

MANAGING INFORMATION TECHNOLOGY

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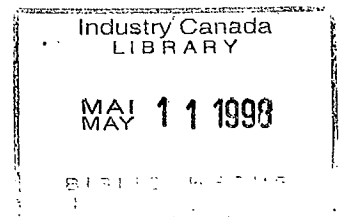
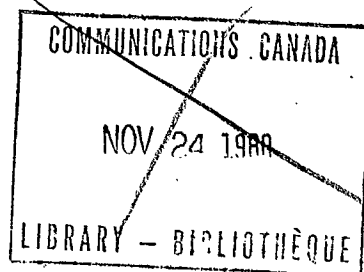
MANAGING INFORMATION TECHNOLOGY

By affirmation of the mass media you are witnessing the Information Revolution; you are told you live in the Information Society. You are an information worker, economists locate you in the "information sector" of the economy. As an individual you must cope with new and wonderful innovations that are turning your working environment into the "office of the future"; as a manager you must make decisions regarding increasingly complex manifestations of information technology.

Information technology refers to the information acquisition, processing, storage, retrieval and transmission equipment made possible by the convergence of computer and communications technologies. The current predilection for office automation has been generated by this merger. The manager currently uses early generations of information technology to accomplish his or her objectives. However, the rate of technological change made possible by new developments in computers and telecommunications presents the manager with the challenge of managing information technology rather than being managed by information technology.

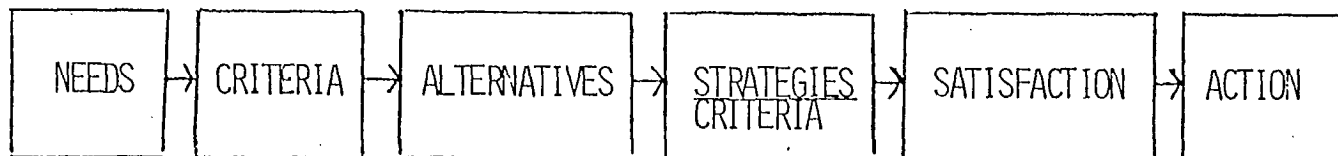
The approach offered here provides a simple yet effective strategy for acquiring the appropriate mix of information technologies to satisfy organizational information-communication requirements. The strategy involves six basic steps ranging from needs identification to action initiation.

Information technology is already a fundamental component of contemporary organizations. Managers take for granted the following information technology tools: telephones, library search and retrieval systems, centralized word processing and computer centers.



A new array of information technologies may soon complement and improve information handling functions.

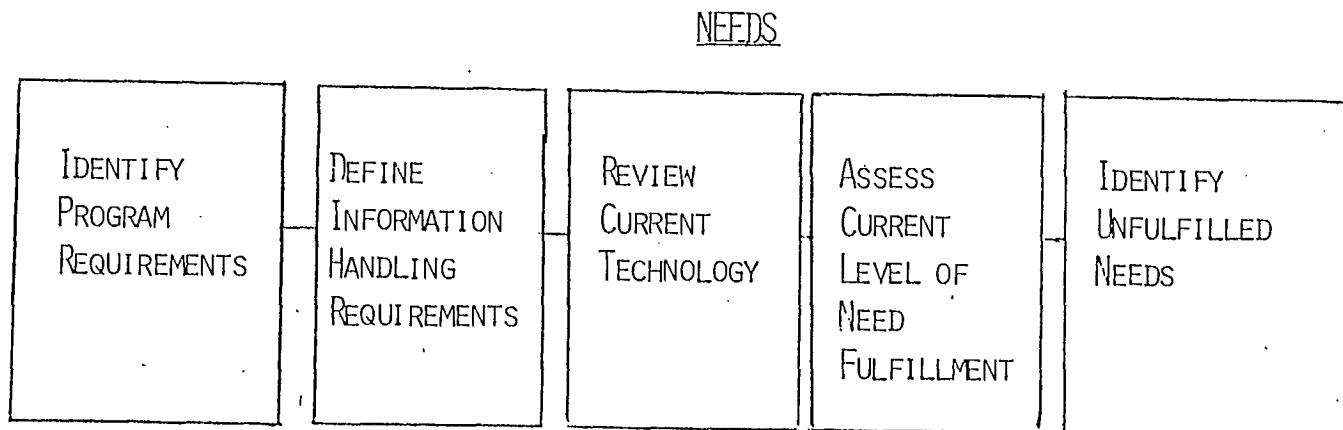
The following decision making process will assist in the acquisition and integration of appropriate information technology for the automated office.



An elaboration of each of these six steps follows.

