Problems in fashioning an estimative product suitable for input to systems analysis in force planning.

INTELLIGENCE FOR DEFENSE PLANNING

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The story of intelligence support for defense planning at the national level in the current Administration offers a good case study in the relationship between national intelligence and the consumer, or at least one of its most important consumers. Although the history of long-range estimating and quantified projections has been a long and thorny one, the requirements of the new defense planners are perhaps unique in their degree of articulation, a refinement which stems from the needs of the systematic analysis techniques used in current planning. This review of the case to date proceeds from the bias that the consumer is why we are in business.

In the latter part of 1961 the Comptroller of the Department of Defense, Assistant Secretary Charles J. Hitch, laid down specifications for intelligence estimates required by new DoD methods of programming and planning initiated earlier that year.[1] Nearly two years later Deputy Assistant Secretary of Defense Dr. Alain Enthoven presented substantially the same requirements again.[2] A recent memorandum from the Office of National Estimates succinctly characterizes these requirements in the following terms: "As you know, OSD has for several years been expressing the need for *more detailed quantitative projections* of Soviet military capabilities."[3]

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[1] Memorandum of 17 Nov. 1961 to DIA, "Future Needs Program for Intelligence Estimates and Analysis of Intelligence" (Secret).

[2] Memorandum for Record 25 July 1963 (Revised 22 Sept. 1963), "Notes on Long Range Intelligence Projections of Sino-Soviet Forces" (Secret).

[3] Memorandum for the USIB Representatives, "Further Requirements of OSD for Quantitative Projections on Soviet Military Capabilities," Sept. 1963 (Secret).

Below we look at the nature of the new requirements, recount the intelligence community's efforts to satisfy them, consider some of the major problems they create, and offer some hopefully constructive suggestions. To all colleagues, known and unknown, who have grappled with the problem we acknowledge our indebtedness and regret any inadequacy in this presentation.

The New Programming

What were the methods of programming and planning referred to by Mr. Hitch that generated new demands on intelligence? Here they cannot be described in detail, but they are of such importance to our study that we must outline their major aspects relevant to the intelligence problem.[4]

Under these methods the analysis of alternative U.S. strategies, forces, and weapon systems is done within the frame of reference of nine major categories or programs of defense:

Strategic Retaliatory Forces
Continental Air and Missile Defense Forces
General Purpose Forces
Airlift and Sealift Forces
Reserve and Guard Forces
Research and Development
General Support
Civil Defense
Military Assistance Program

These programs are subdivided into more than 1000 elements, sometimes at as many as four aggregative levels, constituting well-defined, homogeneous groupings of particular types of forces—B–52 squadrons, Atlas squadrons, Polaris submarines, infantry divisions in Europe, etc.—each of which reflects quantitatively the strength requirements of any particular strategy.

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[4] A short bibliography for the reader desiring more details might include: "Study Report on the Programming System for the Office of the Secretary of Defense" prepared by the Office of the Assistant Secretary of Defense, Comptroller, 25 June 1962; Novick, David, *Program Budgeting: Long Range Planning in the Department of Defense*, The Rand Corporation, RM-3359-ASDC, November 1962; Enthoven, Alain C., "Systems Analysis and Decision Making," *Military Review*, January 1963.

There are figured also for each element of this framework the inputs of manpower, equipment, military construction, and other resources needed to attain the required strength. Ultimately, the resources required to constitute any given element, force structure, or strategy are gauged by the single measure of cost in dollars, the only unit of measure applicable to all the diverse elements. The total military output, the sum of all program elements, is equal to the sum of all resource categories, the total input.

Two other aspects of the programming are highly relevant to the intelligence problem. First, a program change control system makes the quantitative data relevant to proposed program changes promptly and fully available for decision making. And second, a "Five-Year Force Structure and Financial Program" provides a basic reporting format for the entire force structure through time.

