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Report of the

Defense Science Board Task Group

On

The Behavioral Sciences

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OFFICE OF THE DIRECTOR OF DEFENSE RESEARCH AND ENGINEERING

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Report of the

Defense Science Board Task Force

on

THE BEHAVIORAL SCIENCES

8 May 1968

Office of the Director of Defense Research and Engineering
Washington, D. C. 20301

8 May 1968

MEMORANDUM FOR THE DIRECTOR OF DEFENSE RESEARCH AND ENGINEERING

SUBJECT: Final Report of the DSB Task Force on the Behavioral Sciences

The Defense Science Board wishes to submit for your consideration the accompanying report of its Task Force on the Behavioral Sciences. This group was established early last year in response to your request and, in the opinion of the Board, has satisfactorily completed its assigned task.

I would particularly call your attention to the conclusions and recommendations, which emphasize the great need to improve the product of the Defense Documentation Center and the DD Form 1498 Technical Information System, at least insofar as projects in the behavioral sciences are concerned. In addition to its examination of the adequacy of project descriptions, as discussed in the present report, the Task Force made a detailed assessment of the relevance of current behavioral-science projects to DoD needs. The latter analysis has been made available to appropriate staff members of your office and ARPA.

This report should be considered in association with earlier DSB reports in the social and behavioral sciences. The Defense Science Board has a strong, continuing interest in these fields of study, which furnish a much needed adjunct to scientific research and engineering leading to new weapon systems.

Robert L. Sproull
Chairman
Defense Science Board

OFFICE OF THE DIRECTOR OF DEFENSE RESEARCH AND ENGINEERING
WASHINGTON, D. C. 20301

10 April 1968

MEMORANDUM FOR CHAIRMAN, DEFENSE SCIENCE BOARD

SUBJECT: Final Report of Task Force on the Behavioral Sciences

In his memorandum of 6 January 1967, the Director of Defense Research and Engineering requested that the Defense Science Board establish a task force to perform a two-phase study of projects dealing with the behavioral sciences. The Board was asked to:

(1) Review each of ARPA's on-going projects in the behavioral sciences (both basic and applied) to determine whether or not the work being performed is of direct interest or relevance to the DoD and whether or not the description of that work as given in Project Plans is adequate.

(2) Similar¯v review the on-going projects in the Military Departments.

In response to this request, the Defense Science Board organized a Task Force, whose members are listed in Appendix B, to conduct these reviews.

This portion of the Task Force's report is concerned with the adequacy of the descriptions of projects as found in various documents employed by ARPA and the Military Departments. The Task Force interviewed and held discussions with representatives of ARPA, the Military Departments, and the Office of the Director of Defense Research and Engineering. We also performed both individual and group examinations of all behavioral work units in ARPA as described in Project Plans and of a sample of such work units in the Military Departments as described in the Defense Documentation Center's Forms 1498. In addition, other documents employed by the Military Departments in describing work units were examined.

Our conclusions are clearly negative, and the Task Force urges immediate consideration of its recommendations for improving this situation.

We wish to express our appreciation to all the present and former members of the DoD who found time to give assistance and guidance to this study, and especially to thank Colonel Richard Taylor for his assistance in many matters, both administrative and substantive.

S. Rains Wallace

S. Rains Wallace
Chairman
Defense Science Board Task Force
   on the Behavioral Sciences

CONTENTS

SUMMARY

Conclusions

(1) Documents now available to top research management in the
Office of the Director of Defense Research and Engineering (ODDR&E) are
inadequate as a basis for understanding the intent of the research, the
nature of the study design, the kind of products anticipated, and the
plans, if any, for their implementation.

(2) The quick information response mechanism available to top re-
search management through the research and technology work-unit system
is both inadequate and inaccurate.

Recommendations

(1) In order to achieve the proper usage of the work-unit infor-
mation system, we recommend that the following be undertaken by the
Military Departments in cooperation with the Defense Documentation Center
(DDC):

(a) An investigation of the current system of updating data-
bank information to determine where it is breaking down.

(b) A detailed comparison of fiscal information provided by
the DDC and by the Military Departments' information systems to deter-
mine the nature and causes of discrepancies.

