Gouvernement du Canada
Ministère des Communications

Government of Canada
Department of Communications

Le Centre canadien de recherche
sur l'informatisation du travail

Canadian Workplace
Automation Research Centre

OVERVIEW

2 OVERVIEW

The growing use of telecommunications and computer systems in the workplace is gradually transforming today's office. Through such developments as electronic information flow, systems interconnection and artificial intelligence, tasks that were formerly distinct are being merged and transformed, changing the shape of organizations.

CREATION OF THE CENTRE

The establishment of the Canadian Workplace Automation Research Centre (CWARC) represents a significant step by the government of Canada to respond to the needs of users of new workplace automation applications. The Centre, which opened on November 5, 1985, is part of the Research Program of the Department of Communications of Canada and will act as a catalyst for technological developments in the important area of telecommunications.

ADVISORY BOARD

The Minister of Communications has formed an advisory board to set the Centre's priorities. Composed of 15 members from universities, industry and the public sector, the Board advises the Executive Director, Research on workplace automation research programs.

OBJECTIVES

The Centre has set the following objectives:

- to provide leadership in applied research into computerized office systems and to utilize the related potential for enhanced productivity in the public and private sectors;

- to synthesize the needs of users and contribute to problem-solving;

- to become the focal point of information exchange in the field of workplace automation;

- to foster co-operation between experts and different client groups.

CLIENTELE

The Canadian Workplace Automation Research Centre serves a varied clientele, made up of users of computerized office systems, decision-makers in the private and public sectors, as well as specialists and research workers, for whom the many types of inter-related technological applications available represent an element of progress.

RESEARCH AREAS

After extensive consultation with private industry, universities and other federal government departments, the Centre has identified various areas of applied research which are reviewed on an ongoing basis and from which flow the activities of four research directorates:

- Organizational Research Directorate;
- Integrated Systems Directorate;
- Advanced Technology Directorate;
- External Cooperation Directorate.

ORGANIZATIONAL RESEARCH DIRECTORATE

The Organizational Research Directorate conducts applied research (field projects or trials) in the workplace into the organizational needs of users of integrated office systems. It is concerned with the management of change caused by new technology in organizations and in the workplace.

On behalf of the Canadian government and the Department of Communications, and in association with the private sector and the universities, the Directorate addresses needs expressed by clients in the public and private sectors. Its intent is to act as a catalyst for research and discussion.

Currently, the Directorate is working on eight lines of research:

- tools and methods for integrated office system planning;
- tools and methods in support of training, development and ongoing learning related to computerized office systems;
- tools and methods to assess the impact of integrated office systems on people, organizations and society;
- tools and methods to measure productivity and performance;

- tools and methods for the strategic analysis of social, socio-cultural and technological trends;

- interfaces between the physical work environment, people and the corporate culture: the role of ergonomics and architecture;

- interfaces between office system users and computer communications networks;

- interfaces between people and software environments, especially translated and adapted software environments.

Annual objectives are set for each of these lines of research, which are met through field projects conducted on clients' premises. The Directorate therefore operates in a multi-project and multidisciplinary context.

All the tools, techniques and approaches developed are validated with clients and subsequently applied in other contexts; all contribute to CWARC's overall expertise in office systems installations and provide various university, private and public associates with access to a large pool of knowledge and practical know-how.

INTEGRATED SYSTEMS DIRECTORATE

R&D work for integrated office systems centres on different aspects of the concept of integration. Above all, it is aimed at improving the integration of multiple functions in the same workstation through better interaction mechanisms and through the development of system designs and applications based on established technology and the use of new technology. It is also concerned with systems interconnection in order to permit effective access to and exchange of information through local and wide area networks. Efforts in this area focus mainly on international standards of open system interconnection.

INTEGRATED WORK STATIONS

Work focusses on the integration in workstations of speech processing based on recent technologies of control and voice synthesis and the development of applications for these technologies.

