Addressing Electronic Records Management in the World Bank

by Richard E. Barry

Introduction

The main driving force and motivation for seeking workable electronic approaches to records and archives management functions in the World Bank has been that the paper-based system and the accompanying delivery services have not worked adequately to serve the organization's business needs. As the Bank has matured as an organization over the past half-century, its country membership and business products have significantly increased both in number and complexity; its capital, staffing and real estate bases have been multiplied; and it has come to realize the importance of the need to create a more formal "institutional-memory" mechanism in recognition of the fact that a substantial portion of its most experienced cadre of country and sector specialists would retire from the service of the Bank in the 1980s. At least some observers of the Bank's records management and archives functions and services over the same period would say that the delivery of effective information services has also been impeded by a tendency to focus too much on the institutional needs related to those functions (i.e., requirements of the archives and records functions and staff) and too little on matching related services to rapidly changing day-to-day business needs of staff throughout the organization.

Before 1980

When it commenced operations on June 25, 1946, as mandated by the Bretton Woods conference which created the post-War "international financial institutions" including the International Monetary Fund, the organization consisted only of the International Bank for Reconstruction and Development. Significant structural changes took place in subsequent years with the creation of sister organizations -- the International Finance Corporation (July 24, 1956); International Development Association (November 8, 1960); International Centre for Settlement of Investment Disputes (October 14, 1966), and the Multilateral Investment Guarantee Agency (April 12, 1988) -- which, together, became known as the World Bank Group. These and other significant internal changes in organizational structure and product line, particularly following 1968 after the arrival of Mr. Robert McNamara as the Bank's fifth President (of eight), created important changes in the information management needs in both substantive and contextual terms, and thus in the environments in which records were created and maintained.

These organizational developments were also accompanied by a series of structural and procedural changes in the records and archives management (RAM) functions.[1] The results have been a hybrid delivery system, i.e., one that is not representative of either the European or North American recordkeeping traditions. Instead, it is a hybrid and includes a centralized Records Center and a centralized Archives, but not a central registry. Intermediate level "Information Services Centers (ISC)" were established in 1973 for each major operational vice presidency, but not for all other vice presidential units. Although they were physically located in the end-user areas, the ISCs were operated by the central RAM group, which continued to carry out RAM services and functions, i.e., those functions were never organizationally decentralized into the end-user departments. The corporate file schema was maintained centrally and classification and filing of documents by subject file or record series continued to be done by the central RAM group rather than by the originators, who were not required to mark documents with appropriate file codes. Nonetheless, most documents were captured by the records system -- especially internally generated memoranda, external letters and well established standard reports. In large part, this happened because of the "rainbow" system which existed for many years, in which multicolored, flimsy, carbon-copy sets were made of each internally originated document and the yellow colored flimsy copy was sent by the typist to the central files. Some departments, and their potentially important administrative records, were exempted from the "yellow copy" requirement and those units maintained their own records but without special training or quality assurance and control procedures.

1980s

The Bank thus had a long tradition in which records management depended in a large way on the originators of records (actually their secretaries) to get them into the then-central filing system for classification and filing by professional records staff. With the advent of distributed office systems beginning about 1979 in the Bank's Eastern Africa Region, the records discipline began to erode as higher-level staff obtained their own word processors. With this trend, the "yellow copy" practice was not always followed, or not followed at the time of document creation. This process took place at an ever increasing pace in the years to follow. The ratio of word-processors/PCs to staff changed from: 1:100 in 1977; to 1:25 in 1980; to 1:4 in 1983; to 0.9:1 in 1987. After the introduction of local area networks in the early 1980s in selected Regions, the use of group-authoring approaches to

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1 The term "RAM" is used as a generic descriptor for the organization responsible for records and archives management in the Bank, since the organizational location and name has changed over time. The formal Records Management program was established shortly after the creation of the Bank with the issuance of Administrative Order No. of September 3, 1946, on the Organization of the Communications and Records Services. The single, large, centralized records center was reorganized in 1973 into a small central Records Center and decentralized centers for each of the operational vice presidential units. The Bank Archives was formally established in 1980. The RAM functions remained a part of the Administration or Administrative Services Department until 1986 when they were moved, along with certain other functions of the Administrative Servies Department, into the newly created Information, Technology and Facilities Department.