(c) Consideration of changes in the format of DD 1498 to en-
sure greater uniformity and completeness in the information given con-
cerning the military mission to which a work unit is oriented, as well
as the research approach and design employed and the kinds of research
products anticipated.

(d) An examination of the information-retrieval systems now
employed within each of the Military Departments, as compared with that
of the DDC.

(e) Consideration of methods for improving the input of the
Military Departments to the DDC.

(2) Measures should be taken to direct the attention of three
groups to their responsibilities in ensuring that adequate descriptions
of on-going research are available and properly used.

(a) Research management at the level of ARPA and the Military
Departments should make greater efforts to review military needs syste-
matically, translate them into researchable problems, and stimulate the

scientific community to adapt their interests toward mission-oriented work. Requests for proposals should always state how the work is expected to contribute to the DoD's mission or specify that it is supporting research directed toward improving the state of the science. Reviews of proposals should include considerations of whether the relation of the research to military needs is clearly stated. When it is not, the proposal should be returned for clarification.

(b) Contractors must be made aware of their responsibility to understand the nature of the DoD's interest in their work and its expectations of the use of results. They must also share in the requirement of clearly stating the purpose and the research approach. As long as contracts are awarded on the basis of proposals that fail to meet these criteria, this problem will not be solved.

(c) Research management in the ODDR&E should define its informational needs, set up the procedures necessary to fulfill them, and maintain a current file of supporting documents in anticipation of force-structure planning, presentations to top management and congressional committees, and responses to requests for information.

THE STUDY

The Task Force met on 4 January, 13 February, 22 March and 29 June 1967 to address itself to the task stated by Dr. John S. Foster, Jr., in his memorandum of 6 January 1967 (Appendix A). Although it was not possible to attain complete attendance at every meeting, all members of the Task Force are fully informed of the deliberations and concur in this report.

We examined Project Plans for 13 ARPA-AGILE projects, 27 ARPA-Behavioral Sciences projects, and 18 ARPA-Classified projects. In the case of the Military Departments, the Task Force felt evaluations at the element or project level would serve little purpose. Thus, the study was defined as one of work units. It was agreed that we would be more responsive to the needs of the Director of Defense Research and Engineering if we based our judgments upon documents that are most likely to be employed by members of the higher levels of research management. After some discussion, DD Forms 1498 were designated as the appropriate source of information on work units and, since these are limited to the 6.1 (research) and 6.2 (exploratory development) funding areas, a number of studies tangential to the behavioral sciences--such as strategic studies --and classified work units were eliminated from consideration.

This still leaves a large number of work units which we felt we could not possibly examine in a reasonable period of time. It was therefore decided to sample the work units randomly within the areas set up by the Deputy Director (Research and Technology), i.e., social and cultural changes, human performance, manpower and human engineering. Fifteen percent of the work units under the manpower and human engineering headings were examined. In the other two areas, the sampling ratio was 20 percent. All of the relatively few policy planning studies classified in the 6.1 and 6.2 funding areas were examined.

In the course of the discussion, the Military Departments' representatives expressed serious reservations about the adequacy of the statements of relevance and the work-unit descriptions in the current DD 1498s. They indicated that other documents generated and typically held within each of the Military Services provided much better descriptions. While the Task Force believes that its major mission can only be served by examining those documents available to higher level research management, it agreed that its work might be more constructive if this feeling on the part of the Departmental representatives were taken into account. For this reason, certain work units that the Task Force had classified as lacking immediate relevance to the DoD mission were identified to the Military Departments' representatives, who were given an opportunity to submit other available documents describing these projects.

In all honesty, it must be said that we found the descriptions in most of the documents to be poor in three major aspects: the overuse of jargon, the failure to discuss the potential DoD relevance of the projects, and the lack of clear descriptions of the purpose and nature of the research. The Task Force recognizes that jargon is the popular whipping boy at the moment and that its very considerable contribution both to economy and specificity of meaning in professional communication is greatly underestimated. We note with some chagrin that the physical sciences employ an awesome jargon and remain largely unchallenged for it.

We also feel strongly that the behavioral sciences, more than others, need the elegance of meaning that technical terminology helps to give. Furthermore, it must be anticipated that the attempt to computerize projects, abstracts or descriptions will inevitably be accompanied by an increase rather than a decrease in the use of scientific jargon. But the fact remains that most of the Project Plans and work-unit descriptions that we examined are characterized by ponderous and pompous terminology.

