

The Case for a Holistic Intelligence

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On bringing all of the analytical disciplines to bear

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The central thesis of this paper is that the increasing complexity of national security problems requires that the Central Intelligence Agency adopt a new approach to intelligence analysis. This approach requires that intelligence problems which have important political, economic, scientific, military, and other salient dimensions be treated in a manner that will assure from the outset that the interplay of these various factors is taken fully into account. Since this thesis is based upon a belief that the separate treatment of each of these factors is inadequate because the problem as a whole is more than just the sum of its parts, it can be referred to as a *holistic* approach. The finished intelligence product of such an approach would be qualitatively more than the mere sum of its parts by virtue of an extra dimension provided by their integration at every stage of research — from the development of the research design to the completion of the analysis.

The following discussion is focused on: (1) the two dominant characteristics of the Agency's analytical process which make it deficient in meeting today's national security requirements; (2) the rationale for and explanation of the proposed new approach; and (3) the organizational and management implications of adopting such an approach.

It is not the purpose of this paper to present a summary indictment of the past and present modes of intelligence analysis; it is rather an attempt to identify the reasons for their inadequacy and to define a new analytical approach which will enable the Agency to cope better with the increasing number of complex intelligence questions confronting it. Whatever is critical of past and present approaches to intelligence analysis is intended as constructive criticism.

Dominant Characteristics of the Analytical Process

The approach to intelligence analysis within CIA has two dominant characteristics which impair the Agency's capability to deal most effectively with complex intelligence problems. First, despite the fact that the political, economic, scientific, and military aspects of intelligence problems have become increasingly interwoven, intelligence analysis tends to treat each of these dimensions independently of the others. Political intelligence is produced as a final product primarily by political scientists and historians, economic intelligence by economists, and scientific and weapons intelligence by physical scientists and engineers. Second, intelligence analysis has been and continues to be carried out largely without the consideration of additional aspects of intelligence problems which all now agree are important. For example, many of our major intelligence problems need to be analyzed from the perspectives of sociology, social psychology, and cultural anthropology as well as from more traditional viewpoints. The negative impact of these two characteristics of Agency analysis can best be discussed in the context of the phases of the Agency's analytical process.

Intelligence analysis within the Agency can be characterized as a three-stage process: (1) "building block" research, (2) intermediate-level analysis, and (3) synthesis, or the production of national intelligence estimates.

The "building block" phase of research involves the accumulation, sorting, and organization of the vast amounts of information received which pertain to matters of intelligence concern. It produces the underlying studies that constitute the basis for subsequent, broader-gauged analysis intended to answer specific intelligence questions.

Because its focus is on the organization of informational fragments, the "building block" phase of research lends itself — indeed, requires — a microscopic approach taken from the point of view of individual aspects or disciplines if it is to be done efficiently and with sophistication. Such research is an indispensable continuing intelligence function. The need to perform it, however, differs in degree in various problem fields and geographical regions. Much of the crucial information needed for analysis is frequently unavailable to the intelligence analyst. Therefore, the sifting, weighing, piecing, and structuring of bits and fragments of available information on a particular problem is indispensable if the analyst is eventually to have any foundation upon which to make intermediate-level analysis and intelligence estimates.¹

CIA's work over the years in developing "building block" analyses on a country and problem basis has been and remains impressive. The work, for example, begun in the 1950s and extending into the early 1960s on the Soviet and East European economies, political systems, scientific and technical efforts, and weaponry development attest to this excellent performance. More specifically, the numerous research aids produced in the Office of Scientific Intelligence (OSI) in the 1950s on the Soviet Academy of Sciences, its departments, their structure, staff, and research plans, the status of various fields of Soviet science and engineering were indispensable first steps in the structuring of a meaningful data base upon which later more sophisticated assessments of Soviet achievements and prospects for development in various scientific fields and in weaponry were made. Likewise, the pioneering "building block" analyses of the quantity, types of specializations, and quality of Soviet and East European scientific and technical manpower were carried out in OSI through a number of highly specialized studies. Similarly, the research in the 1950s and early 1960s on the Soviet Bloc economies provided the foundations for later more sophisticated economic intelligence analyses. There is, however, somewhat less need now for such work in many problem areas of the USSR and East European countries because both raw data and finished intelligence have been built up to substantial levels, though undoubtedly new problems will continue to arise demanding that such basic research be undertaken. In contrast, "building block" research will continue to be indispensable to intelligence analysis on Communist China across a broad spectrum of problems for several years.