major Bank reports began to be used, and even for large documents, the use of secretaries for original typing continued to decline. As the ratio of secretaries to higher-level staff was dropped to reflect this changing behavior pattern, it simply speeded up the process in which most documents were typed by the originator rather than by a secretary. This was accompanied by degradation of the records discipline which had been almost invisibly carried out by the secretarial staff in earlier years.

The problem took on new dimensions after 1983/84, when the Bank introduced an electronic mail (email) system into the workplace. There were about 150 users at the beginning, mostly in the IT department. By 1988 that number had jumped to 1500 and included nearly all of the Bank's managers and their administrative secretaries. This, and other events in the broad introduction of office technology in the workplace, created growing interest in and concerns about electronic records. By the end of 1989, when the UN Advisory Committee for Co-ordination of Information Systems (ACCIS) Technical Panel on Electronic Records Management (TP/REM) published with the results of the 1988 survey of all UN Organizations on the use of electronic communications, the Bank users of email had already doubled.

1990s

By 1991, when the second ACCIS survey was done, Bank email users had again doubled. Today, they number about 10,000 and include Bank and non-Bank staff in its field offices and certain project sites in the developing countries. Even more dramatic, the Bank developed an X.400 gateway and became an organizational member of the Internet, opening up the possibilities for communications with millions of people in over 30 countries, and significantly reducing the necessity for the Bank to allow non-Bank staff to have accounts on the Bank's email system. This meant that it became increasingly easy to use email both within and outside the Bank to conduct business, but with little regard for the temporary or permanent value of those business communications to the Bank. The Bank has further extended this capability by promoting an X.500 program of directory sharing among international organizations. Moreover, whereas in the early 1980s, most email was for informal purposes, mainly to overcome "telephone tag," by the early 1990s the trend began to reverse with the introduction of voice mail (vmail). The growing use of vmail has caused most of the communications associated with avoiding "telephone tag" to come off the email system and go back to the telephone on the vmail system.

It is not illogical to surmise that a much larger proportion of email is now of substance and thus of potential long-term institutional value. Indeed, there is growing evidence of the use of email to conduct day-to-day business. In the absence of a corporate electronic filing system, such a situation relies entirely on the individual staff members faithfulness in carrying out the Bank policy which is that paper copies of substantive email messages be sent to the appropriate file center just as if they were official memoranda. Because of growing work pressures and demands, staff have little time to worry about such things and it is doubtful that paper copies are made of most such exchanges. Until this situation is reversed with the implementation of a corporate electronic filing system, reliance on the

creators of email messages to get them into the official filing system risks a high degree of non-compliance. This, in turn, opens the risks of losing the management audit trail (accountability) of decision making and of incomplete and inaccessible files for future evidential, research or historical reference purposes.

Toward Electronic Records and Archives

The Bank has been engaged in some form of activity relating to electronic records since 1981 when feasibility studies were carried out on the RAM functions. The resulting Booz-Allen study called for a multi-year development program for an image-based document management system to be funded out of savings at the end-user level. Underlying this study, however, was a presumption of business as usual in which the central RAM group would continue to carry out records management functions on behalf of the end users. Thus, the study focused on how to take advantage of modern information technology to carry out established practices, rather than on any in-depth analysis of the practices themselves and their relevance to changing business needs. The study was disapproved when the user organizations declined to fund its recommendations. The underlying presumption of the roles of the RAM group and users persisted.

In 1988, the UN ACCIS committee established TP/REM, an inter-agency, interdisciplinary (records managers, archivists, information technology and communications specialists) team to study the policy and technological issues and main options for managing electronic records. The results of that study, which the Bank led, were published in 1990. Follow-up reports on standards and ERM training materials were published in 1992. As part of the TP/REM work, the Bank did install electronic records features into a decentralized financial application for which a system archivist was designated. The system is one of the mission-critical financial systems in the Bank and is working well, although there has been no formal follow-up evaluation since it was originally installed. Conduct of an evaluation of the system is planned for the FY94 work program, probably in the last quarter of CY93.

