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The Social Control of Science and Technology: Comment

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COMMENT

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I THINK the approach used in Professor Baram's paper was a highly useful one. It seems that there was a controlled perspective in the way that Professor Baram looked at a very complex process.

I also thought that the matrix was extremely useful. It looks rather simplistic but, in fact, it is not. It takes much thought to produce a research and instructional schedule that can be followed with great profit. And further, to get anywhere in the field of problem-oriented analysis, especially within the present university structure, takes a very vigorous individual. Professor Baram should be congratulated.

Professor Welles covered nearly every point in Professor Baram's paper, and his comments were so perceptive that I do not care to pursue that line. We are here to discuss the ways in which science and technology relate to legal education, but if I may, I would speak more broadly and include all professional education in my comments. I have set out a number of questions which seem to set boundaries on the vast dimensions of this problem.

One approach to the problem is to look at the traditional decisional context in which lawyers have operated and at the intellectual tools and skills that have been used to see how these are matched. We could ask in what decisional arenas have lawyers performed well? The next step in this approach is to look at the types of emerging social problems that exist today and investigate the analytical approaches and professional skills that are needed to analyze and resolve these problems. Then one could ask whether lawyers are being equipped with the appropriate concepts and skills to make some progress toward the resolutions of these problems.

Because we are talking about social problems, this inquiry must not be limited to lawyers. All professional groups have an input here. So the question becomes are *any* professionals presently being equipped with the appropriate concepts and analytical techniques needed to enable them to understand, manage, and analyze the kinds of problems with which we are faced?

Having asked these questions, we should turn to an analysis of the approach we want to take in technology assessment so as to provide a framework in which to answer these previous questions. Professor Baram advocates a preventive approach to social matters; in other words, one must attempt to avoid the adverse consequences of new technological applications or, for that matter, any other kind of new program or project introduced into society. This approach puts greater stress

upon a prospective analysis than upon resolving existing disputes, and one gets the feeling that technology assessment is offered as a concept and a method of focusing on an anticipatory approach.

Conceptually, technology assessment might be thought of as a means of imposing a tolerable degree of control over the direction and rate of social change. Operationally, however, technology assessment may be defined as the identification of the effects or changes which flow from the introduction of a new technological innovation into society and the evaluation of the social desirability or undesirability of such effects.

The discussion thus far runs between these two extremes; at one extreme has been the conceptual — that is, what kinds of notions might we have of professional education and social problems — and, at the other extreme, a number of specific examples have been considered. We should be concerned with how we link a concept of social control with a new and effective policy which will achieve a net social gain in the areas with which we are concerned.

In response to this query I would direct your attention to a much closer look at the operational aspects of technology assessment. I think that once we have engaged in an analysis of a major, complex technological application being imposed upon the social environment, the level of discourse, or at least the degree of insight into our discourse, will change drastically. By looking at the actual operation we will get a better idea of the kinds of concepts we should form about legal and professional education.

Now, let us return to Professor Baram's notion of problem-orientation and observe that the legal profession has not yet recognized the full implications of the problem-oriented approach or of stretching traditional concepts and techniques of decisionmaking far beyond that which is absorbed through exposure to judicial thinking in case after case. The legal approach, as we know, emphasizes deductive reasoning from given principles or premises rather than alternative thinking about desired social goals and the satisfactory means of achieving such goals. This judgment may be a bit unfair to some law schools, since numerous legal scholars have been emphasizing the need for problem, policy, and alternative thinking for years, but on the other hand, the continuing push toward specialization must inevitably have the effect of constructing total social problem conceptualization. One has but to scan the list of areas of interest which appeared on a recent questionnaire sent to the members of the American Bar Association to see this narrowness; nor does the situation appear any more encouraging when one reviews the list of law books recommended for libraries which was recently published by the Association of American Law Schools.

What this means is that the legal profession, including legal education, is not placing sufficient emphasis on structured approaches to decisionmaking nor to institutional innovation. There is too much emphasis on subject areas rather than on the process of legal policy decisionmaking. Further, to the extent that process or function is treated, such treatment is usually limited to the conventional, nonoperational categories of the adjudicatory, legislative, executive, or regulatory functions, rather than focusing on the actual phases of the combined policy formulation and program implementation process.

We need an approach that will provide for: (1) perception of the problem; (2) formulation and definition of the problem and its context; (3) the assembling of relevant information; (4) consideration of alternative means such as statutory schemes, organizational arrangements, and social action programs; (5) evaluation and recommendation or promotion of selected outcomes; (6) formal prescriptions for new law or for the operation of new programs; (7) application of new statutory schemes in appropriate decisional contexts or the implementation of the prescribed social action program in a similar context; and (8) appraisal of the effects of the application of the statutory scheme or social action program based on continued monitoring and appraisal.

Now I would like to turn to the various operations that seem to be involved in technology assessment. Assessment tasks differ considerably depending upon many factors which effect the study parameter such as the sponsoring agency or the initiating entity, the nature of a particular application, or the resources of the assessing entity. Hence, we can anticipate a variety of assessment methodologies.

If we assume for the present that there is a major, new technological application that is being proposed for introduction into the future social environment, then it appears that the following types of organizational and analytical operations are essential. In the preparatory phase, a time sequence should be specified in order to achieve the objective of the assessment. The next step would be provisional organization of assessment staff and the social impact test units related to social subsystems. Examples of such subsystems include effective public decision processes, economic institutions and processes, knowledge and skill institutions and processes, urban and regional development processes, social behavioral patterns, standards of conduct, interpersonal relations, processes for exercising rational options in the social environment, access to goods and services, and processes affecting the quality of the natural environment. The assembled staff must then be instructed in the overall methodology of the study and the techniques for the evaluation of social impacts.

During the execution phase, when actually performing the assessment, the following operations must be performed: base line data on

the existing social environment must be established; base line data on the development and research stages of the relevant technology must be established; projections of alternative future social environments within the prescribed time frame; deliberate interventions and contingencies must be taken into account; the proposed technological application must be imposed on the projected future social environment; the significant effects or changes which will necessarily or possibly occur during the initiation, implementation, and operational stages of the technology application must be identified; those effects which will be fully analyzed and evaluated to determine the social impacts of the application must be selected; the participants, institutions, processes, and social interests affected by the changes brought about by the introduction of the application in the future social environment must be identified; there must be social impact analysis of such effects in terms of their probability, magnitude, duration, or social desirability or undesirability; the social impacts must be measured in such a manner as to provide useful inputs into a rational decisional process; and the assessment outcome must be presented in terms of an overall social cost-benefit ratio, or by an analysis of critical policy issues.

The one thing that is apparent from such a problem-oriented approach or operational analysis of technology assessment is that social problems are damned complex creatures; they are not solved by looking at any fixed set — legal, economic, or sociological — and certainly not just by technology. This we clearly should be able to derive from our consideration of the technology assessment, problem-context analysis. By deliberately pursuing some representative policy analyses or technology assessments in terms of the particular operations noted above, we can identify the types of concepts and analytical skills which are required for effective performance. This in turn provides the professional schools with guidelines for curricular development if we are to equip our future graduates adequately for dealing with the problems of an increasingly complex society.