ELECTRONIC OFFICE DEVELOPMENTS IN THE ROYAL BANK OF CANADA

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ABSTRACT

The Royal Bank operates a world-wide network of approximately 1,600 branches/offices. Day-to-day business decisions are largely decentralized which require timely communications to support management's planning and control functions. Responding to the increasing information needs, both internal and external, has placed upward pressure on costs.

Recent developments in text processing and communications technologies have provided opportunities for reducing information handling costs and for improving the flow of information.

The Royal Bank presently has a large number of word processors installed, many with communications facilities. It also has an extensive network of office terminals for extracting information from computer files and/or handling message communications.

This paper will provide an outline of the evolutionary introduction of new information handling technologies in the Royal Bank's path toward an electronic office.

RÉSUMÉ

La Banque royale exploite un réseau international d'environ 1,600 succursales. Les décisions quotidiennes qui sont considérablement décentralisées nécessitent de longues communications pour aider les gestionnaires à planifier et à contrôler. La réponse aux besoins sans cesse croissants d'information, tant internes qu'externes, a inévitablement fait accroître les coûts.

Les récents progrès dans les techniques de communication et de traitement de texte ont permis de réduire les coûts de manutention de l'information et d'améliorer le débit de l'information.

La Banque royale possède actuellement un grand nombre de processeurs de mots dont plusieurs sont accompagnés d'installations de communication. Elle a également un important réseau de terminaux permettant d'extraire l'information de dossiers informatisés et de traiter les messages.

Ce document présente les grandes lignes de l'introduction progressive des nouvelles techniques de traitement de l'information dans le cadre de l'électronisation des bureaux de la Banque royale.

The Royal Bank with assets in excess of $65 billion operates a world-wide network of approximately 1,600 branches as well as a number of agencies, representative offices, etc. Additionally, we have in excess of 100 subsidiary companies and affiliates. On the Domestic scene our network is organized within seven Districts whereas on the International scene we have 7 Areas, e.g. United States Area, Asia & Australia Area, etc. This world-wide network is growing at a rather significant rate. The need for timely information at all levels of our organization is particularly important as is the need to constantly re-assess the manner in which information is moved throughout our network.

For the past several years our automation program concentrated on the automation of our services and accounting functions to reduce clerical workload and improve efficiencies. By using computer technology we have continuously upgraded our paper handling systems and introduced several new customer services. Within Canada, we operate six major processing centres together with a number of satellite centres. Internationally, we have ten processing centres and three more are in the planning stages.

While the fundamentals of gathering deposit funds and lending money have not changed, the utilization of computer and telecommunication technology has substantially altered the traditional banking methods. There is little question this change will continue for a number of reasons, more specifically our customers will demand increased specialization and sophistication and obviously we will want to compete aggressively in the market place. Additionally, we will continue to place major emphasis on reducing and controlling our costs.

So much for background and let us now turn to the developments within the Royal in the area of the Electronic Office. There are perhaps as many definitions as there are pieces of equipment and for the present we will define the Electronic Office as the application of computer and

communications technology in bringing about improvements in productivity within the office environment. This covers considerable scope but essentially this is as it is and we are talking about the office from the teller on the line to the top executive within the Bank.

One can reasonably ask why the major thrust at this time on automating the office. There are many reasons, business in general is not getting any easier and the need for timely, accurate data in day-to-day management is increasing. There have been tremendous strides made in not only the hardware but in technology in general which now makes many of the things we want to do affordable. The availability and decreasing costs of computer power coupled with escalating labour costs provides many opportunities to improve on our bottom line.

Another very significant factor not to be overlooked is that we are in for a shortage of labour in Canada during the 1980's. There are many alarmists who go so far as to suggest that technological advances ought to be postponed in favour of keeping more people gainfully employed. While it is clearly not the intention to debate this issue here, we believe the facts with respect to the slowdown in the population growth tend to speak for themselves and since the people we are talking about have already been born, the statistics have an extremely high rate of reliability. The one variable of consequence is the rate of immigration which the government decides upon. In summary, then it is going to be more difficult for employers to obtain new staff and labour costs will continue to rise because labour markets will be tighter.

