

MANAGING PUBLIC  
SECTOR RECORDS

A Training Programme

Managing  
Public Sector Records:  
Case Studies - Volume 1



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INTERNATIONAL  
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INTERNATIONAL RECORDS  
MANAGEMENT TRUST

MANAGING  
PUBLIC SECTOR RECORDS:  
CASE STUDIES  
VOLUME 1, CASES 1-12

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MANAGING PUBLIC SECTOR RECORDS

A STUDY PROGRAMME

General Editor, Michael Roper; Managing Editor, Laura Millar

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PUBLIC SECTOR RECORDS:  
CASE STUDIES  
Volume 1, Cases 1-12

## MANAGING PUBLIC SECTOR RECORDS: A STUDY PROGRAMME

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Managing Public Sector Records: Case Studies - Volume 1, Cases 1-12

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Organisation of American States

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United Nations Development Program

**Managing Public Sector Records: Case Studies**

**Volume 1, Cases 1-12**

**Compiled and edited by Ann Pederson, Dawn Routledge and Anne Thurston.**



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# **INTRODUCTION TO *MANAGING PUBLIC SECTOR RECORDS: CASE STUDIES***

*Managing Public Sector Records: Case Studies* supplements the modules in the MPSR Study Programme by illustrating key issues of theory and practice through real-life examples from around the world. A total of 34 case studies have been developed, illustrating situations in such countries as Australia, Canada, Fiji, Ghana, Jamaica, Malaysia and the United Kingdom. The case studies are designed to relate directly to specific modules, so that they may be easily used as supplementary teaching materials. The complete list of cases is included with this introduction, along with an indication of the one or two modules the compilers felt could be most closely linked with the cases. Users are encouraged not to limit their use of the cases, however, and to seek creative ways to take advantage of the valuable information presented.

These case studies are presented as they have been prepared by the authors; aside from minor editing for production purposes, the language, style and content have not been altered. Thus, for example, some cases might refer to 'archival institutions', others to 'Archives', and still others to 'the Archive'. Some include teaching notes; others do not. Some have extensive appendices and others are quite brief. The compilers of these cases believe that it is essential to retain the variety of terms used and ideas presented in order to reflect accurately the diversity of approach in records and archives management around the world.

Users of these cases are strongly encouraged to recognise the regional approach found in each case and to adapt the studies to their own regional or institutional needs.

*For more information on writing and using case studies, see Writing Case Studies: A Manual, included with this study programme.*

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# Appraisal of Common Administrative Records of the HR Management Function of the Government of Canada

Candace Loewen<sup>1</sup>

## Introduction<sup>2</sup>

All levels of government and other large institutions are consumed with administrative functions and with the need to deal with the vast quantity of ephemeral records that are created as these functions are carried out. Most administrative records are characterised by their commonality across all structures or entities within a government or other organisation. Governments have traditionally developed general records authorities to dispose of these common administrative records; for various reasons, these authorities have been based on subject matter (such as lands and properties or human resources management), or on the type of record (policy or routine, for example). In some countries administrative records are managed by medium (such as routine federal electronic records in the United States).

In Canada, the General Records Disposal Schedules (GRDS) remained virtually unchanged from one issuance to the next throughout the twentieth century (1936, 1963, 1968, 1978, 1986). However, consultations with both records managers and archivists in the 1990s showed that vague archival decisions, expressed as ‘consult the National Archives,’ were causing problems. This lack of clarity compounded by the fact that records managers now also had to deal with electronic records representing the same administrative functions. Could they use the same textual records schedules

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<sup>1</sup> Candace Loewen has been working with federal government records since joining the National Archives of Canada in 1986; presently she is a Senior Project Officer in the Government Archives and Records Disposition Division. She serves on the Publications Committee of the Association of Canadian Archivists (ACA), was a founding member and has been Chair of the Special Interest Section on Electronic Records of the ACA and is the Canadian representative on the 1999 Program Committee of the Society of American Archivists (SAA) annual conference. She was Book Review Editor of *Archivaria* from 1988 to 1993. She has published articles in many different journals, notably *Archivaria*, as well as in two books, *Thérèse Casgrain: une femme tenace et engagée* (1993) and *A Century Stronger* (forthcoming 2000).

