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## ABSTRACT

A Technical Panel on Electronic Records Management (TP/REM), which was established by the Advisory Committee for the Co-ordination of Information Systems (ACCIS), conducted a survey of existing electronic records management practices and standards related to new information and communication technologies and their interrelationships within the United Nations system. The focus is on the management of electronic records rather than on electronic management of non-electronic records, which is already well established in many United Nations agencies. New issues are identified, including how to assure both access to and security of electronic records. This report presents the survey findings for the four main content areas addressed. The first part provides an overview of the roles of three electronic media--telex, facsimile, and electronic mail--in organizational information handling systems; the second part explores in more detail the special properties of interactive computer-based information exchange among the responding organizations that use electronic mail; the third part investigates associated technology issues to learn whether there are commonly emerging questions, problems, or solutions in the areas of hardware, software, storage media, network architectures, or communication protocols--and checks on potential standards for any of them; and the fourth part explores existing policies, guidelines, and training processes for electronic records management or strategies for their development. Questions and answers from site visits to Rome and Vienna and a list of the 36 agencies that responded to the survey conclude the report. (MAB)

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# A RAND NOTE

## Relationships Between Electronic Information Media and Records Management Practices: Results of a Survey of United Nations Organizations

T. K. Bikson, L. Schieber

May 1990

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## PREFACE

The attached report, Relationships between electronic information media and records management practices: results of a survey of United Nations organizations, is part of the final report of the ACCIS Technical Panel on Electronic Records Management (TP/REM). The full report consists of four sections, which are as follows:

- Electronic records guidelines: a manual for policy development and implementation;
- Glossary for electronic archives and records management;
- Integrated systems management of official records and documents in United Nations organizations: a requirement of the 1990s;
- Relationships between electronic information media and records management practices: results of a survey of United Nations organizations.

The other three sections have been distributed separately (for the sake of expediency) to ACCIS Focal Points for consideration prior to the 5th session of ACCIS in September 1989. An Executive Summary is being written, but will in all probability be available only at the beginning of September. With the distribution of this document, Focal Points will have received all substantive portions of the Panel's report.

The ACCIS Technical Panel on Electronic Records Management (TP/REM) was created after the fourth session of ACCIS in September 1987, under the chairmanship of Mr. Richard Barry, Chief, Information Services Division, The World Bank. The Panel decided that it would be most efficient to carry out its work programme in three Task Groups, of which Group 3 was charged with conducting the survey. Organizations were represented on Group 3 as follows:

Chair:	United Nations Development Programme	L. Schieber
	Economic Commission for Latin America and the Caribbean	W. Cabrera
	United Nations Development Programme Office of the United Nations Disaster Relief Co-ordinator	W. Dickins
	United Nations Educational, Scientific and Cultural Organization	E. Cienewicz
	International Computing Centre	F. Aidonidi W. Mackay

Group 3 was assisted in its work by a consultant, Ms. Tora Bikson of the Rand Corporation.

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Relationships between  
electronic information media and records management practices:

Results of a survey of United Nations organizations

INTRODUCTION

1. The rapid evolution of electronic information and communication technologies presents a significant challenge for archives and records management in United Nations organizations. Traditional practices devised primarily to handle paper-based record material are not readily extended to these new media. Consequently, a Technical Panel on Electronic Records Management (TP/REM) was established by ACCIS to consider how the new technologies could best be accommodated for purposes of short-term efficiency of document control as well as long-term preservation of information for legal and historic purposes.

2. The goals of the panel were to develop guidelines and recommendations for electronic archives and records management practices as well as for technology standards to facilitate their implementation. The panel also sought to understand how the convergence of new technologies for creating documents and for transmitting them (as, for instance, with word processing and electronic mail) affects archives and records management methods. The survey reported here was undertaken to generate an empirical base for these activities by reviewing existing practices and standards within the United Nations system related to new information and communication technologies and their inter-relationships. It was also aimed at identifying common issues or problems which are emerging in these areas and innovative approaches to their resolution.

3. Finally, it is worth noting that the survey does not directly address issues of computer-based support for the management of paper records. That is to say, the panel's focus is on management of electronic records rather than on electronic management of non-electronic records. Automated records management in the latter sense is well established in many United Nations agencies as a way of making the organization, storage and retrieval of paper documents more efficient. Managing record material retained in electronic form,<sup>1</sup> on the other hand, requires attention to a host of new issues: when and how to capture and index online information; how to enable electronic files to be shared and usable, when material has been created in decentralized environments and perhaps by heterogeneous software programs; how to assure

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1. Record material retained in electronic form might include, for example, electronic text files, electronic data files, electronic mail, or electronically captured images or voice. Questions of how to define and identify electronic records are addressed in Electronic records guidelines: a manual for policy development and implementation (ACCIS 89/018(b), rev.1)

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both access to and security of electronic records over time, and so on. Such issues, which are far from being resolved, constitute the panel's concern.

#### PROCEDURES

4. To provide an understanding of current practices related to electronic archives and records management in the United Nations system, a survey of member organizations was undertaken. Items for inclusion in the survey were generated on the basis of discussion sessions with members of TP/REM as well as a review of research literature on the introduction of electronic information-handling media in organizations. Suggestions and feedback during pilot trials with a draft instrument were incorporated in the final form of the survey (attached as Annex I).

5. The survey addresses four main content areas which are important to the goals of TP/REM and which give a context for interpreting and applying its other products.<sup>2</sup>

The first part of the survey solicits an overview of the relative roles of three electronic media--telex, facsimile, and electronic mail--in organizational information handling systems.

Second, the survey explores in more detail the special properties of interactive computer-based information exchange among responding organizations which have introduced electronic mail.

Next, it investigates associated technology issues to learn whether there are commonly emerging questions, problems or solutions in the areas of hardware, software, storage media, network architectures, or communication protocols--and especially to check on potential standards for any of them.

Last, it inquires about policies, guidelines, and training processes for electronic records management, if any have been developed (and if not, about strategies for developing them in the future).

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<sup>2</sup> Other reports from the panel focus on the development of guidelines for dealing with electronic records [ACCIS 89/018(b), rev.1] and on technology standards to facilitate their management [ACCIS 89/018(c)], and provide a glossary of relevant terms that may make it easier to communicate about these issues with computer and records management professionals [ACCIS 89/018(a), rev.1]. Occurrence of such terms in this report follow the usage suggested in the glossary.

Unfortunately, schedule constraints required the survey form to be distributed well before the completion of other TP/REM products; as a result, its item wordings do not reflect that work. The greatest difficulty for survey preparation was naming its subject matter. Electronic "record" may be interpreted differently by data processing and records management staffs, while "document" is potentially too narrow to encompass the full range of electronic information interchange; and substituting a lengthy sentence in place of a short phrase would be unwieldy. Consequently the survey used E\* as an abbreviation for its subject matter, which was defined for purposes of that data collection procedure as referring to "electronic records in the broadest sense; it can include electronic mail, electronic file transfer, and electronic document creation as well as voice and optical image processing."

6. Each content area comprised both closed- and open-ended questions. Where appropriate, the survey also requested that sample documents be attached if available (for instance, organization-wide standards for information technology or official instructions on the use of electronic mail).

7. The survey was distributed to 36 organizations in the United Nations system in March 1988. While ACCIS focal points were responsible for returning the completed forms, an accompanying letter from the Secretariat suggested that gathering the desired information would probably require the co-operation of both data processing and records management staff. Responses were requested in a month's time. Follow-up telexes were sent to non-respondents after six weeks, with subsequent follow-up done by telephone. Eventually 28 organizations, or 76 per cent of the total, responded to the survey; Annex II lists the participating agencies.<sup>3</sup>

8. As a rule, participating organizations provided complete data for standardized (closed-ended) items, contributing open-ended information only when questions were relevant to recent experiences; when supplied, these comments were very valuable. The TP/REM task group first tabulated and examined standardized responses. Next, open-ended responses were reviewed and synthesized. This material was used to help interpret standardized data, yielding a better picture of how agencies are coping with technological change from a records management perspective. More importantly, it served to identify organizations currently taking steps to formulate records management policies and practices with explicit reference to problems raised by new electronic information media. Site visits to a subset of them (discussed below) generated more substantial examples of how agencies are approaching solutions.

