

INFORMATICS AND INFORMATION DEPENDENCY

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ABSTRACT

The impact of new technologies, especially what has been termed 'informatics', that is, the science of information technologies, remains relatively free from sociological enquiry. In our rush to cope with the economic and organizational changes resulting from these innovations there is a tendency to cast off the old for the new. The more immediate responses afforded by computers often makes our previous methods appear antiquated and cumbersome by comparison.

This paper addresses some social issues raised by the introduction of computerized banking, word processing and 'tele-shopping' made possible by the micro-chip and 'Telidon-type' formats. Some attention is given to similar applications of information technology in terms of its implications for existing copyright laws and publishing practices.

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RÉSUMÉ

Les répercussions des nouvelles techniques et, plus particulièrement, de l'informatique, c'est-à-dire, la science des techniques de l'information, ont été peu étudiées par la sociologie. Afin de s'adapter rapidement aux changements économique et organisationnels qui découlent de l'automatisation, l'on tend à remplacer le vieux matériel par du plus perfectionné. Aussi nos techniques anciennes semblent-elles désuètes à côté des ordinateurs, qui eux, livrent des réponses de façon instantanée.

Le présent travail traite des questions sociales qui se rattachent à l'implantation du système télé-banque, du traitement de texte et de l'achat par ordinateur, réalisable grâce à la technique des micro-plaquettes et du format de type 'Telidon'. Il sera également question des incidences d'autres techniques sur la loi sur les droits d'auteur et les procédés de publication.

INTRODUCTION

In light of the overworked clichés of our technological society viz. the 'dawn of the computer age', the 'information revolution', the 'third wave' and -- how could we forget with all the media hype -- 'Big Brother', it is difficult to posit more than a cautionary note on the literature which now inundates us. Moreover, any argument suggesting a second look at recent technological advances is apt to be labelled Luddite, anti-technology or unreasonably conservative by proponents of the new innovations.

What needs to be identified for the purpose of this paper is the specific rationale and framework used to view information technology, before we make any claims to insight. As information scientists we must first be concerned with the process of communication. Indeed, Wilhelm von Humboldt suggests that:

By the same process whereby he [man] spins language out of his own being, he ensnares himself in it; and each language draws a magic circle from which there is no escape save by stepping out of it into another.
(Cassirer 1946)

The problem we face now is the new language of 'technocratese' -- the language of an information society, or more specifically, the language of an emerging elite within that society. This elite is composed of the computer literate -- both the information high priests and the technical professions and industries which produce and maintain the computer/communications systems. Each sector of this group is compelled to devise new terms to fit new innovations. Acronyms, therefore, are not only the fanciful device of marketing personnel but the necessary product of a limited language. How we come to ingest these signs, however, is another issue.

A second phenomenon which we must identify to frame this polemic concerns the complexity of an information society; a complexity which is abetted by the concept of 'miniaturization'. (Bell 1980) As a result of this miniaturization process a whole new set of social relationships has emerged both in terms of the labour force within industries and our concept of power and controls. Having said this let us now turn to the issues presented by this new era of technology.

INFORMATICS AS DEFINITION

Informatics is foremost the study of information systems and how they work. Godfrey et al defines the term as 'information science' in both a theoretical and applied sense, that is, "*the collection, classification, storage, retrieval and dissemination of recorded knowledge*". (Godfrey 1980) Indeed, 'information science' is a particular process and information scientists are engaged in the research and implementation of this process. What this definition fails to clarify is what is to be collected, how and where it is to be stored and for whom and for what purpose it is to be used. In short, I suggest we have concentrated most of our efforts on the technological questions related to the system and means of communications rather than on content and mean-

ing. Informatics, moreover, is but another in a series of coined terms which attempt to convey meaning for the information technologies. For example 'telematics', borrowed from the French 'télématique', refers to the merging of telecommunications and computer systems. Still others (Ryan 1981) choose to include information, information technology and communications. Further confusion is added by what Oettinger calls 'compunings' to refer to the merging of telecommunications and teleprocessing, (Bell 1980) -- not unlike the European *télématique*.

In practical terms the struggle for definitions is not so much a question of semantics as it is an indicator of the confusion inherent in the evolution of these composite technologies. Such merging of technologies and services cannot be viewed as being simply the product of individual technologies anymore than the automobile is the product of the horse and carriage. Telidon, for example, creates a new set of services and expectations different from those using television, the computer, and telephone/cable service alone. These individual components are, indeed, 'familiar symbols' yet they call for a new set of responses in the Telidon context. (Tombaugh 1982) What becomes important for us is the way in which the technology is perceived, for ultimately this results in how we use the technology and how we define regulatory policies and legal controls.

