

— and responds to it in a comparatively effective manner. The private economy is not afraid to follow multiple paths in research, and it duplicates more, the greater the payoff, and more, the less the cost. Instead of striving for an extreme form of monopolistic bureaucracy in the management of research and development, we would do well to consider emulating part of the practices of our more progressive industries.

SOME REAL PROBLEMS OF RESEARCH AND DEVELOPMENT

The real problems of research and development policy and management in the government are not the elimination of competition and duplication. Neither, although some planning and control are essential, are those problems adequately described as the need for “strong central direction,” “better planning and coordination,” and similar clichés of our contemporary centralizers. But there are real and challenging problems:

1. *How can we effectively decentralize*, to promote initiative and spontaneity in industry, the laboratories, and throughout the military, while maintaining control of policy and preventing recklessness and malfeasance in the spending of public funds?

This is a general problem, by no means confined to the management of research and development, as we saw in the preceding chapter. One of the keys to its solution is an adroit use of competition. The Services can use competition among contractors to make their control of policy effective. If there are several competitors striving for future favors, they are highly sensitive to the requirements of the customer. But if there is only one source of supply, the customer is at his mercy.

Where contractors are sensitive to the customer's requirements, it is not necessary to spell out the required specifications in such damaging detail. A general indication of preferences and trade-offs — some indication of the relative worth of improvements in accuracy, reliability, and so on — will suffice. This leaves more scope for the exercise of ingenuity by the contractor, obviating some of the frustrations and delays resulting from the necessity for frequent changes in specifications.

2. At a higher level, *how can we make good use of inter-Service and inter-agency competition* while curbing its undesirable features? There is, in our view, no question that inter-Service competition serves a valuable role — particularly with respect to research and development. Like other competition, it provides a powerful stimulus to thought and action, and a safeguard against bureaucratic rigidities. It provides a number of alternative sources of support for scientists, inventors, and firms with new and unpopular ideas to be tested (and almost all great ideas were unpopular when new). If inter-Service rivalry did not exist, we would be forced to invent something very like it.