

NASA HEADQUARTERS PRINTING AND REPRODUCTION REQUISITION				See instructions on back of Part 5		A 25477	
I. To be completed by initiating office							
1. TYPE OF WORK <input type="checkbox"/> PRINTING <input type="checkbox"/> TYPESETTING <input type="checkbox"/> PHOTOSTAT <input type="checkbox"/> DIAZO <input checked="" type="checkbox"/> OTHER (Specify in item 18)							
2. REQUESTED BY/FOR INFORMATION CONSULT (TECHNICAL CONTACT)						3. DATE OF ORDER	
A. CODE <b>MMR</b>		B. NAME <b>C. Houser</b>		C. BLDG. & RM. <b>10B 409</b>		D. PHONE <b>26011</b>	
4. NO. OF PAGES <b>10</b>		5. NO. OF COPIES <b>15</b>		7. TITLE/DESCRIPTION (Unclassified work only. Requests for forms require prior approval in item 18a.) <b>Suggested Concept-Gen Public Benefit</b>			
6. DELIVERY DATE PREFERRED <b>24 May 71</b> DATE REQUIRED*				<input type="checkbox"/> GPO <input type="checkbox"/> DSO <input type="checkbox"/> COML DO NOT USE JOB NO.			
8A. SECURITY CLASSIFICATION <input type="checkbox"/> SECRET <input type="checkbox"/> CONFIDENTIAL <input checked="" type="checkbox"/> NONE							
REPRODUCTION OF CLASSIFIED MATERIAL APPROVED BY							
B. TYPED NAME AND TITLE				C. SIGNATURE			
9. MATERIAL FURNISHED, number of pieces <b>10</b>							
a. <input checked="" type="checkbox"/> Print like typed or furnished copy, including margins.							
b. <input type="checkbox"/> Change from furnished copy. (Specify in item 18.)							
10. TRIM SIZE <input checked="" type="checkbox"/> 8x10 1/2 <input type="checkbox"/> 8 1/2 x 14 <input type="checkbox"/> OTHER (Specify)		11. PAPER (KIND) <input type="checkbox"/> OFFSET <input checked="" type="checkbox"/> OTHER (Specify) <input type="checkbox"/> WRITING (For forms only) <input type="checkbox"/> COVER		12. PAPER (COLOR: Specify only if other than white) <b>XEROX</b>			
13. PRINT <input checked="" type="checkbox"/> ONE SIDE OF PAPER ONLY <input type="checkbox"/> BOTH SIDES (Head to head, Head to foot)		14. ASSEMBLE <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO		15. STAPLE <input checked="" type="checkbox"/> UPPER LEFT <input type="checkbox"/> TOP <input type="checkbox"/> LEFT SIDE <input type="checkbox"/> NO		16. PUNCH <input type="checkbox"/> 3-RING BINDER <input type="checkbox"/> OTHER (Specify) <input type="checkbox"/> NO	
17. DISTRIBUTION <input type="checkbox"/> RETURN <input checked="" type="checkbox"/> CALL FOR PICKUP <input type="checkbox"/> OTHER (Specify in item 18) <input type="checkbox"/> 10 copies of all forms plus original(s) will be sent to DHA-1							
18. SPECIAL INSTRUCTIONS (Use continuation sheet if necessary)							
18a. FORMS MANAGEMENT USE ONLY (DHA-1) <input type="checkbox"/> NEW <input type="checkbox"/> REVISED <input type="checkbox"/> REPRINT <input type="checkbox"/> OVERPRINT <input type="checkbox"/> REVIEW SENT TO: DATE: 10203: if unclassified check "NONE".							
APPROVED FOR PRINTING BY: DATE: REORDER LEVEL							
19. I certify that this work is required for official NASA use and any illustrations ordered herein are necessary and relate entirely to the public business.							
A. DATE		B. TYPED NAME AND TITLE OF CERTIFYING OFFICIAL		C. SIGNATURE			
20. (FILL IN ONLY IF REQUESTED BY PRINTING SECTION) I certify that the urgency of this work justifies the payment of premium charges necessary to accomplish completion by the date specified. Submit justification with requisition, per HQMI 1490.1, Par. 8d(4).							
A. DATE		B. TYPED NAME AND TITLE OF APPROVING OFFICIAL (DIVISION HEAD OR HIGHER)		C. SIGNATURE			
II. To be completed by Departmental Printing Plant							
COM- PLETED BY (Operator's initials)	PLATES	PRESS	COLLATE	STITCH	DRILL	PUNCH/BIND	CUT
							CHECKED AND RELEASED BY (Initials and date)



25477 A

See instructions on back of Part 2

NASA HEADQUARTERS  
PRINTING AND REPRODUCTION REQUISITION

ACCOUNTING CODE

1. To be completed by initiating office

DO NOT USE

1. TYPE OF WORK ☐ PRINTING ☐ TYPESETTING ☐ PHOTOSTAT ☐ DIAZO ☐ OTHER (Specify in item 18)

2. REQUESTED BY FOR INFORMATION CONSULT (TECHNICAL CONTACT)

### INSTRUCTIONS FOR COMPLETING NHQ FORM 51

(Formerly NASA Form 451, Jan. 67)

(NOTE: Use this form for all Headquarters printing and reproduction work except that funded by the initiating office; for such, use NASA Form 404.)

Item

Item

1. Indicate type(s) of work to be done (use Item 18 if necessary to enlarge upon description).
2. Office code, name, room number (including building prefix), and telephone number of person who can answer questions about work to be done.
3. Date of requisition.
4. Number of pages all same size and paper. List separately in Item 18 all pages of a different size or kind of paper, e.g. for cover, foldins, or divider sheets.
5. Total quantity needed. Include copies needed by other offices.
6. "PREFERRED" line for jobs to be processed in turn. "REQUIRED" line for date job must be delivered. Division Director to certify urgency in Item 20. (Do not use "ASAP" as this is meaningless.)
7. Title of job, or description if there is no title. If a form, show form number and edition date, and obtain approval in Item 18a.
8. Show security classification, and name, title, and signature of official authorizing this reproduction of classified matter (see NMI 1630.1 and NHB 1620.3); if unclassified, check "NONE."
9. Indicate exact number of pieces of copy furnished. Copy MUST be numbered consecutively, allowing for blank pages.
  - a. Copies will be printed like furnished copy within printplant equipment tolerances. If mats are furnished, indicate margins.
  - b. Indicate changes in paper, size, or margins if different from furnished copy.
10. Indicate trim size (paper page size) of finished job.
11. Indicate kind(s) of paper on which job is to be printed.