On the intermediate level of analysis, the objective is to aggregate and synthesize the material developed in various "building block" studies to

produce interpretative and predictive intelligence analyses. The monodisciplinary microscopic approach that is so important for "building block" research has had, and continues to have, an unfavorable influence upon the analysis work at the intermediate level in two major respects. First, multidimensional problems are approached too narrowly; i.e., they are not considered from all relevant aspects. Second, too little attention has been given to spelling out exactly how the analysis undertaken will lead to the answers sought and how underlying assumptions or uncertainties must qualify the results. A review of prefaces and introductions to intermediate-level intelligence analyses — where the writer really owes the reader an explanation of what it is he is about to do — of a number of different intelligence problems reveals that studies at this level almost exclusively attack their problems from a single point of view and without detailing the conceptual basis upon which the analysis will proceed.

The National Intelligence Estimate (NIE) process prior to 1973 was designed to develop a synthesis of separate finished intelligence studies on a variety of problems to support U.S. national security policy making. A review of the NIEs, however, reveals that they, too, reflected the monodisciplinary approach to problems present in the intermediate-level analyses prepared in the intelligence production offices. This is not to say that a given NIE, for example, on Soviet military research and development and others did not frequently incorporate sections on budgets, S&T capabilities, quality of manpower, etc. The fact is, however, that these particular analyses were, in large part, produced in different offices by several distinct organizations focused upon separate specific pieces of the problem. It was really only at the National Estimates level of analysis that an effort was made to put all the pieces together into some meaningful whole.² Too often it was done by giving serial consideration to each of the distinct aspects of the problem. The Office of National Estimates (ONE), furthermore, was traditionally the preserve of the historians and political scientists, with only an occasional infusion of expertise in other disciplines in the latter years of its existence.³ Beyond the resolution or accommodation of Agency differences, the synthesis that occurred at the ONE level was essentially that of a style and format and to a lesser extent substantive.⁴ ONE's failure to deal in a satisfactory manner with the interactions of various aspects of the problems it faced cannot legitimately be attributed exclusively to it as an organization *per se* as much as to the type of analytical inputs it received. It is virtually impossible to integrate meaningful discrete pieces

of analysis on different but related facets of a complex intelligence problem after the research on the various pieces has been completed by analysts using different assumptions and sometimes mutually exclusive analytical approaches.

A number of CIA intelligence officers involved in analysis have recognized in recent years the need to mount a different type of attack on intelligence problems. A common concern is expressed in their writings about the need for the improved integration of intelligence analyses relevant to particular multidimensional problems.⁵ They presented good evidence that the analytical process left much to be desired in this respect. In his dialogue with Mr. Shryock on the issue of bringing various schools of thought in Sovietology to bear on intelligence analysis on the Soviet Union, Mr. Whitman stated that:

The national estimating process contributes even less to the synthesis of methods and insights for which Mr. Shryock calls.

While the drafters of an NIE may be partial to one or another of Mr. Shryock's schools, they perform little sustained research on their own and are in principle eclectic. Their estimate is produced with little participation by the multifarious units of Sovietologists tucked away in various parts of the community.⁶

In general, however, these analysts sought mechanisms for introducing additional viewpoints into the synthesis phase of the analytical process, rather than urging changes that would ensure that all relevant aspects be taken into account in the earlier phases of that process.

The present National Intelligence Officers (NIO) structure has potential for creating an environment that could be conducive to the implementation of holistic approach to intelligence problems on a geographical or functional basis. Several of the Key Intelligence Questions (KIQ) strategies implicitly suggest the need for taking into account the multifarious aspects of the intelligence problems with which they deal. Inter-office projects or joint studies are mentioned in these papers; they reflect an effort to synchronize analyses on the

various dimensions of a given KIQ. This approach, however, falls short of providing the type of integrated analytical focus to be advocated here because, once again, the interactions between the various aspects of the problem are left to the NIO to recreate late in the game on the basis of separately prepared inputs.

