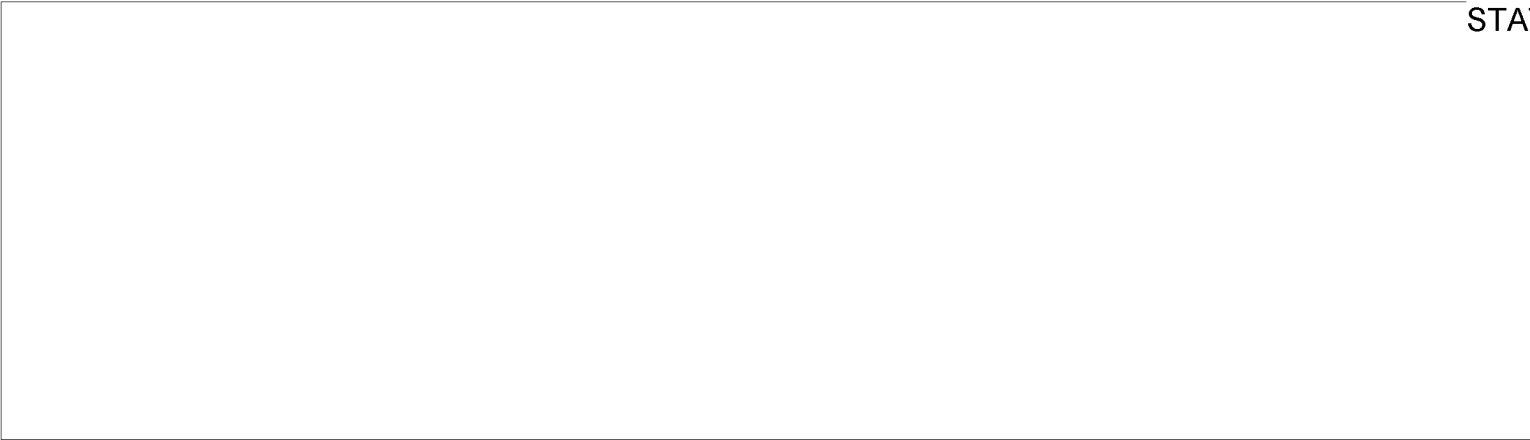
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Collection: Technical

○ STAP found that technical collection (PHOTINT and SIGINT) against military and nuclear targets receive high-priority coverage but non-military targets, with the possible exception of agriculture, receive far less attention.

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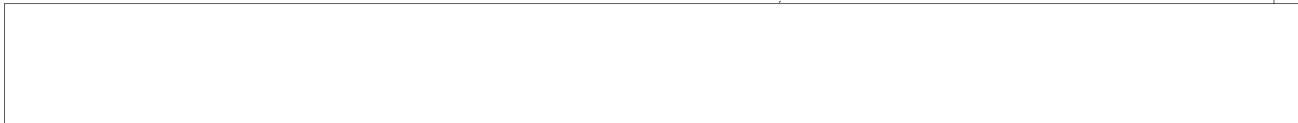


STAP believes that NSA and to a lesser extent NPIC have analytical capabilities that are not effectively used because of rigid interpretations of roles and missions. Also, there is not enough effort to develop or use new technical collection means--other than national PHOTINT or SIGINT systems--to collect S&T intelligence.

STAP recommends that NSA and NPIC be encouraged to participate in analysis that involves the merger of COMINT, HUMINT, PHOTINT and open source literature.

Further, STIC, in consultation with DDS&T and STAP, should be tasked to identify promising new areas of technical collection

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### 5. Processing of Overt Intelligence Data

STAP found that the processing of overt source S&T information within the IC tends to be haphazard, as there is nothing comparable to NSA or NPIC in this area, and such processing is mainly left to individual analysts. Also, the storage and retrieval of foreign open

source S&T literature is not well organized or managed within the IC.

The IC's use, with the possible exception of FTD, of commercial S&T information systems is poor, and analysts generally are ignorant of the potential. Further STAP found that the SAFE system at one stage did not plan to utilize open source information.

Lastly, the IC does not effectively use open source evaluation conducted by other parts of the government, by industry, or by academia.

STAP recommends that the IC develop a program, and if necessary an organization, comparable to NPIC and NSA to process open source and overtly acquired information for subsequent use by the analytical community. STAP points out that open source analysis would be feasible for a contractor operation.

## 6. Analysis and Production

STAP found that the analysis of S&T intelligence, as opposed to weapon system analysis, for instance, continues principally to be a "desk top" process. Few new analytical techniques are developed or used, there is little systematic effort to assess the long-term implications of S&T developments, and there is little effort to tap into outside analytical communities (industry, banks, think tanks, universities, etc.)

STAP sees little interdisciplinary use being made of S&T intelligence in IC products and little effort to use S&T intelligence projections as the basis for conducting anticipatory analysis in

○ military areas is quite active and makes considerable use of S&T intelligence.

There is little coordination or planning of S&T analysis and production within the IC and too few efforts to incorporate S&T intelligence in other IC products. The IC tends to produce too much of its S&T intelligence in formal publications, while policymakers also desire to receive oral briefings and to interact with the intelligence expert. STAP feels that for S&T intelligence collection, feedback from the analytical community is crucial; a mechanism should be developed by the NCPO for this purpose.

○ STAP believes that selected S&T analysis should become an integral part of military, economic and political analyses. The NIC, or possibly STIC, should have the responsibility for coordinating S&T intelligence analysis across the IC. In support of the three areas, military, economic and political, STAP feels there should be dedicated S&T efforts on anticipatory intelligence analysis; a general approach or methodology should be developed to assess the long-range implications of foreign S&T developments.

#### 7. Consumer and Analytical Feedback

○ STAP found no organized effort to evaluate the quality of the IC finished intelligence product. Analysts tend to be evaluated on performance rather than value of the product. STAP feels that feedback from the analytic community is critical to improved collection performance as HUMINT collectors need but receive very little



technical collection. Consumers want and need feedback. The development of the NIT's (or any similar national consumer list) depends on such feedback and consumers' need to know if they are asking the right questions (e.g., PRC petrochemical case).

STAP recommends that greater attention be given to consumer/analyst interaction, including more frequent personal discussions. The IC should establish a means of evaluating the quality of its finished SET intelligence products. STAP could be used in some fashion for this purpose. Consumers should be kept informed regarding these evaluations. Also, an effort should be made to better understand how analysis is currently carried out, how it is evaluated, and how good analysts are identified.