Programming is thus the determination of the specific time-phased resource inputs necessary for accomplishing a given output, while planning is the selection of the desired output. The analytical process has been described as

> . . . a cycle of definition of objectives, design of alternative systems to achieve those objectives, evaluation of the alternatives in terms of their effectiveness and costs, a questioning of the objectives and a questioning of the other assumptions underlying the analysis, the opening of new alternatives, the establishment of new objectives, . . . and so on.[5]

What is new in the process, as Dr. Enthoven points out,

> . . . is that more than ever before, top defense officials are now being aided in making these judgments by the systematic availability of quantitative information on the effectiveness and costs of alternative strategies, forces, and weapon systems. This information is produced by a method sometimes called "Systems Analysis."[6]

Systems analysis, the balancing of output in terms of the program elements and their operational effectiveness against input in terms of resources, thus provides for programming any given force structure through time against its alterna-

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[5] Alain C. Enthoven, "Systems Analysis and Decision Making," *Military Review*, January 1963, p. 8.

[6] *Ibid.*

tives in pursuit of our defense objectives. The primary input of systems analysis is quantitative data; the primary characteristic of the method is articulate detail. Finally, a fact of utmost relevance in its implications for intelligence, it is a unified management system; and one of the interdependent inputs it requires for planning is intelligence on the opposing forces.

The Intelligence Requirement

Any significant change in key operations of the government bureaucracy is likely to be preceded by a long period of suggestion, study, and experimentation at various subordinate or even non-government levels. So it was with the new programming and planning process in the DoD. The intelligence community, as a part of the larger national security community, was aware of this early activity and participated in it. Intelligence responses already manifest in early 1961 were mission-oriented Soviet military estimates, a Soviet military cost estimating system—for the most part in a format later adopted by the DoD—and weapon system effectiveness evaluation methods developed from operations research techniques employed in systems analysis. These were individual adjustments, however; the intelligence community had not unified and systematized its research and production in military intelligence as a whole, had not made the organizational and managerial changes necessary to create an integrated, consumer-oriented program. It still has not.

One of the earliest frontal attacks on the problem of getting improved military estimates for the new defense planners was Project Lamp, initiated in early 1961.[7] A group of outside consultants brought together at CIA produced a report entitled "Systems Analysis and the Military Estimates Process"[8] which contained views and suggestions very similar to those

[7] By Robert W. Komer, then a special assistant to the Deputy Director/Intelligence, CIA.

[8] The authors were A. W. Marshall, J. E. Loftus (both from the Rand Corporation) and G. E. Pugh. The report was later rewritten by Marshall and Loftus and published as a Rand Memorandum (RM 2892-PR, August 1962).

issued later as requirements by the new defense planners.* Although the authors offered some suggestions for implementing their recommendations, they recognized that they had not been asked, and indeed were in no position, to weigh the merits of alternative organizational plans and the bureaucratic problems associated with them. Little or no action seems to have been taken on the Project Lamp report.[10]

The next development, in late 1961, was the statement from Assistant Secretary Hitch, to which we have adverted, of the requirement for intelligence support to the defense planners. It was articulate and thorough. We shall return to its substance shortly.

The first major response to this requirement was the implementation of a CIA study[11] suggesting that a group of senior intelligence officers from CIA and DIA prepare annually an analysis of ten-year programs for alternative Soviet force postures and of their associated costing, and that these reports be submitted to USIB for review and then forwarded to the Secretary of Defense by the Director of Central Intelligence. By August 1962 such a CIA/DIA Joint Analysis Group had been formed and was at work on a report of essentially the kind suggested. This first report, entitled "Alternative Ten Year Projections of Soviet Military Forces," was forwarded to the Secretary of Defense on 1 April 1963.

Although these JAG projections were of considerable value to the defense planners,[12] they had the shortcoming of being limited to the time period not covered by the corresponding national estimates. It was evident to the Office of National

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* Not surprisingly, since the latter had been closely associated with Marshall in Rand. Anticipation of this result seems likely to have been the reason for Komer's initiative.

[10] Presumably because of the many top-level personnel changes then taking place or about to take place.

[11] Dr. Don R. Harris, "Intelligence Support for Long-Term Planning of U.S. Force Requirements" (21 February 1962).

[12] In a Memorandum for Record dated 25 July 1963, Dr. Alain Enthoven noted that "the *Alternative Ten Year Projections of Soviet Military Forces* is a great step forward, and is already proving to be one of the most valuable documents in the Pentagon."

Estimates that the data in the national estimates and the annual JAG paper did not serve to fill the planners' requirement.[13] In the summer of 1963 the defense planners restated their needs for an adequate intelligence support program. The requirements statement of 25 July 1963 essentially reiterated the needs listed on 17 Nov. 1961,[14] as shown in the following parallel presentation of key passages.

