
Management, appraisal and preservation of electronic records

Vol 1: Principles

Management, appraisal and preservation of electronic records

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Public Record Office
Kew, Richmond, Surrey
<http://www.pro.gov.uk/recordsmanagement>

About the Public Record Office

As the national archives for England, Wales and the United Kingdom, the Public Record Office acts as the nation's memory. It manages the public record system of the United Kingdom under the Public Records Acts of 1958 and 1967 and undertakes four core activities:

- supervising the selection, safekeeping and transfer of public records created by government departments, courts, tribunals and non-governmental public bodies
- keeping the records selected for preservation in the Public Record Office or assigning other suitable places of deposit for them
- providing access to the records and encouraging and promoting their use
- advising government and others on public record issues and related policy matters.

The records held by the Public Record Office (PRO) span one thousand years and fill 167 kilometres of shelving. The PRO also oversees public records held by other bodies such as county record offices. All these records contain information essential for good governance. They provide a sound basis for historical and genealogical research. They help to make government accountable over time. They can be used as legal evidence, and they extend knowledge of past actions and decisions to inform future decision-making. In carrying out its duties, the Public Record Office serves the needs of present and future generations.

The Public Record Office vision for the beginning of the twenty-first century is that readers will be able to access many public records electronically. To meet this aim, it has set the following strategic aim:

To increase the accessibility of the public records by electronic means, in the Office and around the world.

One of the key objectives that will help to realise this strategic priority is:

- to decide how best to select, preserve, store and give access to electronic records created by government.

Other longer term priorities are :

- to enhance the quality and efficiency of our public services
- to promote the value and use of public records as a national information and education resource
- to raise the standard of records management in government and to improve the selection of public records
- to improve access and preservation by harnessing developments in copying technology.

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Guidance on electronic records management

This is one of a series of guidance documents on the management, appraisal and preservation of electronic records in government, produced under the auspices of the Electronic Records from Office Systems (EROS) Programme of the Public Record Office.

This guidance document sets out the principles of electronic records management and outlines broad strategies for translating the principles into practice. Related guidance documents will describe appropriate records and information practice and procedures in more detail, including:

- best practice in records management procedures for capturing, keeping and making available electronic records
- the development of inventories and the process of appraisal and disposal of electronic records
- strategies for permanent preservation, and the current requirements for transfer of records in electronic form to the Public Record Office.

The guidance documents in this series focus on office documents as electronic records. At the present time, these typically consist of the type of documents - text-based word-processed documents, e-mail messages, spreadsheets, presentations and scanned documents - which are found in most standard desktop office environments. With the rapid development of information and communications technology in government, a wider range of record types will emerge: website (hypertext) documents, multimedia documents, digital audio and video, and dynamically interlinked documents. Many of the developments in desktop information technology will tend to blur the boundaries between types of records, and increase the problems of capturing and retaining all elements of a record.

Best practice in records management is continually evolving. As issues emerge and are addressed and as further best practice in managing electronic records is defined, this guidance will be developed and updated, both by revision and by the publication of new material. Guidance on electronic records management, case studies and other material is available in print form and on the Records Management Department page of the PRO website at: <http://www.pro.gov.uk/recordsmanagement/>

Intended audience

The guidelines in this series are primarily intended for government business managers, Departmental Record Officers, Heads of IT and Information Systems, strategy and planning managers, project managers and PRO Client Managers. The guidance is intended primarily for those working in central government; the principles will also be relevant in local government and throughout the public sector.

This document sets out the main principles of electronic records management, and is intended as a broad overview of the field rather than as a manual of practice. It is principally aimed at those responsible for developing and implementing strategy in records management and IT, and in the management of information and knowledge resources. It aims to identify for this wide audience the reasons why electronic records management is important and the policies and strategies which should be considered. Related documents in this series offer more detailed guidance on practice and procedures.

Throughout this document the term ‘department’ should be taken to apply to any public sector organisation, including all departments and agencies across government. The term ‘record manager’ refers to both Departmental Record Officers (DROs) and other managers who have some operational responsibility for records management.

1 : Records management in information-age government

1.1 This section deals with:

- the importance of records and records management to the business of government
- the nature of the record and the challenge of electronic records
- the need to manage electronic records in an active and forward-looking manner.

1.2 All organisations need to keep records of business decisions and transactions to meet the demands of corporate accountability. In the public sector there are specific public accountability requirements as well as the need to comply with public records legislation. A record is evidence of an activity or transaction, and demonstrates accountability. Records are created by the day-to-day work that takes place in government; they need to be captured, managed and safeguarded in an organised system in order to retain their value as formal records.

1.3 The use of information and communications technology to achieve efficiency savings and add value to the conduct of government business is transforming the way work is done in the office environment. In turn, this places new demands on departmental record officers (or their equivalents) and requires changes to the way in which records management responsibilities are carried out.

1.4 Some of the principal changes taking place are:

- the recognition that records in electronic form are a valuable corporate information resource and an important means of meeting accountability requirements
- the drive to deliver co-ordinated government services, to provide access to government information, and to develop electronic service delivery to the citizen through the use of information and communications technology
- the pressure to reduce costs through the redesign of work processes, the maintenance of only those records that are required to be kept, the reduction of paper, the automation of manual records classification and filing operations and the reduction in the number of staff responsible for such operations
- the need to innovate, and more effectively to manage information and knowledge assets in support of innovation

- the development of document and record management software applications within a networked environment, providing facilities for creating, storing and retrieving electronic documents, and mechanisms to safeguard corporate information.

These all highlight the need to adopt more varied and imaginative ways of managing records, and a growing emphasis on managing the intellectual content, as much as the physical aspects, of records.

1.5 As the pace of change accelerates, there is increasing concern about the ability of government to preserve those records which are needed to support the delivery of programmes and services and to meet accountability and archival obligations. This includes concern about such problems as:

- the loss of records that should be kept for legal and accountability reasons
- problems with authenticity and reliability of the record
- confusion between different versions of the record
- lack of context to understand records properly
- technological change rendering records inaccessible and incomprehensible.

The role of the Public Record Office

1.6 The Public Record Office (PRO) has statutory duties to provide guidance and supervision on the management and selection of electronic records used throughout government as well as the more traditional, paper records. The fundamental aim of the Public Record Office is:

To assist and promote the study of the past through the public records in order to inform the present and future.

1.7 It manages the public records system of the United Kingdom under the Public Records Acts of 1958 and 1967 and undertakes four core activities:

- supervising the selection, safekeeping and transfer of public records created by government departments, courts, tribunals and non-governmental public bodies
- keeping the records selected for preservation in the Public Record Office or assigning other suitable places of deposit for them
- providing access to the records and encouraging and promoting their use
- advising government and others on public record issues and related policy matters.

1.8 The Public Record Office works in partnership with government departments and agencies to support these activities. The Public Records Acts cover all records in all media created across central government and the courts, and place responsibility on departments to manage their records appropriately. This partnership now needs to be developed to tackle the issues raised by electronic records.

Electronic records are public records

1.9 The PRO is committed to taking electronic records into the archives as the permanent record. Before transfer to the PRO responsibility for the safe-keeping of these records remains with staff in departments. In order to ensure that electronic records fulfil the needs of departments for information and accountability, and that they can be safeguarded for long-term access in the electronic archives, the necessary records and information management disciplines and computer systems facilities need to be put into practice.

1.10 Electronic records are a more fragile medium than paper. Positive action is required to capture, document and maintain electronic information, and more stringent information management disciplines pursued to maintain this information as records which demonstrate reliability and authenticity. The Public Record Office set up the EROS Programme to address these problems in the context of UK government.

The EROS Programme

1.11 In 1995 the Public Record Office established the Electronic Records from Office Systems (EROS) Programme to provide leadership across government in the management of electronic records. The Programme is advised by a cross-government Board comprised of senior managers from major departments, primarily Principal Establishment Officers, Chief Executives, and Information Systems and Technology Directors. The Board is chaired by the Keeper of the Public Records, and includes representatives from the Central Computer and Telecommunications Agency (CCTA) and the Central IT Unit (CITU).

1.12 The overall goal of the EROS Programme is to ensure that electronic records of long term value, created across government, are available for future access. The programme is working in three areas:

- **records management policy and practice** for departments: the PRO is providing standards for use across government and is publishing the results of an annual survey of departments which shows the issues and trends across government. Case studies have also been published to make available some of the approaches and lessons learned in departments

- **the records processes:** the appraisal, accessioning and preservation of electronic records - developing appraisal guidelines and the accessioning and preservation procedures. Several pilot projects have been completed to bring electronic records into the PRO, and further transfers are under way
- **long term transfer and access strategy:** the EROS Programme aims to develop standards to provide software suppliers and departments with a way of passing records to the PRO electronically - and without loss of functionality.

The standards and guidance documents on electronic records management draw together the various strands of work in the electronic records programme and focus them on the needs and requirements of departments in government.

The nature of electronic records

1.13 A record is a specific piece of information produced or received in the initiation, conduct or completion of an institutional or individual activity. It comprises sufficient content, context and structure to provide evidence of that activity. It is not ephemeral: that is to say, it contains information that is worthy of preservation in the short, medium or long term.

1.14 Records are created and used by everyone. Public sector organisations will be familiar with the convention of registered files; anything that goes ‘on file’ becomes a record. The information stored in records constitutes a corporate resource; importantly, it is a corporate rather than an individual resource.

1.15 Information is conveyed by a document in a number of ways:

- **content** - the subject matter of the document
- **structure** - the use of headings and other devices to identify and label parts of the document, and the use of visual emphasis (boldening, italics) to convey part of the meaning of the content
- **context** - the environment and web of relationships in which the document was created and used (for example, how the document relates to others in a group of documents).

1.16 All these elements together help the user to understand the full value of the document, and the lack of any one element may lead to misinterpretation of the intended nature of the record by its creator. For example, where the document is part of a sequence of question and reply, or is one element which was used in a decision-making process documented by a final report, it forms part of a narrative. A greater insight into the workings of the whole process -

what occurred before and what information flows surrounded the creation of a record - can be gained by ‘reading’ the individual document in the light of this wider context. Similarly, the style and structure which the author used in writing the document will help to show the relative importance given to various points, and indicate the subtler shades of meaning attributed by the author.

Records demonstrate accountability

1.17 In a democratic society, government bodies are ultimately responsible to Parliament. Records are an indispensable element of that accountability - both internal and external (to Parliament, the courts and the general public). Records show whether the organisation, or responsible individuals within it, have met defined legal, organisational, social or moral obligations in specific cases. In all accountability forums, records are consulted as proof of activity by senior managers, auditors, concerned citizens or by anyone inquiring into a decision, a process or the performance of an organisation or an individual.