9. Succeeding sections of this report discuss findings from the survey organized by content area in the order presented above. Material from the site visits is summarized at the end.

#### MEDIA COMPARISONS: TELEX, FACSIMILE, ELECTRONIC MAIL

10. To construct a baseline picture or context for understanding new issues in electronic records management, the TP/REM survey sought responses to comparable questions about the handling of information in three electronic media: telex, facsimile (fax), and electronic mail (e-mail).<sup>4</sup> In principle, a number of other information exchange processes could have been included, such as telephone calls and direct electronic data interchange (EDI). What these three have in common besides being transmitted via telecommunications networks is that, although rapid, they are asynchronous (unlike telephone) and they are originated by and intended for human communicators (unlike most EDI transactions).

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<sup>3</sup> The responses are probably even more representative of the United Nations system than the 76 percent response rate suggests. Many of the agencies that did not complete and return a survey are very small ones, some of which indicate that they rely on electronic media made available to them by other agencies.

<sup>4</sup> Suggested definitions for these terms are available in the glossary [ACCIS 89/018(a), rev.1].

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11. Initial sections of the TP/REM survey thus included parallel items inquiring about the use and management of each medium. The responses are summarized below.<sup>5</sup>

#### TELEX

12. All agencies responding to the survey make use of telex (networked teleprinters) for information exchange, although the volume of use varies considerably among them. As Table 1 shows, the daily number of telexes sent per agency ranges from 1 to 8000, with an average of 552; figures for the number received, though lower, are similar. Among the organizations reporting, the United Nations itself is the heaviest user of this medium. Over the past two to three years, the volume of telex use has remained relatively stable. Predictions are for stable to slightly increasing volumes of telex communication in the near future as well (see Table 2, below).

Table 1

#### DAILY VOLUME OF USE OF DIFFERENT MEDIA

	Average	Range
Telex (n=28)		
Number sent:	552	1 - 8000
Number received:	447	1 - 6000
Fax (n=27)		
Pages sent:	85	<1 - 500
Pages received:	83	<1 - 500
E-mail (n=18)*		
Messages sent:	149	2 - 1500
Messages received:	148	2 - 1500

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\*Note: Of the 18 agencies, 5 replied "don't know" to the question about number of messages sent and 6, to the question about number received.

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<sup>5</sup> Data provided by ACCIS focal points about numbers of communications sent and received daily give a snapshot of media use at one point in time (see Table 1). However, the figures should be assumed to under-represent present communication volume, since they are over a year old. This caveat applies especially to figures for fax and e-mail, since use of these media was expected to increase sharply in the near future (see Table 2). For instance, the World Bank indicates that its use of fax increased from 500 incoming and outgoing pages per day at the time of the survey to 1000 incoming and 1500 outgoing about a year later. Its e-mail traffic also increased, but less dramatically (from 1500 a day to about 2000 a day, both incoming and outgoing), during that period.

13. Currently telex is a centralized activity. That is, 90 per cent of the agencies responding to the survey characterized it in this way. In these organizations, all outgoing telexes are copied and/or indexed for a records office or central file. Incoming telexes are handled similarly in 80 per cent of agencies.

14. Future telex activity, however, is susceptible to decentralization and a few organizations are taking steps in this direction. The move is facilitated by the introduction of local area networks, which could enable individual staff members to send telexes directly from their own workstations. The availability of computers (or fax equipment) in such agencies does not automatically mean that the level of telex activity will decrease, at least not in the immediate future. First, even in agencies that have introduced e-mail, the proportion of individual mailboxes may continue to be relatively small for some time. Second, telex is likely to remain the only means of communicating with a number of field offices and other agencies and organizations; this holds particularly for agencies that have extensive communication with remote sites.

#### FACSIMILE

15. All but one of the participating agencies have facsimile facilities (for transmitting and receiving document images). Reported in terms of numbers of pages, the daily volumes of fax communications sent and received are essentially the same; as Table 1 shows, the agency average is just over 80, with responses ranging from less than a page to 500 pages per day. Data from trend questions show that, in contrast to telex, fax activity has increased rather sharply in the past two to three years. The same kinds of increases are expected for at least the next two or three years as well (see Table 2).

Table 2

#### PAST AND FUTURE TRENDS IN MEDIA USE\*

Response Means:

	past 2-3 years	next 2-3 years
Telex:	3.0	3.3
Fax:	4.6	4.6
E-mail:	4.1	4.7

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\*Note: After questions about the volume of exchange in each medium, two parallel items asked about the trends. In the past [or next] 2-3 years, had [or, would] it increase sharply, increase moderately, stay relatively stable, decrease moderately, or decrease sharply? Responses were converted to 5-point scales, where 1=sharp decrease and 5=sharp increase. All e-mail sites responded to these items.

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16. Fax communication is a centralized activity for 84 per cent of the agencies reporting. In these organizations, outgoing fax documents are copied and/or indexed for a records office or file. About two-thirds of them handle incoming fax documents in the same way. However, in the few agencies that have decentralized fax communications, such procedures are not necessarily followed.

17. A number of organizations appear to be planning for the decentralization of fax communications in the near term. Facsimile is a relatively easy medium to decentralize since fax machines are low in cost, easy to install, and easy to use. Fax boards are also available, allowing fax documents--like telexes--to be sent from personal computers or workstations. In addition, they can even be sent by telephone. Such factors are driving the burgeoning use of fax outside the United Nations system as well as within it.

#### ELECTRONIC MAIL

18. Among agencies participating in the survey, about 70 per cent (18) report the use of electronic mail, i.e., the exchange of computer-based messages over local or long-distance communications networks. In principle, messages may be of any length and may include graphics and images as well as text, depending on network bandwidth and other technical properties of the systems in use.<sup>6</sup> Of the organizations making use of this medium, about two-thirds were able to provide data on their e-mail traffic (see Table 1); daily averages for messages sent and received are just under 150, with volumes ranging from 2 to 1500. All 18, however, responded to questions about usage trends.

19. As Table 2 indicates, e-mail use has increased moderately in the last 2-3 years; the next 2-3 years are expected to bring increases in e-mail use that are at least as sharp as those projected for fax. Moreover, while current users will rely more heavily on e-mail in the future, six of the eight agencies who do not now have e-mail report plans to implement it in the near term. (The only two agencies not now considering its introduction are based in Nairobi and report both technical and practical constraints.)

20. These plans can be regarded as realistic because the requisite infrastructure is largely in place; at least half the future adopters of e-mail now have access to communications networks and are already transferring

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<sup>6</sup> None of the surveyed agencies report the use of voice messaging systems or e-mail systems with capabilities for handling audio, video or image content. Such systems, however, are currently available and in use outside the United Nations system, in both local area and telecommunications contexts.

other sorts of electronic records via these links.<sup>7</sup> The most important issue to be resolved before proceeding with e-mail implementation, these agencies report, is how to assure full connectivity within the organization and compatibility with communications systems in other United Nations organizations. In contrast, among current users, other internal organizational needs far outweighed connectivity concerns in e-mail system decisions.

21. For present users of computer-based communications, outgoing e-mail messages are automatically tagged and/or copied to a back-up file in over half of the sites (59 per cent); about the same proportion (53 per cent) report that incoming e-mail messages are handled similarly. Most often these procedures are carried out when all communications are routed through a centralized host computer (for instance, through the International Computing Centre (ICC) system) which attaches a unique system-generated identifier for each message and stores a back-up copy. Typically such processes have been designed to meet technical support needs and have little or nothing in common with indexing and copying practices carried out in the service of traditional records management. For example, copies are not retained in a shared searchable file space and are not indexed by key words. While system identifiers might allow computer staff to restore a communication unintentionally deleted by an individual, they are irrelevant to content and represent only chronological organization among all the messages that pass through the host computer. Furthermore, back-up files cannot be directly accessed and searched by individuals or units wanting to retrieve electronically mailed information.