The objectives are:

- to identify and evaluate the applications potential of voice technology;
- to promote proven ideas, methods and concepts to clients and potential partners;
- to create an environment of excellence for applications development with users and producers of goods and services, centred on joint projects.

OPEN SYSTEM INTERCONNECTION

Open system interconnection is the expression accepted worldwide to describe a model of network architecture in seven layers. With the advent of standardized protocols for all layers, computer communications systems that conform to standards would be compatible and could then be interconnected.

The objectives pursued aim to assist the Canadian private sector to increase its expertise in the field and to promote the development of products and services that meet the standards.

Work centres on technology transfer through the development with industry of trial installations of the protocols and the development of test environments and tools for use by industry.

EXPERIMENTAL SYSTEMS

The goal here is to assist Canadian industry to develop systems by making the Centre's specialists and facilities available to industry for experimental projects on systems under development, especially in the fields of interconnection by local and wide area networks.

ADVANCED TECHNOLOGY DIRECTORATE

Current work on fifth generation systems shows the possibility of computers capable of performing tasks requiring increasing intelligence. In the medium term, intelligent workstations will be central to an increase in productivity and efficiency in the office. Computer-assisted translation and data management support are of special interest in this area.

COMPUTER-ASSISTED TRANSLATION

Through its R&D work in computer-assisted translation, the Centre pursues three objectives:

- to contribute to the development of a specialized workstation offering a variety of tools to the translator;
- to promote the automation of translation in limited areas;
- to participate in research to produce increasingly intelligent translation systems.

EXPERT SYSTEMS AND KNOWLEDGE MANAGEMENT

Work in this field centres on the development of knowledge-based systems (expert systems) and on the various phases of this methodology to produce knowledge-based systems for use in industry. Knowledge engineering is the group's main thrust, with the focus on problem solving in a computerized office environment.

These knowledge-based systems will assist in solving problems normally encountered in the day-to-day operation of the office. The development of special software in support of management, professional and office work is a major research objective in this field.

EXTERNAL COOPERATION DIRECTORATE

Supporting the research directors and CWARC corporate management, the External Co-operation Directorate facilitates liaison between the Centre's various client groups for information and knowledge transfer and serves as a channel between the client groups and experts in the field.

SCIENTIFIC AND STRATEGIC INFORMATION NETWORK

Consultations with private industry, public sector decision-makers and research workers in the field of office automation have pointed to a common expectation: the establishment of a scientific and strategic information network.

CWARC has responded to this need by establishing the parameters of a network to share expertise and knowledge in relation to target clientele. The two results of this project will be:

- establishment of a integrated information service offering documentation, archival and tele-reference services;

- establishment of data banks to compile information on: experts in the field of office automation, research projects on a national scale with an impact in the field of telematics and office automation, and institutions and organizations involved in research on the various aspects of workplace automation.

This two-fold role will allow the Centre to become a focal point for the collection and dissemination of information for this area.

NATIONAL EXCHANGE PROGRAM

The Centre has taken an innovative approach to the recruitment of scientific staff through personnel exchanges. Experts from public, private or university organizations or institutions are seconded to CWARC for periods ranging from six months to possibly three years, to participate in research into the technological applications of office automation.

This innovative recruitment process enhances the results of applied research and facilitates the ongoing efficient transfer of technology.

Participation in this national program is subject to the following conditions:

- the seconded employee must be a member of an organization incorporated in Canada or an academic institution with a demonstrated interest in the field of workplace automation;

- the sponsor organization must commit itself to re-instating the employee at the end of the period of secondment;

- the sponsor organization must indicate that Canadians will benefit from the results of the research and must also agree to make the results public following the directions issued by the Federal Government.

Financial contributions to partner organizations and cost-sharing agreements are negotiated separately. An agreement between CWARC and the partner organization is drawn up to cover the salaries, fringe benefits of seconded personnel and administration fees. Under no circumstances may the contribution constitute a profit for partner organizations.

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