



**From cutbacks
to the information
revolution's cutting edge**

**New
technology
and the
future
of the CBC**

by Patrick Crawley

Ice chips whip horizontally across the open fields, bouncing off the cars scuttling along the Prescott highway. Ahead, exposed on a wind-swept bluff overlooking Ottawa, is the graceful form of the Canadian Broadcasting Corporation's headquarters building. The wind rattles the frozen branches of the elms that surround the CBC's main parking lot, visible sixty feet below from the windows of Pierre Juneau's office. Inside, the CBC president sits reading.

As one of the first French-Canadians in the National Film Board, Juneau survived the cold war-flavored budget cuts that almost broke the Board's back in the late '40s when it was gutted in favor of a more politically reliable CBC.

Now, ironically, he heads the CBC and is in charge of making the decisions that will trim 10 percent out of the CBC's roughly one billion-dollar budget.

An SAE-dedicated word-processor clatters behind a wall in the executive office from where the world's biggest multimedia information-process organism is controlled. Here, the CBC's budget-cutting process is being co-ordinated. A siege mentality hangs in the air. What started last spring as a \$40 million cost-cutting exercise, a response to the auditor-general's by-now famous report, has turned into what the Ottawa bureaucrats most feared—major budget surgery. With deep political roots and implications.

Since the summer of 1984, as the

Patrick Crawley is a Toronto-based film and television production industry analyst.

possibility of a Tory electoral victory grew and became an overwhelming reality, the CBC's MIS (management information system) that makes sense of the corporation's computerized accounting systems in their random growth since the '60s, had been humming along as hard as it could given its archaic architecture. Surrounded by wartime Information Board posters and Art Bank abstractions, the CBC's senior management team had banged out different sizes and shapes of CBC, from the one billion dollar basic model to an \$800 million-dollar economy version of the Tory dream machine.

Across town in the Journal Towers, offices of a bankrupt newspaper, Marcel Masse, minister of Communications, aided by three consultants, was also hacking at the CBC's budgets as part of the traditional "armslength" shortening process that has over time created the entire Canadian public production sector and triggered periods of technology assimilation.

For, in Canada, technological change is not the creation of new technologies but is rather the assimilation, adaptation, and integration into new technological bases for production of technologies drawn from the U.S. and Japan. Four times before in the history of Canadian communications—the early '20s, the early and late '30s, and the early '50s—important periods of technology assimilation have occurred, each concurrent with major periods of industry re-organization directed by the federal cabinet.

In the past, Cabinet had left the CBC alone. Except for gripes about a perceived anti-government bias, the political integrity of the system was traditionally the responsibility of CBC man-

agement and a sprinkling of ex-security services personel. But now, as on previous occasions, each coinciding with

an industry-wide technological revolution, the cabinet was putting in place mechanisms that would mean major

The Crawley 'conspiracy'

From a tiny study in his Annex home in Toronto, Patrick Crawley bombards producers, union chiefs, senior broadcasting executives and magazine editors with memos run off on his IBM-cloned PC. Crawley is out to convince the film and television world that what's happening today in the industry has happened before and that it is possible to define a strategy to deal with technological change that can vault Canada to world communications leadership. Using digital technology, an integrated Canadian public-private sector industry can produce top-quality on-line programming at a fraction of today's costs, Crawley argues between drags on an endless chain of cigarettes.

As he contemplates the implications of technological change, CBC cuts, government policy and the blindness of the industry to the interrelationship of technology, capital and political will, Crawley sees inevitable, predictable historical cycles. The problem, says Crawley, is "false consciousness," and his working life is dedicated to dispelling that false consciousness.

His insights are recognizably brilliant, coming from an insider's knowledge of the industry (the son of

Budge and Judith Crawley, he was born with celluloid in his veins), combined with an intensive study over many years of the industry's history.

One person who listens closely to Crawley is communications consultant Paul Audley. He says of Crawley, "he's got a lot of brilliant intuitions but he often needs a translator. A lot of the things he's been saying take a year to sink in."