22. A few organizations are planning or implementing new systems that will attempt to bring the two sets of procedures into alignment (for examples, see site visit reports). However, the sizeable proportions of responding agencies who do not track outgoing or incoming electronic messages and who do not know the overall volume (in contrast to responses for comparable telex and fax questions) suggest that standard records management methods are not easily applied to computer-based correspondence. Substantial implementation problems in this area cited by TP/REM members, for example, have to do with development of online classification procedures, shared files among offices and units (and between individuals), logical structure of information (as well as file structure), and multi-level access security. Thus the extension of well known records management principles to new electronic media should not be assumed to be simple and straightforward in practice.

#### DISCUSSION

23. A major conclusion to be drawn from the survey is that electronic communications are increasing in volume in all media. While uses of e-mail and fax grow rapidly, telex is expected to continue a gradual growth trend

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<sup>7</sup> A report from the ACCIS Technical Panel on Computer-supported Telecommunications Services (TP/COM) provides evidence of the feasibility of such plans (ACCIS 87/005). It should be noted that survey data were collected in spring-summer 1988. By now, some of the agencies who reported plans to introduce e-mail may well have done so; thus the number of agencies represented as having e-mail in Table 1 probably underestimates its actual prevalence. Similar caveats were offered in relation to data about daily communication volumes reported above (see footnote 5 above).

It is evident that these media supplement rather than supplant one another. (Whether and how they may influence the use of telephone or print communication are questions that lie outside the scope of work of this panel but are well worth asking.)

24. Furthermore, these media appear to be heading for technological convergence, in at least two respects. First, some organizations report that a telex or fax document is initially prepared by the sender using a computer; then the document is either transmitted directly or forwarded to another office for transmission, depending on the degree of decentralization of equipment, authority, and records management procedures. Whether the document is conveyed by telex or fax--or remains an e-mail communication--is a choice that may come to depend chiefly on media capabilities within the receiving organization. In such an environment it is easy to imagine sending the same electronic document to recipients in different organizations by different media. Second, a similar kind of convergence is reported for incoming communications in some organizations. For instance, when a document arrives via fax or telex, it is scanned or keyed into a computer for indexing and copying before being routed to the addressee (with copies to other recipients as appropriate); in some systems, this may be totally transparent to the user. Handling internal distribution entirely by e-mail (rather than circulating hard copies) would be a relatively straightforward transition; in fact, one organization reported it has plans for a fax-computer interface. In any case, many agencies are making use of computerized procedures to help track and manage the growing volume of telex and fax correspondence.<sup>8</sup>

25. Finally, there seems to be a shift toward decentralization of electronic communication regardless of medium. The trend probably reflects decreased costs of equipment and increased ease of use, resulting in more widespread diffusion of electronic workstation and related technologies along with more efficient information exchange (as represented both by shorter communication times and reduced interaction costs). And the convergence of electronic technologies, noted above, can only encourage such change.

26. These performance advantages are, however, accompanied by records management disadvantages, according to agencies now undergoing decentralization. When communications are centralized, outgoing and incoming electronic documents can be printed and hard copies can be subjected to traditional records management methods like any other print material. With e-mail--an avenue of communication that began with decentralized computer use--the implementation of centralized, paper-like records management procedures is especially cumbersome; but organizations lack well established methods and technical solutions for managing decentralized media and electronic record material. As telex and fax come to be configured more like

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<sup>8</sup> Making use of computerized procedures in these ways is an example of automated records management rather than management of automated records (see the Introduction). They result in "hybrid" systems in which electronic and paper information are parallel to one another; while hard copy remains the material of record, electronic media are used to expedite its classification, organization, storage and retrieval. Such hybrids could lead to online records and electronic archives (e.g., if conversion of electronically captured information to paper comes to be seen as an unnecessary and burdensome step). At present, however, these systems mainly serve to automate the management of paper records.

e-mail, as the technologies themselves converge, and as the volume of electronic communication grows, these issues can only become more salient.

27. From agencies that contributed open-ended comments on these issues, the following remarks are illustrative of the congeries of difficulties to which the new media give rise.

- \* Telex decentralization is problematic - unit co-operation is needed on filing systems and authorization procedures.
  - \* E-mail rests too much responsibility with end-users. There is no automatic system, so there is no proof of decisions taken, no official records, outside the sender's/receiver's personal files or memory.
  - \* Fax is moving toward decentralization, but problems exist because there are not enough machines or staff to copy everything and file adequately.
- A computer system is used for outgoing telexes. The computer file allows for the retrieval of copies by date, to/from fields, and keywords; this is not feasible in paper copy files organized only by subject and date.
- \* Computer technology is used to manage telex. Since fax is still essentially paper-based, it does not integrate easily into the new electronic records management methods that have been introduced for telex.
  - \* Fax, in the case of text-only documents, is being decentralized for e-mail users; documents with graphics are under central control.

28. Decentralization of information and communication technologies appears to be problematic, chiefly because intellectual control of records in the past has been associated with physically centralized control of the information medium itself. To achieve comparable control with decentralized media seems to require either significantly greater involvement and co-operation from units or individuals (see first two comments, above) or very costly and labour-intensive investments in sorting, classifying, copying, filing, indexing and the like (see third comment, above).<sup>9</sup> These comments further make clear that the lack of a record per se is not the source of the problem with decentralized electronic technologies in general or e-mail in particular; rather, it is the lack of shared electronic classification, filing, storage and controlled access and retrieval capabilities.

29. Finally, as the last three remarks above suggest, technology characteristics themselves have a great deal to do with how records management procedures are implemented. While computers are being usefully

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<sup>9</sup> This point is also illustrated by the substantial resources required to maintain centralized control of decentralized registry files, as reported by one of the visited sites (see below, plus Annex III). That is, IAEA has a staff of 15 classifiers who work with about 200,000 documents per year to achieve this end. See Electronic records guidelines: a manual for policy development and implementation (ACCIS 89/018(b, rev.1)) for a more complete discussion of intellectual versus physical control and the relation of this issue to centralized versus decentralized media.

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applied to manage paper records created or transmitted by varied electronic media, vendors of office systems have been slow to provide technical support for the management of electronic records created, transmitted and retained in that form (e.g., system-level tools for computer-aided retention scheduling and disposition management, public files with multi-level access to file folders or documents, and the like).

#### THE NEWEST MEDIUM: ELECTRONIC MAIL

30. From the 18 responding agencies which have electronic mail, the survey requested more detailed information. Since this is the newest electronic communication medium, there are no well established precedents or norms for its use throughout the United Nations system. Nonetheless, its use is expected to grow rapidly as well as to have some influence on the way telex and fax communications are carried out. Furthermore, information exchange via e-mail appears to warrant a management approach whose implementation differs in many respects from the management of paper-based communication, as the previous section of this report illustrates.

31. For these reasons, it is worth taking a closer look at the experiences of relatively early adopters of e-mail in the United Nations community.

#### FUNCTIONS

32. Among the 18 agencies using e-mail, 16 indicate that when adopted it was viewed chiefly as a substitute medium for messages of an informal nature in other media, such as the telephone. This remains its most common function. However, about half these organizations report that e-mail is now being used also to circulate draft documents for review, send memoranda, and transfer data files and official documents.

33. Furthermore, e-mail is used to reach a wide range of addressees. The most common destinations for e-mail are inter-office or inter-organizational; the medium is used much less frequently for intra-office or for intra-organizational communication (e.g., communication with a field office).

#### PROCEDURAL RULES

34. Having inquired about the scope and functions of e-mail, the survey sought next to find out what sorts of procedural rules or specifications, if any, accompanied its use. It should be noted that these questions did not impose a definition of "official" (vs. unofficial) or "formal" (vs. informal) communication; rather, it was left to the agency to use its own organizational definitions for these terms.