1.18 In order to demonstrate proof, records must have qualities of:

- authenticity (as an accurate account of an activity, transaction, or decision)
- integrity (an assurance that the data has not been changed subsequently)
- non-repudiation (preventing the originator from disowning the record)

1.19 Records are an essential element of good governance. They provide a sound basis for historical research and they help assure the accountability of government over time. By extending knowledge of past actions and decisions to inform future decision-making they provide a valuable repository of information for future administrations.

Records aid decision-making

1.20 Making use of these longer term qualities, records are able to provide a sound base for supporting policy analysis and decision-making, and records management can be one important strand in assisting this work. Records, in their role as evidence, can offer different qualities from those associated with information or raw data, but at the same time build on these to form a sound foundation for the development of argument and conclusion from solid evidence.

Component	Qualities
Data	Reliability, credibility, reproducibility
Information	Relevance, timeliness, fitness for purpose
Records	Evidential, admissibility, strength
Argument	Cogency, clarity, persuasiveness
Conclusions	Feasibility, acceptability

Records management, as the management of evidence, is based on relevant and reliable information, and can in turn sustain well-grounded and persuasive arguments which lead to cohesive and feasible policy conclusions. Records can extend knowledge of past actions to inform future decision-making. Electronic records are able to do this more effectively because the informational contents are more accessible than the paper equivalent, but only if they are managed as records.

What is different about electronic records?

1.21 While paper is still the most common storage method for records, usually within paper-based filing systems, electronic media are commonly used to create documents in the first place and increasingly to store them in the longer term. In the near future, electronic information will be likely to replace paper as the preferred means of conducting business transactions.

1.22 Well managed electronic records are a vital part of an organisation's information resources. As much as paper records, they enable an organisation to retain a corporate memory of its various activities, provide an auditable trail of transactions, demonstrate accountability for actions, and fulfil its obligations under the Public Records Acts.

1.23 Electronic records offer both a threat and an opportunity for organisations. The fragile nature of the electronic medium, and the dynamic way in which information technology is deployed, threaten the reliability and authenticity of the record if appropriate information management disciplines are not applied. At the same time, the flexibility of access, interactive search and retrieval, and co-ordination of content which can be applied to a whole collection of electronic records can unlock aspects and uses which are not feasible with the paper record.

1.24 The fundamental requirements of electronic transactions are no different in their basic nature from their paper counterparts: they need to be recorded, captured in a fixed form, maintained and made accessible as records. Electronic records must be able to offer the same degree of quality and reliability as evidence of business activity, the same level of accountability and the same historic resources, for the immediate and future needs of organisations, individuals and society. The role and purposes of record-keeping in the electronic and in the paper world are the same.

1.25 However, while the role and purpose remain the same, the nature and behaviour of electronic records is different from that of paper records.

1.26 Contextual and structural information is needed to make documents understandable and usable as records. Electronic documents lack the ‘built-in’ physical characteristics of conventional records that help to establish the relationship between a record and its functional and administrative context. The information contained in a paper record is represented externally as marks on a page, and requires no further technology (beyond an individual understanding of the language and notation used) to interpret it; and it will normally be collated with other paper records in a physical file or folder as a matter of course.

1.27 In contrast, the information within an electronic record is represented internally by an abstract machine-based code, and can only be rendered visible by a sophisticated technology which can read and interpret that code and display it in a human-readable form. Once the ability to read the code is lost, then the record becomes unusable, perhaps for ever. In addition, such electronic documents are often not stored in meaningful groupings which can show their context of use; rather, reliance is placed on search technologies to seek and retrieve relevant documents from a large amorphous collection, with no indication of the links or associations between individual documents.

1.28 An electronic record may also be multi-layered and multi-dimensional, so that it can be displayed in different ways for different purposes. A spreadsheet, for example, can be shown as a set of formulae and the initial data on which they work, or as the figures which result from the formula calculations; both these ‘views’ are relevant to an understanding of the full significance of the spreadsheet. The tables in a relational database can routinely be combined in many different ways to present different ‘user views’ of the same underlying data.

1.29 Records managers must ask: which of these ‘views’ need to be preserved to maintain a full understanding of the record and its context: the view as presented to the decision-maker on the screen, or the complete contents of the database which was available? How much of a website document should be preserved - the main text only, the text and any hypertext links, or these together with the text to which they link?

1.30 Successful management of electronic records, then, is dependent not only on a well-documented administrative context but also on information describing how the document is structured and used. This is best done at the time of creation of the electronic records and calls for the existence of, and

compliance with, good electronic record-keeping procedures in order to capture and maintain this information. Information about electronic records is as important to manage as the records themselves.

The challenge of electronic records management

1.31 Unfortunately, in today's office systems environment, information is often created, collected or received without being subject to the procedures or rules governing good record-keeping. For instance, e-mail messages and other electronic documents are often sent across a network without regard to rules for keeping and filing in records systems. Concerns have been raised that the increasing use of digital information and communications technology in government decision making and in the transactions that support government activities, results in electronic records that, though potentially important, are difficult to identify and track, that are not consistently filed and managed, and that cannot reliably demonstrate accountability.

1.32 With the rapid pace of change in technology, individual forms of electronic media are volatile and may quickly become inaccessible. At the same time the option of printing electronic records to paper and keeping in a conventional registry is becoming increasingly unreliable. As day-to-day working within the electronic environment becomes the norm, experience shows that the typical user will tend to forget to make a paper copy of electronic records. In any case, many emerging electronic record types cannot be fully represented on paper: a spreadsheet must be printed twice to preserve both data and formula; a hypertext document with many links (some perhaps to multimedia objects) can be printed only partially or with much difficulty; and a simulation model or a video extract cannot be printed at all.

1.33 There may also be problems in maintaining consistency within hybrid assemblies of paper and electronic records; there may be difficulties in maintaining links between electronic records of different types (for example, between an e-mail and an attached file to which the contents of the e-mail refer); and in maintaining a disciplined filing structure in a loose and diverse electronic environment.

1.34 The principal issues of electronic records management are the same as for conventional records: ensuring that information retains its integrity (that is, it is not altered without complete documentation of each change) and that its context can be clearly understood even after a long period of time since it was created. Although the ends are the same, however, the means by which they are reached in the electronic environment will be different; and many of these are not yet as well-understood as in the paper environment.

1.35 Good electronic record-keeping requires:

- a clear understanding of the nature of electronic records, and the electronic information which should be captured as records necessary to document the business process
- that the procedures that routinely involve the capture of these records are built-in to the electronic systems which produce the records
- electronic systems that are designed to manage reliable and authentic records, ensuring that the integrity of electronic records is securely maintained
- a strategy to ensure that electronic records will remain accessible and usable for as long as they are needed
- the ability to apply appropriate appraisal, scheduling and disposal procedures to managed electronic records
- a culture of best practice record-keeping among managers and end-users.

1.36 In order to deliver good electronic record-keeping, these requirements must be supported at three levels, which act to complement and reinforce each other:

- the organisational level, where the overall policy and strategy is set, and where an organisational culture of good record-keeping can be shaped
- the record management level, where electronic record management procedures are defined and built into the record lifecycle, and where the operational record-keeping environment is shaped
- at the IT systems level, where appropriate design models and approaches can be employed to build the systems that can support conscientious record-keeping.

1.37 In this document:

- section 2 deals with the development of policy and strategy for electronic records at the organisational level
- sections 3 and 4 deal with principles for the ordering and management of records
- section 5 deals with the design of IT-based systems to support electronic records management.

More detailed procedures for the management of electronic records throughout the lifecycle are dealt with in the second volume of this guidance.

2 : Electronic records in the organisation

2.1 This section deals with:

- the different needs which electronic records serve - for current information, for accountability, and as the historical record of government
- the development of policy and strategy to support an organisational culture of record-keeping
- the principles which should inform such a policy
- the need for corporate standards
- roles and responsibilities relating to electronic records.

2.2 Within departments electronic records pass through a lifecycle in a similar manner to paper records, serving different needs at different times. Since the electronic record is more closely dependent on physical form and technology, a more active management of the record is required to ensure continued meaningful access for the department through all stages of the cycle. Records are initially generated by current business activities and must be captured from within the operational process. They serve as a means of accountability and may need to be produced as legal documents; and so require to be stored securely to demonstrate authenticity. They need to be managed in terms of user access, and to have systematic disposal criteria applied to them. Finally, they may need to be retained over a long period by the organisation, or permanently within an appropriate archive, and will need to be competently preserved through a migration and transfer strategy.

2.3 Incorporating each of these aspects within an electronic records management strategy calls for a range of policy and process design decisions. These define the processes by which the record should be managed, identify roles and responsibilities within management processes, and shape the degree of rigour with which the management process is applied. People at all levels of the organisation will be involved in these records management processes to some degree, including the record creator, the business users and managers, and the information technology specialists, as well as the records and information managers. The department as a whole needs to have a clear understanding of its requirements, and be able to articulate these in ways that can be appreciated by the organisational culture.

2.4 Within the organisational context, electronic records support three broad types of need:

- as accessible records providing timely information for current operational needs
- as secure and legally admissible records providing accountability
- as historical records of past activity, providing a corporate memory.

Serving current operational needs

2.5 Much of the emphasis on the deployment of information and communication technology systems within departments is on serving the current information needs of the organisation, and with developing more efficient and effective ways of working for groups and individuals within an increasingly information-intensive environment. The specific needs of electronic records, rather than electronic information, are often less clearly and fully addressed within many projects. However procedures arising from the requirements of records management can often be desirable for the better management of information as well, serving both interests at the same time.

2.6 For example, while e-mail is a type of electronic record which is very often poorly managed, widespread and indiscriminate usage can also threaten the user with information overload and ineffective operation. A discipline which requires the sender to mark an e-mail message with a marker showing its nature - for example, decision required, informational, ephemeral - can not only help the receiver to manage her mailbox but also provide useful information for categorising and scheduling the messages in a record-keeping system.

2.7 Records, whether electronic or paper, are intended to capture and reflect the business processes, and are not collected as an end in themselves. Not all electronic documents which are created are appropriate to be filed as records: some are purely ephemeral or personal, some merely contain a re-iteration of information held elsewhere. There should be clear organisational principles which set out the business processes, activities and transactions to be documented, and which enable the identification of important documents that should be captured as records. Examples include making clear distinctions between:

- personal documents that are exclusively a resource for the individual
- workgroup documents that are exclusively a resource for the team or unit
- corporate documents that are a resource for the organisation as a whole.

and making unambiguous statements on which of these categories, in which

circumstances, should be captured and treated as formal records within the records management process.