12. Show here color(s) of paper wanted only if other than white.
13. Indicate whether or not pages are to be printed on both sides (printing on both sides of the sheet is usually quicker and cheaper). If printed on both sides, indicate whether "head-to-head" or "head-to-foot (bottom)."
14. Indicate whether or not job is to be collated (assembled).
15. If multi-page job is to be stapled, indicate whether in upper left corner (1 staple), at left side (2 staples), or at top (2 staples).
16. Indicate whether or not sheets are to be punched; if so, indicate whether for standard 3-ring binder (round holes) or for other kind of binding. (If multiple slot holes—as for plastic binding—are wanted, justification must be given in Item 18).
17. Indicate whether finished job is to be delivered to you ("RETURN"), whether you will pick it up (Call for "PICK-UP"), or whether it is to be distributed; if the latter, give instructions in Item 18.
18. This item is for instructions which cannot be shown in full preceding items.
- 18a. Do not use this item.
19. Certification is required; law prohibits printing at Government expense unless necessary to the business of the department or agency ordering the printing. Certifying official will be the section chief, branch chief, or higher authority as applicable.
20. Authorization must be by division head or higher authority when extra cost outside NASA is required to meet completion date. Submit justification with requisition, per HQMI 1490.1, Par. 8d(4). (Printing Branch will notify initiating office when such authorization is required on a particular requisition.)

A. DATE OF APPROVING OFFICIAL (DIVISION HEAD OR HIGHER)  
B. TYPED NAME AND TITLE  
C. SIGNATURE

II. To be completed by Departmental Printing Plant							
CHECKED AND RELEASED BY	CUT	PUNCH/BIND	DRILL	STITCH	COLLATE	PRESS	PLATES
The printed serial number in the upper right corner of the requisition is for reference purposes — always give this number if you need to inquire about a job in process.							
COM- PLETED BY (Operator's initials)							

Part 2. Delivery Copy

NHQ FORM 51 FEB 70 PREVIOUS EDITIONS MAY BE USED.



May 10, 1971

SUGGESTED CONCEPT

for

GOVERNMENT MANAGEMENT OF THE APPLICATION OF PRODUCTS OF FEDERAL R&D  
TO GENERAL PUBLIC BENEFIT

S. P. Vinograd, M.D.  
Director, Bioresearch Division  
Office of Life Sciences - NASA

I. INTRODUCTION

In the past few years several efforts have been initiated within the government to find ways and means of making federally-sponsored technical advancements available to the general public. Groups of the National Academy of Science and the National Academy of Engineering have utilized the expertise of many distinguished representatives of American science, industry and government to identify and resolve the problems associated with this endeavor. Among the more important problems are: (1) The establishment of effective mechanisms of information exchange to permit matching of new technology to public use; and (2) The establishment of means to encourage industry to undertake the development required to convert these often specially oriented technologies to those suitable for public use in the face of limited profit potential.

While the existence and importance of these issues are undeniably true, it is suggested that their resolution would still fall short of providing optimal public benefit because of inherent limitations in the scope of the approach. More specifically:



- (1) Finding applications for developed technology is likely to yield relatively spotty benefit since this approach is equivalent to finding problems to fit solutions. Problems which may be resolved in this random way will necessarily be of indiscriminate priority and magnitude.
- (2) As an effort confined exclusively to technology, it can resolve only those problems which are amenable to technical solutions. Our more significant problems are by and large correspondingly more complex requiring the application of a broader approach than technology alone. Such limitation is tantamount to attempting to improve medical therapy by advancing only surgical techniques. The restriction is further narrowed by considering only the serendipitous potential of existing technology.
- (3) Studies of new technology applications have been somewhat sporadic and diffuse. Sustained efforts in this field have been largely those of the government agencies. Although many individuals within the agencies, especially those in the field of technology applications, have on their own initiative established informal interagency relationships, a formal interagency mechanism with full benefit of comprehensiveness, continuity and smoothness of operation does not exist. This deficiency greatly curtails the effectiveness of what should most profitably be a sustained government-wide applications effort.



II. The Plan Which is Proposed is Based Upon the Following Premises:

1. The basic intent of this effort is to apply existing government capability to improve the public good.
2. The existence of a great many pressing public problems and the importance of minimizing costs makes it imperative that whatever system is established is capable of approaching problems in priority fashion. Therefore, identification and analysis of the problem must come first and then be followed by the search for solutions.
3. Although the central interest of the applications effort is technology, this actual role of technology in the meeting of public needs may be expected to vary depending upon the nature of each specific problem confronted. Provision must therefore be made for the participation of other disciplinary areas, as well, to the extent and degree that they are required by the problem itself.
4. Far more benefit can be gained by applying the technologists who know the technology than the technology, alone, to public needs. In effect, the most efficient way to shod an elephant is to hunt for the shoemaker rather than the right shoe.
5. To fully utilize the wealth of products and talents available in government, a central focus is needed. This should be placed at a sufficiently high level that it can effect



ad hoc as well as sustained interagency coordination; that it can be conversant with public problems and their relative priorities; that it can be thoroughly knowledgeable of federal technology and all of its sources; that it can call upon the best available consultant talent in the country; and that it can be quickly and efficiently responsive to public needs.

6. Economy can be best reflected by utilizing existing government agencies, organizations, and talent to maximum advantage.

### III. PROPOSED PLAN

It is proposed that a small office be established which would function in two basic modes. The first, which might be called problem oriented, is new and would be emphasized. The second, which entails technology-utilization matching, is essentially the provision of a focal point to effectively centralize and coordinate the type of activities which have been pursued in the past. In sequence, these two modes are:

- A. To analyze, define and clearly delineate component elements of high priority public problems. To establish ad hoc task teams composed of selected government agency personnel of demonstrated competence in their respective and appropriate fields to study and recommend solutions to these problems. Whenever possible, the implementation of these solutions



would be undertaken by designated lead agencies utilizing their own personnel together with the task team and, perhaps, additional competence from other agencies on temporary assignment.

- B. To serve as a government-wide interagency information and coordinating center for the purpose of matching government developed technology with areas of need. To establish mechanisms and techniques to circumvent existing problems, such as that of intermediate development, in order to enable the easy transition of such technology to a form readily available for public use. To administer the implementation of federal technology utilization through the technology utilization offices of the government agencies.

In both modes, the purpose of such an office would be to make the resources of all federal agencies available to the agency (or agencies) within whose purview the resolution of the problem lies.

Details are necessarily incomplete since their determination will depend upon discussions among interested individuals and groups. However, further amplification of the proposed plan is offered in the following paragraphs.

