INFORMATION TECHNOLOGY

by

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Over the past decade or so, Information Technology has improved its cost-performance ratio by something like three orders of magnitude. Few people have ever dealt directly with such a great change. Even the ratio of the change in human weight, from birth to adulthood, is paltry in comparison. This profound ratio of change means we simply can't appreciate what can be done and what can't. Many of the things that we wanted the technology to do, a decade or so ago, turn out to be very difficult, while other things, that are more significant, simply go unrecognized. We have a great propensity to put the new wine of the new technology into old conceptual skins. In short, we tend to think of this information technology as a mere extension of its older industrial parent.

This state of affairs is all the more alarming when we recognize that we don't yet fully understand technologies we have had for a century or so. The shared acoustic space that the simple telephone creates between its two end users is destroyed when we use many long distance facilities, satellite facilities or a loudspeaking telephone. Most people are totally unaware of this effect, and they react to it in an irrational way. The loss of the familiar shared acoustic space of the local telephone service has produced situations where court action against a telephone company might have been given serious consideration, had the injured parties had the wit to recognize what was happening. The abysmally low level of understanding of the effects of a technology as old as the telephone doesn't bode well for our ability to use the newer technologies wisely.

A data conferencing bridge, using a small micro, allows a number of computer terminals to interact with each other and to also appear as a single terminal to a host computer. This bridge is analagous to the familiar voice conference bridge. The bridge creates a shared visual space on the screens of the terminals, for the individual screens, being in one-to-one correspondence with each other, can be thought of as being the same screen, or space. When this shared visual space is added to a shared acoustic space of the telephone, we have a new means of communication: Silmutaneous Voice and Data. Doing a database search in this way with a skilled librarian, perhaps many miles removed, in a database located across the continent, is a very rewarding and efficient way to work.

Today's "communicating" word processors do not support a joint editing space that two people, located miles apart, can share. All they do is shuffle files back and forth. This situation probably stems from a tacit acceptance, by both the system designers and users, of the face-to-face model of communications as being a complete description of interpersonal communications. The shared space model, an extension of John Dewey's concepts, is a powerful adjunct to the face-to-face model.

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The simplistic but widely held model of ideal communications being face-to-face acts as a severe limitation on our ability to apply the new technology in ways that lead to increases in the synergy we can generate in our mutual interactions. The face-to-face model denies the possibility that, for some special purposes, there may be other modes of communication that surpass the conventional face-to-face mode. This denial cuts off the search for such opportunities. Applying the new technology simply to emulate presence, in the face-to-face mode, as opposed to using it as a tool to extend human powers, is to miss the principal potentials of the technology. The tremendous change in the performance-cost ratio of this technology, when coupled with our propensity to use limiting models, creates a considerable constraint on making significant uses of the technology happen easily.

Voice messaging, which allows a voice message to be left for someone who is away from his telephone, is another new service prospect. Exploring the analogy between this service and written messages raises the question of why we still use a typewriter when we could Xerox our own handwriting so easily. Will there eventually be a need for messaging systems that analyse speech, and then synthesise it in a standard "Pica" voice for delivery, much as the typewriter converts our handwriting to a sterile, standardized form? Many "literal" storage systems will be built before the subtle values of the analysis-synthesis route are understood. Perhaps, in a hundred years, people may understand synthetic speech with greater ease than real speech, just as we now read the synthetic writing of the typewriter easier than the product of our own hands.

Electronic mail also offers the potential of being well done or being done in a quick and superficial way. A hand written note creates very different responses in the recipient than a properly prepared formal letter. We have developed a way of saying something about the message we are sending by the means we use in conveying that message. Whether a message is received on a screen or is delivered on paper makes a difference in how the message is perceived. A long message on a screen gets undue attention spent on the last screenful. What went before is less important. When sending a longish message, be sure you know if the important recipients will receive it on a screen or on paper. It could determine how much you send, and where you put the emphasis. The middle merely separates the start from the end on the ephemeral screen.

All of the above illustrates, in areas where the potentials and the problems are relatively clear, the lack of alignment between potential and current directions of useage. Larger, and much more important areas exist where neither the opportunities nor the problems are clear at all. Reference is frequently made to the potential of this new technology to allow the development of a "knowledge society", a concept that seems particularly popular in the Boston area. However, what is knowledge, and so, by inference, what must be excluded from such a society's informations systems? The significant challenge, or so it would seem, is to employ the new technology to address this question, rather than just providing easy access to the "acceptable" knowledge, and denying the rest.

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The evaluation of information, not just in monetary terms, but in terms of truth, acceptability, etc., is one, if not the, major task of any society. The institutions we used for this in the past simply can't cope with the mushrooming output of information. Their failure has produced a truly remarkable loss of trust in many institutions, such as large corporations and even governments. I know of not one single demonstration of the new information technology where mechanisms, even as simplistic as the popular music charts, are employed to both provide some kind of content assessment and also demand stimulation. When we are dealing with an ethereal good, or unembodied information with no physical component like a phonograph record or a book, the prospective user's use value is simply not related to the producer's cost plus profit. Use value becomes completely ideosyncratic.

Totally new techniques for merchandising are required if a perception of significant use value is to be built in the prospective user's mind before his commit_ment is received. Perhaps the most useful tool to achieve this end is reliable useage data aggregated and demographically massaged, collected from across a wide sample of users. In effect, the communications network becomes more than a mere delivery vehicle for it must now bring back the useage data that eventually become an ideosyncratic use value predictor. Even if tomorrow's chips could store everything we might ever want right in our own homes, we will still need a network if we wish to discover and track the consensuses about the value of the individual items stored in those mega-chips.

Today we use the new technology as a means of eliminating jobs. Yet, in our society, we determine our roles by the job one has. It is clearly a case of social masochism to use the new technology to eliminate roles in the society. Clearly this can't continue. Either new sources for role must emerge, or the new technology will meet increased resistance. Yes, these are exciting times. However, the amount of technological myopia that surrounds us is truly alarming. It is not at all clear that we will get the kind of future we might have desired.