In addition to the virtual absence over the years of any real integration of all problem aspects in intelligence analysis, there has been virtually no attention given to the perspectives of other disciplines such as sociology, social psychology, and cultural anthropology. It appears that the policy for staffing the analytical components of the Agency over the years has omitted the hiring of analysts with training or experience in these three disciplines. This is not to contend that a number of people with such backgrounds have not been employed by the Agency in various capacities, but it appears that they were not recruited for the specific purpose of performing intelligence analysis from the perspectives of their disciplines. The pattern of staffing, therefore, has restricted significantly the spectrum of disciplines used in the solution of intelligence problems.

The following case is illustrative. Since the inception of SALT, considerable interest has been expressed by both analysts and policy makers in Soviet perceptions of U.S. policies and intentions. The perception problem has also been raised in the context of the relations among China, Japan, and the USSR. Despite major contributions to the field of elite perception analysis — mostly by social psychologists and political scientists — they have been largely neglected in the intelligence analysis community. For intelligence purposes, there is a need to assess what has been done in the academic community and to determine if and how such research can be adapted to intelligence analysis.⁷ Our past failure to incorporate such work has constrained the Agency's ability to deal with some of its most important current problems.

The Case for a New Approach

To remedy these two deficiencies in the Agency's intelligence analysis sector, it is necessary to adopt a *holistic* research approach to intelligence analysis at the intermediate and estimative levels. This

higher plateau of analysis must rest upon the foundations of poly disciplinary research combined with monodisciplinary studies at the building-block phase, undertaken from disciplinary perspectives heretofore largely untried in the CIA.⁸ This approach can only be achieved by assigning analysts to a given intelligence problem with disciplinary expertise relevant to its various facets in a multidisciplinary or interdisciplinary research mode. More specifically, such an approach would require that groups of analysts jointly embodying the capabilities required to deal professionally with all the significant aspects of an intelligence problem would work together as a team toward its solution. Communication between team members and their mutual approach to the problem would have to be such that a full understanding of the interactions between its economic, political, technical, strategic, cultural, and sociological factors can be understood and delineated in a form suitable to guide their analysis. So elaborate an approach to *all* tasks is obviously not appropriate, but it is becoming essential in order to cope with the growing number of very complex intelligence problems that are key to the making of policy decisions. Such an analytical approach will provide the Agency with a finished intelligence product that can best be termed *holistic*.

What are the specific advantages of the polydisciplinary approach to intelligence analysis? First, this approach will make more explicit than is now the case the interrelationships of the various dimensions of complex intelligence problems which are now treated in a fragmentary form or individually as discrete problems. Second, possibly the most important objective of intelligence analysis is to identify the range of possible outcomes of a given situation and to attach some ranking or likelihood to each of them. A polydisciplinary research approach to intelligence problems offers high promise in efforts to achieve this objective. Research to date on polydisciplinary research has shown that:

The interaction among scientists of different disciplines will result in new combinations of ideas that will not occur in the absence of intense team interaction. This interaction will lead to the asking of questions that would never be asked from a monodisciplinary perspective. And, finally, these new combinations of ideas and the asking of new questions will generate a greater range of proposed solutions to the team problem.⁹

The history of the development of the physical and natural sciences and technology clearly shows that the majority of significant advances were the result of a polydisciplinary research approach. This is no less true in the social sciences where the movement to higher and more sophisticated levels of analysis has been made possible almost exclusively by the integration of concepts and approaches from several disciplines. Such an integrative process has produced the landmark developments in the social sciences such as David Bidney's *Theoretical Anthropology*, the first work providing a general theoretical framework for cultural anthropology, based on work in anthropology, sociology, psychology, philosophy, and history; Morgenstern and von Neuman's work on game theory which drew upon mathematics, philosophy, and economics; Kurt Lewin's *Field Theory in the Social Sciences* which was based upon psychology, mathematics, and sociology; and finally Parsons and Shils' *Toward a General Theory of Action* which was built upon the adoption of concepts and approaches from psychology, sociology, cultural anthropology, and political science. This latter work provided a truly significant theoretical framework for the social sciences in general.