Crawley has amassed his insights into what he calls the "base document", a massive manuscript out of which emerge fragments addressed to the likes of Pierre Juneau, Pat Ferns, Bill Armstrong, Bill Litwack and Audley. The accompanying analysis of the CBC and technological change is edited from Crawley's work.

Crawley likes to see himself as co-ordinating what he calls his "conspiracy." The aim of his conspiracy is to further a plan that "will enable technologically progressive components of a leaner more competent private-sector to integrate themselves into smaller, more cost-effective public sector to integrate themselves into a smaller, more cost-effective publicness." It's a conspiracy that should readily find co-conspirators.

Tom Perlmutter ●

changes in Canada's communications sector.



The Broadcast Act, the Canadian Film Development Act and the National Film Act are the legislative pillars upon which the entire communications industry now rests. When the cabinet engages the industry by amending either act – and Masse on Dec. 20 tabled a bill to amend government control in broadcasting – we get major changes throughout the entire system: new corporate structures; a new technological base for both production and distribution; new management techniques, union contacts and types of production units and programs; in other words, a complete industrial revolution. Paradoxically cabinet's initiatives are seldom the result of recognition of the need for reorganisation or re-equipment of the industry, but are rather the result of political and/or financial pressures from outside the industry: in the present situation, the perceived need for deficit reduction coupled with a pro-private-sector political philosophy.

To cut down an organism of the size of the CBC – 12,000 people, 31 production plants, French and English AM and FM radio and television (in comparison, the U.S. networks are bush-league operations) – is not an easy trick. Especially since the relatively new management team has inherited a corporation that had, according to the auditor-general, been so decentralized in the '60s as to lose almost all of its ability to control itself. Waves of decentralization had created a corporation composed of "a series of autonomous and self-sufficient entities existing in almost total isolation from each other," within which "there is an anti-control, anti-planning attitude." The CBC, now being wrestled to the ground by Pierre Juneau, is, from a management point of view, in deep trouble.

For starters it's going broke. Its budgets have been cut back for the last 10 years. And according to its producers, "there is a crisis of financing in English television production-CBC programming is a motley collection of well-funded shows, and programs that are poorly funded. Between 1977 and 1982 the CBC parliamentary appropriation declined by 4.3% in real dollars. In 1982-83 the appropriation went up only by \$2 million at a time of high inflation."

It's also struggling to maintain position in a market that has been fragmented by the cable industry (ironically by Juneau himself when he was chairman of the CRTC). As the CBC president recently put it, "A majority of Canadians now have access to eight or ten television channels. In addition, 25 percent of all Canadian homes have converter service, which doubles the number of channels available. We anticipate that before long – say four or five years – many Canadian households will be able to receive 50 or more television channels. Fragmentation has its price, particularly in Canada with its relatively small market. We lose audiences and revenue because of fragmentation."

At the same time, the digital technology that provides the basis for the market fragmentation is impacting on the production system. The CBC's production manpower faces new technologies in all traditional equipment categories and some new ones. And according to EHQ, the CBC's engineering division, "a

large proportion of the CBC's technical equipment is of an age where replacement is essential, and in some cases long overdue. The need to provide capital funds for production facilities goes well beyond replacing worn out or obsolete equipment. In order to maintain its facilities at or reasonably close to competitive levels and to take advantage of the efficiencies and opportunities of new technologies, an allocation of capital is required." The CBC is both broke and going down the tubes technically – and this in the context of a revolution in information technology when information is the CBC's main product.



Corporate problems of this kind are difficult to deal with at any time. But in the world's oldest public production bureaucracy whose management has, in recent history, not provided leadership, it is really difficult. According to the auditor-general, in 1983 (when Juneau started to work on the corporation) the CBC "had not developed a structure and formal process for strategic planning that can address the major questions facing the corporation and provide direction to its operational areas." The absence of a strategic plan kills a corporation's ability to direct its evolution by linking its strategic to its operational objectives.