Office: The office, which might be known as something like "Federal Technology Exchange," need not be large (approximately 30 people estimated), but will require location at a sufficiently high



level of government to be effective in its interagency function (Ref. Premise #5). Situation within the Office of Science and Technology would fulfill these requirements and would be consistent with the functions of OST. Possible alternatives would include the National Science Foundation, the National Academy of Sciences, or the establishment of a counterpart to OST in the legislative branch of the government. Regardless of where it is established, however, it is important that the office be endowed with maximum opportunity to retain continuity of function and personnel, since it will take time to establish and maintain in-depth familiarity with government technology and the human resources involved.

Mode A - Problem Oriented Function: Problems to be resolved would be identified by several possible sources. Foremost, of course, is the Chief Executive and his immediate staff, viz., the President's Science Advisor. Others would include agency administrators desiring interagency assistance, recommendations of the President's Science Advisory Committee and the National Academy of Sciences, and deliberations of consultant groups and task teams carrying out the work of the new office itself. Identified problems would be approached in order of priority although not necessarily one at a time.

Once identified, a problem would be analyzed, diagnosed and defined as clearly and discretely as possible, utilizing consultants from all appropriate fields, from universities, industry, non-profit foundations, business, etc. Constituent or sub-problems would be



clearly identified and defined. This step would require a series of working sessions and, in some instances, site visits. Where this task has already been accomplished by another group, this effort would either be eliminated or modified accordingly.

The next step would be to organize an interagency and interdisciplinary task team of government personnel (either exclusively or primarily) to: (1) study the problem and constituent problems thoroughly with site visits as indicated; and (2) recommend solutions in maximum detail with alternatives as applicable. Task team members would specifically include individuals to the "bench" level who have been directly responsible for technological advancements similar to those which would be required by the problem at hand. This step would be accomplished by means of a series of regular meetings and site visits or, if a "crash" effort is required, by a sustained period of daily activity until recommendations are completed.

Finally, the task team recommendations would be reviewed by the original consultant group (of the 1st step) and finalized by consultant group-task team interaction. These recommendations would be forwarded through proper channels to the lead agency responsible for implementation of a solution to the problem. If the problem is such that there is no clear cut single agency responsibility, one could be negotiated with an agency administrator, or multiple agency responsibilities could be similarly worked out. In any case, follow-through responsibility would rest with the newly formed "office" (of "Federal Technology



Exchange"). "Office" responsibility would also include making available to the lead agency (or agencies) members of the task team and also additional personnel assistance on temporary or intermittent assignment from other agencies for implementation of a solution to the problem. This would be accomplished by prior agreement with federal department and agency administrators to participate on a financial and personnel percentage basis. Importantly, the "office" would closely follow the progress of the implementation phase and be prepared to re-initiate appropriate efforts to assist when and if progress might falter. Thus, a central federal unit (the "office"), though small, would serve as the focus for the coordinated application of combined interagency technological (and other) capability to the resolution of high priority public problems.

Mode B - Matching of Technology to Utilization: New technology information, supplied by agency technology utilization units and supplemented by members of the "office" staff working with these units and their sources, would be centrally stored, cataloged, and computerized for quick retrieval establishing a new technology information exchange on a government-wide basis. All requests for technology needs would be routed to the "office" and matched by computer assistance with the federal new technology information stored in the data bank. Matchings which appear to be applicable would be routed to the appropriate agency technology utilization units for direct communication and follow through. The "office" would maintain records on the



fate of each matching recommendation by follow-on communication with the agency technology utilization units to conduct second searches where indicated, to improve the effectiveness of the system, and to maintain statistical support. It is anticipated that these requests or expressions of need for new technology would come from a wide variety of public and government sources once the service becomes established and known. This computer supplemented library (and matching) support would be obtained either by contract or by interagency agreement with an existing facility, a most excellent candidate being the Library of Congress.

A most important responsibility of the proposed "office" would be to centrally establish and continually improve ways and means of making new government technology available to the public. Thus, the constructive deliberations of the agency technology utilization units and of high level committees would have a single impact point which would have the ability to take coordinated action.

Anticipated Funding Requirements: No specific approximations can be forecast at this time. It is estimated, however, that the items of expenditure would probably be confined to the following list:

Personnel - Approximately 30, total

Offices, meeting rooms, equipment, consumables, services

Computer supplemented library service

Computer terminals

Consultants - Fees, travel, and per diem



Travel and per diem for office personnel

Travel, per diem and temporary duty for task teams  
(possibly part-funded by parent agencies)

Special Services, i.e. Stenotype, publications, audio-  
visual aids, etc.

Contracted special studies and support.

S. R. Vinograd, M.D.





II. The Plan Which is Proposed is Based Upon the Following Premises:

1. The basic intent of this effort is to apply existing government capability to improve the public good.
2. The existence of a great many pressing public problems and the importance of minimizing costs makes it imperative that whatever system is established is capable of approaching problems in priority fashion. Therefore, identification and analysis of the problem must come first and then be followed by the search for solutions.
3. Although the central interest of the applications effort is technology, this actual role of technology in the meeting of public needs may be expected to vary depending upon the nature of each specific problem confronted. Provision must therefore be made for the participation of other disciplinary areas, as well, to the extent and degree that they are required by the problem itself.
4. Far more benefit can be gained by applying the technologists who know the technology than the technology, alone, to public needs. In effect, the most efficient way to shod an elephant is to hunt for the shoemaker rather than the right shoe.
5. To fully utilize the wealth of products and talents available in government, a central focus is needed. This should be placed at a sufficiently high level that it can effect



ad hoc as well as sustained interagency coordination; that it can be conversant with public problems and their relative priorities; that it can be thoroughly knowledgeable of federal technology and all of its sources; that it can call upon the best available consultant talent in the country; and that it can be quickly and efficiently responsive to public needs.

6. Economy can be best reflected by utilizing existing government agencies, organizations, and talent to maximum advantage.

### III. PROPOSED PLAN

It is proposed that a small office be established which would function in two basic modes. The first, which might be called problem oriented, is new and would be emphasized. The second, which entails technology-utilization matching, is essentially the provision of a focal point to effectively centralize and coordinate the type of activities which have been pursued in the past. In sequence, these two modes are:

- A. To analyze, define and clearly delineate component elements of high priority public problems. To establish ad hoc task teams composed of selected government agency personnel of demonstrated competence in their respective and appropriate fields to study and recommend solutions to these problems. Whenever possible, the implementation of these solutions



## NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

## ROUTING SLIP

MAIL CODE		NAME	Action	
			Approval	
	MMR	Vinegrad	Call Me	
			Concurrence	
			File	
			Information	
			Investigate and Advise	
			Note and Forward	
			Note and Return	X
			Per Request	
			Per Telephone Conversation	
			Recommendation	
			See Me	
			Signature	
			Circulate and Destroy	

Sherrin -

Doug Lund gave me a copy of attached memo prepared by George Armstrong at conclusion of his work on the Magneton panel. It is not for dissemination.