35. With respect to distribution routes, three of the 18 agencies reported that "official channels" had been defined for communications exchanged by e-mail. Similarly, only these three agencies had established distinctions between "official" and "unofficial" material sent by e-mail. When asked if, at the point of sending or receiving an electronic message, there were any organizational criteria for determining whether it should be saved, all but two responded negatively. In addition, no standard policies were reported for long term retention or storage media for e-mail in electronic form. (If

e-mail messages are retained for long term storage, it is typically in hard copy.)

#### OVERSIGHT

36. A third series of questions to e-mail users concerned how oversight responsibilities for this medium were allocated within the agency among upper management, computer specialists and records management specialists. With respect to technical policy decisions (e.g., system implementation or network architecture), survey responses confirmed that computer staff invariably have primary responsibility.

37. It is noteworthy that, in the majority of reporting agencies, computer staff also have chief responsibility for management policies related to e-mail communications (a responsibility sometimes shared by top management). Just three agencies reported that records management staff have a major role in setting policies for the management of e-mail communications; these are the same organizations which have introduced some explicit rules guiding their use (see above). Similar patterns of response were elicited by questions about the involvement of records management staff in the control of e-mail documents during the stage of their active life (e.g., while stored, re-used, forwarded, and so on). To date, however, few organizations perceive the lack of involvement of records management staff in this medium as a problem.

#### DISCUSSION

38. When most agencies introduced e-mail, it was assumed to be a medium like the telephone and managed accordingly. That is, it was assumed that informal rather than official information would, in the main, be communicated by this medium.<sup>10</sup> However, its scope and functions expanded so that it is often used to send and receive information that would in any other medium be regarded as official record material. This expansion is likely to continue as more and more documents--both substantive and administrative--are prepared on computers that are linked to communication networks.

39. But these electronic communications lack the kinds of documentation and control that would routinely be applied to official records in other media. In part, this is probably due to the distributed nature of end-user computing and electronic mail; other electronic media (e.g., fax and telex) present

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<sup>10</sup> It should be underscored that not all agencies made this assumption. In one agency, for example, instructions for e-mail use began by explaining that "it is not a substitute for the telephone, telex or facsimile, but an alternate mode of communication." A records management professional in another agency pointed out that e-mail messages often include a mix of personal content and official business; this makes it difficult to know how to treat them. One site visit brought to the surface a similar concern (see question 5, Vienna). That is, if e-mail messages are analogous to telephone conversations, they should be regarded as private (but then any official information exchanged ought to be reported in a memo of record); if they are treated as analogous to other forms of official communication, any personal information they contain would become material of record (which might be regarded as an invasion of privacy).

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records management difficulties when they decentralize, in spite of a prior tradition of documentation and control. It seems likely that the absence of formal procedures for e-mail communications, then, is also partly a reflection of the fact that records management staffs have not generally been involved in their planning or implementation; this conclusion is reinforced by the presence of formal rules only in organizations where records management specialists have taken part in e-mail policy making.

40. More typically, computer staff have had the major responsibilities for making decisions about e-mail use. The resulting policies tend to reflect technology management concerns more clearly than information management issues.

- \* For instance, when queried about retention policies for e-mail, more than one organization reported that messages on a microcomputer could be saved indefinitely while those stored on a central minicomputer or mainframe were not retained so long. This policy reflects the need to assure availability of shared information storage space but does not incorporate into retention decision-making other criteria related to records management needs.
- \* Another example is a policy involving the copying, indexing and filing of electronic messages: in one agency, messages sent via the local area network are not regarded as record material and therefore do not require documentation; but those transmitted via telecommunications networks are so regarded, and accordingly are copied, indexed and filed by the one host computer which accesses the external network. This solution reflects the agency's current network architecture; thus, while it might address today's records management needs in the organization, it will not necessarily be effective with other kinds of communication infrastructures.
- \* Similarly, that fax documents with graphics are under centralized control for e-mail users in one agency while text-only faxes are not (see previous section) is an artefact of current technology; the availability of network standards for graphics transmission would likely result in the decentralization of all fax communications in the organization.

41. As technological barriers to media conversion and full connectivity are being eliminated, some organizations are becoming aware of the need to have records management staff involved in future decision-making about electronic communication media. As one agency put it, we have "no organization-wide information policy in this area and no staff to systematically monitor it." Some organizations (see site visit summaries) are involving computer and records management staffs jointly in the development of policies to control electronic records.

#### TECHNOLOGY ISSUES

42. As the previous section points out, electronic media are providing opportunities to generate and exchange information in varied new ways. Making the most effective use of them, however, is likely to require broadened technology policies that support the life cycle of organizational records; without such a perspective, it is possible for technical decisions

taken at one point in time or in relation to one information function to constrain future opportunities.<sup>11</sup>

43. Many of these issues are discussed in a separate TP/REM report on information technology systems and standards for United Nations organizations. They also need to be taken into account as future guidelines are developed for electronic archives and records management.<sup>12</sup> To provide relevant background material, the survey asked a number of questions about the kinds of information technology policies adopted or under consideration in responding agencies.

#### CURRENT TECHNOLOGY POLICIES

44. The survey first inquired about whether there were any organization-wide policies in four technology areas: hardware, software, storage media, and network architectures and protocols. As Table 3 (below) indicates, over

Table 3

#### ESTABLISHMENT OF ORGANIZATION-WIDE TECHNOLOGY POLICIES

	Yes	No
Hardware	19	7
Software	13	13
Storage media	6	20
Network protocols	8	18

70 per cent of the organizations which responded to the survey have established organization-wide hardware policies. Typically these policies are vendor driven (e.g., a common reply was, "We use only IBM equipment"). Half the agencies also report organization-wide software policies; these are focused primarily on specific, commonly-used applications (e.g., "We have standardized on WordPerfect for word processing"). Less than a fourth of the agencies have made decisions about electronic storage media for long term retention of records; while some are investigating the feasibility of computer based archives, most agencies at present transfer documents from disk to hard copy for long term storage.<sup>13</sup>

<sup>11</sup> For a more complete discussion of this issue, please refer to the TP/REM report on standards [ACCIS 89/018(c)].

<sup>12</sup> For a more adequate explanation of the impact of technology decisions on electronic archives and records management, please refer to the TP/REM report on recommended guidelines [ACCIS 89/018(b)].

<sup>13</sup> The use of hard copy for long term storage is widespread, not only in the United Nations system but throughout US government institutions as well. This is often regarded as a temporary practice while organizations are investigating and assessing ways of making the transition to long term

45. The survey also established that less than a third of the responding agencies have adopted an organization-wide policy for network architectures and protocols, in spite of the fact that almost all (22 of 26) are making use of telecommunications for transferring electronic information in some form. This diversity is particularly problematic for electronic mail use between organizations. Among the 18 agencies that have introduced electronic mail, for example, 22 different communication systems were found to be in use; these systems are listed in Table 4. Almost all the organizations using

Table 4

## ELECTRONIC MAIL SYSTEMS IN USE IN 18 AGENCIES

ICC	All-in-1
Proffa	The Coordinator
Disoss	CICS
WANG Office	Honeywell-Bull
BITNET	TCN
EARN	DATANET
DialCom	QuikCom
Tele-mail	SPF Mailbox
J.Comm Mail	Echonet
EIES	UNINET
MEMO	Envoy.100

electronic mail report having two or more e-mail systems, with the ICC mail system in broadest use; it was mentioned by 12 of the 18 agencies.

46. Several factors appear to have contributed to this diversity. In some instances, communications software was included with the general office software package chosen (e.g., WANG, All-in-1). In other instances the communications protocol was supported by the local area network installed (e.g., The Coordinator) or by the host computer to which the agency already had access (e.g., ICC CALL/MAIL). In some cases, an agency's decision to introduce a particular mail system reflected the desire to interact with a group of organizations that uses only one specific system for the purpose at issue (e.g., EIES for scientific conferencing). In other cases, a commercial network (e.g., Dialogs) was added to an agency's repertoire of communication systems as the most feasible way to exchange information with selected organizations outside the United Nations community. As a result, it is sometimes difficult for information to be exchanged electronically within an agency between the different communication systems it employs.