It may be correctly contended that almost all the analytical offices of the Agency are staffed, in varying degrees, with people who have training in various disciplines. The presence, however, of such a staff does not mean that truly polydisciplinary research is under way. Neither does the presence of an inter-office research project task force mean that a polydisciplinary research design for the project has been conceived and is being carried out. Inter-office projects frequently result in the participating offices preparing their contributions for such a study according to their respective missions and special expertise; these submissions are then collated, edited, and organized to make a coherent presentation. Such products, however, do not reflect the influence of a sustained dialogue among a polydisciplinary group of analysts who work together within established conceptual frameworks of analysis which explicitly relate the many aspects of the problems they are addressing. In such an environment, each analyst has an opportunity to acquire a much broader appreciation of a problem as a result of his exposure to the various ways that individuals with different professional backgrounds may approach it.

Such efforts in the Agency have been few and far between but not non-existent. Indeed, a considerable amount of the work performed by the Analysis Division of the Office of Economic Reports (OER — then ORR) in the 1950s and early 1960s on the Soviet and East European economies

was based to some extent on a polydisciplinary approach. This Division utilized the narrowly-scoped specialized studies prepared by the engineering, technical, and economic specialists of the other components in the Office in broader analyses considering various facets of the Soviet and East European economies. In the Office of Scientific Intelligence, an attempt was made in the early 1960s to approach the analysis of the Soviet space program on a polydisciplinary basis.¹⁰ The problem was defined and specific pieces of it were assigned to various analysts with the requisite disciplinary backgrounds to deal with them. This analytical program encompassed the research contributions of intelligence officers with backgrounds in the physical, engineering, natural, and social sciences. In this effort, however, there was insufficient interaction among those involved in the project to generate an analytical approach sufficiently sophisticated to encompass the many interactions among the various factors of the problem they addressed. Such attempts as these unfortunately remain exceptions to the overall pattern of intelligence research at the intermediate-analysis level within the Agency.

There is also certainly a need for monodisciplinary intelligence analyses, but such studies need to be conceived within more rigorously developed research designs which make explicit how the analysis will proceed and on what assumptions it will rest. The spelling out of these "theoretical underpinnings" should include the clear delineation of the conceptual view or model of the system (i.e., the state, the party, the bloc, the weapon system, etc.) being studied, the assumptions that the acceptance of that view imposes, any hypotheses to be investigated, the tests to be employed in establishing their validity, the methods to be used in manipulating the information involved, and a characterization of the data themselves. Unless a study proceeds with some awareness of such considerations, it is unlikely to get beyond the descriptive stage. Because these conceptual foundations are so important, they must be accessible to the reader in explicit form. If a monodisciplinary study is to contribute to polydisciplinary research, its underpinnings must be so well revealed and understood that new and broader concepts for integrating a number of problem factors can be developed. Thus a holistic approach to intelligence analysis will put new demands even upon those studies produced with a single focus.

There are two major reasons for such work. First, there is a need to incorporate into intelligence research additional discipline perspectives, primarily in the behavioral sciences, to deal with the increasing number

of questions wherein these disciplines are relevant. As noted above, such disciplines heretofore have not been used to any great extent in CIA analysis. Second, the conduct of monodisciplinary studies from the standpoint of these disciplines would eventually help pave the way for the integration of the contributions that they have to make to the analysis of complex intelligence questions on a polydisciplinary basis.

There has always been, and there remains, a high level of U.S. intelligence interest in various foreign governmental and private institutions and their contributions to the governmental policy-making decision process. Different disciplines provide considerably different analytical perspectives and, therefore, different insights into the roles and internal dynamics of institutions. A sociologist, for example, looks at political parties, political leadership, and bureaucracies in general with significantly different considerations in mind than does a political scientist, historian, or physical scientist. The result is that he conceptually models the problem with which he is working in different ways.¹¹

Two recent books, Jean-Claude Thoenig's *L'Ere des Technocrates*, and Jacques-A. Kosciusko-Morizet's *La "Mafia" Polytechnicienne*, are illustrative of the potential utility of a particular type of sociological analysis to intelligence. Thoenig is a sociologist specialized in the sociology of organizations and Kosciusko-Morizet is a scientist-engineer steeped in the literature of the sociology of organizations.

