

A great many different kinds of activity are involved, which have been classified by some under five headings:

- (1) fundamental research
- (2) supporting research or exploratory development
- (3) feasibility studies, operations analysis, and technical advice
- (4) development and engineering of products, processes, or systems
- (5) tests and evaluation activities.

The lines between many of the activities listed are necessarily uncertain. Nevertheless, it is clear that "research and development" is a phrase that covers a considerable number of different kinds of activity.

Finally, there have been distinct historical developments affecting the different Government agencies. Some agencies, for example, have a tradition of relying primarily on direct Government operations of laboratories—others have precisely the opposite tradition of relying primarily on contracting for the operation of such installations.

Against this background of diversity in several dimensions we have asked what criteria should be used in deciding whether or not to contract out any given research and development task? In outline, our judgment on this question runs as follows:

There are certain functions which should under no circumstances be contracted out. The management and control of the Federal research and development effort must be firmly in the hands of full-time Government officials clearly responsible to the President and the Congress.

Subject to this principle, many kinds of arrangements—including both direct Federal operations and the various patterns of contracting now in use—can and should be used to mobilize the talent and facilities needed to carry out the Federal research and development effort. Not all arrangements however are equally suitable for all purposes and under all circumstances, and discriminating choices must be made among them by the Government agencies having research and development responsibilities. These choices should be based primarily on two considerations:

- (1) Getting the job done effectively and efficiently, with due regard to the long-term strength of the Nation's scientific and technical resources, and
- (2) Avoiding assignments of work which would create inherent conflicts of interest.

Each of these judgments is elaborated below:

*Strengthening the ability of the Government to manage and control research and development programs*

We regard it as axiomatic that policy decisions respecting the Government's research and development programs—decisions concerning the types of work to be undertaken, when, by whom, and at what cost—must be made by full-time Government officials clearly responsible to the President and to the Congress. Furthermore, such officials must be in a position to supervise the execution of work undertaken, and to evaluate the results. These are basic functions of management which cannot be transferred to any contractor if we are to have proper accountability for the performance of public functions and for the use of public funds.

To say this does not imply that detailed administration of each research and development task must be kept in the hands of top public