47. Among agencies currently using e-mail, the most important criteria for choosing their systems concerned internal organizational needs such as costs, ease of use, and the like. Future adopters of e-mail are giving greater weight to broader criteria such as the need to provide for compatibility and interconnectivity throughout the United Nations system, as noted above. If

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electronic storage.

they succeed in establishing technology policies that meet these criteria, they may avoid some of the constraints experienced by earlier e-mail users who are now trying to adapt their systems to support intra- and inter-organizational interchange.

#### EMERGING STANDARDS

48. To see where future policies might be headed, the survey included a checklist of nine actual or expected technology standards; they represent recommendations from the International Standards Organization or other standards-setting bodies and are defined and explained in other TP/REM reports.<sup>14</sup> These standards are listed in Table 5 below. Because they are

Table 5

#### EXISTING OR PROPOSED STANDARDS IN THE SURVEY CHECKLIST

X.400	IRDS
FTAM	SGML
ODA/ODIF	CGM
SQL	DDF
ASN.1	

potentially relevant to the integrated management of electronic records throughout the United Nations system, TP/REM wanted to find out whether any of the responding agencies have adopted them or are considering them for adoption. A brief definition accompanied each item in the checklist.

49. For all but two items, the dominant responses were "unknown" or "not applicable." One exception in the checklist is X.400, a message-handling system that is part of the Open Systems Interconnection (OSI) suite of protocols; it has been adopted as an electronic mail standard by two agencies and is being considered for adoption by another 11 agencies.<sup>15</sup> The other possibility as an emerging standard is SQL, a "structured query language" comprising definitions and procedures for transferring database queries

<sup>14</sup> Terms in the checklist are defined in the Glossary for electronic records management [ACCIS 89/018(a), rev.1] and discussed in the standards report [ACCIS 89/018(c)].

<sup>15</sup> That organizations have adopted X.400 should not be taken to mean that they have implemented it, but rather that they intend to do so. Making currently used mail transport mechanisms X.400-compliant may take some time, for a number of reasons. First, X.400 is itself an evolving standard. Second, while some large commercial email services support X.400, many vendors of proprietary mail systems have not provided X.400 gateways or bridges (examples of both are included in Table 4). Finally, OSI protocols are only just beginning to be implemented within public domain environments (e.g., UNIX) and systems (e.g., INTERNET).

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between computers whose software conforms to SQL. This U.S. standard has been adopted by one agency, while 11 agencies have it under consideration.<sup>5</sup>

50. Finally, when asked in terms of general technology areas where their organizations were likely to develop standards-related policies in the near future, about half the responding agencies targeted electronic mail. The remainder indicated that technology standards were not currently contemplated.

## DISCUSSION

51. At present, technology issues per se are not salient for agencies responding to the survey. However, unless they are resolved, such technology issues should be expected to create mounting difficulties as organizations come increasingly to depend on electronic information and communication tools.<sup>17</sup> Constraints on information transfer and use posed by hardware- or software-specific system dependence did not emerge as a major concern in surveyed organizations--nor did the absence of policies in these areas.

52. Storage media decisions are perhaps an exception to this generalization. Several agencies explicitly regard very long term retention as a technology issue area in which there are more questions than answers, as the following sample of responses to open-ended questions suggests.

- \* The organization has proposals in this area but would need more people and more hardware - and specialized software - to carry them out.
- \* The organization still has to define storage media and indexing procedures for long term records retention.
- \* The question of space and medium for indefinite preservation of electronic records is unresolved.

53. Network interconnectivity seems to be another unresolved issue area. While few agencies express serious concerns now, future difficulties are a likely consequence of the great number of different mail systems in use by United Nations organizations. On the other hand, there is evidence that surveyed agencies are attempting to address this issue. First, a sizeable proportion of current e-mail users have adopted or are planning to adopt X.400 as a standard for message handling; compliance with this standard is

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<sup>16</sup> Other standards in the checklist are being considered or adopted, but much less widely among responding agencies. They are:

ASN.1:	adopted by 1 agency; under consideration by 2 agencies.
FTAM:	under consideration by 3 agencies.
SGML:	under consideration by 3 agencies.
ODA/ODIF:	under consideration by 3 agencies.
DCP:	under consideration by 2 agencies.

<sup>17</sup> For support of this conclusion, see the TP/REN report on information technology standards (The role of standards in integrated systems management of official records and documents in United Nations organizations: a requirement of the 1990s (ACCIS 89/018(c)))

aimed at assuring at least low-level protocol compatibility. Additionally, one organization reported experimenting with gateways between commercial and noncommercial e-mail systems. Second, future adopters are treating compatibility and interconnectivity as chief e-mail system requirements.

54. With this in mind, it is noteworthy that so little attention is being given to other higher-level standards for electronic information exchange. Once lower-level protocols have been standardized, higher level problems (e.g., transferring information in an interpretable and processable form) will inevitably increase in salience. Organizations should therefore give greater attention to emerging international standards for information interchange in future technology decisions.

#### CHALLENGES PRESENTED BY ELECTRONIC MEDIA

55. Earlier sections of this report provide evidence that electronic media are presenting a variety of challenges for archives and records management. The challenges reflect the fact that United Nations organizations are making use of new information media, but information management policies have not kept pace with these technological advances.

56. The last part of the survey therefore asked responding agencies what they see as the most important challenges in the area of electronic records and archives to be addressed in the near future. It also sought to find out what guidelines and methods are currently being implemented in these areas.

#### PRESENT APPROACHES

57. While United Nations organizations are exploring new procedures for managing documents generated and disseminated electronically, present approaches are often borrowed from other domains or other media. For instance, three of the 26 surveyed agencies report attempting to adapt automatic logging procedures from the electronic data interchange (EDI) domain for managing electronic document exchange. Four of them also report trying to apply machine-readable records management techniques to the electronic document area.

58. The majority of agencies, however, have relied on paper-based methodologies for managing electronic records. In practice, this means that print copies are usually used for indexing and filing purposes. The hard copy solution is becoming progressively less viable as electronic communications grow in volume and decentralize and as technological advance continues.

59. On the other hand, most agencies lack the time, staff and other resources that would be required to develop new guidelines and methods for managing electronic records and archives. They expect that eventually computer systems will be designed to support such procedures. In the meantime, a number of agencies are looking to other organizations for policies and

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examples; several said they expected to follow the direction taken by ICC or hoped that ACCIS would provide leadership in this area.<sup>18</sup>

60. In general, reviewing the practices and standards related to new information and communication technologies within United Nations agencies confirmed the need for a representative technical panel to assess their implications for electronic archives and records management. It also highlighted the value of beginning now to develop and share policy guidelines as organizations confront the many challenges presented by new electronic media.

#### FUTURE CHALLENGES

61. For convenience, open-ended responses identifying major challenges to be addressed in the near future are organized here into five groups. Many agencies identified more than one imminent problem, and the order in which they are presented should not be taken to represent prevalence or importance.

62. First, new information technologies present a two-fold human resources challenge. Records management staff are likely to need specialized training in relation to new electronic media; and, according to one agency, "consciousness raising" will be required to convince the staff of the possibilities and opportunities for electronic archives. Additionally, awareness and training programmes are likely to be needed for end-users of electronic media. Five agencies are already engaged in identifying such human resource issues and requirements.

63. Second, several organizations cited challenges specifically linked to the new electronic media themselves. One, for instance, mentioned the problem of establishing clearance, indexing, and control procedures for electronic mail communications. Another singled out the challenge of introducing new image processing technology into the electronic archives and records management area. More generally, a third agency summed it up as "scheduling, appraisal and retention of electronic archive material: who, when, how?"

64. If managing new media by themselves is problematic, their integration with existing records and archives to form a comprehensive system is perceived as even more challenging by some organizations. Under this rubric, for instance, one agency aimed at handling "mixed media records" with registry files that include both paper-based and electronic documents. Another is experimenting with combined procedures for managing information exchange by e-mail, telex, fax, post and courier. Such issues are viewed as important and unavoidable; conversion to a single medium for records retention purposes was not regarded as a viable long term strategy.<sup>19</sup>

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<sup>18</sup> TP/REM activities reflect an ACCIS interest in meeting this need. Moreover, several United Nations organizations are already responding to these challenges with innovative management approaches. Site visits were carried out with some of them and reported here to provide illustrative examples.