NEEDS: Identify Information Requirements

The needs identification process in respect to information technology requirements involves the following activities:



Needs identification recognizes the office as a communication system, for as Uhlig, Farber and Bair in their book, The Office of the Future (North Holland, 1979, 241) write: "... it is useful to view the organization

as an open communication system that depends upon resources, particularly information, ...". Indeed, the office has several overlapping, interrelated and parallel human communication systems, some utilizing information technologies and some of a solely interpersonal nature. Each of the organizational communication systems involves the following five functions: information acquisition, processing, storage, retrieval, and forwarding.

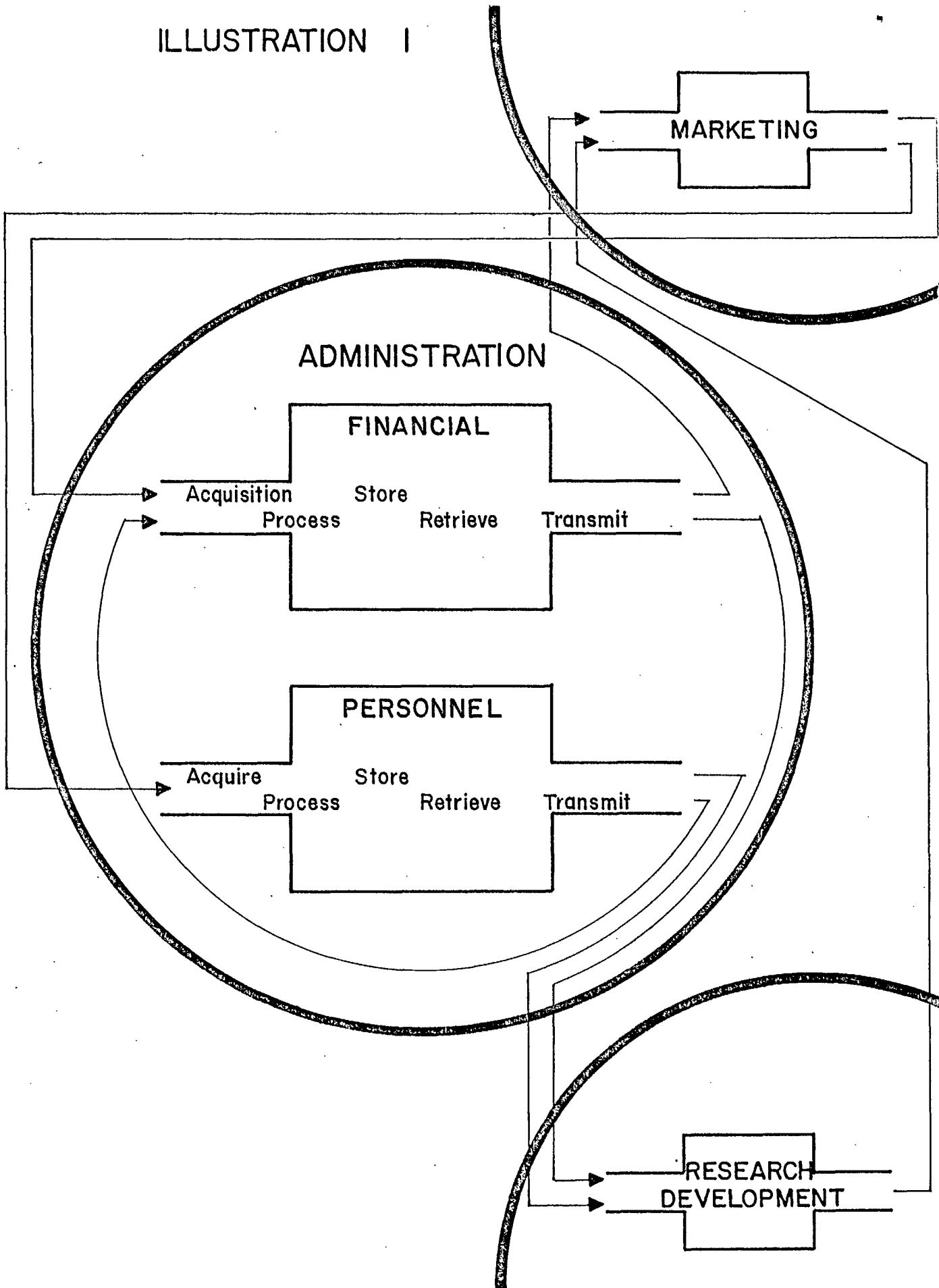
Illustration I presents four typical office information flows within an organization. Within the administration sector one may note two interactive information processes comprised of the five subprocesses mentioned above. In turn each of these inputs to the marketing and research development sectors of the organization. These human processes are facilitated by information technologies at appropriate phases.

Needs identification involves definition of each of these information flows within at both intra and inter-office levels. The following series of questions will generate answers essential to the satisfaction of the information technology needs of the office.