2.8 A formal policy framework will help with the structuring and promotion of this discipline. In many emerging areas of electronic information, the detailed scope and format of particular information systems and the nature of the records which emerge from them are fast changing and dynamic. Decisions on documentation, extent and scale will have to be reviewed regularly and tested against the reality of operational use.

Serving organisational accountability

2.9 Unlike paper records, electronic records are susceptible to undetectable changes in content and format unless they are held securely and under defined and auditable procedures. To be acceptable as evidence, electronic records should be formally subject to well-defined and robust procedures which can be documented and to which adherence can be demonstrated. These procedures should be designed to ensure that electronic records are an authentic and accurate representation of the activity or transaction which took place and have been kept safe from alteration once declared as a record. Managers of electronic record-keeping systems will require a framework of procedures which will give confidence in the security of the storage and access management processes, and which maintain a substantive audit trail of their handling.

2.10 As far as possible, procedures should be adopted that conform to *BSi DISC PD 0008 - A Code of Practice for Legal Admissibility of Information Stored on Electronic Document Management Systems (edition 2)*. This is a British Standards Institute Code which seeks to define the current interpretation of best practice in systems planning and implementation, building a framework of operational procedures which can be shown to be followed. Adherence to the Code of Practice, while not in itself ensuring legal admissibility, is the most robust means of defending the integrity of an electronic record which is currently available. The PD0008 Code is intended to operate within the framework of *BSi 7799 1995: A Code of Practice for Information Security Management*.

2.11 The principles underlying these codes of practice are set out in a further BSI publication: *BSi DISC PD0010 - Principles of Good Practice for Information Management*. This identifies five principles which act as guiding statements of objective in developing and operating a high level of quality in management processes. The principles are:

- to recognise, understand and manage all types of information in the organisation

- to understand the legal issues and execute 'duty of care' responsibilities
- to identify and specify business processes and procedures
- to identify enabling technologies to support business processes and procedures
- to monitor and audit business processes and procedures.

Government's historical record

2.12 In the medium to longer view, electronic records will serve as a primary means for long-term accountability, initially within departments and, for those selected for permanent preservation, within the Public Record Office. In this perspective, electronic records will represent the accumulated corporate memory of the department from which they originated, detailing the evolution of policy development and lines of business over longer periods of time.

2.13 All electronic records fall under the requirements of the Public Records Acts, and must be managed with the same care and attention as their conventional equivalents in paper. Once selected, they will need to be migrated over time between computer platforms without effective loss of meaning or context of use, until their transfer into the care of the Public Record Office. The establishment of systematic schedules for retention and disposal will enable the department to control the costs of these obligations, and to maximise the benefits to themselves, by ensuring that only records worthy of keeping undergo this process.

2.14 The long term requirements, and the potential benefits, for electronic records need to be well understood throughout the organisation to ensure that a high level of quality is upheld at the time of creation and maintained through the lifecycle of the electronic record.

Ensuring completeness of the record

2.15 All three of these aspects depend upon a high level of reliability and quality in the records which are captured and maintained. An important aspect of the reliability of electronic information requires an assurance of completeness in the record. This can be seen to operate at two levels:

- ensuring that all elements which make up an individual record are present
- ensuring that the record is linked into the wider pattern of records, of which it is itself a part.

2.16 Firstly, an electronic record may consist of more than one physical part which together make up the full meaning of the complete record; without one of these parts, the contents of the record may be rendered ambiguous or misleading. For example, the full import of an e-mail message may only be

obvious in the context of an attached document; a text document may contain a dynamic link to a spreadsheet referring to and commenting upon its calculations. Both parts of the record need to be indelibly associated with each other in a record-keeping system, in order to retain the proper context.

2.17 Secondly, an individual record does not usually exist completely independently from other records; it is evidence of some activity which is itself a part of the wider pattern of business. For example, a reply needs to be read in the context of the originating letter; a summary of actions seen in the light of the initial brief. An understanding of the relationships with other records (potentially either paper or electronic), which make up a context for interpretation of the individual record, should be retained within the record-keeping system. This will involve using mechanisms which allow for the grouping of related records together, so that the overall narrative is not lost, and implies some form of structuring and organisation within an electronic record collection. While aiming to achieve the same ends as a conventional paper filing structure, in the electronic environment alternative mechanisms may be judged a more appropriate means.

Developing a culture of record keeping

2.18 To support organisational needs for records in all aspects, there needs to be a cross-organisational culture of record keeping, which ensures that the 'duty of care' is made explicit within the department, and that all those involved have a clear understanding and commitment to following their responsibilities in carrying out this duty.

2.19 Along with the advantages offered by greater flexibility and access to electronic information, the nature of modern information technology shifts the balance of responsibility for capturing, filing and effectively using electronic records towards the end user. This decentralising effect is inevitable and is one of the principal reasons for installation of the technology in the first place - allowing the desktop user to develop more innovative and efficient relationships with the corporate information resource. In the fully electronic environment, the records manager becomes less concerned with acting as intermediary between the creator/user and the record, and more with influencing the environment in which record handling occurs.

2.20 It needs to be clearly understood across the department that everyone is responsible in some way for records and that responsible behaviour is implanted throughout all relevant operational activities. Establishment of a defining framework of formal corporate policies on electronic records is one principal means of helping to achieve this goal.

Policy development

2.21 A corporate policy which sets out the generic principles that should apply to the overall management of electronic records across the organisation, and which has received formal approval at senior management level, will provide substantive backing and a solid platform for incorporating the general principles of electronic records management into day-to-day operations.

Corporate electronic records policy

2.22 Policies for electronic records management should aim to ensure that :

- the record is present
The organisation has the information that is needed to form a reconstruction of activities or transactions that have taken place.
- the record can be accessed
It is possible to locate and access the information, by use of appropriate software and hardware, and display it in a way consistent with initial use
- the record can be interpreted
It is possible to establish the context of the record: who created the document, during which business process, and how the record is related to other records
- the record can be trusted
The record reliably represents the information that was actually used in or created by the business process, and its integrity and authenticity can be demonstrated
- the record can be maintained through time
These qualities of accessibility, interpretation and trustworthiness can be maintained for as long as the record is needed, perhaps permanently, despite migration between hardware, digital media, or software formats.

2.23 The first three items are commonly found in a general organisational information policy, aiming to ensure that:

- the right information is captured, stored, retrieved and preserved according to needs
- it is fully exploited to meet current and future needs, and to support change and development
- it is accessible and meaningful, in the right format, to those who need to use it
- and that the appropriate technical, organisational and human resource elements exist to make this possible.

2.24 The remaining items (trustworthiness and permanence) carry special implications for records, and influence the way in which the first three can be implemented. In order to achieve these qualities for electronic records, formal policy statements (together with a commitment to those policies by the organisation) can offer the corporate authority and institutional guidance which records managers require.

2.25 In many organisations, developments in the application of information technology systems make the need for policy and ensuing procedures paramount; pressures arise from projects concerned with reviewing or re-engineering existing work systems to support new organisational structures and ways of doing business, demands for wider access to more information, and leverage of the ‘corporate memory’ as a knowledge asset. The onset of electronic records provides an opportunity to unlock the knowledge contained in corporate records, by providing more flexible ease of access.

2.26 There is a danger, however, that seeking to maximise corporate knowledge may actually result in a loss of corporate memory, in the trails providing evidence of action, and in the narrative context (as well as the ability to preserve all these through time) unless the appropriate information management infrastructure is in place. A policy which has been formulated by debate and discussion within the organisation, and which has been formally accepted, is one step in guarding against such dangers, by helping to ensure that electronic records can support the development of corporate information management whilst retaining the additional disciplines of records management.

Putting the electronic records policy into practice

2.27 A policy statement on electronic records establishes an authoritative statement on the generic principles which should apply to the management of electronic records, and outlines the framework within which the principles can be implemented, through application to specific situations. It should be a distillation of an ‘ideal’ position on electronic records management, to serve as a guide to action, and not a description of the current situation. Although the ideal position will always be tempered by the exigencies of the particular situation, it does provide a template which supports a high level of quality and consistency of application across the department.

2.28 The formal policy statement can be supported by an electronic records strategy, as a separate follow-on exercise. This will identify a future position which the strategy will aim to reach within a defined time period, appraise the current situation and the problematic issues in achieving this goal, and formulate steps or stages which map out a pathway to guide action. The strategy will indicate the appropriate timescales within which each identified stage should be achieved, and the means by which the progress of the strategy can be monitored.

2.29 The strategy should be supported by other documents, which spell out the implications of general policy in terms of practice in specific areas of activity,

for example :

- codes of practice, standards and statements of best practice
- procedures for electronic records management
- procedures and guidance for users in creating and capturing records
- system design criteria in developing record-keeping systems
- responsibilities in managing records for specific organisational roles.

Principles for an
electronic records policy

2.30 Some generic principles which the department or agency should consider in the process of developing a policy statement on electronic records are outlined below:

2.31 Electronic records are formal records and public records

Electronic records which are generated or received by a department or agency in the course of transacting government business are official records of the organisation, and provide evidence of business activities. They should meet the legal, operational and archival requirements of the organisation, support accountability, and they are subject to the same legislation as paper records. Electronic records are a public record under the terms of the Public Records Acts, and should be subject to the same disciplines in capture, management and disposition.

2.32 Electronic records are a corporate resource

Electronic records form part of the corporate memory of the organisation, and are a valuable corporate resource. From the point at which an electronic document is filed as a record, it takes on the character of corporate ownership. In order to maintain their specific value and qualities as formal records, electronic records need to be subject to more stringent information management disciplines; these tend to be more rigorous than are generally applied to other forms of electronic information. It is in the interest of everyone to maintain a high level of quality in this resource.

2.33 Electronic record-keeping should be integrated with processes

Facilities which support electronic record-keeping should be built into the information system applications and business tools that will be used to generate electronic records, to ensure that each of these is capable of capturing the records themselves and all necessary contextual information. In principle, all systems on which business is conducted in electronic form should be capable of documenting the conduct of that business effectively and efficiently; it should be easier to keep records than not.

2.34 Electronic records should be reliable, authentic and complete

Electronic records should be able to function as evidence of business activities and processes, with the same degree of confidence as paper records, through sound record-keeping practices.

In order to be reliable and authentic they must adequately capture and describe the actions they represent, and once created not be capable of change without creating a new record. This reliability should be demonstrated by compliance with audit controls and procedures. To be considered complete, the record should preserve not only content, but also the context in which it was created and used and its own internal structure and links to other records.

Record-keeping systems design should be careful not to compromise integrity, and should ensure authenticity over time.