The paradox which persists is that, for the most part, we continue to regard the new technology with 'old eyes'. Train tracks evolved in the path of wagon wheels, automobiles were originally called 'horseless carriages' and television began as 'radio with pictures'. The same holds true for informatics. Take, for example, the development of the Telidon protocol. Its original design was intended to provide a means of minimizing the quantity of data required to be transmitted between two points by conveying only the control instructions which would affect identical database files. (Bown 1978) Ironically, we now find that many of the commercial applications limit the technology to the alpha-numeric display of text or, in the other extreme, background pictures to enhance limited statistical information used in weather forecasts. In the former case the technology is underutilized, in the latter it is perhaps superfluous for most interests.

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What becomes apparent with these applications is that we often attempt to load our new system with old baggage even to the point of turning television sets into electronic books. Instead, we might make better use of the medium to convey the range of literature or its location. In this context we are not dealing with information but data which "by themselves have no meaning" as Sieghart suggests, and "*can only become information when they are combined together in some form which can increase the knowledge of the receiver*". (Sieghart 1982)

Yet the capacity to store and retrieve vast quantities of information regardless of the quality remains central to most communication systems. This phenomenon is evident with the demand for multi-channel television. Among the more recent of informatics services are those pre-

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sented by computerized banking. When the teller and customer become the components of the financial transaction, each compelled to follow set procedures in order to facilitate the process, there is an understood relationship in terms of each other's role. In this instance the relationship is one of human dependency with some understanding of the other's limitations. In contrast, the automated teller responds (provided the system is working and the customer is proficient with its operation) without bias and, presumably, without the normal delays required by a manual searching of accounts. This, then, is the second influence produced by informatics - an expectation of immediacy. A similar situation exists in the case of tele-shopping, which replicates the catalogue order procedure while eliminating the need to interact with a salesperson, or for that matter, the need to travel to a shopping centre. There are both advantages and disadvantages to such procedures. What should be recognized, however, is that wide-scale adoption of this system will have far reaching social implications requiring the development of new alternatives for social interaction.

LABOUR AND EMPLOYMENT

Yet another arena for informatics technology involves those people directly working with the processing of information -- the computer operators, programmers and information librarians. In recent years we have witnessed the incredible changes in personnel requirements as a direct result of office automation, computer storage of information and cybernetics. There continues as a result a need for redefinition of the roles in this new environment, particularly for the office of the future (Licker 1982) and the information marketplace. (Thompson 1981) Although we would all like to believe that the deluge of information now created will provide the need for more employment, informatics technologies are not labour intensive. Moreover, computer technologies often facilitate the process of redesign and modification to existing procedures which could eventually spell the demise of many programming functions.

At the same time, there is a growing awareness that the threat of centralized and controlling mainframe computers has been eroded by the development of the mini and micro computer systems; the latter development giving rise to a new cottage industry and workplace. In turn, if this structure continues there will be a greater emphasis placed on family solidarity, with less direct social interaction produced by one's employment. Contrary to living in McLuhan's 'global village' we may find ourselves, as Mumford once suggested, at the point of full circle in which electronic communication will differ from direct intercourse *"only to the extent that immediate physical contact will be impossible"*. (Mumford 1970)

COPYRIGHT PRACTICE AND POLICY

With the advent of photocopying machines, electronic recorders for audio and video information and the sheer availability of publications and media broadcasts, the issue of 'ownership' of information is an important concern, particularly for the producers of the information. For the most part, the use of information in print format or as media is

covered by existing copyright laws in Canada. At the same time, it is becoming increasingly more difficult to police the unauthorized use of information. The F.C.C. in the United States recently ruled to permit 'off-air' recording of broadcasts since it would be impossible to control the already widespread practice.

It has been argued further that since:

The principle characteristic of 'property' is that, by stealing it, you can deprive the lawful owner of its use and enjoyment...there can be no property in information.
(Sieghart 1982)

What needs to be qualified, however, is the notion of property, that is, what should be considered personal property and what must be regarded as public by right of its content and use. Moreover, informatics is not limited by language or political boundaries. For example, Arthur C. Clarke's recent book 2010: Odyssey Two was written on an Archives III micro computer, using 'Wordstar' software, then mailed from Colombo, Sri Lanka, to New York on a five-inch diskette and subsequently revised by satellite transmission through the Padukka Earth Station and the Indian Ocean Intelsat V. (Clarke 1983)

CONCLUSION

There comes with the new informatics a promise of better and faster methods for handling information -- assuming, of course, that this deluge can be digested at the same rate. However, it cannot. Not only is society by definition a complex combination of many people, cultures and traditions but it includes the artifacts, technologies and history of its people. This 'cultural baggage' shapes the use we make of information and through our knowledge and experience we give meaning to otherwise insignificant data.

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