The needs analyses involves the generation of answers to the following questions:

1. What volume of information is handled at each phase of each process? This permits a determination of the scale of technology required to accommodate each function.
2. What is the geographic distribution of the information flow? This permits the identification of supporting networks.
3. What quality level is required for internal and external information flow? This permits assessment of the necessary level of technology sophistication.

ILLUSTRATION I



4. What security requirements are mandatory? This assists in the determination of required terminal or network encryption features.
5. What is the desirable speed of information flow? This assists in the determination of terminal and networks transmission rates.
6. What level of responsiveness to emergencies is necessary? Crises responsive organizations would require a greater degree of reliability and redundancy in their information technology than administratively oriented organizations.

The answer to these questions should consider intra-office as well as office-external environment transactions.

Having determined the requirements, the next step in the needs analysis is the review of current technology and the assessment of the degree to which defined program requirements are fulfilled effectively by that technology. The unfulfilled needs remain and may be satisfied by new information technology solutions.

CRITERIA: Establish Need Satisfaction Criteria

To determine the criteria which information technology should meet in order to best support office functions the desired end results should be defined. These may be to reduce costs of the information handling process; to increase productivity by reducing time spend on each task so more tasks may be accomplished within a given time frame; to increase accessibility to information and decrease time required to obtain information, thereby accelerating the decision-making process; to improve service to the client; or all of these.

The acquisition and use of information technology should ideally facilitate the performance and accomplishment of the managerial functions: planning, organizing, staffing, directing and controlling. More specifically, information technology should accommodate the following managerial considerations:

- administrative directives and guidelines regarding automated data processing (ADP, DDP), telecommunications and office equipment;
- financial and budget constraints;
- human resources and skill levels; and
- energy efficiency.

Within the frame of reference described above alternative strategies to satisfy these needs may be generated.

ALTERNATIVES: Develop Need Satisfaction Strategies

Information flow requirements may be best fulfilled by a customized mix of information technologies. This information technology mix should build upon the relevant current technologies used in the office. New components one might evaluate in order to satisfy unfulfilled requirements include:

- distributed word processing terminals for text development and editing;
- videotex systems for information retrieval and display;
- audio, audio-graphic, video and computer conferencing systems;
- micrographics systems;
- electronic mail systems.

Elements of the above new technologies in addition to the appropriate information technologies currently in use should best suit office needs. For example, the organization may now have an audio teleconference capability. To meet defined criteria, facsimile, computer and slow scan video components might be added to provide a multi media remote conference capacity.

Alternatives may include maintaining the existing information flow system, complementing the current system with new capabilities, or introducing a completely new system. It is advisable to rely on the resources of central administration, common services, and, where appropriate, the consulting services of the information technology providers.

CRITERIA/STRATEGIES: Apply Criteria to Strategies

This is a crucial analytical task, the process through which the manager can exercise control over information technology. The optimal mix of information technology for the organization is that which best meets criteria identified above, thereby improving managerial performance as well as economy, efficiency, effectiveness and accountability. The following grid demonstrates how the selection criteria might be applied to identified solutions:

	SOLUTION 1	SOLUTION 2	SOLUTION 3
CRITERION 1	+	0	-
CRITERION 2	+	+	-
CRITERION 3	-	+	-
CRITERION 4	0	+	0
CRITERION 5	-	0	0
ASSESSMENT	0	+	-

Key: POSITIVE = + NEUTRAL = 0 NEGATIVE = -

The optimal mix of information technology will provide rapid information storage, retrieval, acquisition, processing and transmission; will be the simplest satisfactory alternative available; will be flexible in order to accomodate new generations of information technology; will allow compatibility with the widest possible range of other technological processes and functions, and will provide, in the final analysis, an integrated communications system.

SATISFACTION: Choose Information Technology

As a result of the application of the criteria to the strategies, you will have determined the optimal strategy to satisfy the information needs of your office. This strategy should increase office productivity while decreasing the costs of running the office; facilitate accessibility to information while reducing the time and cost of retrieving that information; accelerate the decision-making process while enhancing the quality of service. Make the decision and follow through with implementation strategies.

ACTION:

Implementation should be accomplished using available resources such as those of the technology providers consultants and in house expertise. Implementation planning involves consideration of the following parameters:

- procurement,
- timeframes,
- space and physical layout,
- staff orientation and training, and
- monitoring and evaluation procedures.

Managers must control information technology by assuring that the optimal mix of technologies are in place to satisfy organizational needs. To avoid the perils of being bypassed by the Information Age and forgoing its numerous benefits or being burdened by excessive and unnecessary technology as a camp follower of the Information Revolution, managers should systematically review information requirements, establish criteria which will characterize the optimum strategy, identify alternative technology mixes, apply the criteria to the mixes, and choose the technology mix which best satisfies their information requirements.