2.35 Electronic records should be accessible

Electronic records offer greater flexibility, by opening up access to the contents of records, and by allowing multiple and simultaneous use. This can support sharing of information and the development of new organisational and work patterns to the benefit of the organisation as a whole.

Greater facility of access should not detract from their value as records, and needs to be provided in a manner consistent with other records management principles. Record-keeping systems should aim to provide appropriate access within and between business processes, and prevent unauthorised access.

2.36 Electronic records should be maintained as electronic records

Although in some cases electronic records may be printed to paper and kept on a paper file, this is likely to be a transitional stage or short-term tactic, and not a long term policy principle. Where transitional arrangements of this nature are in operation, detailed policies and procedures should clearly designate the record copy, paper or electronic, and the circumstances which allow for deletion of the originating copy.

In principle, however, a record is recorded information, whether recorded on paper or in digital form. Paper is a linear, static and externalised representation of the information in the record, where the marks on the page determine both content and structure and require no further technology to interpret them. Electronic information can take different representations when displayed by different media, and a paper print captures only one of those possible. Indeed some electronic information (multimedia, voice annotations, 3-D simulations)

cannot be represented in hard copy at all. To preserve both content and structure, the record must be preserved as an electronic record.

2.37 Electronic records are part of overall records management

Although the nature of the medium can influence the way in which we deal with records, making some aspects more achievable and requiring a stricter control in others, in principle electronic and paper records should be managed consistently and to the same high quality standards. The records management may allow for dispersed physical management, where electronic records reside on systems variously located in the organisation, but should aim to ensure corporate-wide intellectual control of all records and records procedures.

Electronic (and paper) records should, as far as possible, be organised in a way that is able to meet anticipated future business and archival needs, enabling related records to be reliably and consistently grouped regardless of media, and supporting an inventory of record collections as a locating device. Where they are part of shared business processes between departments and agencies, or are exchanged between departments in a networked system, clear and precise rules should allocate responsibility for capture, maintenance and transfer to one organisation or another.

2.38 Responsibility for capturing, maintaining and ensuring access to the electronic record rests with the organisation as a whole

The department has a 'duty of care' to ensure that all aspects of electronic records are properly managed. In practice, responsibility for the disciplined capture and maintenance of electronic records rests with a wide range of individuals and groups across the organisation. A policy should consider assigning areas of responsibility to nominated roles in the organisation; detailed procedures will devolve these down to named individuals.

Responsible groups are likely to include: records managers and information managers; information systems and information technology managers; business managers and process owners; end users. Areas of responsibility which might be considered for each group are suggested in the following section.

2.39 Procedures should be developed, implemented and validated to ensure that the policy requirements are being met

While a corporate policy aims to set out the broader principles which should be applied to electronic records, more detailed packages of specific policies and procedures will need to be developed in key areas. Therefore, a general policy

principle is that in specific areas, which inherit the spirit of corporate statements and express them in terms of a particular system or situation, more detailed procedures (practical implementations of policy) and responsibilities (accountability for the conduct of policy) will in turn need to be developed, to the extent that requirements are met.

2.40 Compliance of information systems with electronic records policies and procedures should be monitored and reviewed

The purpose of developing policies and procedures is to have a practical impact on the real world. To ensure that the outcomes of the policy development process are working and are effective, some means of measuring impact and compliance are necessary. Part of the policy development process is the derivation of performance measures, qualitative or quantitative, which can be applied to indicate the degree of compliance in existing records handling; and the ability to develop a remedial strategy where a gap is determined between policy and application.

Corporate standards for handling electronic records

2.41 Effective records management is one element within corporate information resources management, and should be co-ordinated with, and contribute to the development of, the corporate information strategy. The adoption of corporate procedures and standards is essential to ensure that effective records resource management is consistently provided for the organisation, in a systematic and sustainable manner.

2.42 Corporate standards should encompass and embody wider records management standards promulgated across government by the Public Record Office and other bodies, as well as national and international standards where they are relevant. These are likely to provide broad generic frameworks within which the detailed corporate rules and procedures which are essential components of electronic records management can be further developed and elaborated.

Corporate standards should aim to provide users with guidance which helps them to answer questions such as:

2.43 Which document types should become formal records?

The guidance should enable a distinction to be made between electronic documents which have not yet been declared as records, and electronic records to which the full procedures of records management should be applied. The guidance should ensure that the same criteria are applied across the department

in deciding which kinds of electronic documents are declared as records and placed in an electronic record-keeping system.

(See section 2.3 of the *Procedures* volume for more detail).

2.44 Which groups of people can carry out what actions on these records?

The guidance should ensure that consistent authentication and access management strategies are applied across the department. This will involve the identification of groups and the allocation of individuals to these groups; and the allocation of functions and activities - creating and filing records, accessing record types, scheduling record groups, deleting or transferring records - to each group.

(See section 3.2 of the *Procedures* volume for more detail).

2.45 Where are the records kept and in what ways are they structured and organised?

A corporate filing structure provides a foundation for structuring and organising collections of records in ways which support the business needs of the organisation. One option is to extend the paper registry referencing system to new electronic folders; but as electronic record-keeping becomes the norm, the use of paper file naming and numbering conventions may be seen as a constraint on the effective organisation of electronic folders. Nevertheless, the principles which inform current records management structures and which underlie the naming conventions in use should not be lightly disregarded; the principles should be borne in mind when designing new structures and conventions even though these may take a different surface form.

(See section 3.1 of the *Procedures* volume for more detail).

2.46 How are records disposed of?

Records management standards on retention and scheduling should apply to electronic records as much as to conventional records. Corporate guidance should aim to ensure that electronic records which possess the same functional and documentation characteristics across the organisation are retained for the same length of time, and are disposed of in the same way. Care should be taken to ensure that all copies of an electronic record are brought within this framework, including duplicate copies stored in different locations, and electronic records from which a paper filing copy has been taken.

(See section 4 of the *Procedures* volume for more detail).

Who is involved in developing a policy?

2.47 A corporate policy is aimed at the identification of general principles which can be applied to varying situations by taking different operational and technical forms, yet still achieve a common standard across the organisation. A

policy should not, though, be pitched so broadly that everyone can agree with it, but no-one feels the need to do anything about it - a balance is necessary between these two.

2.48 Without being prescriptive in terms of procedures, an electronic records policy should be formulated to put an emphasis on activities, and include basic monitoring mechanisms to see how well it performs. It should have the ability to change and develop as a result of feedback on implementation, and to remain consistent with changes in the organisational, legal and technical environment.

2.49 Most important of all, a corporate policy must be agreed to. Writing the words of a policy statement is much less difficult than the process of gaining agreement to them; without this, the policy intentions will be diluted or abandoned, and it will be more difficult to retrieve the situation - a policy which is ignored is worse than no policy at all. It is important, therefore, that the various stakeholders have an opportunity to contribute to and influence the discussions, that sponsorship from a senior management 'champion' is sought, and that once developed the policy is formally adopted and widely disseminated.

2.50 While a policy by itself does not solve all current problems, it provides a framework which can be applied in progressive stages to specific areas of electronic records activity in the department. This framework can guide newly developing information systems and records-creating processes at the same time as incrementally drawing current practice within its umbrella.

2.51 Business managers, Departmental Record Officers (DRO) and IT staff will need to work closely together, and to liaise closely with the Public Record Office on existing and planned electronic records initiatives. New ways of working highlight the importance of close collaboration between the DRO and those responsible for business and information system (IS) strategies and computer system provision. The requirements of, and implications for, electronic records management must be included in the IT and IS strategy planning process, and in information resources management and information systems development activities. The DRO should be notified of new IT system developments, and should especially be consulted during the planning and development of new systems that will contain records for eventual transfer to the PRO.

2.52 Everyone within an organisation is involved in electronic record-keeping, and is responsible within their own sphere of action for ensuring that evidence of business activity is created and recorded. Policies should encourage best practice in the generation and management of records by influencing end user information behaviour in the work environment to ensure that the most appropriate procedures are followed. Appropriate implementation measures might take the form of the development of a code of practice, backed up by a programme of training and user workshops.

Roles and responsibilities
for implementing policies

2.53 The four main groups who have some form of responsibility for the implementation of policy on electronic records are:

- records managers and information managers
- information systems and information technology managers
- business managers and process owners
- end users.

An indication of the scope of responsibilities for each of these groups is given below. Numbers in brackets refer to the relevant sections of the Procedures volume, where more detail can be found.

2.54 Records managers and Information managers

These are persons responsible for the management of information resources, and in particular for structuring the environment in which the proper capture, maintenance and disposition of records takes place.

Considerations for responsibilities in this group include:

- participation in the planning for information systems, and review of their implementation, to ensure that records management disciplines are maintained (3.5)
- maintenance of an inventory of electronic records assemblies, and an inventory of information systems which generate and store electronic records (4.1-4.2)
- ensuring appropriate filing, indexing and retrieval mechanisms exist (3.1)
- ensuring that electronic records are reliable and authentic and are preserved (until authorised destruction or transfer) and that these qualities can be demonstrated through appropriate audit mechanisms which document the record-keeping system activities (3.2, 5.1-5.5)
- co-ordination of procedures development for electronic records retention and disposition, and resolution of conflicting requirements (4.3-4.4)
- co-ordination of appraisal and review activities in conjunction with the Public Record Office (4.3)
- oversight of the transfer of selected records to the Public Record Office. (6)

2.55 *Information systems and Information technology managers*

This group comprises persons responsible for the design, building and maintenance of information systems in which electronic records are generated and used, and persons responsible for the technical operation of computer and communications systems.

Considerations for responsibility in this group include:

- maintenance of knowledge about the records systems functionality, technical operation and processing
- ensuring that new electronic records systems are designed to capture information about records to a level consistent with defined standards, and that this is maintained over time (2.3, 2.5)
- continuing physical management of the records according to their schedule for retention, and their continued migration through system changes (5)
- implementation of any technical records management controls on the exchange or sharing of information between departments across a network (3.3, 3.4)
- reliable physical transfer of electronic records to the Public Record Office, in accordance with defined standards (6.1, 6.5)
- deletion/destruction of electronic records which are no longer required for transfer or retention (4.4)
- notification to records managers when new systems, or enhancements to existing systems, are planned where these affect records creation, management access or retention. (3.5)

2.56 *Business managers and process owners*

This group comprises persons who manage the business processes or functions within which the records are created or received, and the primary unit requiring the records for their operations (and which determine the length of time the record is retained for operational or administrative purposes).