17 November 1961	25 July 1963
Projection Time	
In order to evaluate specific weapon systems programs it will be necessary to study US military requirements in various functional areas to cope with the estimated Soviet (and where relevant Sino-Soviet Bloc) military posture during the next five to ten years. . . . That estimates of Soviet military posture need to be extended at least 5 years into the future is an obvious point.	DoD planners and decision makers need to have projections of the Soviet forces for at least 5 to 7 years into the future for all major military forces as a basis for decisions about force levels and procurement.
Specific Quantification	
Each projection could itself be detailed and specific. One of the problems with current estimates is that as uncertainty increases they become hazy, vague or simply terminate. There is a tendency to become less quantitative and more literary.	The number and specific characteristics of future Soviet forces are essentially a quantitative matter. We may be uncertain about them, but we must have an expression of what we know about them in the numerical terms.

[13] In a memorandum 15 July 1963 to the Assistant Director for National Estimates, an estimates staff expert on military matters noted, "Over the years, the detail contained in our military estimates has increased far beyond what we have considered to be necessary for the highest policymakers and their immediate staffs. The added detail has been designed to serve the needs of military planners, but now the needs of DoD go considerably beyond even this expanded coverage."

[14] Cited in footnotes 1 and 2 above.

Format

In the kinds of analysis we have in mind, estimates of Soviet military posture in weapon system terms are required. It would also be useful if estimates of Soviet forces were produced in format comparable to the functional areas we are using for US forces: General War Offensive Forces, General War Defensive Forces, General Purpose or Theater Forces, etc.

I would recommend strongly that the intelligence projections be published in a book that is as close in format as possible to the Department of Defense Five Year Force Structure and Financial Program with an appendix like our Weapon Systems Dictionary describing individual weapons in detail.

Over-all Estimate

More generally, taking an overall programming point of view may be a useful method of improving estimates of the future Soviet military posture. Almost invariably, projected estimates of Soviet forces structures arrived at piece-meal end up overstating Soviet capabilities . . .

We need to have a projection of the total Soviet program, and not just piece-meal estimates of individual weapon systems and forces.

Cost Data

It would be useful if estimates of Soviet forces were accompanied by estimates of their cost to the Soviets, preferably in rubles. . . . Such cost estimates would have an interest in terms of comparing US expenditures in various functional areas with the corresponding Soviet expenditures.

We need estimates of cost. It would be useful to have this both in terms of ruble costs, in order to get a feel for the impact of the programs on the Soviet economy, and also in dollar costs which are more familiar to us.

Treatment of Uncertainties

They [current estimates] give no notion of the main alternatives in most cases. Some more constructive treatment of uncertainties is needed both for the direct use of the decision makers and for the use of systematic analysis that will be undertaken of US military problems.

Next we need to have an explicit statement of the range of uncertainty associated with each projection. We can live quite easily with three numbers expressing a high, a low and a most likely estimate. . . . I believe that the use of three numbers calls attention to the whole range and suggests to the user that if he absolutely must use a single number, he use the single most likely rather than the pessimistic.

Patterns

In addition to the constraints imposed by projected patterns of expenditures more systematic account could be taken by a programming approach of known patterns of Soviet weapon system replacement and phasing practices, lead time problems, etc.

Next we need to have a feeling for the recent history of the Soviet program, to know what Soviet forces have been, say, for the last three years . . .

The latest response of the intelligence community to these requirements is a new series, "Intelligence Assumptions for Planning—Soviet Military Capabilities Over the Next Six Years," to be produced for the first time in the spring of 1964. The production procedure is to parallel that for national estimates: ONE preparation of terms of reference, contributions by USIB agencies, ONE preparation of the draft paper, review by USIB representatives, and finally approval by the USIB. The record of this move brings up to date of writing the case history of the requirement.

Let us look now at some of the problems in the way of fulfilling the requirement and in doing so try to offer constructive criticism and suggest some positive measures that might assist in meeting the needs of an important and articulate consumer of the intelligence product. The problems could be considered as lying in the realm of (a) communication, (b) intelligence organization and bureaucracy, (c) intelligence production and research methodology, or (d) intelligence and policy.