Recent developments in the records area have taken place on three main tracks: (i) improving the management of paper records; (ii) development of a computer-assisted paper records management system which takes a life-cycle approach to the subject for the first time; and (iii) development of plans and evaluation of products for life-cycle electronic records management as part and parcel of a broader approach to information asset management and electronic document management more generally. Because major initiatives were begun in each of these areas beginning in 1988/89, all of them have been undertaken with an eye to the future of electronic records and archives management, even though they have been pursued independently and in parallel with one another.

Another factor has worked toward the objective of integrating developments in paper and electronic records in the Bank. Since 1987, the functions related to information, technology and facilities have been integrated under unified management in the Information, Technology and Facilities (ITF) Department. As part of that change, RAM functions were

shifted from the Administrative Services to the new ITF which is organized as three utilities: the Information Utility (which includes the RAM functions), the Technology Utility and the Facilities Utility. This structural change in organization has not only helped to focus attention and resources on records issues from the information technology (IT) perspective, but has helped garner the appreciation and support of the Facilities Utility in electronic records as a means of reducing the ever increasing pressure on expensive office space. Because of the scarcity of professional resources available to work in all of these areas, there has also been some cross-fertilization among these tracks, simply because the few people in the Bank who are cross-skilled in information technology (IT) and records management have had to be time-shared among a number of projects in these three tracks.

Improved Management of Paper Records

In 1988, looking toward the upcoming 50th anniversary of the Bank, a study of historical assets was carried out by Mr. William Diamond, an historian whose professional career had been in Bank operations. As a retired director of an operations department, he had an excellent appreciation of the Bank's core business and easy access to all levels of Bank management. The results of his study endorsed earlier findings of the RAM staff contained in the 1988 Records Appraisal and Standards Project -- that retention schedules were out of date, that paper records were incomplete and not easily accessible, that the backlog of records requiring appraisal was approximately 50,000 cubic feet, and that archival accessioning was subject to an ever increasing backlog, because the monthly volume of records coming into the system far exceeded the capacity of the human resources assigned to that process. What the Diamond report had that the RAM study did not was the attention of senior management.

The deterioration of records retention scheduling was attributed to a deleterious organizational change that had been implemented as one of the recommendations of a different study -- one that had been carried out by an external IT consultant in 1987, (at about the same time as the reorganization of 1987 that brought the RAM functions into the IT organization), and without adequate weight being given to the potentially harmful impact it might have on traditional RAM functions. The IT consultant's study called for elimination of certain units in the RAM group, in part to provide the budget base necessary to establish a new unit to deal with emerging records systems, technologies and electronic records management (ERM) issues. One of the groups that was eliminated had records retention scheduling responsibilities. It was recommended to be dropped for reasons which were not spelled out in the IT consultant's report, but presumably on the basis that a large number of records retention schedules were already in place and therefore the group was not needed. The Diamond study was sent to the President of the Bank and was discussed by the President's senior management team. It was the first time that the subject had received attention at that level, and it immediately became a top organizational priority. The President allocated extra-budgetary resources to a Records and Archives Management Improvement Program (RAMIP) and directed that, before any further efforts were undertaken to develop electronic records, all necessary resources be placed on eliminating the backlog of unaccessioned records and on completing a full organizational set of updated records retention schedules.

To complete a full and integrated set of organizational records retention schedules in a year's time, a combined top-down and bottom-up approach was taken. The top-down aspect was done by consolidating Business Systems Planning work which had been done to develop an Information Architecture (IA) for the Bank. This earlier work had involved identification and definition of all major business areas and processes, association of major data entities with those processes and clustering of those data entities into an IA schema. The Bank-wide retention scheduling project took this information and built it into what amounted to a computer-based model of the Bank's business processes (not structural organization). From the bottom-up perspective, the model was linked (sometimes force-fit) to its Records Series schema. The idea was to try to make the connections as best as was possible between records assets and schedules and major business processes. The results were then discussed in interviews with senior managers when both business processes and records retention schedules were updated.