They are responsible for ensuring that:

- appropriate electronic records are made of administrative or policy-making activities (2.1-2.3)
- electronic records that are made adequately represent the activity (2.1-2.3)
- retention schedules are appropriately allocated by conferring with records managers (2.5-2.6, 4.3)
- changes in business processes and activities are reflected in the handling of electronic records. (3.5)

2.57 *End users*

This group comprises those, at all levels of the organisation, who generate and use records in their daily activities. While responsibilities of the first three groups are largely concerned with defining and providing the infrastructure and environment within which records operate, the end user group is the source of much of the material which constitutes the record. Since electronic records systems tend to devolve more control to end users at the time of record capture, sound advice and guidance to this group is critical for the maintenance of quality and accountability.

End users are responsible, in the course of their activities, for:

- identification of electronic documents which are appropriate for capture as electronic records, because of their business function or content (2.3, 2.4)
- creation of electronic records, including the capture of relevant contextual information and metadata describing the record, that are consistent and reliable (2.5)
- capture of electronic records which authentically document the activities in the course of which they were produced (2.3)
- initiating the filing of electronic records by the appropriate method (2.4, 3.1)
- appropriate use of existing records, and co-operation with any audit trail mechanism. (3.1, 3.2)

2.58 The policy should enable a clear distinction between personal documents which are held at a local level, and which have not yet become records, and formal records which are held in a corporate workspace. The policy should enable a clear definition of the transition points through which a personal document becomes a formal part of the record.

2.59 Volume two of this guidance deals with the development of procedures for:

- the appropriate creation and capture of electronic records
- managing these records in an accessible and reliable manner
- scheduling, selecting and disposing of electronic records
- preserving electronic records through their lifecycle in departments
- transferring electronic records to the Public Record Office.

3 : Record organisation and structure

3.1 This section deals with:

- The need for structure in the organisation and management of electronic records
- the classification of electronic records
- the role of records, files and metadata
- the difference between electronic documents and electronic records.

3.2 In a typical records management system which deals primarily with paper documents, a record has a clearly visible physical existence and is usually stored with other similar records in a folder or file. These folders or files are in turn ordered in a, usually hierarchical, logical structure which reflects the organisation or its business functions. This is a sound and robust method of organising paper records which has evolved over a long period, and which is efficient and effective within the technological constraints of paper record-keeping.

3.3 In the electronic environment, however, many of these constraints seem to disappear. Electronic documents can be indexed, sorted and retrieved according to many alternative arrangements, based on their contents or descriptions. They can be presented to the user in the way most appropriate for immediate needs, rather than being limited to the arrangement in which the records are stored. Many would argue that modern information technology does away with the need for pre-coordinated structures for filing and classifying, since electronic information is so versatile and dynamic in the ways it can be manipulated and presented.

3.4 Modern indexing and storage techniques and a versatile search engine acting upon electronic records can open up lines of access to content in ways not previously possible, through the use of sophisticated retrieval techniques that effectively meet many organisational needs for current information. This approach works best where a high level of precision is required in retrieval - where the user requires some very pertinent information but is not concerned with finding all the information which exists on the chosen topic, or is just looking for some initial clues. Since it has been estimated that managers spend, on average, between 5 and 8 hours per week simply looking for information (rather than using it), this approach offers attractive benefits to the extent that it can simplify and streamline this process. For electronic *records*, however, this is only half the picture - this approach emphasises the use of electronic documents

for current operational needs, but does not provide an adequate mechanism to support the use of records as a longer term corporate resource.

The need for structure

3.5 Electronic records serve purposes which are more than simply current information; and the record requires contextual information as well as content to be complete. A structured index is necessary to link records in the same sequence together - those which deal with the same individual or case, which address the same topic under various aspects, or which are one element within the development of a narrative. A pre-coordinated structure is necessary to allow decisions about filing and classification, most likely made by the end user at the time of creating the record, to be consistent and predictable.

3.6 The structure which is used need not necessarily be a hierarchical arrangement as is often used for paper records; another means, for example a thesaurus of concepts or functional terms, may be more appropriate. A consistent indexing structure allows for consistency in information access and retrieval: for example, by removing the need to anticipate and search on all keywords which may have been used by the record creators; and by minimising the occurrence of 'false drops' through inappropriate use of an ambiguous keyword which retrieves irrelevant records.

3.7 The need for flexibility, in any case, is based on an assumption that there is an implicit structure within the content of records, and that this can cleverly be made use of by retrieval software. The success of this approach, however, is highly dependent on the search criteria adopted by the user at the time of retrieval, and may require several iterations to produce an acceptable result. The pre-coordinated classification approach requires more effort at the time of record creation and storage, but less at the time of retrieval. The balance between the two approaches in any particular record-keeping system determines the balance of effort required from the desktop user at the time of creation/storage and at the time of retrieval.

3.8 Most users are accustomed to working with individual documents in contextual or thematic assemblies where the relationship of one document to another is clearly apparent. The paper convention is the registered file where documents are linked by string (the Treasury tag) and enclosed in a file cover which also displays some metadata to ease identification and access. Users need to be able to create and preserve an electronic equivalent of the Treasury tag which preserves the dependencies between documents and allows users of the data to examine the information in its full context.

Categorisation and classification of records

3.9 Categorising records into thematic assemblies by allocating to a named file group, by assigning an index term from a thesaurus, or by attributing to a specified functional record type are all forms of classification. Classification of records is needed in the electronic environment to:

- ensure a complete recall of all records which relate to a particular sequence, that is that all relevant information has been found rather than just a subset
- ensure that the records are presented in an order which shows the narrative development of the activity to which they relate, and in which they were available to the record creators and users
- provide an opportunity for co-ordinating the electronic classification of records with that used for paper records, so that hybrid electronic/paper record groupings can be identified
- ensure that a full record is kept for accountability purposes
- enable record groups or series to be appraised together in context, and selected records to be efficiently dealt with for permanent preservation in logical groups
- enable the systematic and consistent scheduling and disposal of records, so that all associated records are retained for the same length of time, and are destroyed or transferred together.

3.10 In addition, a classification structure has the advantages of :

- presenting a familiar face to the user, when filing or retrieving records, through a classification method which reflects the organisational or business structures, and which can be easily understood and navigated without special training or knowledge
- providing a controlled vocabulary mechanism that can be used in conjunction with free-text searching methods to enhance the quality of retrieval
- offering a means to present a large mass of records within logical categories and recognisable patterns which enable the user the more quickly to come to grips with the material, and to assimilate it into their working and thinking.

3.11 As is now recognised in many other fields, both pre-coordinated and free-text approaches are needed for the most effective retrieval of records. For example, many products now sold under the 'knowledge management' banner seek ways to integrate the context navigation of a directory with the content navigation of a search engine. It is useful to separate the most appropriate mechanisms for managing information access from the mechanisms necessary

for managing the record - that is, distinguishing the need for flexibility from the need for structure - when thinking about the design of a record-keeping system. Section 3.1 of the *Procedures* volume deals with organisation, access and retrieval mechanisms for electronic records systems.

Records, files and metadata

3.12 Frequently, different participants in discussions on ERM associate different meanings with one and the same term - for example, the terms record and file refer to different concepts for each of these two practitioner groups. It is important, therefore, that terminology is used carefully and with precision, and that all participants have a clear understanding of the way in which terms are used when discussing electronic records management in relation to new or existing information systems.

Record

3.13 In the records management sense a record is the result of an activity or transaction, and may result in more than one physical object; for example, a spreadsheet which is accompanied by a text commentary, or an e-mail message with several attachments. The record is made meaningful by the co-ordination of these parts, and will lose some of its sense with the loss of one or more of the objects of which it is constituted.

3.14 In the computer systems sense, a record refers to a tightly-bound grouping of data which describes a distinct entity, usually in a database or other structured system.

3.15 In this guidance, record is always used in the records management sense, unless otherwise specified. Section 2 of the *Procedures* volume deals with types and sources of records.

File

3.16 In the records management sense, a file (or folder) groups associated records in a logical structure that shows the position of one record in relation to others. A file will have an identifying title or label, and other characteristics, and will be part of a wider structure which reflects the business activities of the organisation. By means of the file/folder, a whole group of records can be managed together, and the same actions can be taken on all records in that group at the same time.

3.17 In the computer systems sense, a file refers to a discrete object which can be stored as a separate entity on disk storage; for example, a word processed document, a spreadsheet, an e-mail message. In this sense, it equates more closely to the idea of a part within a record in the records management sense.

3.18 In this guidance, file is always used in the records management sense, unless otherwise specified. Section 2 of the guidance in the *Procedures* volume deals further with files.

Metadata

3.19 The term metadata - meaning literally, data about data - refers in this document to information about individual records and the record assemblies in which they reside (for example, their context and relationships with other records). Although originating as a term used specifically in database management to refer to the contents of a data dictionary, the word is now used much more widely to refer to structured descriptive and cataloguing data which systematically identifies various attributes of a class of items. Metadata help to provide the navigational aids by which records are readily identified and accessed, and provide a basis for the continued understanding and interpretation of records over time. Permanent preservation of a record implies preservation of both the record content and its associated metadata.

3.20 In these guidelines the term metadata refers to the following areas:

- data contained within the document, or other electronic object, other than its intellectual content (for example, structure and layout); in many cases, much of this is implicit and tightly bound up with the document itself
- information about the record and its relationships with other records in the assembly: for example, title, originator, classification and indexing, distribution
- information about the use of the record: business activity, subsequent versions made, audit trail.

Sections 2.5 and 2.6 of the *Procedures* volume deal with record and file level metadata.

3.21 In the paper environment, metadata may be explicit - such as the title of a document, its date, originators, recipients, the location of the document - or implicit. Implicit metadata would include the use of bold or italic type in a document, or of distinctive coloured file covers and labels to indicate provenance and status, within which documents are placed in an order that allows users to see the relationships and dependencies between them. All of this information helps to clarify a document's status and purpose when it is comprehended by the users.

3.22 In the electronic environment, much of this implicit metadata needs to be made explicit if it is to be of use in interpreting the record. Metadata can be

drawn automatically from the originating application software, supplied interactively by the individual creating or using the record, or supplied by the record-keeping system. Metadata which is tightly bound with the record itself, such as information on layout and presentation of a textual document, must be preserved with the substantive content to prevent a significant loss of meaning. Metadata which is explicitly recorded, in a separate computer file or table, must retain an unambiguous link with the record to which it refers, that can be preserved as it is migrated between different platforms and systems.

Electronic documents and electronic records

3.23 An electronic record consists of two principal kinds of information: the record content and its internal structure, and the metadata which describes the record and all its constituent parts. This metadata can be used to describe and profile the electronic objects which make up the record itself, to give indexing information about the record, or to record a history of the context and use of the record.