Bob

NAME	TEL. NO. (or code) & EXT.
Lang	
CODE (or other designation)	DATE



NATIONAL AERONAUTICS AND SPACE ADMINISTRATION  
FACSIMILE TRANSMISSION

STATION NO. (If applicable)	MESSAGE NO.	PAGES		DATE
555/515	522	TOTAL	LEAD AND (No. of pages)	January 25, 1972
		4	12/1/73	

TO: NASA Headquarters  
Attn: AD/George Low  
Via: ME/Robt. N. Lindley and MF/Douglas R. Lord 53206

PLEASE PHONE MARY CATLOTH, EX. 3206, WHEN RECEIVED

FROM: DD/George G. Armstrong, M.D.

SUBJECT: New Technology Opportunities (Health Care) Program Experience

REMARKS:

General and Personal:

Participation in the New Technology Opportunities Program has been an interesting, educational, and frustrating experience.

Frustration stems in a large part by the absence of planning, management, and forceful leadership by the lead agency (DHEW) during the early phases of the program. As a result of this lack, a number of initiatives introduced by other agencies were conglomerated into a poorly defined, noncohesive and almost impossible to implement initiative entitled "Provide High Quality Health Care and Accessibility at Reasonable Costs". This initiative (which included the essences but not the total systems concept, of MSC's submission on "A Program for Expanded Health Services in the United States") appeared in the first version of Mr. Magruder's "Blue Book", but rightfully received such devastating reviews from the OST "Blue Ribbon Panel" that it was returned for rework. Several excellent exploitations of technology for Health Care didn't survive the route back through DHEW and back into the system. Further frustration resulted from the diversity of interest and lack of effective coordinating within and between OST and OMB. This is best summed in Mr. Douglas R. Lord's January 14, 1972, memorandum to Mr. William M. Magruder.

The experience has been educational in that one very seldom has such an opportunity to gain insight into the process and proceedings of our government.

Comment on Specific Program Initiatives and Potential Relationship to NASA

A. Health Care Initiatives Included in the FY 1973 OMB Program:

ADEQUATE NATIONAL EMERGENCY HEALTH SERVICES SYSTEM

Two areas of possible contribution to this initiative might be made by the NASA. The first area involves the analysis, design, and implementation of the communications and transportation subsystems for each of the proposed five demonstration Emergency Health Service Systems and the design and implementation of the central data acquisition and processing system.



The mode of participation would involve the delegation of responsibility for these subsystems to the NASA by interagency agreement with DHEW including interagency transfer of the required funds.

The NASA would essentially serve as "Subsystems Managers" for these subsystems. I would recommend MSC as the lead Center because of the similarity of the effort to our IMBLS project.

The other area of participation is total system management of the project for DHEW. Mode of participation in this case would be most effective if a NASA managerial nucleus was actually detailed to DHEW for the duration of the demonstration projects.

No NASA funds would be required for either area; the commitment would be one of our manpower resource.

B. HEALTH CARE INITIATIVES EXCLUDED FROM THE OMB PROGRAM BUT INCLUDED IN THE MAGRUDER NTO PROGRAM

Two of these initiatives, ASSURE ALL AMERICANS OF THE AVAILABILITY OF NUTRITIOUS, SAFE AND WHOLESOME FOODS IN SUPPORT OF GOOD HEALTH and LIFE PLAN FOR END STAGE RENAL DISEASE along with the previously mentioned initiative on EMERGENCY HEALTH CARE SYSTEMS require communications and data systems. One of the remaining initiatives in this category, INFORMATION SYSTEMS TO SUPPORT HEALTH CARE DELIVERY all employ the same technologies of communications and automatic data processing. It would seem that a most important role the NASA could play would be the implementation of a nationwide Biomedical Communications and Information Network. The essences and concepts of such a system were also considered in the NASA sponsored initiative on COMMUNICATIONS FOR SOCIAL NEEDS. Initial studies and experiments such as the already funded Biomedical Communications Network (BCN) Requirements Study, use of communications satellite in the Public Health Services Alaskan Eskimo Health Network and planned experiments involving the ATS-F satellite have already been incorporated into NASA's ongoing programs. In essence, the involvement is already at hand, but it is fragmented within the NASA as well as among other agencies. The integration of these many requirements and the implementation of such a nationwide project is indeed well suited to the national resource of expertise of which the NASA consists. I have no estimate of costs or of manpower, but it would seem judicious to establish within the Office of Applications a project office chartered to analyze and develop the initial information required before embarking upon such a project.

The initiative, PROTECTION FROM HAZARDS ASSOCIATED WITH TOXICANTS IN FOOD (also ASSURE ALL AMERICANS OF THE AVAILABILITY OF NUTRITIOUS, SAFE AND WHOLESOME FOOD IN SUPPORT OF GOOD HEALTH) would provide the NASA with valuable information for use in its space flight food systems, but in which the NASA should have little or no direct involvement.

The final initiative within this category, PROVIDE ADEQUATE AIDS FOR HANDICAPPED PERSONS, does perhaps provide a supporting role for the NASA. The servocontrol



5/27

systems such as developed for our guidance and navigation systems have application to certain types of aids to the handicapped. However, the Veterans Administration has had vast experience with aids and also has an excellent laboratory which develops and services aids and it would seem more effective if the lead role in this area would be assigned to them. NASA's participation could be an "on call" function to provide a specific component or system which meets their requirements. Such activities could best be implemented by individual interagency transfer of funds in the same manner that we obtain rather specific items or tasks from other agencies.

#### INITIATIVES WHICH HAVE MERIT BUT ARE NOT WITHIN THE MAGRUDER PROGRAM

Early in the program, NASA, MSC, submitted through DHEW two initiatives which were incorporated into a rather large and general initiative. Both of these were lost or eliminated at different times as the program progressed.

One of these, A PROGRAM FOR EXPANDED HEALTH SERVICES IN THE UNITED STATES, forms the conceptual basis for the IMBIMS procurement which will soon be released. These concepts were, as you know, elected by the National Academy of Engineering to be the basis upon which to formulate an experiment in health care for their sponsorship. I believe this program to be adequately underway at the present.

The other MSC initiative, Health Application of Remote Sensing, I believe has merit, but could best be implemented in a manner somewhat different than that of the original proposal. The NASA already has a vital and ongoing program in the applications of remote sensing. There is also a modest effort directed toward health applications. I would suggest an augmentation of the health applications effort within the current organizational elements which are responsible for the Earth Resources Program. The biomedical staff supporting this effort would be more effective if increased to approximately twelve persons with funding to acquire research increased to \$400,000. a year.