<sup>19</sup> Challenges of this sort are discussed under the heading of "mixed systems" in Electronic records guidelines: a manual for policy development and implementation (ACCIS 89/018(b), rev.1). Mixed systems are systems which consist of electronic databases supplemented by manual files, or of paper-

65. Most organizations, however, believe that new technology should be seen as part of the solution and not just as the problem. Use of computer based capabilities to control electronic records and archives--including support for administration and management, indexing procedures, finding aids, easy-to-use query languages, and the like--was identified as a key challenge by most agencies responding to the survey. As noted earlier, some have already introduced computer support for telex records management.

66. Finally, faced with new media and new methodologies for their management, some agencies view the implementation process itself as a noteworthy challenge. In this area, for instance, one agency raised the issue of maintaining a centrally controlled "registry" of electronic communications sent and received in a decentralized environment. Another cited the challenge of devising an evolutionary strategy for moving from conventional to new systems of records.

67. In summary, at least half the agencies responding to the survey singled out major challenges emerging in relation to electronic records management that are directly subsumed by the terms of reference of TP/REM. These agency-generated issues, together with data described in previous sections of this report, suggest that exploratory work toward the development of guidelines for electronic records management and related technology standards may help United Nations organizations cope with the new information environment.

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based systems partially converted to electronic systems, so that the two together comprise a continuous series. Such mixed-media systems should not be confused with the hybrids described earlier (see note 8), where the system of records is maintained entirely on paper, but its organization and management is supported by computer.



**RESPONDING TO THE CHALLENGES:  
EXAMPLES FROM UNITED NATIONS ORGANIZATIONS**

68. As explained in the Procedures section above, open-ended responses to survey questions indicated that several United Nations organizations are already involved in planning or implementing policies and procedures which address some of these challenges. TP/REM believed that site visits in some of these organizations could provide a valuable supplement to the survey data obtained. Information gathered in this way would be illustrative of electronic records management problems and solutions within an integrating organizational context, potentially yielding helpful examples to other agencies coping with similar challenges.<sup>20</sup> In return, TP/REM site visitors would be able to brief the participating organizations on its charge, its work, and its future products.

69. On the basis of the survey material, TP/REM identified at least eight agencies which had well-established records management programmes and which were taking critical steps toward the inclusion of new electronic media within them. The goal was to visit at least two organizations which were not in the same location and which were not in locations readily accessible to TP/REM in the course of its work (i.e., not in Geneva, New York or Washington DC); on the other hand, the site visits had to be feasible within TP/REM's schedule, budget, and staffing constraints. Most importantly, the sites had to be willing to be visited and described.

70. With these criteria in mind, TP/REM selected Vienna and Rome as the locations to be visited. The ACCIS Secretariat, working with a contact person in each city, initiated arrangements for the site visits, which were conducted early in 1989. A description of these procedures and an overview of the organizations visited follows.

**SITE VISIT ARRANGEMENTS**

71. In Vienna, the focus of the on-site visit was the IAEA, although discussions were also held with staff from UNIDO and UNOV. The ACCIS Secretariat contacted Mr. V. Dragulev, Director of the IAEA Data Centre, and requested that he organize the visit to that location. Mr. Dragulev set up a two-day schedule of meetings, including both individual interviews and plenary sessions, with key people. In addition to Mr. Dragulev, discussions were held with Mr. D. McLachlan, Mr. K. Bittner, and Mr. D. Zeller of IAEA, and with Mr. Stefano and Mr. H. Marin-Guzman of UNIDO; Mr. Yeoh of UNOV attended the joint meeting. Joint meetings provided the occasion for briefing

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<sup>20</sup> It should be emphasized that procedures being planned or tried within visited sites should be taken as illustrative only. It is not the intent of TP/REM to suggest that other agencies could or should follow these examples. Rather, the establishment of satisfactory methods for electronic records and archives management is quite closely linked to an organization's structure, missions, information needs, and related resources. Comparing and contrasting approaches to electronic media in different organizational contexts might suggest alternative ways to think about managing the challenges.

vienna-based agencies on TP/REM tasks and reports, while individual interviews generated the material summarized below.<sup>21</sup>

72. The visit to Rome was arranged in co-operation with ACCIS by Mr. R. Castelo, Records Management and Communications Officer of IFAD and associate member of TP/REM. In addition to IFAD, discussions were set up with WFP, FAO and WFC (although the time available with WFC was very limited). While a joint session was not feasible, individual agency meetings allowed an opportunity both for briefing the Rome-based agencies and for collecting information from them. At IFAD, meetings were held with Mr. Castelo and with the Records and Communications Assistant, Mr. N. Gentile. At WFP, the Computer Operations Manager, Mr. E. Lorenzoni, and the Telex Supervisor participated. At FAO, discussions were arranged with Mr. A. Christoforides, Office Automation Officer in the Computer Services Centre, with Mr. S. Mountain, Telex Supervisor, the Electronic Mail Manager, Mr. K. Mead and, individually, the Archivist, Mr. S. Salvi. Joining in the FAO meeting was Ms. S. Moraleda-Dragotto, Registry Supervisor for WFC.<sup>22</sup>

### ORGANIZATIONAL OVERVIEWS

73. The IAEA maintains a centralized registry system, with physical custody and control of the records themselves decentralized in the various sections and departments. The organizational unit responsible for this programme is the Records and Communications Section (RCS). RCS manages all official records of IAEA, including those in electronic form, and provides telecommunication services for all of the IAEA. As the organizational charts in Annex III show, RCS is part of General Services within the Department of Administration. All data processing activities, including office automation, fall within the Data Centre which is part of Scientific and Technical Information within the Department of Nuclear Energy and Safety. It should be noted that the Data Centre provides a technical support service, unlike RCS which provides management support. (Annex III also includes an organization chart specifically for RCS.)

74. Each of the agencies studied in Rome (IFAD, WFP, FAO) is organized differently; simplified organization charts for the three are provided in Annex IV. In general, registry, telex, and fax services are located in a records and communications unit in an administrative services division, while computer services are in a management or a management information services division. In IFAD and FAO, these divisions report to the same department; in WFP, the organization chart lines meet only at the top.

75. These overviews, along with the annexed organizational information, afford a context for interpreting answers to the major questions around which the site visits were designed. Differing organizational structures may be associated with different records management policies or with varying approaches to their implementation. To facilitate comparisons and contrasts, the 10 site visit questions are reproduced below, with responses summarized by location under each.

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<sup>21</sup> The site visit to Vienna was conducted by Mr. Brian Denton, Chief of Communications and Files of ILO (TP/REM member), and Mr. Charles Dollar, Deputy Director of Archival Research and Evaluation of the U.S. National Archives and Records Administration (TP/REM consultant).

<sup>22</sup> The site visit to Rome was conducted by Ms. Liisa Fagerlund, Head, Records Management Services, WHO (TP/REM member).

SITE VISIT QUESTIONS AND ANSWERS

I. WHAT MAIN TYPES OF INFORMATION ARE SEEN AS "OFFICIAL"?

Vienna:

IAEA maintains two post office boxes, one for purely private information and the other for official information. The latter is not limited to media type or format. It is any communication which relates to official activities of the IAEA. Under these guidelines, even what some might call "informal" communications would be considered official and should be cleared through the registry.

As noted earlier, IAEA has a highly centralized registry system for controlling official communications. Except for e-mail, all incoming and outgoing communication<sup>s</sup> are handled the same way without regard to method of transmission. Plans are now being discussed whereby e-mail will also be brought under this registry control system.

IAEA's definition of record material is broad: it is any communication involving activities of the agency. Telex and fax communications are treated as any other communication; their management is facilitated by the fact that RCS also has the responsibility for providing telex and fax services for the entire organization. The definition includes telephone calls as well; agency employees are supposed to prepare an abstract of any official telephone communication and send it to RCS (although few are, in fact, sent). Given this definition, RCS staff believe that e-mail can be placed under the same guidelines and regulations which govern fax, telex, and telephone conversations.