<sup>2</sup> The revision of the GRDS over the years has involved a number of people at the National Archives of Canada, some of whom are acknowledged here for their input into the archival appraisal of Schedule 5 (Personnel or Human Resources Management): Brian Beaven, Robert McIntosh, Ellen Scheinberg, Paul Sabourin, John Matthews, Laura Simmermon, Sheila Powell, Nancy McMahon and Terry Cook. This case study is based on and borrows from the following internal document: Candace Loewen (principal author), ‘Archival Appraisal Report on Common Administrative Records Associated with the Human Resources Management Function of the Government of Canada’ (25 March 1997). The opinions in this current case study are not necessarily those of my employer, the National Archives of Canada. Please note that this case study does not cover the personnel or employee case file.

for the new medium? How could they apply these vague directions in an appropriate fashion?

Other problems with the GRDS included confusion in presentation. The schedules seem to mix disparate entities. For example, Schedule 5, which manages the disposal of common administrative personnel or human resources management records, does not provide sufficiently accurate information. Schedule 5, like all GRDS, is organised into four columns with the following headings: *subject*, *subject group*, *description*, and *retention period and remarks*. One problem is that similar types of description appear in several columns. For example, a mixture of subjects might appear, some of which are actually functions (eg staffing) while others are types of records (eg surveys, systems, and studies). Still other categories might be neither function nor record (eg sports and recreation), and a few seem to defy categorisation at all (eg accreditations and credentials).

An archival team from the National Archives of Canada (NA) was charged with the task of reviewing the records disposal schedule. This team, responsible for appraising kilometres of common administrative human resources records, had to find a way to address the key problems in the original disposal document. No record explaining GRDS appraisal decisions existed. While the team had to assume that the reasons for recommending destruction in the GRDS meant that a better record for a particular programme or activity was being preserved at a central agency, they wondered how accurate that assumption now was in the wake of government reorganisations and major cutbacks to all departments in recent years.

The team was sure that the general type of records generated by the human resources management function had not changed significantly over the years. The functional areas that generated the most records ten years ago -- staff relations, compensation and benefits and staffing -- had remained virtually unchanged as far as the subject of activities and records go, including the central agency policy records and the departmental common administrative records representing those sub-functions.

But what about the implementation of legislation, such as the *Public Service Reform Act* in 1992, and new policies and directives since 1986 on employment equity, smoking in the work place, work place day care, AIDS and work force adjustment (dealing with downsizing the work force)? New policies about these issues reflected the changing human resources concerns of the government in an evolving society. Was the National Archives losing significant records as the result of a dated disposal authority? Most important, what appraisal approach could the NA use that would be sound, result in an enduring authority, and not obligate the institution to spend years analysing the actual records, which would be an impossible task?

## **A Macro-appraisal Approach**

Since 1991, federal government records disposition at the National Archives of Canada has followed a top-down macro-appraisal approach. This approach means that records of the highest level in institutions are evaluated first. Further, the approach suggests that decisions about which records to keep and which to destroy are best made upon the first evaluation. Postponing a decision by bringing records



into the Archives on 'selective retention' is discouraged. As a result of the macro-appraisal approach, an impressive amount of important records have been protected.

The methodology used to pinpoint the records of archival value is called *functional analysis*. Functional analysis, which focuses first on functions and activities and not on the record *per se*, is increasingly used to deal with the mass of documentation characteristic of governments as the twentieth century draws to a close. Beyond the records of a particular institution, functional analysis is used to analyse records that are generic or common in character. In other words, the top-down approach is complemented by an across-the-board approach to similar records found across many institutions. Such generic records may be common in the function they represent (such as human resources management or scientific research), the medium of record (such as posters or electronic imaging systems) or the office they represent (such as the minister or deputy head).

