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INTRODUCTION AND SUMMARY

ABOUT THIS WORK

The motivation for writing the following outline for a research program in information technology and administrative data processing springs forth from three main circumstances: 1) The availability of many young researchers who are eager to identify important issues and to work on them; 2) The emphasis that is being given in research planning and funding to the issue of technical-industrial aspects of information technology, including lately interest for work environment, and 3) The accumulation during the last 25 years of a wealth of intuitions and experiences in which it is easy to drown if they are kept too long time in an unformulated state. They obviously overtax the shortlived capacity of one man, and must be left in heritage to as many engaged students as possible who will not need to rediscover the gold mines of available knowledge, and who would like to discuss and share the task of investigating the suggested avenues of research.

Having being written in the research and education milieu of a university, what is presented here is necessarily already the result of a conversation that has been going on between a fair number of people since a long time ago but the responsibility for the statements found in this work is the author's. The labeling of the work as a program does not assume that there is a wide consensus about what should be done. It should be rather seen as an invitation to a dialogue and debate about desirable research tasks in the long run, and reconsideration of present priorities in the short run. It could not be otherwise considering that what is being presented here as a program is rather a "reader" covering a great amount of literature and ongoing efforts.

The work is kept very short and in general offers a minimum of details. In many cases what is stated about the literature cannot be entitled to be called an abstract or review. A rough estimate of the time that would be required to thoroughly read the referenced literature will probably show that it is not to be expected that the author has been able to do it. Strong intuitions based on personal and shared experience, have sometimes taken the place of a thorough reading. What is attempted is to understand the "mechanisms" of the ongoing process of computerization of society in general, and of administration in particular. A better formulation, instead of using the word mechanisms, will state that *the attempt is striving to foster personal and collective action through an understanding of the "driving forces" that co-produce computerization or increased use of information technology.*

The text is organized under several headings that correspond roughly to various disciplinary views of computer usage. There are several overlappings and partial repetitions of arguments which sometimes are unavoidable because of the artificial subdivision of a scientific problem that more than never should be seen as a whole. Besides that it has been aptly remarked that every scientist in the most fortunate case has one main idea, a very personal "confession" that represents his unique personality,

and that is repeated all over again in slightly different versions during a whole lifetime. In this case the repetitions will unavoidably make clear which is the main idea.

A review of the material that is presented will show that such a work must navigate between the Scylla of eclectic relativism for presenting too many works of too many authors and the Charybdis of monistic authoritarianism for referring to a few of them too often. The tendency today is in favour of the former while this work may be paradoxically accused of coming too near to both. Concerning the former this is the right place for remembering a known quotation from T.S. Eliot "We shall not cease from exploration and the end of all our exploring will be to arrive where we started and know the place for the first time".

Some of the "messages" or hypotheses conveyed by this work, and corresponding to its main idea can spontaneously be arranged as follows:

- 1) Information technology challenges the division of traditional disciplines, and puts to the fore not only the political but also the ethical aspects of science.
- 2) Information science and systems science, if they should be called disciplines at all, represent new concerns, and as all new disciplines they are must be still transdisciplinary in their character. Nothing can grow except on the basis of its historical ground. Our historical ground is, besides philosophy seen as historical "processing" of information, i.e. knowledge, mathematics, logic, psychology, statistics, economics, physics, and others.
- 3) The study of the use of computers exposes very clearly the inherent shortcomings or limits of knowledge and intellect in the sense that it is felt that no man in his lifetime can be hoped to learn what would be necessary to learn for "understanding" what is happening and what should happen with the computer revolution. Modesty, psychological self-insight and collective efforts, i.e. new forms of understanding, are called for.
- 4) From the previous point follows that difficulties will make it probable that studies of the use of computers will, in some sense, "fail". This should lead funding agencies to a better understanding of the meaning of failure (Churchman, 1982, pp. 36-49) and to a conviction that failure may require increased efforts and grants to an amount that is at least comparable with the amounts invested in purely technical applied research.
- 5) There are some original basic research efforts that deserve support in the context of planning of the development of information technology, leading to applied research that can even result in marketable industrial products. In the pragmatist perspective theory and practice cannot be isolated in the process of research.
- 6) Some of these efforts because of their transdisciplinary character create a readiness for dialogue between people with far different disciplinary outlook, such as mathematics, engineering, economics, statistics, logic, psychology, theology, etc. Concerning theology one point that may emerge from the proposed inquiry is that science leads to philosophy and philosophy leads to religion and new forms of understanding with all their practical consequences (Acharya, 1917, p. 242).