Thoenig's work deals with the role of the corps of engineers for bridges and roads in French public administration and in the broader context of French society. More specifically, he focuses on the evolution of this elite group in French public administration since the 18th century, the recruitment of its members, their educational and social backgrounds and geographical origins; their discipline and cohesiveness; the infrastructure of their own administration; and finally an analysis of the significance of all these variables for the position they occupy in the French government. This position is one that gives them a monopoly of authority over highways, ports, canals, and airports throughout France and, therefore, over the bulk of the French technical civil service at the national, departmental, and local levels. Thoenig assesses the implications of this type of institution and elite for both French public administration and society in general.

Kosciusko-Morizet's book, *La "Mafia" Polytechnicienne*, is a companion

volume, in a sense, to Thoenig's work. The author deals with the position of L'Ecole Polytechnique as an institution in France,- its history, the role of its graduates in French government administration, its role in the process of elite formation, the place of this elite in the structure of French society, and the implications of their position for the French political system and society in general.

The analytical frameworks of these studies emphasize the systemic and dynamic aspects of institutional behavior; the emphasis is on the *how* rather than the *why* of behavior; and both history and environment are examined to provide insight into the ongoing process of institutional change rather than an explanation of the results of change.¹² This analytical emphasis has especially important implications for intelligence in that it offers much potential for charting and understanding in advance certain processes of change that are likely to produce particular types of institutional behavior.

Despite the problems of data availability that obtain in much intelligence analysis, especially on the closed societies, the approach employed in these two studies suggests an excellent analytical framework for the analysis of the roles of particular elites in various foreign institutions or social sectors. Indeed, though retrospective or historical analysis is something of a luxury in CIA, it might prove useful to undertake a number of such studies of institutions and programs of longstanding intelligence interest. These studies should help improve the analyst's basic understanding of how various foreign institutions function and change.¹³ This type of an approach should, over time, move the analysis of foreign organizations and programs away from its predominantly descriptive and why orientation to a more analytical and predictive focus that would be valuable for both intelligence analysis and clandestine operations.

It may be argued that the intelligence analyst does not have access to enough data to undertake the types of analyses suggested above. It is a fact, nevertheless, that studies of various institutions and programs are undertaken in CIA; the contention here is simply that better defined research designs going beyond traditional approaches will improve the analysts' capability to make the most of the available data.

Do such approaches or experiments properly belong only in the domain of the academic investigators? The answer must be "no" if the Agency hopes to be prepared to deal effectively with the increasing complexity

of national security questions. As long ago as 1958, R. A. Random, made the following observation which is most relevant to the argument above:

To suggest that it is redundant and impractical to erect a science of intelligence is not to reject the application of scientific methodology to intelligence, and specifically the acknowledgement and use of the principles of the social sciences applicable to the phenomena of intelligence. Such a rejection would reject rationality and scientific principle as a basis for practice, and substitute intuitive guesses and unanalyzed conjectures. While irrational conduct of intelligence practice, like non-principled behavior generally, may become skillful and may be successful to the extent of attaining particular ends desired, as a rule it can be recommended only as a kind of short cut in simple situations. When the situation is complicated and the actor is confronted with multiple choices of action, reliance on nonprincipled behavior introduces an unacceptably high level of probable error.

The propositions advanced above — that it is not profitable to develop intelligence as a separate science because the phenomena with which it deals are covered by the social sciences, and that the only sound practice of intelligence is that based on the scientific method as specifically applied in the social sciences — have important practical implications. The main one of these is that we must build up within the intelligence community a knowledge of scientific method and the techniques and principles of the policy sciences and must study their application to intelligence problems. We must do this because it is the only way to effect any fundamental improvement in professional intelligence practice.¹⁴

It may be contended that, in general, the level of theory and method in the various social sciences is so primitive that they offer little aid to the intelligence analyst. The rejoinder to this argument must be at least twofold. First, the accuracy of this argument remains largely to be verified empirically in the Agency's intelligence analysis process through experimentation with various theories and methods. Second, granted that social science theory and method are primitive relative to those of the physical and natural sciences, significant progress has been made in developing new approaches to identifying and understanding the immensely complex interrelations that occur among the actors within a given social system.