It is easier to recognize this problem than to solve it. Attempts to do this administratively have been made within the DoD. A memorandum signed by the Director of Defense Research and Engineering in 1965 pleaded for simpler language and more attention to military relevance in various documents prepared by behavioral scientists in the Defense establishment. As recently as December 1966, Mr. Seymour Deitchman, of ARPA, circulated a memorandum to the AGILE staff stating:

> I have been struck by the pervading vagueness characteristic of many of them [research proposals]. Problem statements often appear almost incidentally; there are lengthy technical discussions intended to show the proposer's erudition but only sometimes germane to the problem; and one may have to search through tens of pages in minute detail to fathom precisely what the proposer plans to do and how he plans to do it.

The Task Force discussed a number of other possible solutions. It was mentioned that in many industrial research organizations people are placed on the staff and given responsibility for translating the scientists' proposals and reports into the vocabulary that can be expected of the well-educated layman. This is expensive and has its dangers in the sense that precision of meaning may be lost.

It does, however, have the virtues of convincing the scientist that management is taking the problem seriously and giving him an opportunity to see what his product looks like when put into the language of the real world. A solution, which is hinted at in Mr. Deitchman's memorandum, is convincing the writers of research proposals that contracts or grants will not be awarded to the writers of gobbledygook or to those who neglect questions of relevance, regardless of their professional prestige and the excellence of their research design. In line with this thought is the possibility that the more frequent return of Project

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Plans, proposals, abstracts, etc., to their writers with a request for
a cleanup job might be effective.

The second phase of the study was to examine supporting documents
supplied by the Military Departments in cases where the relevance indi-
cated by a work-unit description was not clear. The Military Departments
felt that they had better and clearer documentation of project relevance
than the work-unit descriptions. Unfortunately, this belief of the
Departmental representatives that task descriptions from their own files
would be superior in readability and in demonstrating mission orientation
is not justified. Those provided to us were as bad as the work-unit
descriptions they were supposed to clarify, if not worse.

In the process of sampling the DD 1498s from the Defense Documen-
tation Center and rechecking with the Military Departments on the work
units judged to be not oriented to the military mission, we discovered
that the information in the data bank is both unreliable and misleading.
From a management viewpoint, such a data bank should provide three im-
portant types of information:

  . historical and current data on the status of a work unit,
  . fiscal information, and
  . an understandable description of the purpose and nature of
       the research.

The 1498s fail to satisfy any one of these needs. We found that
projects terminated as early as 1963 are reported as still active. Fur-
ther inquiry revealed that the fiscal information in the data bank is
generally known to be unreliable and badly out of date. Finally, a com-
parison of the work-unit descriptions in the 1498s with those subsequent-
ly provided by the Military Departments showed that in a majority of the
cases examined there was no resemblance. Indeed, we agreed that, if we
had performed a blind matching experiment with the 1498s and the Military
Departments' descriptions, we would expect only slightly better than
chance correspondence.

Since there is no reason to assume that this situation is unique to
the behavioral sciences in the ODDR&E, its gravity can hardly be over-
estimated. What it means is that any information based largely on the
work-unit information system may give a distorted and inaccurate picture
of the research that is being pursued, the number of work units that are
active, the amount of funds committed to them, the kinds of problems
being investigated, and the research methodologies being employed. Fur-
ther discussions by some members of the group with representatives of the
Military Departments revealed that they agree with this assessment and
do not, in fact, use the system in their work or place any credence in
reports from those who do. There is general agreement that, when members
of top management in the ODDR&E want accurate information about a research
project or program, they go to some person in the appropriate Military
Department who they believe will have it. In his absence, they can be
"stuck."

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All of this should not be taken as criticism of the basic philosophy underlying the formation of a computerized information-management system. In an organization that is responsible for such a staggering number and variety of research activities and is susceptible to frequent requirements for current information on their status, some rapidly responsive mechanism for assembly, analysis and display must be available. But the potential cost of misinformation is so great that we urge you to take immediate steps to improve this situation and to exert great caution in the use of the data bank until these improvements are made.

Specifically, we recommend that the following be undertaken by the Military Departments in cooperation with the DDC:

(1) An investigation of the current system for updating data-bank information to determine where it is breaking down.