Some specific examples of what we are doing at the present time:

Word Processing:

We have well over 100 stand-alone word processing systems distributed throughout the Bank primarily in Head Office, the Canadian Districts and International Areas. This equipment is

used primarily for improved production of the volume related tasks such as, manuals, reports, loan agreements, repetitive letters, etc. A number of the machines are linked via communication facilities thus improving the overall turn-around time.

There is an increasing demand for such stand-alone facilities and although the equipment is serving our operation well and will continue to do so, for many of the applications, we see ourselves migrating to "all-purpose" terminals. A little more about this later.

Text Processing:

For an organization of our size the volume of standing instructions, defined as the officially issued documentation which guides, instructs and informs employees in their work, can sometimes be described as staggering. Presently, this is being addressed on two fronts, main-frame processing and stand-alone word processors linked to a photocomposition unit for production of high-quality output. These are the very initial steps and very definitely requires much more emphasis on migration. Further on we will outline our thoughts for the future.

Information Service Centre:(ISC)

The I.S.C.'s efforts have been directed towards facilitating the extraction and availability of information on various computer files to provide timely, accurate management information.

Time-Sharing Systems:

Internally we operate our own Time-Sharing System and additionally use the services offered by a number of the service bureaux. Essentially through these means a facility is offered the users to access a computer with the capability to retrieve and store data, create programs to perform specialized functions, produce analytical reports and employ various modelling and forecasting packages to aid in analysis and the decision-making process.

Automated Graphics:

Computer generated graphics to provide management with pictorial representations of various data is offered on both internal and external systems.

Facsimile Processors:

A number of machines are in place for the transmission of documents from location to location.

Electronic Mail:

An electronic mail facility, using an external system and communications network is in regular use. We consider this a very viable approach for improved turn-around and a less-expensive alternative to other common forms of communication.

Executive Terminals:

A pilot project is in operation to provide an automated information facility for our senior executives. The objective of this pilot is to evaluate and identify the design and support requirements needed for eventual implementation on a broad scale.

Communication Network:

In addition to the foregoing we have an extensive network of terminals in place for handling message communications. These facilities include Telex, Telenet, Swift, etc. and handle the movement of financial and administrative information within the Bank and externally to other banks.

While we are very much involved with automating the office, we believe our efforts and accomplishments to date are somewhat pale in comparison with what we see on the horizon. The task will not

be an easy one and there are many problems to be resolved. Nevertheless we are indeed optimistic and the following is a very brief outline on some of the more important activities:

Electronic Preparation, Storage and Distribution of Formal Documentation:

Earlier we made some reference to our initial activities in this area and possibly this is our largest single application in the Electronic Office. Information, once captured electronically, will be routed via terminals for editing, (to ensure maintenance of standards) approval and storage in a central file. Branches and other organization units will be able to access the file through their own terminal and obtain hard copy when needed.

The specific benefits to be derived from such automation is to accelerate the preparation, editing and approval processes of standing instructions, to improve the retrieval process, to reduce space in every organization unit, to reduce filing tasks, to eliminate numerous transcriptions, to reduce printing and mailing costs and to communicate timely information to the organization units.

Such an implementation requires very careful planning and will occur with several phases over an extended period. The software for such a system still requires significant improvement over that which is currently offered by the vendors.

Electronic Mail and Message System:

This facility will permit the electronic creation and storage of memoranda/messages which can be retrieved through a terminal by the originator, prime or copied recipients using a keyword index or other search parameter.

Increased automation can be expected to improve managerial effectiveness by reducing the unproductive activities caused by busy signals, recipient not in office, late arrivals at meetings etc., and minimizing interruptions in a manager's day. Moreover, messages transmitted via electronic mail will tend to be concise and to the point, resulting in achieving real savings in managerial time.

Word Processing/Production of Letter Quality Output:

Automation of standing instructions and the Electronic Mail and Message system will reduce the need for letter quality hard copy. However, a substantial volume of such material will continue to be produced for external communications, speeches and presentations, contracts, and internal communications, etc. These will be produced by typewriter, word processor or multifunction terminal. We visualize the latter becoming very common in the years ahead.