Although our ability to define mathematically how the effects of a perturbing event will be passed from one element of the system to another is grossly limited, these approaches at least better enable us to understand what is happening. Since particular disciplines (e.g., economics, political science, etc.) tend to limit their attention to only selected types of events and actors in a social system, it is important that we include a number of different disciplinary perspectives and that they be as rigorously defined as the state of the art will allow. Thus, the use of theory and highly structured designs derived from the perspective of different disciplines should expand the spectrum of hypotheses about a given intelligence problem.

There is no intention here to suggest that more attention to theory and research designs in either polydisciplinary or monodisciplinary approaches to intelligence will lead to the methodological rigor that obtains in the physical and natural sciences. On the contrary, it is imperative that those engaged in both the management as well as the conduct of intelligence analysis be alert to the pitfalls of slavish attempts to impose upon the analysis of social science phenomena the methodological rigor that is productive in the physical sciences. Even to entertain such an expectation is to fall victim to scientism.¹⁵

The Implications of Adopting the Holistic Approach

It is not enough to advocate a major change in a function as important as intelligence analysis without at least identifying some of its salient implications. It must suffice here to outline only those that would seem to be most important if a *holistic* approach were adopted.

Formulation of Intelligence Questions — A decision to take such a step would impact significantly on the types of questions the intelligence community regularly addresses at the three levels of analysis discussed earlier. For example, many of the discrete questions now treated at the intermediate and, to some extent, at the synthesis levels of analysis about such matters as particular aspects of foreign institutions, manpower levels and costs of various economic and scientific research programs, and the performance characteristics of weapon systems would be shifted backward to the "building block" phase of analysis.

Clearly, these types of questions are basic and indispensable. With a *holistic* approach, however, such questions would become the underpinnings for the subsequent investigation of broader questions. The effect of this development would be a redefinition of building block studies as a result of the polydisciplinary consideration of more broadly posed intelligence questions.

Requirements and Collection — The adoption of a holistic approach to intelligence analysis would have a significant impact upon that extremely important but frequently neglected relationship between the analysts and the collectors of information. First, the broader focus would result in the examination of problems from different points of view which would in turn generate a different type of intelligence requirement from that which generally has been asked by analysts working predominantly within the framework of a single discipline. Increased emphasis, for example, would be placed upon the interaction and relationships among the variables of a given problem. In essence, the questions would deal more with the way in which various systems operate internally than with the discrete external features. Second, the use of more explicit and theoretically based research designs should result in the better structuring and definition of data requirements to meet the specific needs of the project by highlighting the key categories of data required. Third, the requirements to support a broader analytical approach would require a substantial understanding of the research designs for particular intelligence projects by the collectors of information. All three of these factors would undoubtedly affect the nature of intelligence collection operations and place new demands upon those involved in them.

For example, polydisciplinary intelligence analysis would probably require, over time, innovation in approaches to clandestine intelligence collection. Thus, efforts to collect information about a particular foreign elite's perceptions on important political, economic, or strategic issues might necessitate the use of indirect or clandestine opinion survey research in the target country.

Staffing of Analysis Components — Clearly, the polydisciplinary approach requires an examination of past and present personnel requirements and recruitment policies of the Agency's analysis offices. To approach intelligence analysis on such a basis requires disciplines that are not present in the Agency's analytical staff. The narrow professionalism that has permeated staffing philosophy within the Agency's analysis

components must give way to the acceptance of the fact that the ever-increasing interplay among scientific, economic, political, cultural, and strategic variables and the relationship between domestic and external affairs must be viewed at every level of the intelligence analysis process. This view must prevail if the final intelligence product is to be the most useful and relevant that can be provided the policy makers.