Rome:

At IFAD, all mail, unless personal and private, is considered official. Substantive records are microfilmed and entered into an automated system; official records not of a substantive nature are given a low retention period. For project files, low retention material is filed separately from long retention material.

At FAO a distinction is made between official and unofficial records. Telex communications are considered official because the hard copy is signed and authorized. At present, most e-mail is considered unofficial. The question is posed as to whether sending from a director's account will qualify a message as official, that is, whether the password will be accepted as equivalent to an electronic signature. There is currently an e-mail pilot project which will pose this question as a management decision.

## II. HOW IS ELECTRONIC INFORMATION SUCH AS TELEX, FAX, E-MAIL, MANAGED?

### Vienna:

IAEA does not have different approaches for paper and electronic communications. The key questions are whether the communication involves official activity and whether it is substantive. All official substantive incoming and outgoing communications (telex, fax, and regular mail) pass through RCS before being forwarded to the appropriate Action officer or sent outside the IAEA. RCS handles all classification, indexing and microfilming activities to ensure uniform management of records regardless of medium (with some exceptions for e-mail, as indicated below).

Resulting index information is entered into the RCS Information Retrieval System database. Frequently the function or activity of a file cuts across two or more offices, with the result that no single office has a "complete" file. However, the RCS Information Retrieval System contains all citations to a given function or activity without regard to which department handled particular communications, providing an integrated index.

It should be noted that telexes produced on a word processor are delivered as hard copy to RCS, where they are re-keyed. The same thing applies to fax messages, except they are scanned for input. (RCS intends to eliminate this duplication of input.) Subsequently telex and fax communications are indexed the same as other communications. Currently, e-mail communications (e.g., via BITNET) may completely bypass RCS. However, discussions are underway with IAEA's Data Centre to guarantee that RCS receives a copy of every e-mail communication both within and outside the organization. Plans call for creation of an electronic mailbox at RCS which will automatically receive a copy of all messages. RCS would then handle the messages as they now handle all other incoming and outgoing communications.

At present, e-mail communications (incoming and outgoing) are indexed only if a paper copy is sent to RCS; and RCS retains only the microfilm copy. The planned electronic mailbox will enable all substantive official e-mail communications to be indexed and retained. In the short run, RCS probably will continue to make microfilm copies (even of official e-mail). In the long run, optical digital disc storage technology may eventually replace microfilm as the medium for long term storage.

### Rome:

In IPAD the Records and Communications Unit has responsibility for the centralized registry, telex, fax, and for external electronic mail using the ICC. Paper files are physically centralized and controlled except for about 15 per cent of files relating to administration. Outgoing telex and fax communications are prepared on WANG word processing workstations and sent in hard copy with authorizing signature and WP document number to Registry where the WP document is numbered and automatically transmitted and the hard copy filed. Incoming telex and fax messages are fully manual and routed by Registry to offices before filing in official files. Internal e-mail uses WANG Office and is managed by the Computer Services staff with no central responsibility for document management.

In FAO each division has its own registry; active files are kept in the divisions and technical supervision is provided by a central archives and records unit which is also responsible for inactive files. Divisions prepare a multiple-copy set of telex and fax communications which is sent to the Communications Operations unit (cable room) where the message is read into an OCR reader, dispatched, and a hard copy sent to the unit Registry for filing. External e-mail is through the ICC and packet-switching networks; internal e-mail employs VAX computers, All-in-One software, and PC and DEC MATE workstations.

For WFP, there is a registry service (although the degree of centralization of paper files that exists in the organization was not ascertained). There is a centralized telex service using an OCR reader after signatures have been checked, and a partially decentralized fax service. Incoming telex and fax messages pass through the registry for distribution. E-mail is provided through ICC Call/Mail which is accessed by Norsk Data terminals.

### III. WHO APPRAISES ELECTRONIC INFORMATION AND WHEN IS IT DONE?

#### Vienna:

Currently, action officers determine what are substantive outgoing paper communications prior to sending them to RCS for dispatch. However, RCS staff do review these determinations during classification and indexing. All incoming official communications are reviewed by RCS staff who identify those which are substantive. There is no difference in the way paper, telex, and fax communications are handled in this regard. At this point, there are no provisions for RCS retention of electronic records. This is left to the individual offices concerned. However, RCS clearly expects this policy to change as optical digital storage media become more available. Furthermore, a 1986 Office Automation Strategy Paper called for the Computer Section and RCS to conduct a joint study of the feasibility of electronic storage and retrieval of records.

#### Rome:

For the most part, telex and fax communications are managed in the same way as paper communications, with the file copy often being in hard copy form. At IFAD, each document assigned to a file is assigned by the automated system the retention period established for the file. Users of ICC Call/Mail are usually given individual responsibility for managing their own messages, although FAO assigns disk quotas and periodically urges users to clean up their disks, and WFP encourages users to keep messages no more than 2 years. Users of WANG Office at IFAD and of All-in-One at FAO make their own decisions as to archiving.

### IV. FOR ELECTRONIC MAIL, DOES/WILL IT DIFFER FROM TELEX AND FAX IN RELATION TO APPRAISAL, STORAGE MEDIA, AND STORAGE PROCEDURES?

#### Vienna:

As noted previously, how e-mail is or will be handled should not differ substantially from the way that fax and paper-based communications are handled. The RCS staff believe that the

records management regulations in place provide an adequate umbrella for electronic records. This umbrella includes indexing, appraisal, and retention, although retention in electronic form is not now available. RCS supports access to an electronic index through the Information Retrieval System. The storage medium makes no difference to this index, because it simply points to the location(s) of the particular documents. This will change, however, when electronic documents are actually retained because the retrieval system will have to generate a list of "hits" from which actual documents could be retrieved.

Rome:

At IFAD, external e-mail will be managed according to the same principles as for other official mail, including requiring authorizing signatures before dispatch. At FAO, the preparation and dispatch of telex messages is in the process of being automated; however, there is no plan to link e-mail and telex dispatching.

V. HAS E-MAIL RAISED QUESTIONS OR SPECIAL PROBLEMS THAT DO NOT OCCUR WITH OTHER MEDIA?

Vienna:

IAEA and RCS are just beginning to explore the implications of the use of e-mail. It is seen as a problem which can be dealt with using existing regulations. However, one question that emerged about e-mail was how it may differ from telephone communication. Even when a telephone conversation involves official business, the general view is that it is private and no one should eavesdrop on the conversation. A memo of record might be written about the conversation, but the entirety of the conversation would not exist. However, if e-mail is treated as any other form of official communication, the argument could be made that this is an invasion of personal privacy.

Rome:

FAO noted that with e-mail it is up to the user to determine how and if a message is archived and how it can be retrieved. This lends a personal character to the medium. With the present thinking, for a message to be official, the e-mail message would have to be printed and signed. A request received through e-mail would have to be followed by an official request, stamped by the Registry. WFP also noted that the characteristic of decisions being "up to the user" made the management of e-mail different from other media.

VI. HOW HAS THE TRAINING AND INTEGRATION OF FUNCTIONS BETWEEN DATA PROCESSING AND RECORDS MANAGEMENT STAFFS BEEN HANDLED AND HOW WELL DOES IT WORK?

Vienna:

IAEA has a Computer Management Group made up of senior managers who recommend automation policy for the entire organization. Both the Director of the Data Centre and the Head of RCS belong to this group. Thus, there is communication between data

processing and records management at this level. Equally important is the co-operation between RCS staff and the Office Automation Staff. Regular meetings are held to discuss topics of mutual concern. In the process, both staffs learn each other's programmes.

System specifications (i.e., hardware and software) and implementation have largely been left to the Computer Section. This should be qualified by noting the considerable informal communication between the two staffs. End-user support generally is handled by the Office Automation Staff. However, the records management guidelines and regulations that RCS has issued are made available to every staff member. Further, the highly concentrated and centralized approach to records management involves key members of the two staffs in daily contact. Thus, office automation staff already are very much sensitized to records management issues and concerns; RCS believes that this is the basis upon which to build sensitivity programmes and procedures for electronic records.