And years of high-level corporate confusion had spread to middle management. Many producers feel that the quality of management of the English television-network departments has fallen below acceptable standards and that the departmental structure is archaic, unwieldy, damaging to morale, and an impediment to creative work. According to the auditor-general, the lack of strategic objectives over time results in "a lack of clear definitions of managers' roles and responsibilities. Responsibility for program budgets and costs is fragmented because different managers are responsible for direct, departmental and plant costs. This makes it difficult to determine the full cost of a program and hold managers accountable. Accurate, reliable and timely information on program costs is generally not available." It's not the greatest context for a sophisticated budget-cutting operation.

These management weaknesses have infected production. Ten years of working in this environment has led to the infantilization of a generation of producers in relation to budgetary responsibility. The auditor-general: "in general there are no integrated cost accounting systems in place in production. The systems that are in place do not provide reliable, timely and relevant information to assist producers in planning, monitoring and assessing operations. The cash-flow modelling and cost-accounting system do not provide producers with reliable, timely and relevant data. Manual record-keeping in operational areas is common, and the information developed suffers from lack of consistency, accuracy, and completeness. The total cost of a program is difficult to identify. Furthermore, inconsistent practices are used in classifying cost items under these categories. This results in a lack of consistent information on total program and on component costs."

The technologies and techniques currently being used to design and manage

the production of the CBC's films, television and radio programs developed between the '20s and the '70s for film and radio, and in the '60s and '70s for television. These techniques were designed to match the office technologies, such as the typewriter and the adding machine, which were in use during this period.

As a result program-modelling, the building of abstract representations of the program, is limited to a "paper base" and the literary formats of the traditional script, production planning and budget documents. It is not feasible in the CBC, from a cost point of view, for program designers to collect, process or store visual/audio materials by any means other than the use of the full production system. As a result it has not been possible to integrate a data processing system into the production-planning cost-control process. But the advent of cheap consumer-oriented audio and video collection and data-processing technologies makes both possible and cost-effective. To some extent, the breakdown of the cost-control and program-design and management processes within the CBC are caused by obsolescence in the CBC's approach to office technologies.

The breakdown in management potential in all three of the corporation's main organisational levels has had as its result a collapse in the CBC's ability to design a programming strategy that results in the integration of the industry's production capacity (both public and private) into the CBC's distribution potential.

According to the producers: "The greatest concern shared by all CBC producers is with the lack of clear corporate objectives to shape program development and resource allocation. There is a critical need for the CBC to develop a programming strategy. That strategy must provide a firm basis for the allocation of the CBC's programming resources, taking into account the CBC's mandate. CBC production must be efficiently organised, making effective use of creative and technical personnel and facilities, while ensuring that both adequate production resources are committed and appropriate airtime will be available for all the programs being produced." CBC management also recognises the need for change but seems unable to come up with a strategy that is both economically viable and meets the corporation's political (cultural) objective of providing the basis for a differentiation between the Canadian and American populations.

So, to fully grasp the background of the present period of re-organisation: the CBC is suffering from a fiscal crisis, loss of market position, technological obsolescence, fragmentation in both production and management, the collapse of programming strategy and loss of political support.



In the past, periods of cabinet interference in the industry, and its subsequent redevelopment, have always started with the importation of new technological potentials from the American industrial base. The new technologies first impact on the distribution system and then spread to the production sector. A new technology is presently impacting on the entire technological base for industry: digital technology is sweep-

ing through all sectors of the economy. The technology has already altered the nature of the distribution system with the development of satellite-to-cable and digital audio distribution systems, and is redefining production value within both audio and video production that reflects the uses of new production technologies.

The new distribution technologies can handle data, analog sound and picture, and digital sound and picture, technical characteristics which cannot be built into the CBC's output without changing its technological base. The new production technologies are appearing in all traditional and some new equipment categories:

- **audio technology:** a new range of digitalised (analog with digital control functions) and digital audio recording processing and signal generating systems, microphones and mixing boards with memory;

- **editing technology:** a new generation of computerised editing and storage systems for both audio and video signals, both taped and disc-based with memory;

- **data processing technology:** (a new category) a wave of cheap micro-processor-based word processing, budget-modelling, graphics and image-generating (animation), automated office systems.