Communication

Project Lamp was an attempt to communicate a requirement. It made most if not all of the specific points contained in the two later official requirement statements. The surrounding noise level created by personnel changes and the way the problem was presented, together with the newness of the problem and the unfamiliarity of the new planning methods, led to a failure of this communication.

The Hitch memorandum of 17 November 1961 was much more specific. It resulted in considerable activity within DIA (to which it was formally addressed), and at the USIB level it elicited some real measure of response in the formation of

the CIA/DIA Joint Analysis Group and changes in the estimates. It may be that the memorandum was underpowered for the weight of its communication content, that the planners were too busy organizing their new methods to concentrate on communicating to the intelligence community the needs these engendered; the restatement of the requirement in mid-1963, referring explicitly to numerous desiderata not covered in the NIE's, at any rate shows that the community's response was still inadequate.

It is difficult in retrospect, however, to find any real weaknesses in the history of the communication of the requirement. The primary problem seems to have been the essential difficulty of communication on a complex matter between two unfamiliar communicators; and this problem appears to have been reduced with time, by numerous meetings between planning and intelligence personnel, to relatively insignificant proportions.

Intelligence Organization and Bureaucracy

Problems of organization and bureaucracy seem to have had much more influence than strictly communication problems on the intelligence community's response throughout. We have already suggested that personnel changes at higher organizational echelons tended to delay the initial response, that to Project Lamp. In both this and subsequent presentations the requirement had also to overcome the force of bureaucratic inertia.

A natural bias against change arises in any organization from the fact that change is likely to disturb current relationships. More often than not, in addition, the status quo psychology tends to associate demand for change with criticism of the current regime. The intelligence community is no different from any other bureaucracy, government or private, in this respect. Thus there was an initial tendency in the intelligence community to downgrade the new requirement, to suggest that the major part of it was already being filled and the remainder could be taken care of with minor adjustments. The adjustments in question would be substantive entries in existing national intelligence estimates.

The subsequent formation of the CIA/DIA Joint Analysis Group attempted to meet the long-range aspects of the re-

quirement not covered by the estimates. The Joint Analysis Group represented an organizational adjunct of unspecified duration which permitted continuance of existing organizational relationships. Although the planners applauded the JAG effort and product, the over-all requirement still remained a problem. The dynamics of bureaucratic interrelationships and realities also appeared to be having some effect upon the views of the planners: in restating the requirement they not only reiterated their substantive needs but also appeared to be asking for official approval on the national intelligence level.

From an organizational standpoint the latest solution, the projected Intelligence Assumptions for Planning, again accommodates the requirement within the existing structure and at the same time guarantees USIB endorsement in some form. The new IAP cannot help creating an improvement in meeting the planner's requirements. It is suggested, however, that consideration of further organizational changes could enhance our responsiveness and effectiveness even more.

Briefly, it is suggested that a new staff group be established within the Office of National Estimates to produce the IAP and deal with other problems of the planners' total requirement on a full-time basis, without becoming involved in other estimative production. This move would afford continuity of work on the many problems inherent in the requirement. Such a staff could prepare detailed terms of reference and formats for contributors according to their capabilities and integrate the contributions when received. Both CIA and DIA could furnish personnel for the staff, in much the same fashion that military and civilian personnel now serve in ONE and on the JAG. One might even consider eliminating, under this arrangement, the time-consuming and expensive consideration of the IAP by the representatives of the USIB members, personnel for the new staff being so selected as to be themselves representative of the intelligence agencies. The product could then be presented directly to the USIB principals for approval.

The planners' views on the deficiencies of the national estimates as an input to their process suggest that new habits

and techniques are needed in patterning the new product, and this is still another reason for full-time attention to the requirement in ONE. Some further considerations with respect to these methodological problems are developed below.

Intelligence Production and Research Methodology

In a military planning and programming system of the new type, the intelligence inputs to the quantitative analysis must consist of data comparable to those on the U.S. forces, ordered in a similar format. "Comparable" means equally amenable to the rigors of the analytical technique. Such inputs must be derived through intelligence's own detailed systematic analysis of Soviet military and related objectives, alternative means for achieving these objectives through a given number of years, and the effectiveness and cost of the program elements under each of these alternatives. The analytical cycle is the same as that of the U.S. military planner, but the intelligence analyst must simulate the complex of historic, economic, political, technological, and institutional influences operative in Soviet military planning and programming.