The historical dimension is perhaps the most explicit and recurrent in the whole work and therefore it deserves particular attention. As it was pointed out above, every new discipline or effort for knowledge must, so to say by definition of "new", be related to what has existed earlier. In this sense every new knowledge must by definition be multidisciplinary, interdisciplinary or transdisciplinary. Pure delimitation or specialization will not do, as testified by numerous "specializations" like biochemistry, astrophysics, etc, that are rather recombinations of existing disciplines.

New knowledge, including the field of ethics (Lewis, 1988, pp.65ff) must be created by accepting, working out, changing or rejecting existing knowledge or given data about the world. There may have been times and places in which this historical interest and search for roots took an extreme character that was inimical to creativity and innovation (Nietzsche, 1988). There is an obvious danger of recurring to history as an unlimited reserve of reading and complications that ultimately hamper the individual capacity to live, think for himself, feel, and take stand on life issues. The attractiveness of phenomenology, that stands quite close to the pragmatist approach dominating this essay (Kaufmann, 1940; Hood, 1982; Edie, 1987; Rosental, 1987; Pressman, 1989) may be based on this feeling. In short: the historical approach may be misused and lead to a relativization and neutralization of "the true" and so it happened often during the Enlightenment (Nordin, 1987, about E.G. Geijer's "true" versus "false" Enlightenment).

Considering the status of present research and education, however, it seems that such a danger of misusing history is minimal since it is absent from most concerns. Under such circumstances a recall of history can only contribute to a justified slow down of the speed of activities and improve the trial-and-error process by adducing by means of dialogue with our predecessors a wealth of thoughts and experiences that should be as relevant to us as we wish that our own should be to our children.

The importance of dialogue and communication today is well recognized in developing data banks and communication networks. On the average, however, it seems that the Anglo-Saxon computer world has paid scanty attention to the historical dimension of inquiry. It certainly stood at the basis of one of the most influential debates on the continental European scene, the issue of *Geisteswissenschaften* and *Naturwissenschaften*. (Dilthey, 1989). One particular contribution of this research program is, then, the attempt to integrate this historical approach with philosophical pragmatism into the context of computer and information science. In this sense the proposed program may be termed as philosophical. In spite of this word being often used today as a denigrating epithet when evaluating grant proposals, we think of it in its sense of how inquiry would look like if philosophy did not split up in many isolated disciplines while their implementation problems are relegated to a synthesizing generic "user".

Let us re-emphasize that such a research program is not intended to be one man's job, not even one group's. Its long run purpose is rather to contribute to the build up of a community of researchers on a national or international scale, perhaps an outgrowth of earlier comprehensive research programs on information systems which have been formulated or described by business and organizational researchers (Mason, & Mitroff, 1973; Swanson, 1976; Kling, & Scacchi, 1980; Kling, 1980; Ives, Hamilton, & Davis, 1980; Mitroff, 1981; McFarlan, 1984, esp. pp. 97ff and 109ff; Docherty, Werngren, & Widman, 1984; Cash, McFarlan, & McKenney, 1988; Ulrich, 1988 and an outgrowth of those communities that today are flourishing under such names as social systems science, soft system methodology and critical liberating systems theory [Churchman, 1989 #1096; Checkland, 1988; Ulrich, 1989), expanded into the political and ethical domain (Ivanov, 1986), and with particular emphasis on information technology. What would be shared is ethical concerns and historical consciousness.

We do not claim that the outlined research effort will help to produce in a more effective way software products beyond the prototype stage. We do rather claim that it will produce people with a unique original understanding and competence about opportunities and problems with the use of information technology, and who will be

needed as consultant partners in the economic and social planning of the use of this technology.

One ideal image of how the result of such efforts would look like within some twenty years from now is the following. A number of theoretically and practically active research groups that have not necessarily read the same books, do not finance themselves in the same way, and are not necessarily concerned with the same issues or with the same scientific traditions. Still these groups will have researchers that believe that it is necessary to deepen the basis of their research by listening and helping each other to strive towards some ultimate ethical truth with the conviction that pluralism is not for relativism or for "the poison of subjectivism" (Lewis, 1988, pp. 98ff.) Or, as the Veda put it: "Truth is one. The sages speak of it by many names".

It should be finally remarked that obviously this work is not complete but is under work. It is a part of a more encompassing proposal for research on information technology. Because of the phase in of a new computer program for referencing, the literature list may still be incomplete and it contains inaccuracies. This is one more reason why the author welcomes any comments, criticism, or observations about editing and omissions.

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