An initiative was submitted by Ames Research Center and the University of California at San Francisco very late in the NTO activity and likely did not receive the review and evaluation accorded other initiatives has merit. It proposes a Bioengineering Institute at Ames to work with and support the research and health care delivery efforts of medical institutions within the San Francisco area. Ames would provide an instrumentation laboratory facility, DHEW would provide funds and personnel and the University would provide medical and scientific expertise and problems. Three principle types of activities were proposed: 1. Quick response capability for acute problems; 2. Support to medical research activities conducted by the medical institutions under grant from DHEW; and 3. Conduct of sustaining individual instrumentation development within unique areas of expertise resident at Ames. Costs were estimated at approximately 5 million for the first year and 3.6 million per year on a continuing basis with DHEW bearing essentially all of the burden.

An alternate and extension of this proposal which NASA might consider as a

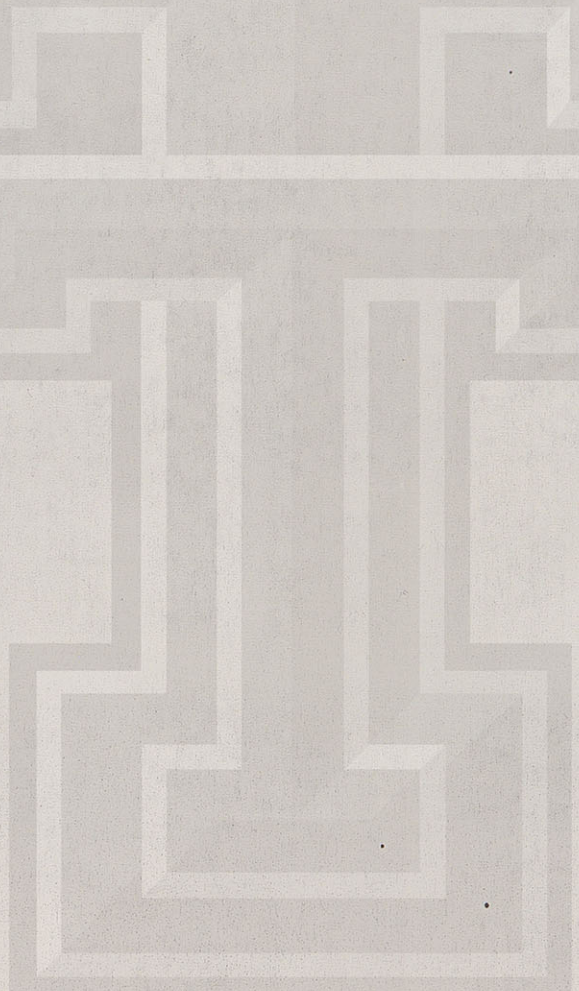


589

4

NASA sponsored effort would establish Bioengineering Applications Laboratories at each of its centers to provide support to medical institutions local to each center. An effective supporting organization could be formulated which would consist of approximately twenty-five to fifty persons and funded at levels ranging from 1.5 to 2 million each year. One problem inherent within an effort of this type would be the duplication of efforts at the centers and would require a NASA Headquarters review and control mechanism to provide needed coordination.

I am appreciative both for the opportunity to be involved in the NTO program and for being able to share my experiences and cogitations.





MMR

May 7, 1971

MEMORANDUM

TO: Manned Spacecraft Center  
Attn: DA/Dr. Lawrence F. Dietlein

FROM: MMR/Dr. S. P. Vinograd

SUBJECT: Transfer of "Onboard Clinical Medical Facility"  
Procurement to MSC/MR&O

The subject procurement has been approved by Dr. Low for implementation by MSC/MR&O. Pursuant to this approval, the enclosed documents are forwarded for your retention and use. They include:

- 1) Two copies of the Statement of Work.
- 2) One copy of the completed, but unsigned, Request for Procurement Plan Approval (Forms 1451 - 1454).
- 3) Recommended source list.
- 4) Headquarters Procurement Request (Form 404), signed and cancelled, plus covering memo.
- 5) Notification of cancellation of Procurement Request in Headquarters and transfer to MSC.
- 6) Copy of D&F approved and signed by Dr. Low.

The original approved D&F will be forwarded to your procurement office within the next few days, as will the MA transferring the designated funds from MT to your finance office.

This office is prepared to participate closely in support of this effort and requests that you keep us apprised of your plans and requirements.

S. P. Vinograd, M.D.  
Director, Bioresearch Division  
Office of Life Sciences

Enclosures

SPV/clh/7 May 71/MMR/26011



MMR

September 7, 1971

Dr. David Rutstein  
Harvard School of Public Health  
55 Shattuck  
Boston, Massachusetts 02115

Dear Dave:

Last April I participated in a "think" exercise held by the President's Advisory Council on Management Improvement during which I expressed the ideas I mentioned to you that pleasant evening at Hogates. They requested that I write up the concept. This paper is the result.

I doubt that there will be an official response since I've had none to date, but I thought you might find it of some interest.

Warm regards,

S. P. Vinograd, M.D.  
Director, Bioresearch  
Office of Life Sciences

Enclosure

®



MMR

May 10, 1971

Dr. Peter Halpern  
Research Director  
President's Advisory Council  
on Management Improvement  
Room 8236  
New Executive Office Building  
Washington, D. C. 20503

Dear Pete:

In response to your request following your and Cesar's meeting on technology utilization at the Executive Office Building on April 16, 1971, I have written down the ideas I expressed, I hope not too vociferously, at the time.

I feel quite sincerely that the studies and meetings that have gone on in the past, for all their excellence in clarifying and proposing ways around problems of technology utilization, have been missing the point. In addressing the question of serendipitous utilization of government technology, they've been grappling (albeit effectively) with what is really a secondary problem. It seems to me, at least, that the real question is to what extent and, specifically, how can we use our technological capability in solving the really important problems of today (and the future). To be realistic, it will require more than technology people, alone, to chew on that one because these are complicated, multifaceted problems where technological approaches must be viewed and utilized in perspective. Furthermore, the technology people who are invited to deliberate should be the creators of the new technology, not just those who know what it is. Those who created it can create more to fit the new problem situations they are asked to study. In essence, that's the nub of the enclosed concept, my meager offering, so to speak.

I hope you find it useful and that someone in a high place is able to give it serious thought. It seems clear that both the public and the machinery of government can gain a lot of yards by well-conceived problem-oriented efforts, not at the expense of but in support of existing government activities.

Over the past year or so I have discussed this approach with several people, but never as completely as the enclosed. I am sure that some



Halpern/May 10, 1971

2

problems and questions will be raised--which is about par for the course--but I don't believe there are any that can't be circumvented without too much difficulty. In any case, I would be most happy to be active to any degree necessary to assist this most important endeavor in any way I can.