Automated Administrative Support Functions:

Numerous administrative record-keeping tasks occur in every branch and department, all of which are time-consuming. These records will be maintained electronically and updated through a terminal located on either the secretary's or manager's desk. Tasks which have been identified to be automated, include the maintenance of tickler files, appointment calendars, organizational charts, job mandates, vault opening and closing records, courtesy card register, and telephone directories. Numerous forms and recording manuals will be eliminated and information will be more easily accessed and updated.

Electronic Filing Cabinet:

The Electronic Filing Cabinet facility will permit branches or

departments to file and retrieve information by electronic means. While it will be an intrinsic part of the automation of standing instructions, electronic mail and message and the automated administrative functions, it can be applied to other general filing tasks. For example, contracts with suppliers, loan agreements, client call reports, etc., would be well suited to the electronic filing cabinet concept. The principal benefits to be derived from this facility are improved access to stored data and text and the elimination of numerous files containing the same information.

Computer Based Training:

Computer Based Training applies computer technologies to the learning process, and produces an effective approach to meet training needs. Computer Based Training will be used to develop and augment employees' skills to help them do their jobs effectively. New employees can be introduced to the Bank's procedures and instructed in specific skills, such as teller training. Present employees can upgrade their skills and incorporate new procedures/technologies into performing their jobs more effectively.

On examining where we want to go with the Electronic Office the processing infrastructure needs to be addressed. The main ingredients in this infrastructure required to support the business functions consist of terminals (keyboards, displays, printers, etc.) linked via a communications network to centralized or decentralized processors which in turn are linked and contain user software and mass storage. While we will deal with each component separately, the characteristics of the overall infrastructure are: it must be relatively inexpensive and easily cost justifiable it must be global in nature and available on a 24-hour basis, its components

must be interchangeable and the nature of the infrastructure suggests that implementation should be evolutionary.

The components of the infrastructure as we see them are as follows:

Terminals:

Terminals are the basic input/output device and will be located in all departments and branches. They may support one function but in most instances they will be multifunctional.

Storage:

Large volumes of data must be stored at a relatively low cost. The degree of file distribution will be determined by a number of means, i.e. need, economics including storage and communication costs, etc.

Communication Network:

The network must be inexpensive and global, able to communicate rapidly and effectively and available on a 24-hour basis. Standards are necessary and the network must provide for adequate security on the data being transmitted. It is vitally important that the equipment of the various suppliers meeting the standards be permitted to interface into the network.

User Software:

User software is described as that portion of the software with which the user consciously interfaces. Examples of user software are word and text processing, data retrieval, message dispatch, file update, etc. It must be "user friendly" and because of the volumes of transactions, very efficient and reliable.

Processing:

Business considerations will dictate which processing will be located centrally or in remote locations. The degree of distri-

bution of processing will depend
on the nature of the files and
communications costs. Processing
must be relatively inexpensive
because of the volumes involved
and highly reliable because of
the importance of the task being
performed.

Links to Other Systems:

To maximize the benefits of the
Electronic Office and to ensure
effective utilization of the
resources involved, the infra-
structure must provide for the
linking of a number of systems.
For example, word processing
terminals must be able to access
information retrieved from
Information Service Centre files
and the Internal Time-Sharing
System and include the data in
prepared text.

In conclusion the Office of the
Future will bring endless opportuni-
ties to improve overall effectiveness
and efficiencies within our organiza-
tion. From a hardware point of view,
the major components are either in
place or are available but that is not
to say further improvements cannot be
made. The one worrisome area is the
ability to link the discrete pieces
into an integrated system. The soft-
ware is not currently available but
we know this matter is receiving a
high priority in the shops of many of
the vendors. It goes without saying
that the various standards for inter-
facing need to be put in place and we
will be able to operate in an
environment which will permit connec-
tion of any suppliers equipment to
that network provided of course that
the standards are met.

We have a very real challenge
before us.