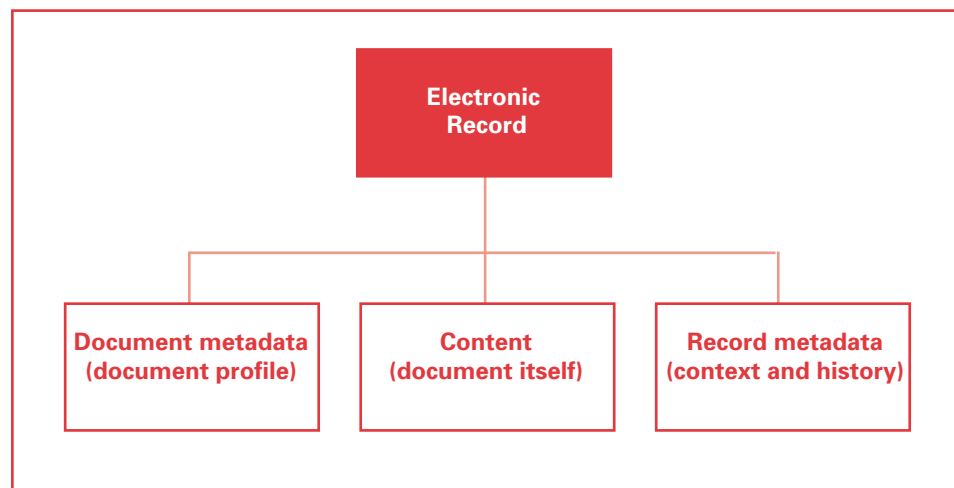


Figure 3.1: Main components of the electronic record

3.24 The record content can be managed at different levels of sophistication. Electronic document management tends to concentrate on management of the electronic object at the level of the physical item: for example, the e-mail message, the individual document or spreadsheet, the presentation or html page. Each of these documents, or electronic objects, will have a document profile which describes essential attributes that allow the document to be described, indexed, retrieved and understood as an item in its own right. At this level, controls can also be placed on the individual document to determine

access rights, to prevent changes being made, to track usage and to link versions.

3.25 An electronic record, however, may consist of more than one document or electronic object - for example, an e-mail message with attached text document, a dynamically interlinked text document and spreadsheet, an html page with multimedia elements. To ensure that the record is complete and properly understood, the interlinking between these elements needs to be retained in metadata and made available for use within the record-keeping system. In addition, the record level metadata will include information that describes or applies to the record as a whole, including its relationship to other records and the category or class to which it has been allocated. At this level, all the objects which constitute the record can be captured, managed, retrieved, and disposed of together as a unit.

3.26 A category of electronic records should be grouped together in a file (in the records management sense) within a classification scheme or corporate fileplan. Metadata at this level applies to the management of all records within this category as a single group. For example, this would include a retention period and scheduling information for this file of records to ensure systematic disposal, and information about the relationship with other categories in the filing scheme.

Classification/ fileplan	Structured scheme of categories in which files are grouped	<i>Records management</i>
Electronic file/folder	Collection/assembly of records plus file metadata	
Electronic record	One or more linked electronic objects plus record metadata	
Electronic object	Text document, e-mail message spreadsheet, plus object metadata	<i>Document management</i>

Figure 3.2: Layers of records management

3.27 Records management encompasses the primary aspects of electronic document management, but also requires these higher levels involving management of the electronic record, the electronic file/folder, and the overall fileplan/classification scheme. At the present time, it is likely that most departments are managing at the level of the individual document or electronic object. A major challenge for those involved with records management is to guide development of the infrastructure which will support management at the level of the electronic record and the record assembly, encompassing all stages of the record life cycle: capture and disposition, secure storage and access, appraisal and selection, preservation, transfer and disposal.

4 : Management of electronic records

4.1 This section deals briefly with:

- The records life cycle and the management processes which are applied to electronic records
- the secure capture of electronic records into a records management system
- the appraisal, scheduling and disposal of electronic records
- the preservation of electronic records, and the transfer of selected records to the Public Record Office.

Further guidance will be found in the *Procedures* volume, where all these aspects are discussed at length.

4.2 The strategic and business environment of the organisation provide the context for the development of record keeping requirements. The role and purpose of the organisation, its structure and regulatory framework and its main business activities are factors which will help to identify critical mandatory record-keeping and accountability requirements. The style and structure of the organisation, the management framework, and the degree of centralisation or decentralisation inform the role of records in supporting strategic objectives and obligations.

4.3 The responsibility for maintaining and managing electronic records must be placed with managers with appropriate expertise and authority who will ensure that electronic records of present and continuing value are actively managed during their operational lifetime in accordance with these guidelines. The DRO must make these managers aware of their responsibilities under the Public Records Acts by liaising with them on a regular basis to develop procedures which will ensure compliance with established departmental policy.

Records life cycle

4.4 Records, whether electronic or paper, pass through identifiable phases in their lifecycle from initial creation to final disposal. At each phase of the cycle, electronic records need to be actively managed according to established procedures, to ensure that they retain qualities of integrity, authenticity and reliability.

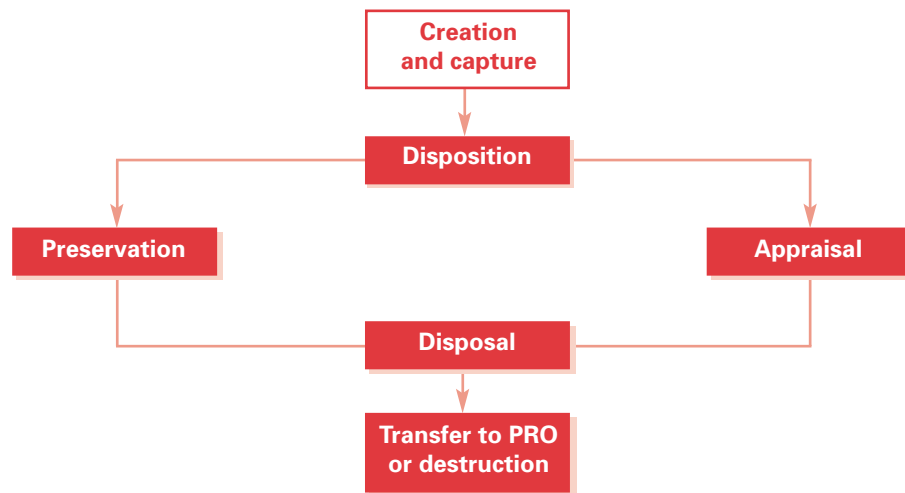


Figure 4.1: Phases in the process of managing electronic records

4.5 The main phases are:

- **capture** - the initial creation of a record, and its successful incorporation within an established record keeping system environment
- **disposition** - initial decisions made on the appropriate retention period for a record and its eventual fate when no longer active
- **appraisal** - the process of making decisions on initial disposition categories and final decisions on records disposal, whether for permanent preservation or destruction
- **preservation** - strategies and mechanisms for the migration of records between hardware and software platforms as technologies change and are updated for as long as the records as required
- **disposal** - the process of preparing records for transfer to the permanent archive (the Public Record Office, or other designated repository) for permanent preservation, or final deletion / destruction.

4.6 Through all these stages, records must be managed securely within a compliant environment to maintain their integrity, and in a manner which provides the most sophisticated access mechanisms available for operational use that is consistent with the stringencies of record keeping.

Capture into a secure record-keeping environment

4.7 Capturing the record within the electronic environment involves management of the interface between the record-keeping system and the applications, such as word processors or e-mail clients, which are used to create or receive records. Systematic capture requires both a technical interface and a

set of rules or procedures which govern its behaviour and successful application within the organisation.

4.8 The mechanisms for capture should ensure that:

- *appropriate records are captured.* There should be a clear understanding of the information which should be captured as a record, and the operational means of identifying and capturing this within the working environment
- *all types of record are captured.* Workable mechanisms should exist for all record-creating applications in use to enable the capture of records from that application according to approved formats and standards
- *complete records are captured.* Capture mechanisms should be capable of acquiring all the elements which make up a record, and associating these together in a meaningful and useful manner
- *metadata is captured,* and is associated with records from the time of its creation, and this descriptive metadata is closely bound with the record itself
- *links to other records are established* and maintained, within broader record assemblies, including mixed electronic and paper assemblies, and in other classification mechanisms if appropriate.

Appraisal and disposition of record assemblies

4.9 At the time of creating an electronic document, a decision will need to be taken on its disposition - that is, whether or not it merits the status of a record and how long it is likely to be of use to the organisation. Records disposal includes a range of processes associated with implementing appraisal decisions. This may be a provisional decision that is subsequently revised. It requires a review process which in turn will permit the ordered disposal of records. Appraisal is the process by which decisions on the retention, disposal or transfer of records are taken. The principles which are expressed in the Public Record Office Acquisition Policy should be applied equally to electronic records and to conventional paper records.

4.10 In conjunction with the Public Record Office, the DRO should identify categories of records:

- whose relative value to the organisation can be predicted before creation
- which will require retention for a specified period on legal grounds (for example, under health and safety legislation)
- which can be predicted to merit permanent preservation
- where a time- or event-based disposal can be predicted
- which will require a later judgement to confirm or change an initial disposition.

4.11 The record-keeping system should, ideally, enable the allocation of records to a pre-determined category by associating the individual record with a file or assembly. Where this is not yet possible, the record-keeping system should ensure that records are kept in an organised manner which can allow later appraisal processes and decisions to be carried out retrospectively.

4.12 Record assemblies which may merit permanent preservation should be identified either at creation or when it becomes apparent following a periodic review of the records and existing disposal decisions. Disposal includes the deletion or destruction of records from record-keeping systems, the migration or transmission of records between record-keeping systems, and the transfer of custody or ownership of records to an archive or repository for permanent preservation. Disposal actions (including destruction) should always be documented, preferably by the record-keeping system itself.

4.13 The DRO must ensure that the management of electronic records takes into account the requirements needed for their long-term preservation. Every organisation should already have in place many, if not all, of these measures as a feature of good working practice. The DRO should seek to clarify the practices adopted within their own organisation. Where these depart from the requirements described in PRO guidance, such discrepancies should be brought to the attention of the appropriate manager and to the PRO Client Manager.

4.14 Electronic records should be managed and operated on the principle that no physical file format is going to last for ever. Periodic migration to new software and, possibly, media will be necessary. Often, the selection and transfer of records of permanent value into the PRO should take place before this occurs. The PRO recommends that selection should take place much earlier than for paper records; however, it is clear that there will be cases where migration will be undertaken before it is either appropriate or practical to appraise the records stored on the old system.