On a parallel path, staff awareness programs were developed to train staff in the importance of records and their role in maintaining sound Bank records. This included portions of the standard orientation seminars which are given to all new Bank staff as well as separate seminars on file management. Complementary steps have been taken to establish a network of staff in the departments throughout the Bank who "worry" about records which are resident in their parent organizations and who are provided the necessary training to promote good recordkeeping practices and who have become central points of contact for the central RAM staff. An annual Records Management Day has been established to stress the importance of this function. In the past year, a records improvement program has been initiated, using mainly contracted staff, which provides a strike team for temporary assignment to any organization requesting it, to assist that organization in implementing the established file scheme and organizing its local records.

Computer-Assisted Management of Paper Records

Prior to 1988, the Bank developed a number of independent applications on the MINISIS (DBMS)system to manage its records information system. There was no life-cycle approach and there was considerable duplication among the different applications making it costly and difficult to maintain consistent and up-to-date information on the various records data bases. In 1988, a project was launched to develop an Integrated Records and Archives Management System (IRAMS). Largely because of resource constraints, but also because of the lack of a robust alternative, it was decided to continue the use of MINISIS but to develop a new system which would be based on a life-cycle approach to records management. It was realized that the system would not have a long life as development of a full-text and/or image based system would be required (and hopefully available commercially) not many years after IRAMS was completed. Like the multiple applications that preceded it, IRAMS is strictly a bibliographic system used to locate major reports and records.

Planning and Use of Electronic Records

At about the same time that development began on IRAMS, work also commenced in other areas which would have a later favorable impact on the planning for electronic records. A staff working paper "Document Management Technology Architecture," was written[2] which articulated an architectural model of document management based. This was based upon a combination of the document life cycle (as elaborated in the United Nations Advisory Committee for Coordination of Information Systems report: *Managing Electronic Records: Issues and Guidelines,* UN, 1990) and a three-tier system perspective -- at the personal, locally managed and institutional document systems levels. The staff discussions and debates of issues which took place with each draft of this paper contributed significantly to an improved understanding of issues and approaches relating to electronic documents in general and electronic records in particular.

Simultaneously efforts were being taken to develop in-house skills in document-based technologies -- mainly image and full-text technologies. No such skills existed in the RAM group; nor did they exist elsewhere in the IT organization. Consequently, it was necessary to obtain external consulting assistance while training staff from within. Resources were budgeted to provide a massive injection of modern information sciences into the RAM group. Two semesters of graduate-level courses in information storage and retrieval were arranged with the University of Maryland to be held in the Bank's training spaces. Staff educational profiles, for the some 30 staff taking the courses, were evaluated by the University and it was determined which staff would be awarded graduate credits and which would be awarded under-graduate credits for successful completion of the courses.

To further strengthen the human resource side of the picture, recruitment was commenced to obtain senior information scientists from outside the Bank who had library or other related document-based experience. Similarly, a telecommunications specialist was transferred to the RAM group to learn image technology and a senior information technologist was moved from the IT group into the records organization. She was given responsibility to learn about and implement initial full-text applications using the BASIS system. The Bank's official manuals were selected as the starting point and, over the course of the next two years, full-text retrieval data bases were developed for the Bank's Administrative Manual and Operational Manual and Directives. A highly user-friendly interface was developed with pull-down menus, in-context Help screens, natural language search statements, etc., and this was done through a pick on the main email screen, making it appear that it was a part of the email system and minimizing the necessity for staff to learn a new interface. The text bases were made available to all staff and became popular in a short period of time. Other applications were soon identified by staff elsewhere in the Bank and were developed over the course of the subsequent years. This project, as modest a beginning as it was, represented the first entry (other than email) into electronic document

2 ITF Staff Paper No.3, Irene L. Travis

management systems (EDMS). It was instrumental in developing badly needed in-house technology skills and in developing a meaningful appetite for EDMS in the user community. In-house awareness, training and action planning workshops were held in 1990.

