

SOCIAL IMPACTS OF ADVANCED COMPUTERS

Fred W. Weingarten

Program Manager
Communication and Information Technologies
Office of Technology Assessment
U.S. Congress, U.S.A.

All societies, from the most advanced to the most primitive, are information societies. They all depend on information flows to define their nature and to organize the activities of their members, whether the information exists in electronic form, on paper, or in human memory through an oral tradition. Hence, it is not unreasonable to expect that major changes in the technology of information flows can produce major effects on societies and the individuals in them -- effects that hold out both promise and danger. The principal dilemma presented by advanced computer systems, as well as by other information technologies, will be to capture the enormous opportunities they present while protecting basic and enduring human values.

When analyzing the social implications of advanced generations of computers, it is important to understand first that particular technologies exist in two contexts -- the other related technologies with which they interact in the form of systems and the social structures and institutions that choose the applications that are to be developed and diffused. So it is with computers, in which modern computers form an important part -- but only a part -- of much larger, complex electronic information systems. The way computers are used as well as their social impacts depends on how they are incorporated in this broader

Five major trends form the context for advanced computing applications: (1) widespread distribution of machine intelligence; (2) the worldwide digital communication network; (3) the global electronic library of all human knowledge; (4) the humanized machine interface; and (5) the changing industry and regulatory structure of the industry.

These trends will create great social change and provoke important decisions in a number of areas. Although many could be suggested, I propose the following as among the most important for the person.

1. The nature of work -- The changing role of the person in work, skills and relationships with the employer.

2. The nature of national life -- The changing relationship of the person with the state and of the state with the rest of the world.
3. The nature of human life -- Opportunities and conflicts that emerge as persons are empowered by distributed information systems.