Yours sincerely,

S. P. Vinograd, M.D.  
Director, Bioresearch Division  
Office of Life Sciences

Enclosure

SPV/clh/10 May 71/MMR

®



MMR

May 10, 1971

Dr. Peter Halpern  
Research Director  
President's Advisory Council  
on Management Improvement  
Room 8236  
New Executive Office Building  
Washington, D. C. 20503

Dear Pete:

In response to your request following your and Cesar's meeting on technology utilization at the Executive Office Building on April 16, 1971, I have written down the ideas I expressed, I hope not too vociferously, at the time.

I feel quite sincerely that the studies and meetings that have gone on in the past, for all their excellence in clarifying and proposing ways around problems of technology utilization, have been missing the point. In addressing the question of serendipitous utilization of government technology, they've been grappling (albeit effectively) with what is really a secondary problem. It seems to me, at least, that the real question is to what extent and, specifically, how can we use our technological capability in solving the really important problems of today (and the future). To be realistic, it will require more than technology people, alone, to chew on that one because these are complicated, multifaceted problems where technological approaches must be viewed and utilized in perspective. Furthermore, the technology people who are invited to deliberate should be the creators of the new technology, not just those who know what it is. Those who created it can create more to fit the new problem situations they are asked to study. In essence, that's the nub of the enclosed concept, my meager offering, so to speak.

I hope you find it useful and that someone in a high place is able to give it serious thought. It seems clear that both the public and the machinery of government can gain a lot of yards by well-conceived problem-oriented efforts, not at the expense of but in support of existing government activities.

Over the past year or so I have discussed this approach with several people, but never as completely as the enclosed. I am sure that some

TE-395-4533



Halpern/May 10, 1971

2

problems and questions will be raised--which is about par for the course--but I don't believe there are any that can't be circumvented without too much difficulty. In any case, I would be most happy to be active to any degree necessary to assist this most important endeavor in any way I can.

Yours sincerely,

S. P. Vinograd, M.D.  
Director, Bioresearch Division  
Office of Life Sciences

Enclosure

SPV/clh/10 May 71/MMR

®



MAY 10, 1971

## SUGGESTED CONCEPT

for

### GOVERNMENT MANAGEMENT OF THE APPLICATION OF PRODUCTS OF FEDERAL R&D TO GENERAL PUBLIC BENEFIT

S. P. Vinograd, M.D.  
Director, Bioresearch Division  
Office of Life Sciences - NASA

#### I. INTRODUCTION

In the past few years several efforts have been initiated within the government to find ways and means of making federally-sponsored technical advancements available to the general public. Groups of the National Academy of Science and the National Academy of Engineering have utilized the expertise of many distinguished representatives of American science, industry and government to identify and resolve the problems associated with this endeavor. Among the more important problems are:

- (1) The establishment of effective mechanisms of information exchange to permit matching of new technology to public use; and (2) The establishment of means to encourage industry to undertake the development required to convert these often specially oriented technologies to those suitable for public use in the face of limited profit potential.

While the existence and importance of these issues are undeniably true, it is suggested that their resolution would still fall short of providing optimal public benefit because of inherent limitations in the scope of the approach. More specifically:



- (1) Finding applications for developed technology is likely to yield relatively spotty benefit since this approach is equivalent to finding problems to fit solutions. Problems which may be resolved in this random way will necessarily be of indiscriminate priority and magnitude.
- (2) As an effort confined exclusively to technology, it can resolve only those problems which are amenable to technical solutions. Our more significant problems are by and large correspondingly more complex requiring the application of a broader approach than technology alone. Such limitation is tantamount to attempting to improve medical therapy by advancing only surgical techniques. The restriction is further narrowed by considering only the serendipitous potential of existing technology.
- (3) Studies of new technology applications have been somewhat sporadic and diffuse. Sustained efforts in this field have been largely those of the government agencies. Although many individuals within the agencies, especially those in the field of technology applications, have on their own initiative established informal interagency relationships, a formal interagency mechanism with full benefit of comprehensiveness, continuity and smoothness of operation does not exist. This deficiency greatly curtails the effectiveness of what should most profitably be a sustained government-wide applications effort.



II. The Plan Which is Proposed is Based Upon the Following Premises:

1. The basic intent of this effort is to apply existing government capability to improve the public good.
2. The existence of a great many pressing public problems and the importance of minimizing costs makes it imperative that whatever system is established is capable of approaching problems in priority fashion. Therefore, identification and analysis of the problem must come first and then be followed by the search for solutions.
3. Although the central interest of the applications effort is technology, this actual role of technology in the meeting of public needs may be expected to vary depending upon the nature of each specific problem confronted. Provision must therefore be made for the participation of other disciplinary areas, as well, to the extent and degree that they are required by the problem itself.
4. Far more benefit can be gained by applying the technologists who know the technology than the technology, alone, to public needs. In effect, the most efficient way to shod an elephant is to hunt for the shoemaker rather than the right shoe.
5. To fully utilize the wealth of products and talents available in government, a central focus is needed. This should be placed at a sufficiently high level that it can effect



ad hoc as well as sustained interagency coordination; that it can be conversant with public problems and their relative priorities; that it can be thoroughly knowledgeable of federal technology and all of its sources; that it can call upon the best available consultant talent in the country; and that it can be quickly and efficiently responsive to public needs.

6. Economy can be best reflected by utilizing existing government agencies, organizations, and talent to maximum advantage.

### III. PROPOSED PLAN

It is proposed that a small office be established which would function in two basic modes. The first, which might be called problem oriented, is new and would be emphasized. The second, which entails technology-utilization matching, is essentially the provision of a focal point to effectively centralize and coordinate the type of activities which have been pursued in the past. In sequence, these two modes are:

- A. To analyze, define and clearly delineate component elements of high priority public problems. To establish ad hoc task teams composed of selected government agency personnel of demonstrated competence in their respective and appropriate fields to study and recommend solutions to these problems. Whenever possible, the implementation of these solutions



would be undertaken by designated lead agencies utilizing their own personnel together with the task team and, perhaps, additional competence from other agencies on temporary assignment.

- B. To serve as a government-wide interagency information and coordinating center for the purpose of matching government developed technology with areas of need. To establish mechanisms and techniques to circumvent existing problems, such as that of intermediate development, in order to enable the easy transition of such technology to a form readily available for public use. To administer the implementation of federal technology utilization through the technology utilization offices of the government agencies.

In both modes, the purpose of such an office would be to make the resources of all federal agencies available to the agency (or agencies) within whose purview the resolution of the problem lies.

Details are necessarily incomplete since their determination will depend upon discussions among interested individuals and groups. However, further amplification of the proposed plan is offered in the following paragraphs.

