# INTRODUCTION

Two significant communication-related events marked our entry into the decade of the 1980s: 1) the development of personal computing and 2) the introduction of digital networking. Both are the consequence of engineering developments which have been realized only very recently—towards the middle of the previous decade in fact. Personal computing has meant the substitution of digital technology for analogue in a variety of office machines. For people who do document-based work of various kinds in their daily tasks this evolution implies two improvements: a very considerable upgrading of their capacity to handle symbolic material, and the availability of a multipurpose tool in place of the previously unifunctional implements they were used to. Digital word processors are more flexible, more powerful and cheaper than typewriters; electronic "spreadsheets" constitute a dramatic improvement over mechanical calculators; and the graphics capability of personal computers puts design techniques that had previously been restricted to the trained technician at the disposal of ordinary people. And the magic of software, in combination with microprocessing, meant they could all be combined into one compact, cheap machine. The newly integrated network, on the other hand, exploiting as it does digital transmission and switching, meant that telephones for voice traffic could be merged indiscriminately into the same system that handles data, words and pictures (the most common application now on the market being the omnipresent fax machine). By the end of the 1970s, the cumulative effect of these inventions had excited management consultants with their potential for the transformation of office work. Phrases such as "office of the future", "office automation", the "paperless office", the "integrated electronic office", la "bureautique", among others, were on everybody's lips at the dawn of the new decade.

Those who promoted the new technologies of communication reasoned by analogy: better tools for the manufacture and distribution of *physical* goods had brought about immense increases in productivity earlier in the century; was it not reasonable to posit similarly dramatic effects in the handling of *symbolic* material within the office? The gap between investment in equipment for the plant floor and for the office was known to be considerable: would not the new technology redress the imbalance and enhance the productivity of what was coming to be known as "knowledge work"

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(or "information work") by a proportion similar to that of the assembly line? The big computer companies, the prospect of a huge profit windfall dancing before their eyes, were not slow to advertise "productivity gains" of 10%, 20%, 30%, 40%—the sky seemed to be the limit. After all, computing had already proved its worth for typical "back office" functions such as accounting, billing, payrolls; was it not reasonable to expect similar results from the front office, where the managers worked?

For those less euphoric in their expectations, office automation held out a different prospect: unemployment, dehumanization of the workplace and discrimination.

Very few of these expectations came to pass in the ensuing years, at least neither in the black-and-white terms of the enthusiasts nor of the Cassandras.

Office automation, only a half decade later, was looking more bust than boom.[1]

Towards the middle of the 1980s, Paul Strassman, a former vice-President of one of the larger high-tech firms, Xerox, began to produce evidence, based on sectoral studies, to show that there is *no* consistent, across-the-board relationship between the level of investment in computerization and company productivity (Strassman, 1985). The next shock to hit the business community was a cover story in *Fortune Magazine* (May 26, 1986) entitled: *"The puny payoff from office computers: Business has spent billions, but white-collar productivity hasn't budged "*. The article was based on an analysis conducted by an economist, Stephen Roach (1987), employed by the New York investment house, Morgan Stanley. Roach's particular achievement was to break down (by a "heroic amount of work", according to *Fortune* ) statistics on the productivity of the entire work force by sorting the white-collar occupations from the blue-collar. When he had completed his task, he discovered that: (1) blue-collar productivity had continued to climb in the United States, while white-collar productivity was (at best) stagnant and (at worst) declining, precisely at the time when (2) capital investment for white-collar information workers had swept past that for assembly line production workers. In the 1960s, the endowment in an industrial worker was twice that for the information worker; by 1983, parity was achieved; since then, capital investment in the latter exceeds that in the former. Since the proportion of those classified as information workers in his analysis is in excess of 65% of the workforce, the flatness, or decline, of productivity of this sector constitutes a permanent drag on the economy.

The evidence continued to pile up. An analysis conducted at MIT concluded that while the productivity of *shop workers* had gone up by 13% between 1978 and 1986, *office productivity* had gone down by 10% (at the same time as the number of those employed in white-collar jobs kept on climbing upward). In an October 1986 article in the prestigious journal of the American Association for the Advancement of Science, *Science*, Martin Neil Baily of the Brookings Institute in Washington also observed the lack of payoff of the new information processing and communication technologies in spite of high levels of investment: *"It appears as if the administrative bureaucracies of the economy absorbed a large share of total investment without making corresponding improvements in efficiency "* (Baily, 1986).

By June of 1987, the *New York Times*, using U.S. federal Labor Department statistics, was led to conclude in its business section that: *"Nearly a generation after American technology companies unleashed new computers, telecommunications gear and electronic equipment, executives and employees are discovering that instead of saving labor, the sophisticated machines in many case have been hampering their work"* (Schneider, 1987). In their breakdown of the figures, the analysts found the service sector to be most affected: the average rate of growth in the productivity of businesses that do not produce goods has fallen to more than a third of what it was *before* the advent of computer and electronic technology in the early 1970s. Since service businesses provide 68% of the GNP and 71% of all jobs, and are expected to generate a majority of jobs and wealth in the future, this feeble performance was seen to be a matter of considerable concern.