**Rome:**

At IFAD, the head of the Records and Communications Unit, Mr. R. Castelo, is a qualified data processing professional and has in fact accepted a new post in the Computer Services area. His personal expertise has facilitated the development of an automated records management system and the introduction of e-mail. He has been responsible for training the Records and Communications Assistant. There has been no special training for data processing professional staff, although Mr. Castelo's move to Computer Services will result in the inclusion of records management principles in the development of MIS programmes.

At FAO, secretaries receive training in word processing and telex preparation, but records management staff have had no specific computer training. DP staff are expected to follow records management procedures where relevant for managing computer records. For example, the VAX manager uses Registry file codes in establishing e-mail files for an e-mail pilot project.

**VII. WHAT WAS THE TRANSITION TO AN ELECTRONIC RECORDS ENVIRONMENT LIKE?**

**Vienna:**

IAEA is on the brink of having a full electronic records environment. Thus, little can be said as yet about the transition. What may be more instructive is how RCS implemented centralized management of records management. The very high degree of centralized management and office compliance is the result of a carefully thought out strategic policy and the availability of human resources. The strategic policy, in essence, was to ensure that each office complied with records management guidelines by physically rearranging paper-based office files. This required almost two years and considerable staff resources. However, from RCS's point of view this was a worthwhile investment since it established a uniform filing or classification system that is maintained by RCS. The indexing and retrieval functions of the Information Retrieval System ensure that specific documents can be located very quickly. Thus, RCS provides an important service to offices when documents

are misfiled or misplaced. This service aspect probably is the single most important feature of the RCS programme which has contributed to its success.

Rome:

At IFAD, the transition to the electronic records environment has been seen as the development and adoption of an automated system for managing correspondence: classification, distribution, disposition, retrieval. The impetus for the transition was management identification of a need to improve retrieval of Registry information. The Records Management System development was discussed by senior management and approved by the President. IFAD reports that the transition required changing of procedures and ways of working both within Records Management units and units served. This has proved beneficial, but has required a good deal of convincing and demonstration of benefits before these changes could be effected. The implementation of a correspondence tracking facility in connection with the Records Management System was an important motivation factor.

FAO feels the question is premature as the transition is just beginning. At WFP the transition is a gradual one with no one being pushed--and, in fact, the opinion was stated that from a Registry point of view, there has not been a transition. For those staff members who have found e-mail useful; however, it has changed their way of working.

#### VIII. WHAT ARE FUTURE PLANS? EXPANSION OF COMPUTER CAPABILITIES? STANDARDS?

Vienna:

IAEA has adopted an Office Automation Strategy (see Annex III) which clearly links office automation to RCS goals and objectives. Office automation increasingly will place PCs in the hands of end-users--approximately 90 percent of the staff--over the next several years. The plan to make RCS a kind of "copy" corporate "mailbox" for all electronic mail, incoming as well as outgoing, will go a long way toward ensuring that archives and records management concerns will be addressed at the highest levels within IAEA.

RCS and Data Centre staff are very interested in TP/REM's strategic guidelines report as well as its standards report. The latter, they believe, will be very helpful as they consider software and hardware alternatives. Standards are particularly important for RCS with the move toward retention of records in electronic form. The greatest level of interest now is in the OSI Reference Model and the Message Handling Service (MHS) of X.400.

Rome:

At IFAD the next step is to extend the use of the automated records management system to staff outside of Registry so that the retrieval aspects of the system will be available to offices. This will imply a certain decentralization of retrieval activities, but will involve no organizational changes. (The Records Management System manual and training material are attached in Annex IV.)



At FAO the automation of the telex process is being tested and is nearly ready for implementation (Management Report attached). Although archiving will be done electronically, hard copies will still be filed pending development of an electronic system by Registry. FAO does foresee organizational changes. They are not planning to move telex to Office Automation at the moment because they do not wish to mix operations and technical issues. However, communications programmes, including Registry, are moving in the direction of Office Automation.

WFP hopes to establish a PBX system which would incorporate telephone, telex, and office support functions. This would move telex under the Management Services umbrella organizationally, but no thought has been given to computerizing Registry. WFP sees a definite need for standards, especially document interchange standards. They are currently using a software package called Alladin which translates between word processing packages. The many different software packages in use continue to be a serious problem for them.

#### IX. WHO PAYS FOR ELECTRONIC RECORDS MANAGEMENT?

##### Vienna:

No one pays as such for telephone, mail service, or the current records management programme. These activities are considered part of the overhead cost of running the agency. Electronic records management is likely to be considered in the same light. Generally, the procurement of new PCs is funded out of the Data Centre budget so the cost of PCs is not charged by particular offices. The only chargeback now in effect involves telex, fax, and special messenger services.

##### Rome:

IFAD records statistics on expenditures by department, but there is no charge back of expenditures. FAO has a charge-back system for telex, facsimile, and external e-mail, but not for internal e-mail. WFP does not charge back for storage or other ICC services because all billing is in one account.

#### X. DOES THE SITE HAVE ANY ADVICE FOR THOSE WHO WILL BE MOVING INTO ELECTRONIC RECORDS/E-MAIL IN THE NEAR FUTURE?

##### Vienna:

Close co-operation between records management staff and data centre staff is essential. In the case of the IAEA, close co-ordination between RCS and the Data Centre Staff proved vital in ensuring that e-mail produced on individual PCs can be captured. It was what led to the decision to implement software that will automatically copy each piece of e-mail and place it in RCS's "corporate" electronic mail box.

From the viewpoint of RCS, a heavy staff investment made in standardizing departmental filing systems is equally critical. RCS staff spent almost three years reorganizing departmental files to reflect the new filing scheme. Although this involved

a substantial commitment of RCS staff resources, it established a platform of records commonality that is essential to any automation project. In other words, RCS elected to totally reconstruct corporate and departmental filing systems and then automate the new filing systems. RCS believes that overlaying automation on cumbersome, inefficient, and contradictory filing systems is a guaranteed recipe for failure.

**Rome:**

IFAD pointed out that training is an important component and should not be neglected. The organization would also like to see more sharing of information between United Nations organizations. In an electronic environment codifiers require a higher grade than their counterparts working in manual systems.

WFP recommended that, if an organization has an interest in keeping track of e-mail messages, an automatic system should be devised rather than counting on the users to index and file messages. The usefulness of storing information in Registry was questioned, although WFP felt that an optical disc system which stored the current six months of messages online should be investigated.

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**ANNEX II**  
**LIST OF AGENCIES RESPONDING TO TP/REM SURVEY**

Economic and Social Commission for Asia and the Pacific (ESCAP)  
Economic and Social Commission for Western Asia (ESCWA)  
Economic Commission for Africa (ECA)  
Economic Commission for Europe (ECE)  
Economic Commission for Latin America and the Caribbean (ECLAC)  
Food and Agriculture Organization of the United Nations (FAO)  
General Agreement on Tariffs and Trade (GATT)  
International Atomic Energy Agency (IAEA)  
International Civil Aviation Organization (ICAO)  
International Fund for Agricultural Development (IFAD)  
International Labour Organisation (ILO)  
International Monetary Fund (IMF)  
International Trade Centre UNCTAD/GATT (ITC)  
United Nations  
United Nations Centre for Human Settlements (Habitat) (UNCHS)  
United Nations Children's Fund (UNICEF)  
United Nations Development Programme (UNDP)  
United Nations Educational, Scientific and Cultural Organization (UNESCO)  
United Nations Environment Programme (UNEP)  
United Nations Industrial Development Organization (UNIDO)  
United Nations Research Institute for Social Development (UNRISD)  
United Nations University (UNU)  
World Bank/International Finance Corporation  
World Food Council (WFC)  
World Food Programme (WFP)  
World Health Organization (WHO)  
World Intellectual Property Organization (WIPO)  
World Meteorological Organization (WMO)