Technology Assessment and Impact Analysis

A Sociological Analysis*

PAUL MEADOWS

State University of New York, Albany, U.S.A.

Change Management: Convergence on Consequences

DurinG the last three decades a number of developments have shared a common concern with the consequences of deliberate action. Although they are not of the same order of importance, perhaps, they include: the problem of development in the Third World, thermonuclear destruction, environment degradation, technological threats to privacy, genetic engineering, digital computers, areas and problems of technology transfer, the social indicators movement, program performance budgeting, cost-benefit and cost-effectiveness analysis, systems analysis, among a host of others.¹

This has been an inventive elaboration of a rich variety of intellectual technologies which substitute algorithms for intuitions and which represent a response both to the great corpus of available data about modern society and to the emotion-laden turning to the forecasting and assessing of decisions and actions which hopefully could specify goals at the same time that they could measure and reduce risks. For the new technologies mean new products and services; they also mean new dangers and damages - just as familiar technologies have in the past, but now at a much quickened pace and heightened intensity. The accelerating curve of changes and the widening ambience of consequences have created a demand for a forethoughtful effort to chart in advance the effects of action.

Part of this demand has been expressed in a body of environmental legislation, most notably in recent years in the National Environment Protection


Act of 1969 and in the Technology Assessment Act of 1972. The first mandated impact statements to be filed with the Council on Environment Quality, statements which indicate "adverse environmental effects which cannot be avoided", "alternatives to the proposed one", "the relationship between local short-term use of man's environment and the maintenance and enhancement of long-term productivity", and "any irreversible and irretrievable commitments of resources which would be involved if the proposed action should be implemented."

The language of the technology assessment legislation, though not mandatory in formulation, does stipulate that "existing or probable impacts of technology and technological programs" be identified; so likewise, "possible cause-and-effect relationships"; similarly, "alternative technological methods of implementing specific programs" must be determined as well as "alternative programs for achieving requisite goals"; and in like manner, "estimates and comparisons of alternative methods and programs" must be presented to "appropriate legislative authorities."

Clearly it is not enough to know that change is a two-edged sword, cutting in the direction of options as well as constraints: the forecasting and assessing of both of these consequences are part of an informed style of change management which is becoming increasingly regarded as a survival imperative for an advanced technological society. The future-bearing facts of planned change must be monitored and marshalled, measured, predicted and evaluated.

The language of this new dimension of policy responsibility is unambiguously effects-oriented. Thus, the technology assessment panel of the National Academy of Science described technology assessment as the presentation of "what occurs when the likely consequences of technological development are explored and evaluated." For the Congressional Research Service's Science Policy Research Division technology assessment includes "forecasting and prediction, retroactive evaluation, and current monitoring and analysis," involving "non-economic, subjective values as well as direct, tangible quantifications." Coates' often-quoted description emphasizes social impacts: technology assessment is "the systematic identification, analysis and evaluation of the full-range of social impacts, both beneficial and detrimental, which may result from the introduction of a new technology or changes in the application and utilization of existing technology." The accent on consequences of action reflects, according to the National Goals Research Staff, "a decreasing unwillingness of both the public and its representatives to tolerate the undesirable side effects of things done in the name of progress."

---

4 Ibid.
6 National Goals Research Staff, op. cit.