Today, most people agree that the communications industry is headed into a radical period of change. Views range from predictions of the total collapse of national production and distribution potential under the "footprints" of American direct broadcast satellites (abetted by public-sector budget-cuts), to a production boom brought on by the need to fill the expanding international distribution system. Institutional paranoia is everywhere and fear of institutional collapse is not limited to management's ranks – the less stable trade-union movement has already started to falter. People clearly believe that we are headed into a period during which many or all of our major institutions could go out of existence, or at the very least be forced to make fundamental alterations in order to survive.

"The department of Communications is turning increasingly to the idea of a national information policy as a high growth component of a national industrial strategy. Such a policy would assure the co-ordinated development of hardware, communications and content; the collaboration of industry, labour and various levels of government; and the optimizing of our national position within the global market place.

"Such a policy would harmonize our cultural concern for the arts and the media, and our effective concern for our information-telecommunications infrastructure, and for the high technology sector that supports their growth. Such a policy should ensure Canada access to the global information market place, keep jobs at home, make a contribution to our balance of trade in information products. And, above all, give creative Canadians a chance to find fulfillment and rise to the top of their fields without having to leave home."

The above, from a speech given by Juneau when he was deputy minister of Communications, suggests that he and the policy writers in DOC understand that both broadcast and film and video policy are, as stated in the draft broadcast policy, "only aspects of a larger set of integrated policies that are required to meet the cultural, economic, and social opportunity posed by the new technologies." This is a clear indication of the traditional communications sector strategy approach: a push towards the "integrated set of communication-information policies designed to deal with the information revolution."

In the last 10 years, policy debates have resulted in the definition of following set of political and commercial objectives: the Canadian broadcasting system will be owned and controlled by Canadians. Canadian content will be maintained and strengthened. The Canadian broadcasting system will be maintained as an effective vehicle of social and cultural policy. The Canadian private production sector will have an expanded role in the new broadcast environment. The CBC is the crucial component of the broadcasting system. The NFB will have an expanded role in the new broadcast environment. Telefilm Canada will play a key role in regulating the support for the private sector. Programming produced in both sectors will be of a high standard. The competitiveness of Canadian producers and distributors will be increased. New programming services are to be encouraged in both public and private sectors. New data-base-generated program forms are to be encouraged. The government will establish a framework for the international marketing of Canadian programming. As a composite, this is clearly a restatement of the traditional sectoral strategy in form, if not completely developed in terms of content. Its implications are worth spelling out in detail.



The CBC is the central organism in the entire communications sector. Unless the CBC leads and co-ordinates the technology assimilation, it will not occur, or will result in a confused *ad hoc* assi-

milation. To prosper in a period of technological change, a production company (or sector) needs three things: a technological base for its production units made up of "new" technology (in this case, an integrated digitalised (and digital technical base); a new set of management techniques required to use the technology-base cost-effectively (in this case, supported by production office hard and soft ware); and a set of union contracts which give its production manpower access to the technology on terms that promote increased productivity and production value. If any of the above elements are missing, the increase in production value and decrease of cost, the two traditional results of the re-equipment and re-organisation production systems, will not occur. So how is the CBC doing in these three areas?

Quite a bit is happening within the CBC relative to technological change but the confusion in the management levels of the corporation and the breakdown in communications inherent in it means that the departments and people involved don't seem to know what's happening in other parts of the corporation or industry. The CBC is not yet co-ordinating its efforts on this subject and has no overall plan (or budget) to systematically evaluate new production technologies and techniques, or to plan the new technological base called for in its own public capital investment projections.