4.15 Organisations will need to identify or develop standards for electronic record formats and for the transfer of records, including both preservation and presentation. Several constraints limit the selection of these formats:

- minimising the risk to both departments and the PRO of becoming locked into proprietary formats and applications
- the number of formats needs to be limited in order to minimise the number of migration paths to be managed by the PRO
- the selected transfer formats should require minimal enhancement to a department's normal IT applications

- the degree of intervention in the day-to-day running of a department's IT infrastructure should be kept to a minimum
- the selected formats should not preclude additions or changes in the future as different approaches become available.

Physical format types

4.16 Physical format types appropriate for the accessioning of assemblies of electronic records fall into three groups:

- transfer formats
- preservation formats
- presentation formats.

4.17 The transfer formats need to be comprehensive in that not only do they document content, but structure and context must be part of the archived record, and document, record and file level metadata is also preserved.

4.18 The preservation formats should maintain record assembly integrity and, as far as possible, stability. There should not be too many formats and they should be chosen according to, and managed in such a way as to inspire, confidence in their longevity. One important aspect of the preservation formats is that they should be capable of easy conversion into a presentation format.

4.19 The presentation formats should display the archived electronic records in a form that closely resembles their original appearance.

4.20 If electronic documents have been managed electronically, the metadata describing folder structures, contents and relationships between documents will also be stored in the electronic document management application. When the documents are to be transferred to the PRO, care will need to be taken so that the metadata and the links to the document are not broken.

5 : Design of electronic records management systems

5.1 This section deals with:

- Systems design issues in electronic records management
- the distinction between electronic document management systems and electronic records management systems
- systems design processes in relation to electronic records
- the role of the Departmental Record Officer in establishing electronic record issues on the design agenda
- a recommended design scenario for intergrating document and records management

Records and document management

5.2 Most organisations will require both Electronic Document Management (EDM) and Electronic Record Management (ERM). These are two closely related functions which, while they may be found in one integrated software package, support the management of electronic information in different but complementary ways.

Electronic document management

5.3 Electronic document management helps organisations to exploit their information more effectively by providing better access to stored information and by supporting teams working together with workflow software. EDM supports the immediate operational requirement for business information.

5.4 Typical requirements for electronic document management are:

- paper documents, or documents electronically transmitted from elsewhere
- storage and indexing at the document level
- search and retrieval at the document level
- access management and security control
- off-line archiving for semi-active or inactive documents
- version control
- audit trails on access and changes to the document
- document profiles (information about the document)
- integration with document image processing and workflow systems.

Electronic records management

5.5 Electronic records management provides a digital environment for capturing electronic documents and applying standard records management practices. ERM supports the medium to long term information management needs of the business. It manages a corporate filing structure, document classification within the filing structure and formal retention and disposition scheduling based on an approved disposition and review schedule.

5.6 Typical requirements for electronic records management, in addition to those already given for electronic document management, are to support:

- capturing, storing, indexing and retrieving all elements of the record as a complex unit, and for all types of record
- management of records within class categories or filing structures to maintain the narrative links between records
- record level metadata describing contextual information
- integration between electronic and paper records
- secure storage and management to ensure authenticity and accountability, including support for legal and regulatory requirements
- appraisal and selection of records for preservation and transfer to the keeping of the Public Record Office or other permanent archive
- systematic retention and disposition of records
- migration and export of records for permanent preservation.

5.7 While there is overlap between the characteristics of electronic documents and electronic records, the key difference is that electronic records are documents which have been captured into a corporate classification and filing system. An ERM system must preserve content, structure and context of the electronic records, and must ensure that records are 'registered' and that authentication procedures and audit trails are put in place. This will in turn permit these records to be used as legal evidence, improve corporate accountability and assist organisations in meeting the requirements of internal and external auditors.

5.8 Increasingly, electronic document management packages are extending their facilities into the area of electronic records management, often by incorporating independent specialist packages, and thereby offering an integrated system.

Designing electronic records management into systems

5.9 Often, electronic records management requirements are not sufficiently recognised in determining the functional requirements for a new or upgraded system, and have not been given a high enough priority in the design and development of information systems. It is important to ensure that in all new systems work, the ability to manage electronic records is a visible thread in the design, and that it permeates all aspects of the implementation. The point of new systems development is an opportunity to establish a platform for a high quality of electronic records management in the future, and to prevent many of the problems which can be seen in existing systems from developing in the first place.

5.10 The functional requirements necessary for managing and preserving records, once identified at an early stage, can be built into the design and implementation of electronic systems more easily, and less expensively, than later maintenance changes. Early evaluation of existing systems will also enable modifications to be suggested as part of a planned maintenance programme.

5.11 Where new systems, or modifications to existing systems, are planned there is an opportunity to influence the requirements specification and design in ways which enable effective records management to be undertaken in the future. There may also be opportunities for suggesting changes to existing business processes which will support the generation of adequate metadata and the effective handling and use of electronic records.

5.12 The Public Record Office is developing a set of standard functional requirements for electronic records management in UK government which, when available, can be used as a template for incorporation into new departmental information systems development work. It is intended that these standard requirements will also be tested against currently available software packages in the electronic document and records management application area.

Role of the Departmental
Records Officer in
system design

5.13 When an electronic records management, or electronic document management, application is being developed, the Departmental Record Officer (DRO) must check that it will deliver the functionality needed to support the electronic records management, and that it has sufficient flexibility to respond to changing business needs. The DRO has to liaise closely with the IT strategy planners and providers to ensure that the record management concerns are incorporated and safeguarded within all appropriate information and record-keeping systems. The DRO should also ensure that electronic record functionality is specified as a mandatory requirement in any formal requirement or tendering process, and should be involved with the design of electronic filing systems which will be used for structuring and organising electronic records.

5.14 The basic interests that the DRO has are:

- to ensure that procedures which support electronic records management will enable the department to follow best practice and to comply with the Public Record Office guidelines
- to facilitate the capture of all relevant material as records, and to influence the design of mechanisms for medium to long term storage, indexing, appraisal, scheduling and disposal

- to ensure that the access permissions given to the users and administrators do not cause conflict with records management procedures
- as far as possible, to ensure that selected records can be transferred to the PRO at some later date without loss of either content or metadata.

5.15 In the design of electronic records management applications the DRO must ensure that procedures are in place to preserve the interdependencies between the different records comprising the assembly. These interdependencies between records that make up a complete assembly are critical to the understanding of that assembly; otherwise, lack of a design structure is likely to resemble dropping all records into a ‘bucket’ with no linking or precedent information to help make sense of them, and relying on the efficiency of a search engine ‘scoop’ to retrieve all relevant material. The quality of metadata is central to the preservation of dependencies between individual records on a common or shared subject, permitting users to examine the contents in their full context and to follow the narrative flow.

5.16 Where possible, support for appraisal procedures should be embedded within a new system design, so that decisions on the appropriate categorisation of records, and the lifespan and eventual fate of each category can inform the design and implementation process. If this is done successfully, the user interface design can support the end user in making sensible decisions about the capture and filing of newly created records. It is important, however, to ensure that the record-keeping system supports, and does not hinder, business processes. Where the end user is required to supply information to the system (for example, document metadata), or to take a particular action, care should be taken to integrate the design of these features into the natural flow of work processes.

**System design
processes**

5.17 The systems development and records management processes for electronic records management is described briefly in the following sections and summarised in figure 6.3.

5.18 System design processes, including the development of strategies, should be instituted on an organisation-wide basis, aiming to maintain electronic record-keeping systems (in the broader sense of the term) which are:

- *systemic*, interlinking with comparable and compatible information systems within the wider corporate information landscape, in order to support the emergence of organisation-wide record-keeping systems as a valuable corporate resource

- *scalable*, so that the system can retain functional and operational quality as the extent, complexity and use of electronic records, and the associated processing and storage requirements, grows across the organisation
- *sustainable*, so that the record content, context and structure can be maintained over time in a consistent and predictable manner, despite changes in the specific technology used.

5.19 The stages of the systems development cycle are informed by the overall information system and information technology strategies which incorporate plans for information systems and supporting technologies, together with policies for implementation. With the increasing importance of electronic records to business operations, an electronic records management strategy should be developed and integrated with the existing IS and IT strategies.

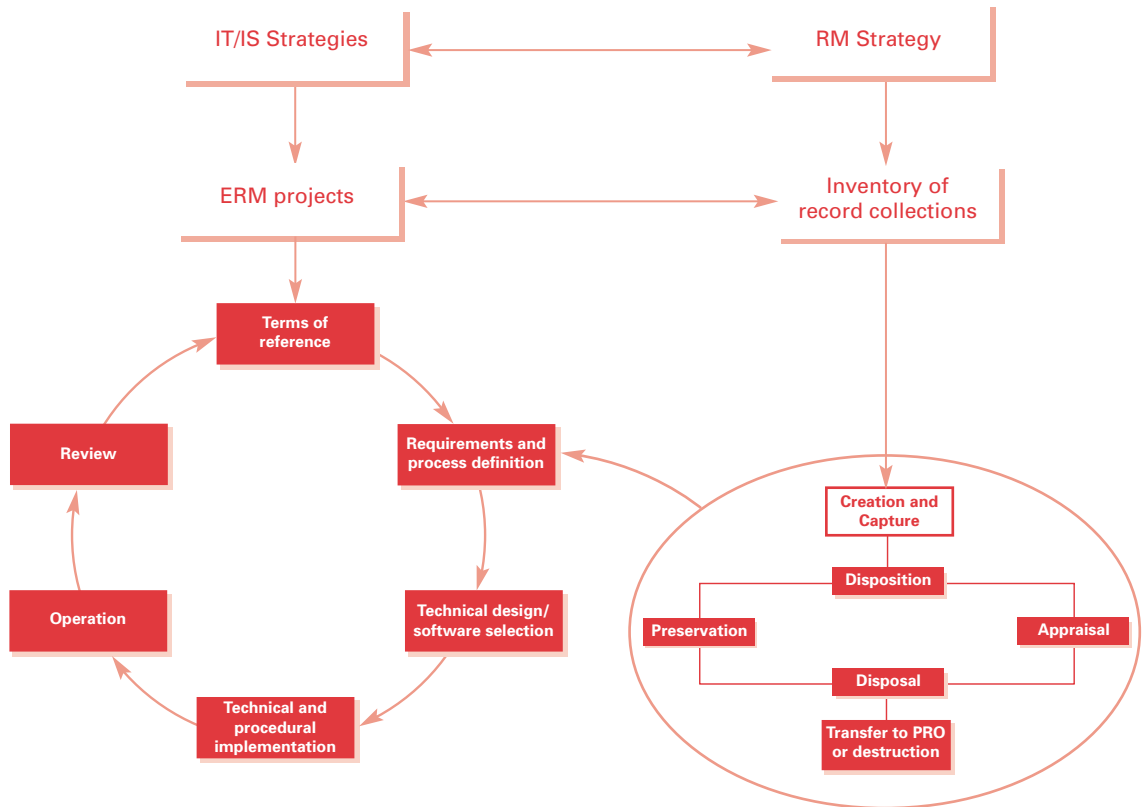


Figure 5.1: Systems development and records management processes

5.20 The systems development stages cover:

- terms of reference for the system, which should include considerations of electronic records management

- business and functional requirements and a process definition
- technical strategy and detailed logical design
- selection/development of software and operational procedures
- operationalisation of implementation, including planning of system rollout, user awareness and education, and implications for work patterns and cultural change
- review of all the aspects of the cycle, and feedback to the definition of requirements in the next cycle of development.