In part because of budgetary and human resources limitations, and in part because of the senior management priority on getting paper records better organized, including automated support to paper records management through the IRAMS system, electronic records management efforts in recent years have been directed mainly to typically small initiatives. These typically dealt with symptomatic problems and quick-dispensing solutions, e.g., providing for selection of records vs. non-records treatment in the message headers of the electronic mail system, capturing more important email messages in paper form, designing working level electronic filing schemes, etc.

Beginning in 1991, however, a more systematic and long-range approach was initiated toward a different kind of model in which emphasis would be placed on the business needs of the organization and the functional requirements of the individual user. This drew from earlier work, noted above, and from growing awareness of the need to apply information management and engineering tools to the world of records. In this model, document control will begin to take place at the time of document creation through the use of a minimum set of information to be provided in a document profile and against a set of document stores and services which reflect considerable intellectual organization and control. Keys to this model include providing a user interface which is not overly burdensome, and which provides excellent functionality in the personal domain of document usage, as well as developing tools which place the maximum burden of information capture on automated systems and minimum burden on the human users. It also requires satisfying the institutional users in both the RAM function that the system will be at least as reliable as the paper system and hopefully much better, and in the IT function that the infrastructure can be reasonably managed and supported.

The above considerations, in turn, required a more deliberate and analytical approach which would provide not only a satisfactory product or set of products at the end of the process, but also a strong upward learning curve along the way. A phased approach was needed, including staff training through listening to users and vendors, cross-training of RAM and IT staff in functional and technological areas crucial to EDMS, surveying the market, trying out and evaluating EDMS products, investing the necessary time to learn about and gain from the experiences of other organizations, exploitation of established RAM and IT tools, such as document life-cycle evaluation and "finite-state machine" analysis of document state transition, etc. This process is presently underway.

In 1992, the Bank undertook a major project to develop an Enterprise Network (EN), using staff drawn from both the Information Utility and the Technology Utility. The EN was designed as a system which would provide Bank-wide IT services and infrastructure. Because of the close working relationships which had been fostered and developed between the RAM and IT staff in the preceding five years, no time was wasted recognizing the importance of document management as a key service to be provided by the EN. An EDMS

team was formed from the group which had commenced the process outlined in the preceding paragraph and was augmented with joint IT/RAM leadership and staffing, using a matrix-management approach to project implementation. This team has done a number of things in the past year, including conducting numerous meetings with end-user organizations to learn more about their business needs and use of records assets, as well as internalizing the lessons being learned from the records improvement program, testing and gaining experience with off-the-shelf EDMS products, such as PixTex -- an image and full-text document system with a fuzzy logic search engine.

In addition about a dozen vendors of EDMS products were invited to demonstrate their products in the Bank. An initial set of EDMS functional requirements was developed and the demonstrated products were matched up against these requirements. More recently, these requirements have been further developed to reflect life-cycle electronic records management needs and a case was made, and it was agreed, that electronic records constituted a subset of electronic documents -- i.e., that all electronic records are electronic documents, but the reverse is not necessarily the case. By extension of this logic, it was also agreed that the Bank should not have an EDMS and a completely separate electronic records management system. Rather, ERM requirements should be seen as legitimate institutional user requirements for the EDMS and, when fully implemented, the EDMS should ultimately subsume the functions of the IRAMS. A framework was developed for articulating EDMS requirements (including ERM) using a matrix approach which included the life-cycle stages outlined in the TP/REM report and the domains of document usage (personal, work-group, work-unit, institutional and external) as a check-list against which to articulate potential functional requirements.