Office: The office, which might be known as something like "Federal Technology Exchange," need not be large (approximately 30 people estimated), but will require location at a sufficiently high



level of government to be effective in its interagency function (Ref. Premise #5). Situation within the Office of Science and Technology would fulfill these requirements and would be consistent with the functions of OST. Possible alternatives would include the National Science Foundation, the National Academy of Sciences, or the establishment of a counterpart to OST in the legislative branch of the government. Regardless of where it is established, however, it is important that the office be endowed with maximum opportunity to retain continuity of function and personnel, since it will take time to establish and maintain in-depth familiarity with government technology and the human resources involved.

Mode A - Problem Oriented Function: Problems to be resolved would be identified by several possible sources. Foremost, of course, is the Chief Executive and his immediate staff, viz., the President's Science Advisor. Others would include agency administrators desiring interagency assistance, recommendations of the President's Science Advisory Committee and the National Academy of Sciences, and deliberations of consultant groups and task teams carrying out the work of the new office itself. Identified problems would be approached in order of priority although not necessarily one at a time.

Once identified, a problem would be analyzed, diagnosed and defined as clearly and discretely as possible, utilizing consultants from all appropriate fields, from universities, industry, non-profit foundations, business, etc. Constituent or sub-problems would be



clearly identified and defined. This step would require a series of working sessions and, in some instances, site visits. Where this task has already been accomplished by another group, this effort would either be eliminated or modified accordingly.

The next step would be to organize an interagency and interdisciplinary task team of government personnel (either exclusively or primarily) to: (1) study the problem and constituent problems thoroughly with site visits as indicated; and (2) recommend solutions in maximum detail with alternatives as applicable. Task team members would specifically include individuals to the "bench" level who have been directly responsible for technological advancements similar to those which would be required by the problem at hand. This step would be accomplished by means of a series of regular meetings and site visits or, if a "crash" effort is required, by a sustained period of daily activity until recommendations are completed.

Finally, the task team recommendations would be reviewed by the original consultant group (of the 1st step) and finalized by consultant group-task team interaction. These recommendations would be forwarded through proper channels to the lead agency responsible for implementation of a solution to the problem. If the problem is such that there is no clear cut single agency responsibility, one could be negotiated with an agency administrator, or multiple agency responsibilities could be similarly worked out. In any case, follow-through responsibility would rest with the newly formed "office" (of "Federal Technology



Exchange"). "Office" responsibility would also include making available to the lead agency (or agencies) members of the task team and also additional personnel assistance on temporary or intermittent assignment from other agencies for implementation of a solution to the problem. This would be accomplished by prior agreement with federal department and agency administrators to participate on a financial and personnel percentage basis. Importantly, the "office" would closely follow the progress of the implementation phase and be prepared to re-initiate appropriate efforts to assist when and if progress might falter. Thus, a central federal unit (the "office"), though small, would serve as the focus for the coordinated application of combined interagency technological (and other) capability to the resolution of high priority public problems.

Mode B - Matching of Technology to Utilization: New technology information, supplied by agency technology utilization units and supplemented by members of the "office" staff working with these units and their sources, would be centrally stored, cataloged, and computerized for quick retrieval establishing a new technology information exchange on a government-wide basis. All requests for technology needs would be routed to the "office" and matched by computer assistance with the federal new technology information stored in the data bank. Matchings which appear to be applicable would be routed to the appropriate agency technology utilization units for direct communication and follow through. The "office" would maintain records on the



fate of each matching recommendation by follow-on communication with the agency technology utilization units to conduct second searches where indicated, to improve the effectiveness of the system, and to maintain statistical support. It is anticipated that these requests or expressions of need for new technology would come from a wide variety of public and government sources once the service becomes established and known. This computer supplemented library (and matching) support would be obtained either by contract or by interagency agreement with an existing facility, a most excellent candidate being the Library of Congress.

A most important responsibility of the proposed "office" would be to centrally establish and continually improve ways and means of making new government technology available to the public. Thus, the constructive deliberations of the agency technology utilization units and of high level committees would have a single impact point which would have the ability to take coordinated action.

Anticipated Funding Requirements: No specific approximations can be forecast at this time. It is estimated, however, that the items of expenditure would probably be confined to the following list:

Personnel - Approximately 30, total

Offices, meeting rooms, equipment, consumables, services

Computer supplemented library service

Computer terminals

Consultants - Fees, travel, and per diem



Travel and per diem for office personnel

Travel, per diem and temporary duty for task teams  
(possibly part-funded by parent agencies)

Special Services, i.e. Stenotype, publications, audio-  
visual aids, etc.

Contracted special studies and support.

S. P. Vinograd, M.D.





PRESIDENT'S ADVISORY COUNCIL ON MANAGEMENT IMPROVEMENT

WASHINGTON, D.C. 20503

April 13, 1971

103/5106

MEMORANDUM FOR INVITEES

Subject: PACMI Meeting on Health Technology R&D

This memorandum confirms our invitation to you to attend an inter-departmental meeting on the application of health technology R&D sponsored by PACMI. We have asked Dr. Cesar Caceres to Chair the meeting which will be held Friday, April 16 at 1:30 P.M. in Room 444 of the Old Executive Office Building.

Substance of the Meeting:

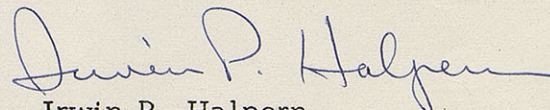
At the present time, in the several Federal departments and agencies having legislated <sup>health responsibilities</sup> technology and expertise that could help make the delivery of health care more effective from the point of view of quality, distribution, costs, etc. either exist or are in incipient stages of development.

health  
responsi-  
bilities

The purpose of this meeting is to consider the following questions:

1. What is the character of technology and expertise that are presently not being effectively brought to bear in the delivery of health care?
2. Is there a need at this time for a discreet management focus or mechanism in the Federal Government that would help assure a more satisfactory interdepartmental/interagency matching of existing and incipient technology and expertise to health care needs?
3. Could such a focus or mechanism help bring about a more productive interaction between the Federal Government and the medical engineering industry?

It would be most helpful if the participants in the meeting would come prepared to discuss these questions from the point of view of their respective departments and agencies.



Irwin P. Halpern  
Research Director



PACMI MEETING ON HEALTH TECHNOLOGY

April 16, 1971 1:30 P.M.

Room 444 - OEOb

Invitees

Dr. Alfred J. Eggers, Jr.

