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Assessing Technology

The National Academy of Sciences (*Science*, 5 September 1969) and the National Academy of Engineering (*Science*, 14 November 1969) have independently responded to a congressional request for advice on the possibility of analyzing in advance the benefits and the risks of exploiting new technological capabilities. The reports differ considerably in content and style, but agree that technology assessment is feasible. Neither, however, makes the job sound easy; analyzing the probable consequences of a proposed development will require an extensive amount of scientific, technological, and social information, the explicit formulation of assumptions concerning the future, and a substantial amount of work by a group of experts from several disciplines. The two studies also agree that the proposal is highly desirable and relatively inexpensive.

A good deal of technology assessment is already conducted by industry, government regulatory bodies, such agencies as the AEC, and organizations that seek to protect environmental and human values. The NAE and NAS reports expect these efforts to continue. What they recommend is an additional level of assessment—one that would work for the nation as a whole rather than for any special interest; one that could take account of the economic, human, and environmental values involved as well as the values of an advocate or an opponent; and one that could then render a comprehensive and impartial judgment of the probable secondary and tertiary as well as primary consequences of a proposed technological development or of alternative means of solving a particular problem.

The assessing agency should stop at this point, leaving decisions to the politically responsible executive and legislative agencies. Nevertheless, because every problem it took up would be controversial, it is important that the assessment agency be well insulated from political pressures. Yet if its reports are to be influential, it should be as close to the centers of congressional and executive power as possible. This organizational dilemma will be considered by the House Committee on Science and Astronautics in hearings later this year.

There are several ways in which the organizational problem might be solved, but none may have a chance to be tried out. Any proposed program of technology assessment will threaten the freedom of action of those interests whose plans and proposals would be subject to review. If this opposition can be overcome, the country will have gained a better means of using scientific and technological advice than it now has. On such matters as drugs, pollution, defense, and environmental problems, scientists and technologists frequently disagree. Congress, the executive agencies, and an often bewildered public must then decide whose advice to follow. A technology assessment program would not stop disagreements. But the varied individual judgments would be appraised by a panel of experts from different disciplines who would consider the evidence, the competing arguments, and the values involved, and would then publish their best judgment as to what would happen if one or another course of action were to be followed.

Such objective assessments could raise the level of public debate about the desirability and risks of new technology. The NAE and NAS reports can raise the level of discussion of how to go about the business of developing this national competency.—DAEL WOLFLE