The framework statement has helped considerably to identify the extended functional requirements needed to incorporate electronic records management needs into EDMS functional requirements. It has also drawn attention to limitations in the life-cycle approach due to its static nature. The framework statement uses the ACCIS characterization of the life cycle: creation and identification; appraisal; control and use; disposition. This approach tends to be serial and mutually exclusive in nature and not fully adequate to deal with the recursive nature of documents, especially electronic documents. Documents may co-exist in more than one stage of the life cycle, or may return to an earlier stage. Similarly, the same functional requirements may take place in more than one cycle, and documents may exist in more than one of the usage domain -- personal, work-group, work unit, institutional and external -- at the same time.

To augment the life-cycle approach, a sub-group within the EDMS team is presently using a methodology for state transition analysis of "finite machines" (as described by James Martin) for decomposition of the document creation, use and management processes. The results will be factored into future versions of the EDMS Functional Requirements Framework. The requirements will be used for future evaluation of EDMS products. No product has been identified that will satisfy all functional requirements for document/records management, nor is one anticipated to materialize before the next 2-3 years. Some requirements appear unable to be satisfied by any product at this time, especially to support the appraisal and disposition stages of the document life cycle. Thus, the EDMS

may take the form of an integration of services to be provided -- not all at once, but over time -- as part of the Enterprise Network infrastructure, i.e., a Document Creation Service (such as WORD for Windows); a Document Filing, Navigation and Retrieval Service (such as PIXTEX); a Document Disposition Management Service (some archives and records management engine); and of course a Directory Services (including human, information and technological resources). Such an approach might be developed over a multi-year period with considerable customizing investments needed along the way, especially to meet some of the (at least short-term) RAM requirements.

A number of other activities are also presently (or soon to be) underway as part of the ERM and EDMS project. Other EDMS systems are being piloted and special studies are being done, or are planned, on the appropriateness of specific open systems standards to meet the functional needs; legal implications and options for ERM, electronic records file schema, etc. An in-house conference series is being planned for future EDMS users and the EDMS team on: the state of important document-based technologies, experiences with end-users in the use of records and likely use of electronic records, and the process experience of other organizations which have recently concluded EDMS procurement actions.

Critical Success Factors ("Show Stoppers")

The paragraphs above represent a chronological reporting of the developments toward electronic document and records management in the World Bank. The joint NAGARA/SAA Workshop agenda asked that this kind of summary be augmented with an assessment of critical success factors (CSF) which might be drawn from the experience to date. Below are some of the key CSFs which have been identified by the author. While they do not enjoy any formal status in the Bank, they will be very familiar to my colleagues who have participated in the chronology of events to this point. CSF in this context are interpreted as meaning "show stoppers" -- without these, the lights go out.

- Demonstrating understanding of business needs
- Getting something which satisfies key business needs before business units do it themselves, likely resulting in a multiplicity of non-interoperable systems and products
- Giving the individual end user the functionality needed at that level
- Giving the individual user a simple interface which is integrated with the standard desktop -- not something for records and something else for other kinds of documents
- Minimizing requirements for RAM and IT staff to support the system
- Satisfying IT staff that the system is robust, open and supportable
- Maximizing the extent to which functions are carried out and maintained automatically while keeping open the possibility for human judgment and intervention when needed

Potential Barriers to Success

In preparing these papers, we were also asked to identify some of the potential barriers to successful implementation of EDMS. As with the CSFs, the listing below represents the author's personal views. The list represents potential barriers which any organization considering the implementation of electronic records management systems, including the World Bank, should guard against.

- Failure of people to open up to radical thinking about possible RAM futures
- Failure to fully identify the stakeholders and provide necessary communications between them
- Failure to see and consider the potential applicability of developments taking place in other fields of research and business endeavor where their application to electronic records may not be immediately obvious, e.g., artificial intelligence, natural language processing, massively parallel processing, groupware, etc.
- Failure to get the right people and skills mix on the project team
- Failure to effectively use the very difficult to manage but often essential matrix management approach typically needed to carry out such a project

Postscript

In the early years, the Bank saw the RAM functions as something that was more objective oriented, something we needed to "get right". In more recent years, the institution has come to see the delivery of those functions not so much any more as an end, but rather as a continuing journey - admitting that you can never get it right, you can only keep chasing the ever changing business needs and delivery opportunities.