A shortfall of this size, compared with the initial expectations, and given the vast sums being invested (upwards of $5 billion a year in Canada alone by 1985), surely needed explaining. Unfortunately, social scientists were not initially very well prepared to meet this latter challenge. For one thing, researchers preoccupied with organizational phenomena were not much accustomed to conceptualizing what they studied through the lens of a model of communication: the physical side of communication, to a management scientist, is a lower-level support function, more associated with secretary preoccupations than high policy. The burgeoning new field of organizational communication had only become identified as a distinct area of inquiry a scant ten years or so earlier and even its main thrust was to examine social relations; it had little concern with the technology of communication. On the other hand, media studies, although very well developed by the early 1980s, were concentrated on *mass* media. The office automation phenomenon, by contrast, was concerned with *interpersonal and group* media. It was therefore not at all clear how to transfer models of investigation appropriate to the study of television, radio and film to provide an explanation of the curious pattern of media usage now beginning to emerge in the office. At the simplest level, there was the elementary question of how to collect data, since organizations seldom incorporate follow-up research on their own initiative to track the history of an implementation of office technology, and tend not to be particularly welcoming of social scientists coming from the outside who might be prepared to do so.

The articles contained in this issue of the *Canadian Journal of Communication* go some direction towards rectifying this situation. Collectively, they report on a variety of experiences with the introduction of new technology into office work and begin to address the task of formulating a theoretical framework which would explain the initial sub-performance of the technology.

The article by Clark, Dechman and Snider, for example, is one product of an ambitious assessment, carried on over a three-year period, of a field trial conducted within a branch of the Canadian Department of Communication. Here there was a close collaboration between administrators and researchers, and the result is a unique body of data, from within a bureaucratic context, where it was possible to isolate some of the

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main effects of implementation (assuming the latter to be a sociotechnical, and not a strictly technical, development). In their article, the authors explore a hypothesis that the present author had put forward earlier which predicts that increases in individual productivity do not necessarily get translated into better organizational performance. Their findings are in conformity with a growing conviction in management circles that computerization without organizational restructuring is unlikely to bring about lasting benefits. They also point out an inherent difficulty in measuring productivity, and thus suggest why standard accounting procedures may have dysfunctional implications for the planning of change.

Lorna Marsden, in her contribution to this issue, is concerned with a very different milieu of work, that of the small office, with only a handful of employees. Her research documents some of the human dynamics inherent in computerization. She effectively points out the gap between rhetoric and reality: what the boss doesn't know is that the system he has bought (without consultation) only works as well as it appears to because one of his employees has taken on the burden, at the cost of a personal sacrifice, of making it seem to work. This research also illustrates how sexual politics gets involved with technical performance, and reminds us that women, in the form of secretaries and receptionists, have over the years been the interface between their male employers and the technology of communication on which they depended. When it comes to buying the new system though, they are likely to be the last to be consulted.

The article by Bélanger, Lafrance and Taylor is set within a different context, that of a network of retailing franchises. In their paper, they set out to document how the history of an organization, its culture and its political equilibrium can have a determining influence on the pattern of implementation. Their work also points out the very considerable gulf that exists in many organizations between company officers, with little knowledge or understanding of communication technologies, and the services set up to take care of the planning and management of the systems. Their work indirectly suggests why so many implementation schemes take so much time to effect.

André Billette pursues the theme of corporate culture even further. In his paper, he compares the dynamics of implementation of two banks, each with a very distinct style and philosophy of management. His analysis emphasizes the ideological dimension of computerization by showing what happens when the goals of implementation are at variance with well-established corporate values. Here rhetoric and reality are in danger of diverging totally.

Irving and Weiermair's paper is more theoretical in orientation: it examines the theme of reality construction, implicit in Billette's paper, from a more abstract perspective.

Finally, Dufresne and Blais report on the implementation of technology in a small business and its effects on office performance and interpersonal dynamics.

The issue also includes three commentaries: Carney considers word processing from a unique perspective, that of the addictive organization; Halary takes a

speculative look at the world-wide growth of networks, and their meaning for the distribution of power; Harries-Jones examines some of the implications of the commoditization of knowledge, with particular reference to the place of the universities, leading him in turn to reflect on the role of interest groups in politics, from within a Batesonian perspective.

Nobody doubts that the new communication technologies are here to stay, nor that many benefits flow from them. It has become clear, however, that in and of themselves the technologies have no enduring value. The kind of research reported in this issue will hopefully point the way to *how* to do a better job of introducing an inevitable change in a way that makes both human and economic sense. Organizational communication research is a rapidly growing field in Canada. The articles which appear here are helpful in suggesting why it is likely to be a significant force in future research.

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## ENDNOTES

1. While the references which follow have all been drawn from American sources, there is no reason to doubt that they apply equally well to the Canadian situation.

## REFERENCES

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