Management of analysis — The implementation of a *holistic* approach to intelligence analysis would be a difficult undertaking. It would present major challenges to both the managerial and working levels of both the analytical and collection components. Not the least of these challenges would be the immensely difficult task of reorienting several sectors of a large bureaucracy away from well-established practices to significantly new ways of doing business. For example, it would be necessary for each analyst involved in a polydisciplinary-based project to become very familiar with facets of a given problem other than those in which he or she is a specialist.

A number of significant alterations in the present structure and management of analysis would be required over time as a result of the adoption of a polydisciplinary approach. It would be necessary to develop an organizational approach that would allow the assignment of analysts now working in separate organizational elements to a single analytical task. While organizational changes may contribute to the creation of an environment conducive to polydisciplinary intelligence research, they alone are not adequate for its successful realization. Perhaps more important than organizational change is the philosophical outlook held by the managers and analysts and their commitment to its implementation.

An additional important consideration in any effort to implement polydisciplinary research is that experience elsewhere has revealed that different managerial problems obtain in the multidisciplinary and interdisciplinary approaches to research and that different managerial qualities are needed. There is, for example, a "bridging" role to be carried out by research managers. The need for fulfilling this function helps to identify certain characteristics that managers of polydisciplinary research should possess.

Footnotes

1 It is in this "building block" phase of research that the analysts in the Central Reference Service frequently make crucially important but frequently unheralded contributions.

2 Ludwell Montague, *Studies in Intelligence*, XVI/2.

3 Individuals with engineering and scientific backgrounds assigned for limited periods to ONE were John Kerlin, Jim Porter, and Herb Orlins; with economic backgrounds, Edward Proctor, Louis Marengo, and Penelope Thundberg, and possibly a few others.

4 John Whitman, "Better an Office of Sovietology," *Studies in Intelligence*, VIII/1.

5 Richard W. Shryock. "For an Eclectic Sovietology." *Studies in Intelligence*, VIII/1. John Whitman, op. cit.

6 *Ibid.*, p. 65.

7 The Office of Political Research recently initiated a literature assessment on approaches to perception analysis in the Analytical Support Center.

8 The following terms and definitions will be used throughout the remainder of this paper. They are adopted from the work of :Michael Anbar and Bernard Cohen. See Michael Anbar, "The 'Bridge Scientist' and His Role," *Research and Development*, July 1973.

monodisciplinary approach — the analysis approach to a problem from the perspective of one discipline.

polydisciplinary approach — the analytical approach to a problem from the perspective of several disciplines.

The terms multidisciplinary and interdisciplinary refer to two modes of conducting polydisciplinary research.

multidisciplinary mode — a monodisciplinary team leadership formulates the plan of the project and specifies the contribution of each of the participants.

interdisciplinary mode — each of the disciplines represented on the team interacts on an equal footing to formulate the plan of action and to specify the contributions of each of the participants.

9 Michael Anbar, *Op. cit.*

10 *The Soviet Space Research Program Monograph 11, Objectives CIA/SI 32-59 29 August 1959.*

11 *For illustrative purposes see: David E. Apter, "A Comparative Method for the Study of Politics," The American Journal of Sociology, Vol. LXIV, No. 3, 1958, pp. 221-237; Leonard Reissman, "A Study of Role Conceptions in Bureaucracy," Social Forces, Vol. 27, 1949, pp. 305-310; and Michel Crozier, The Bureaucratic Phenomenon, The University of Chicago Press, 1967.*

12 *For elaboration on this point see: Michel Crozier, "The Relationships Between Micro and Macrosociology," Human Relations, No. 3, Vol. 25, pp. 239-251.*

13 *The admonition of the distinguished cultural anthropologist, E. Evans-Pritchard, is apropos on this point. He stated that "the claim that one can understand the functioning of institutions at a certain point in time without knowing how they have come to be what they are . . . seems to me an absurdity." E. Evans Pritchard, "Social Anthropology: Past and Present," Man L, No. 198 (1950). The Marett Lecture, 1950, p. 123.*

14 R.A. Random. "Intelligence as a Science," *Studies in Intelligence*, 11/2.

15 *For an excellent discussion of this problem see F. A. von Hayek, "Scientism and the Study of Society," Economica, Netv Series 9 (1942), pp. 267-91; 10 (1943), pp. 34-63; and 11 (1944), pp. 27-39.*

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