In terms of evaluating the actual technologies, two programs are going on. For years, EHQ has been engaged in intelligence-gathering and evaluation of production technologies, and has issued five-year projections as to what the implications are to the CBC of technological change. But there is a feeling in production that EHQ is distribution-oriented, and that is clear if one looks at their pattern of investment over the last decade. Installations supervised by EHQ in the last few years, notably in Montreal and Vancouver, are widely regarded as disasters; and there is as well on-going difficulty with the engineering sensibility in terms of smaller projects. This alienation has resulted in the creation of a production-dominated technology-evaluation program as part of the Consolidation project, the CBC's

plan to build a new network production center in Toronto at the base of the CN tower.

The Consolidation project is an outgrowth of a '70s style of real-estate development rooted in a development model that puts the characteristics of the building and its attached business plan before the requirements of the production plant: the production facility will only occupy a small part of the installation. It is impossible to find out about the nature of the design-process going on within the Consolidation project as the corporate juggling and throat-cutting going on within the CBC's service departments, now heightened by the budget cuts, is causing everyone to keep their mouths shut. But one problem is evident: there is a jurisdictional split between EHQ, the CBC's engineering division, and Finance, over who is responsible for the plan to bring computers into the corporation.

One of Juneau's first moves in response to the auditor-general's report and a secret internal memorandum outlining how the unplanned assimilation of main-frame accounting systems had resulted in seven or nine incompatible systems, was to start the MIS and IMPACT programs. Both are efforts to try and get a handle on the CBC's gigantic EDP (electronic data processing) problem and give its managers the systems and procedures that the auditor-general points out as being basic to the management of any large corporation, let alone the biggest public information-processing organism in the world.

The problem here is that the most evolved and cheapest forms of digital technology are the micro-processor, consumer-market, information-processing systems lead by the personal computer, but also including various computer-controlled image and audio-processing systems rooted in the VCR. These technologies are all capable of either picture, sound or data processing and an integrated format of all three. The integrated use of these systems moves the program-design and management process of "a paperbase" and onto an electronic information base containing picture, sound, graphics, text and numbers.

But EHQ, the department responsible for the technology used in production,

does not have responsibility for the selection of micro-processors that are not built into production technology. And Finance, which has the mandate, doesn't yet realise that the micro-processor, if integrated into the system, will form the control terminals for almost all the image and audio collection and processing technologies. As a result, a data-processing chain composed of MIS-compatible micro-processors that are not compatible with all the new production technologies, let alone the existing computers used in production for accounting, is being pushed into production management. This results in the further erosion of compatibility within the system. And since the audit chain does not reach the producers, it stops at the unit accountant or manager level. In other words, the information processing and analytical capacities stop short of the only level where they can really impact on the system.

Neither EHQ or Finance seem to realise that the biggest single effect of the computer on production will be in its use in the production-office to design programs, control costs and control the audio and video collection and processing technologies. The existence of this integrated information-processing potential allows program-modelling to be done in all the information realms within which the production team must function.

If CBC production units were provided with integrated production-information-processing technology, they could "process" text, computer graphics, video and film images, and audio signals, both digital and analog, all within the same cheap consumer-technology-based information-processing system during all stages in the production progress. The existence of these technologies provides the technological base necessary for a revolution in film, television and radio program-design and production management and cost control; namely, the hard and software components of the solution to the corporate fragmentation and loss of cost control problem.

On top of this, the uneven development of management information system before production information system is getting mixed up in the budget-cutting process. No one is talking about it, but it appears the Finance department

● The Canadian Broadcasting Corp.'s Ottawa head-office: unless the CBC leads and coordinates technology assimilation it will not occur

photo: CBC



has created, in its MIS system, its own "computer model" of the corporation's pattern of cash flow, a model which, according to most "production-oriented" accountants, is the wrong one. As a way of looking at the operations of the corporation, it is solely based on accounting concerns that are not able to model the real material, financial and human requirements of production. This abstraction is now being used to engineer the budget-cuts. And, in the end, can only result in more irrational cost-cutting being imposed on production.