A design scenario for integrated EDM and ERM

5.21 In this scenario electronic document management (EDM) is integrated with electronic records management (ERM). ERM provides full records management functionality including records review, file plan structure, classification and maintenance and monitoring tools. Record-keeping and accountability are built into the business processes and electronic work environment, thereby ensuring that records are available, understandable and usable.

5.22 Electronic records management is beginning to establish itself as organisations realise the need to extend sound records management to electronic records. When used in conjunction with EDM and workflow facilities, the record management aspects are automated and the records manager has a comprehensive suite of tools to organise, monitor and control the information management process. In this approach as much as possible of the record-keeping operations are automated; for example workflow can incorporate routing procedures and system-based routines can generate much of the record profile information needed.

Facilities for users

5.23 Depending on their role, each user has access to a range of activities which are supported by various system facilities. In each activity a number of document types and functions are available to trigger the initiation of specific tasks (for example, a document type to produce a memorandum, or a function to receive a document). This approach means that the application has sufficient knowledge of the task being carried out, and the person undertaking it, to enable the document profile to be completed largely automatically.

Facilities for records

5.24 Facilities for the life cycle management of information are included in the system based on business and operational rules and criteria agreed across the organisation, to ensure a consistent approach to the identification, description, classification and organisation of the records. Search engines and other mechanisms provide the benefit of access to all records for all users (limited

where necessary for confidentiality or security classification), including version control of documents and records.

5.25 Automatic generation and completion of a profile for every document/record is stored within the corporate information structure. This will hold additional contextual information which groups or associates records into logical assemblies, and ensures that they can be completely retrieved and managed in these assemblies. The profiles are updated to reflect the disposition of the document and may be retained after the corresponding record is no longer required and has been destroyed.

5.26 A standard classification scheme is used to assign a term from within the corporate file plan/thesaurus which matches the subject or function of the record. Individual electronic records are then tagged with others of the same category to form an assembly or 'file' within the corporate filing structure. Where appropriate, this scheme should be linked with the file system for paper records to ensure that all documents of both media are managed against the same retention and disposition procedures, and that all holdings of any given subject can be accounted for.

5.27 Automatic disposition, security downgrades and updating of essential records are conducted on pre-determined periods of time and pre-approved actions, with notification/confirmation to user, and an override capability.

5.28 The major paper management features offered are:

- folder tracking, labelling, destruction/transfer
- location records for paper files packed in boxes
- recording issue and return of files
- bar coding of file covers for inventory.

5.29 The organisation gains the following benefits from this design approach:

- improved protection against future litigation as the evidential worth of the records is enhanced by a consistent and documented management process
- corporate accountability is protected as relevant records can be readily identified along with appropriate audit trails
- improved information retrieval as users can find a much wider and more varied range of information than is possible using a paper based system
- related information held in electronic and paper form can be identified and accounted

Benefits from this design approach

- a richer and more accessible repository of information as a corporate-wide resource
- archival benefits through long-term access to corporate information.

5.30 The main difficulties in this approach are in the definition of user activities and record structures. The structured filing system is the foundation upon which the corporate records management programme is based. This corporate filing system can never be static; it has to evolve and adapt as the organisation changes. While with paper-based records a response to large scale re-organisations is a laborious and time-consuming process, electronic records management will make large-scale structural changes easier to implement. However, success still depends on a thorough and rigorous definition of the user requirement.

5.31 There is no one package or supplier for all of these features, and a specification will have to ensure that all the features selected to work in this environment are capable of full integration. Successful implementation may often depend on the quality of the systems integrator employed to deliver the service.

Quality assurance

5.32 In the electronic environment a much greater degree of control and flexibility in operation is ceded to the end user, and effective records management relies upon a careful design of the environment within which the end user operates (a primary reason for the DRO to be involved in the initial design process). To evaluate the application of corporate policy and procedures, and the degree of compliance amongst the end-user community, a continuous programme of inspection and quality monitoring is required.

5.33 In particular the records manager must support and facilitate the following quality assurance processes:

- monitoring of the volume of records filed on to the corporate system - this must be done to identify who is filing records and who is not, in order to identify and demonstrate non-compliance
- monitoring of the accuracy of the classification of record profiles - by spot checks the records manager can identify those users requiring assistance in order to improve the quality and accuracy of the metadata
- monitoring of the application of the automated retention and disposition features to ensure they are being applied correctly at the local level.

5.34 This integrated approach provides the tools to manage electronic records actively, ensuring that statutory, corporate and research requirements are met. This type of approach is being adopted by the Australian, Canadian and United States governments for the management of their records, and national and international standards for electronic record management are under development. In terms of ensuring compliance to UK public records legislation this approach will be effective in meeting the core requirements. It offers enhanced functionality to the business while delivering highly capable records management.

Annex

A : Strategies for developing electronic records management

A.1 This section is intended to demonstrate examples of how policy issues relating to electronic records can be developed into more concrete statements, that should be widely broadcast in the organisation and incorporated into more detailed procedures and operational plans. It is also contained in the second volume of guidance on electronic records *Procedures*, which amplifies these statements in more detail through the record lifecycle.

A.2 Each of these areas first states the underlying general principles and follows with the specific strategies to put them into practice. Making such strategies explicit is a useful guide to action for those who are faced with developing and building on electronic records initiatives in a particular departmental context. They can be cascaded down into more specific operational situations by developing a more finely-grained focus and detailed procedural guidance. This top-down approach will be helpful in encouraging equivalent broad outcomes for records management even though the means of achieving these will vary according to the demands of the particular situation.

Creating and capturing electronic records

Principles

A.3 For each business process, it must be possible to capture the records that provide evidence of the business activities emerging from that process, where this is conducted by electronic means.

A.4 Records which are captured should be authentic and complete representations of the business activity from which they are derived, and should retain their context of use.

A.5 Record capture mechanisms should capture all necessary metadata needed to access and manage the electronic record throughout the full lifecycle.

A.6 For each record-producing system, responsibility for ensuring record-keeping requirements are met should lie with nominated individuals, and overall with the organisation as a whole.

Strategies

A.7 The boundaries of business processes and systems, and the legal and other requirements that affect them, should be well defined and understood to enable the capture of electronic records of the resulting transactions.

A.8 Each business process should be assessed to determine and articulate the record-keeping requirements and records management practices which should be applied to them.

A.9 The limits of corporate, workgroup and individual workspaces, and the rules which apply to documents and records which cross the boundaries between these workspaces, should also be defined.

A.10 Record-keeping requirements should specify which electronic records types should be captured and maintained in electronic format as the primary record, which should be converted to a non-electronic format, apply this consistently across the organisation, and develop mechanisms for assessing compliance.

A.11 Record-keeping requirements should articulate all metadata elements which are necessary for the management of each electronic record type; record-generating information systems should provide the facilities necessary to support capture of this metadata, and its retention with the associated record.

A.12 Users of electronic records management systems should be made aware of their roles and responsibilities, and end user policies and guidelines should be described in appropriate detail and widely disseminated.

**Maintaining and
managing electronic
records**

Principles

A.13 Record keeping systems should be designed to meet the needs of all stakeholders and necessary system functions, where appropriate including electronic document and image management, electronic records management, and workflow systems, without compromising the integrity of the record.

A.14 Records managers should make comprehensive efforts to become aware of, and make accessible, all electronic records across the organisation, and to support corporate information and knowledge management and new ways of working while ensuring adherence to record-keeping requirements.

A.15 Electronic record-keeping systems should be designed to manage the content, context and structure of records as a whole and to ensure that records kept remain reliable and authentic.

A.16 Where they are designated as the primary record, electronic records must be maintained in accessible electronic form.

A.17 Record-keeping systems should aim to ensure that all records which should be kept are retained, and that all records which should not be kept are destroyed.

Strategies

A.18 Record-keeping requirements which an electronic records management system must satisfy should be identified and described, including operational needs from the business domain, accountability requirements, and wider responsibilities to society and the cultural domain.

A.19 Record-keeping requirements, which may be satisfied by dedicated electronic records management software systems or by designing and implementing record-keeping functionality into systems not primarily designed for that purpose, should be consistently implemented across the organisation.

A.20 Record-keeping systems should provide an auditing mechanism to quality assure implementation of record keeping requirements.

A.21 Electronic records management systems should provide a mechanism which allows authorised users to discover which records are available for use, and which tracks use of these records to ensure authenticity.

A.22 In enabling access, electronic records management systems should be capable of controlling user access to categories of records, by allocating allowable actions and access rights to an individual user or a user group.

A.23 Appraisal should be undertaken during system design if feasible, based on analysis of business processes, or as early as possible in the life of existing records, to mitigate the need for unnecessary continual migration of records and to safeguard continued maintenance.

Preserving accurate and accessible electronic records

Principles

A.24 Electronic records must be maintained to ensure that the content, context and structure is accessible, comprehensible and managed for as long as recordkeeping requirements determine.

A.25 Electronic records must be maintained for as long as recordkeeping

requirements determine, without loss of information, and must be disposed or transferred as appropriate.

A.26 The organisation should provide appropriate electronic access to records irrespective of their location, both within and beyond the boundaries of the organisation.

A.27 The organisation should protect its electronic records from inappropriate access.

Strategies

A.28 The records management function should establish standards and procedures to ensure the integrity of its electronic records over time.

A.29 Electronic records of continuing value should be migrated through successive upgrades of hardware and software in such a way as to retain the context, content and structure and the integrity of the electronic records created in earlier systems, utilising relevant technological standards.

A.30 Recordkeeping systems should identify, capture, maintain and migrate the metadata required for electronic records and the systems that create them, including contextual information about the records and the activities that they document, in conjunction with the records themselves.

A.31 The connection between the records and the metadata should be should be maintained for as long as the records exist, across successive migrations to upgraded hardware and software systems.

A.32 Recordkeeping systems should enable the export of electronic records, without loss of content, context and structure, for transfer to permanent preservation according to national standards and guidelines.