Assistant Director for RANN - National Science Foundation  
1800 G Street, N.W., Washington, D.C. 20550  
Phone: 202 632-7424

Dr. Shirley Silverman

Associate Director for Academic Liaison - National Bureau of Standards  
Room Alll Administration Building, Washington, D.C. 20234  
Phone: 301 921-2461

Dr. Emmanuel Horowitz

Deputy Director Institutes for Materials Research  
National Bureau of Standards  
Room B364 Materials Building, Washington, D.C. 20234  
Phone: 301 921-2878

Dr. S. P. Vinograd

Acting Director Bioresearch  
Office of Life Sciences  
NASA Headquarters, Washington, D.C. 20546  
Phone: 202 962-6011

Mr. Ronald J. Philips

Director, Technology Utilization Office  
NASA Headquarters, Washington, D.C. 20546  
Phone: 202 963-7925

Mr. Vernon McKenzie

Special Assistant to the ASDHE, Department of Defense  
Room 3E175 Pentagon, Washington, D.C. 20301  
Phone: 202 OX 7-5186

*John D. [unclear] - NIH - [unclear]  
- [unclear] [unclear]*



NATIONAL AERONAUTICS SPACE ADMINISTRATION  
ROUTING SLIP

MAIL CODE		NAME	Action
			Approval
	MMR	Dr. Sherman P. Vinograd, M.D.	Call Me
			Concurrence
			File
			Information
			Investigate and Advise
			Note and Forward
			Note and Return
			Per Request
			Per Telephone Conversation
			Recommendation
			See Me
			Signature
			Circulate and Destroy

This was the only material in my file. Hope it was the missing part.

NAME	TEL. NO. (or code) & EXT.
R. J. Philips	37925
CODE (or other designation)	DATE
KT	5/7/71



Dr. Leon Bernstein

Acting Director Health Systems R&D Services - Veterans Administration  
810 Vermont Avenue, N.W. Washington, D.C. 20420  
Phone: 202 389-2666

Mr. Marlin W. Bowers

Deputy Director for Planning & Evaluation - Veterans Administration  
810 Vermont Avenue, N.W., Washington, D.C.  
Phone: 202 389-3745

Dr. Thomas Kennedy

Associate Director of PPE - National Institutes of Health  
Building 1 - Room 137  
900 Rockville Pike, Bethesda, Maryland  
Phone: 301 496-3152

Dr. Jack H. U. Brown

Deputy Associate Administrator - HSMHA  
Room 1741 Parklawn Building  
5600 Fishers Lane  
Rockville, Maryland 20852  
Phone: 301 443-3173

Dr. Norman Anderson

Director Molecular Anatomy Program  
Oakridge National Laboratory  
Oakridge, Tennessee 37830  
Phone: 615 483-8611

John Price - White House

L. Laster, M.D. - OST

D. Ink/R. Nathan - OMB

J. Mahoney - PACMI

J. Dickson, M.D. - PACMI

C. Caseras, M.D. - PACMI

P. Halpern - PACMI



PACMI MEETING ON HEALTH TECHNOLOGY

April 16, 1971 1:30 P.M.

Room 444 - OEOB

Invitees

Dr. Alfred J. Eggers, Jr.  
Assistant Director for RANN - National Science Foundation  
1800 G Street, N.W., Washington, D.C. 20550  
Phone: 202 632-7424

Dr. Shirley Silverman  
Associate Director for Academic Liaison - National Bureau of Standards  
Room A111 Administration Building, Washington, D.C. 20234  
Phone: 301 921-2461

Dr. Emmanuel Horowitz  
Deputy Director Institutes for Materials Research  
National Bureau of Standards  
Room B364 Materials Building, Washington, D.C. 20234  
Phone: 301 921-2878

Dr. S. P. Vinograd  
Acting Director Bioresearch  
Office of Life Sciences  
NASA Headquarters, Washington, D.C. 20546  
Phone: 202 962-6011

Mr. Ronald J. Philips  
Director, Technology Utilization Office  
NASA Headquarters, Washington, D.C. 20546  
Phone: 202 963-7925

Mr. Vernon McKenzie  
Special Assistant to the ASDHE, Department of Defense  
Room 3E175 Pentagon, Washington, D.C. 20301  
Phone: 202 OX 7-5186



Dr. Leon Bernstein  
Acting Director Health Systems R&D Services - Veterans Administration  
810 Vermont Avenue, N.W. Washington, D.C. 20420  
Phone: 202 389-2666

Mr. Marlin W. Bowers  
Deputy Director for Planning & Evaluation - Veterans Administration  
810 Vermont Avenue, N.W., Washington, D.C.  
Phone: 202 389-3745

Dr. Thomas Kennedy  
Associate Director of PPE - National Institutes of Health  
Building 1 - Room 137  
900 Rockville Pike, Bethesda, Maryland  
Phone: 301 496-3152

Dr. Jack H.U. Brown  
Deputy Associate Administrator - HSMHA  
Room 1741 Parklawn Building  
5600 Fishers Lane  
Rockville, Maryland 20852  
Phone: 301 443-3173

Dr. Norman Anderson  
Director Molecular Anatomy Program  
Oakridge National Laboratory  
Oakridge, Tennessee 37830  
Phone: 615 483-8611

John Price - White House

L. Laster, M.D. - OST

D. Ink/R. Nathan - OMB

J. Mahoney - PACMI

J. Dickson, M.D. - PACMI

C. Caseras, M.D. - PACMI

P. Halpern - PACMI



QUESTIONS IN NEED OF ANSWERS

Friday, April 16, 1971 1:30 P.M.

1. Is there a large technology base resident in non-health agencies that could be used in health care delivery and in making health care more accessible?
2. Can management methods make that technology available to health agencies to meet their needs?
3. Should health agencies foster 1) in house technology research, 2) in house technology application development, 3) both (in what amounts)?
4. How can non-health agencies rich in technology assist in bringing ready-to-use techniques to meet problem areas of health service delivery groups?
  - a. How can RFP's be overviewed to distinguish areas that do not need further R&D efforts by health agencies?
  - b. Can operational techniques that should not be problems be focused on so that technologists might indicate where transferal not R&D is needed?
  - c. Can agencies concerned with technology indicate industries, government labs or others who can readily make available systems already applicable in health care areas?
  - d. Can agencies suggest how to begin deployment of technologists closest to health problem to the health area itself thus making slots available within their own ranks (to others experienced in technology but not in health related technology)? Would this be helpful to the manpower effort and resource questions now before the country?
5. (To government groups) Can interagency management techniques foster technology to assist in improving health care delivery, accessibility and cost effectiveness?



6. (To university and health service groups) Can currently available technology assist in improving health care delivery, accessibility and cost effectiveness?
7. (To industrial groups) Can technology resident in industry provide current day production of systems to insure better health care delivery, greater accessibility and lower costs.
8. (To professional groups) Is it feasible to deploy technologists now available as a national resource in a manner that their talents might appropriately focus on health fully utilizing their immediate technologic background?
9. Is what is needed in Organization Health Maintenance?