(2) A detailed comparison of fiscal information provided by the DDC and by the Military Departments' information systems to determine the nature and causes of discrepancies.

(3) Consideration of changes in the format of DD 1498 to en-sure greater uniformity in the information given concerning the military mission to which a work unit is oriented or the improvement in the state of the science anticipated, the specific nature and scope of the research problem to be attacked, the research design and strategy employed, the types of analysis anticipated, the kinds of research products (findings, reports, technical manuals, training materials, etc.) hoped for, and the procedures necessary for their implementation by the military.

(4) An examination of the information-retrieval systems now employed within each of the Military Departments to determine their use-fulness and accuracy, to obtain suggestions for improvements in the DDC, and to consider integrative mechanisms across the Departments and the DDC.

(5) Consideration of methods for improving the input of the Military Departments to the DDC. We have a general impression that providing these inputs is now regarded as an unpleasant and unrewarding chore which is disposed of with the least possible expenditure of effort.

It has become clear to us that the major problem is one of con-vincing all interested persons of their responsibility for providing in-formation about the real reasons for pursuing a particular research effort under the DoD's aegis and describing it in terms that an educated layman can understand. Thus, requests for proposals should not be re-leased without a description of the military task to which the work is directed or a statement of the contribution to the basic science antici-pated and the reasons that the DoD is interested in providing such a contribution.

Proposals, in turn (particularly of the unsolicited variety), should be returned to a prospective contractor if he fails to state how his research plan is directed toward the requirement, the nature of the anticipated improvement, and the implementation procedures that will be required. Monitoring agencies should be alert to changes in research design or strategy that turn the direction of the work away from the original mission orientation.

Interim and progress reports should include a reiteration of the target military task. Finally, top research management at the level of the Military Departments or ARPA must accept greater responsibility for specifying its research needs, translating these into substantive areas, and encouraging the scientific community to direct their efforts toward them.

BIBLIOGRAPHY

Pool, Ithiel de Sola, and others. *Social Science Research and National Security*. A Report Prepared by the Research Group in Psychology and the Social Sciences, Smithsonian Institution, Washington, D.C., March 5, 1963.

Research in the Department of Defense on Internal Conflict and Insurgency in the Developing Countries. Final Report of the Subcommittee on the Behavioral Sciences, Defense Science Board, Office of the Director of Defense Research and Engineering, 30 January 1965.

The Technology of Human Behavior. Recommendations for Defense Support of Research in Psychology and the Social Sciences. A report submitted to the Office of Science, Director of Defense Research and Engineering, by the Research Group in Psychology and the Social Sciences, Smithsonian Institution, Washington, D. C., July 1960.

DIRECTOR OF DEFENSE RESEARCH AND ENGINEERING
WASHINGTON. D. C. 20301

6 January 1967

MEMORANDUM FOR THE CHAIRMAN, DEFENSE SCIENCE BOARD

SUBJECT: Defense Science Board Tasks

I would like the Board to establish a task force to perform a two-phase study of projects dealing with the behavioral sciences. The phases are:

1. A detailed review of each of ARPA's ongoing projects in the behavioral sciences (both basic and applied) to determine whether or not the work being performed is of direct interest or relevance to DoD, and whether or not the description of that work as given in Project Plans is adequate.

2. A similar review of the ongoing projects in the Military Departments.

I recognize the difficulty of defining "interest or relevance to DoD" and trust that the task force will attempt to make clear the considerations which lead them to their determination.

I would like an initial informal report on Phase 1 by 15 February 1967 and a report on Phase 2 by September 1967.

I am pleased that Doctor S. Rains Wallace has agreed to serve as chairman of this task force. I have asked Dr. Herzfeld and Dr. MacArthur to be cognizant Deputies for Phase 1 and Phase 2 respectively.

John S. Foster, Jr.

APPENDIX B

Membership of the

Defense Science Board Task Force on the Behavioral Sciences

Dr. S. Rains Wallace, Chairman
American Institutes for Research

Dr. Frank A. Geldard
Princeton University

Dr. Charles S. Gersoni
American Psychological Association

Dr. Mason Haire
Massachusetts Institute of Technology

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Dr. Roger Russell
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