Because systems analysis is a discipline with a logic of its own, its requirements on the intelligence community include the demands of that logic. Two areas in which it demands fundamentally different methodological treatment from that currently provided in the intelligence community are quantification and ranges of uncertainty. Systems analysis, like the quantitative analysis practiced in the social sciences and operations research, requires that the quantification used be consistent and inviolate within the precincts of the stated area, so that one must accept all of the explicit derivatives and interactions which result from offering a quantity or series of quantities as representative of a given condition. Even a cursory examination of the quantitative data in present intelligence output would show that this criterion could not be applied to most of it. These impressionistic figures were of course never meant to be subjected to this criterion, and it could be strongly argued that the national estimates cannot be subjected to it for many reasons.

A like problem arises in the treatment of uncertainty. Intelligence estimates of military capabilities have always had to contend with a proliferation of uncertainties resulting from some lack of knowledge of the enemy compounded by ignorance of the future. What is required here is explicit projection of ranges of uncertainty in estimates of future weapon systems and force structures, where "explicit" refers again to a quantitative expression of which all derivatives are acceptable in terms of their logic, the factual substantive base, and the consequent interrelationships. In most current estimates there appears to be an intentional inconsistency in criteria for the measurement of uncertainty, a device used at times to make critical problems stand out from matters of lesser importance. It is true that even impressionistic quantifying has a logic of its own, which can be considered sophisticated in terms of requiring a consensus of conceptual understanding among users; but the point is that it cannot be subjected to any systematic analysis in depth.

This is not to say that quantification and specified ranges of uncertainty in the intelligence input will necessarily make the systems analysis output a satisfactory exclusive basis for decision making. The specified range of uncertainty may often be so great as to produce derivatives that are completely ambiguous, and at best the analysis can serve only as an aid in what must remain a process of human judgment. But the man who must decide whether to start building this year, say, a $40 billion antimissile system around our cities in order to have it operational in 1974 deserves all such aid he can get, even if it should cost some millions or hundreds of millions of dollars.

One other aspect of the question of research methodology is its relationship to management and organization. Operations research and economic analysis techniques are not new to the intelligence community; what is new is the way defense planning has integrated them in a unified management system to produce a complex systematic analysis woven of interdependent parts. The resultant demands upon intelligence call for its management of research and production resources in a comparable system. Without the unified management disciplines of explicit format and channels for pro-

gramming, change control, and progress reporting, the entire fabric of the answer to the planners' requirement is jeopardized by the likelihood of inconsistent data and uncontrolled variables.

Intelligence and Policy

The new defense planners not only plan and offer alternatives, they make defense policy. The old question of the proper proximity of the intelligence officer and his product to the policy maker and his decisions is not academic here; the demands of the new programming and planning methods for intelligence input increase the problems inherent in the relationship. As one of the primary strategists of centralized intelligence pointed out nearly fifteen years ago,

> The only way out of the dilemma seems to me to lie in the very compromise that is usually attempted: guarantee intelligence its administrative and substantive integrity by keeping it separate from its consumers; keep trying every known device to make the users familiar with the producers' organization, and the producers with the users' organization.[*]

Although this advice appears to have been taken more seriously during the current administration than ever before, particularly in the field of defense planning and policy, it is sobering that the familiarization effort has not been effective enough to produce yet a satisfactory program of intelligence support for the military planners, as our history of this requirement shows.

One trend in intelligence estimating in the military field relevant to the problems of producing the new Intelligence Assumptions for Planning is worth noting: for some time now our military-related national estimates appear to have oriented themselves more and more closely to current collection techniques rather than consumer problems. This has produced a tendency to equate information with intelligence and confine estimating for the most part to derivatives of direct current information instead of covering the needs of the consumer. Planning demands intelligence judgments. The intelligence input to the planner (be it called estimates or planning assumptions) is the intelligence officer's judg-

[*] Kent, *Strategic Intelligence*, pp. 200–201.

ment, based upon the best available evidence in broadest sense and the best available research and analytical techniques. As defense planners have repeatedly pointed out, if intelligence does not provide the substantive judgments required, then the planner must do it himself on the basis of his own limited knowledge and experience. When this happens, intelligence has failed in one of its fundamental missions.