At this point the front-line issue is production's need for modern information processing technologies. The CBC does not yet seem to realise that what its production staff is doing as it works its various different forms of information processing. The main result of the information revolution is a generation of cheap, consumer-oriented, mixed-media, information-processing technologies. The biggest impact of digital technology on the production system will be the effects (economic, technical and aesthetic) of the use of computers and computer-based communication systems by the production unit. Ultimately, what we are talking about here is the approach to information-processing (audio, video and data) and communications used by all CBC people involved in production. The approach to information-processing within production adopted by the CBC will form a filter through which the

entire, existing production tradition will be "strained", and only those aspects of the tradition which "hang up" on the system will survive the coming period of industrial development.

Because of the frail nature and importance of communications within and between production units, and the all-pervasiveness of computer software, this information-processing system must reflect the communications needs of the production units: needs which correspond to the organisational structures and divisions of labour necessary for production. The technical parameters of the system must be defined by shape of the information flow necessary to allow cost-effective production to occur, not simply the demands of a management information system. All this, of course, is not helped by the fact that the general character of the information revolution includes a large component of computer phobia, either conscious or unconscious, among the production staff.

Aside from management's confusion, and lack of cash, the main thing that stands between the CBC and successful technology assimilation, is the strange state of suspended animation that seems to grip key production people in positions to do something about it. One of the unfortunate aspects of this period is a break-down in communications within the production unit, which results in a lack of understanding of things technical by the people who control production and vice-versa. This is now compounded on both sides by cynicism and results in "burn out." These problems lead to a dangerous

form of passivity. The CBC's most important resource, its production manpower (and the present surviving repository of the oldest public-sector production tradition in the world) is not acting to protect itself from *ad hoc* digitalisation.

This has serious implications because the production technological base that goes operational in 1991 when the Consolidation project comes on-stream will provide only one-third of the production system necessary to allow the CBC to exploit the potentials of digital technology. The other two-thirds are the management techniques and union contracts required to run the system cost-effectively. This critical "software" must form the system's dominant element, the technological base being only the hardware expression of the production processes "enshrined" in these key regulatory mechanisms. We are not just involved in "systems design" here, but production systems design.

The problem the CBC now faces is, first, how to make sure the corporation completes the assimilation as quickly and cost-effectively as possible. And, second, how to ensure that the job-loss and decline in the quality of working-life so common with the "digitalisation" of other industries, does not occur in the CBC's production and service components.

The present state of confusion now provides the CBC, both management and labour, with a rare opportunity. To protect themselves from obsolescence and the negative effects of digitalisation, the CBC must provide the research and

planning capacity it needs to organise the assimilation process.

Since it cannot be done without them, CBC bargaining units, along with management, must jointly create a technology assimilation plan that will allow the corporation to integrate activities within itself, between its bargaining units and within the industry, on the technological, organisational and financial aspects of the process.

No one else in the CBC is qualified to design new production systems and processes but the union members who operate the existing production system. The Consolidation project is the present focus of the CBC's technological change process. The CBC's management, in cooperation with its unions, must now use the Consolidation project as the vehicle through which to deal with this critical aspect of development: to turn it into a joint union-management forum to direct the technology assimilation process. Built into this is a production research and development program, guided by the CBC's best manpower, that tests both technologies and techniques, plans the new technological base, works out the new production processes and divisions of labour and then builds them into the union contracts and management techniques required to "regulate" production.

Technology assimilation by the world's most evolved information-processing organism is the set-piece at the center of the information revolution world-wide. The implications are equally world-wide, but it is happening in Canada first. And surely this is no accident: after all, why did Harold Innis live here?

Introducing

A new completion company,
qualifying your fees for the 75% category
under the Canadian content regulations

Film Finances Canada
Finances-Films Canada

Pour tous renseignements :
Michael Spencer, President

1001 DE MAISONNEUVE BLVD. WEST, SUITE 910
MONTREAL, QUEBEC H3A 3C8
TELEPHONE: (514) 288-6763