The archival team charged with appraising the administrative human resources records wanted a disposal authority with the following characteristics:

- It would be applicable into the next century
- It would be usable across more than 100 institutions coming under the National Archives of Canada Act
- It would more closely represent the actual business of government and not necessarily traditional file classification systems or previous authorities
- It would present clear keep/destroy decisions (not recommendations to 'consult Archives')
- It would be a model for future common administrative records appraisals and authorities.
- Functional analysis became the tool used to tackle this macro-appraisal project.

## **Functional Analysis**

The reasons for employing a top-down functional analysis to describe and appraise the sub-functions, programmes, activities and common administrative records of the human resources management function may be summarised. The information universe in the area of human resources is unusually large; the only feasible way to undertake archival appraisal was to analyse the designated functions, their supporting legislation and related programmes and activities. Only in selected instances would the actual records be consulted.

One of the reasons to follow a functional approach is to ensure the records disposition authority remains applicable and stable over time. Because government structures change regularly, the function an agency undertakes is the more stable entity, not the structure within which it works. The government trend is to assign responsibilities and allot monies based on functions, which are in turn based on mandates and legislation. Departments are increasingly familiar with this functional approach. The

nature and importance of the function had to be analysed not only to understand the continuing value of the records created but also to provide evidence of the function. The authority had to be relevant to most government institutions; thus the authority required broadly applicable terms and conditions based on a functional schema.

The appraisal team were convinced that functional analysis would work for their appraisal project. The next question was how to determine the sub-functions, programmes and activities of the human resources management function. What sources could the team base its analysis on? How could they be sure of the credibility of these sources? The team was fortunate to have access to appraisals that had been completed since 1991, using functional analysis, of particular components of the human resources management function. These completed archival appraisal reports formed a major part of the background research.

In addition, the team reviewed broad legislation underpinning the human resources management sub-functions. They also reviewed the detailed policies, guidelines and directives as well as the programmes and activities that flow from the legislation. They consulted reports on the breakdown of the human resources management function and queried the Internet to examine how other public archives disposed of their governments' common administrative personnel records.

Meetings with officials from over ten individual institutions supported the initial analysis. While the team used its research results to establish its hypothesis, it confirmed these initial findings through meetings with subject matter experts (Advisory Group) and with departmental records managers (Departmental Group) midway through the project. These meetings also brought forward new issues that had to be investigated and addressed. After the background research and meetings were concluded, the team reviewed representative records across several different departments; this review confirmed the team's hypothesis.

Even though functional analysis proved to be the best and only way to tackle this massive appraisal project, it was not perfect. For example, the team found that its approach would not guarantee the preservation of every single archival record. They were particularly concerned about the enduring record of *process*, and they also wondered if undue emphasis on *function* would obfuscate another important factor in records creation, the *structure* of the records. Also, how would the NA deal with those institutions that are not formally mandated as responsible for human resources management sub-functions, and thus are not the locus of the archival record, but which nonetheless have particular mandates and related human resources needs, resulting in uncommon administrative human resources management records?

## **Developing a Records Management Submission**

Part of the task was to develop a records submission for the human resources management function. The team had to provide a description of the records universe they were evaluating. A breakdown of sub-functions, programmes, activities and types of records in question was necessary to provide an understanding of the processes departments and central agencies follow as they carry out the policy requirements for human resources management. Such a records submission outlined

these records; it also helped to test and then confirm the hypothesis by forcing the team to consider in detail all the activities involved and make archival decisions for all levels of all sub-functions without looking at all the records. After review of a wide variety of documents and related information, including laws and central agency policy documents, the team determined that there are eleven sub-functions of the human resources management function. These include staffing, training and development, performance assessment, occupational safety and health, staff relations, compensation and benefits, human resource planning and utilisation, special programmes, classification, official languages, and employment equity.

### **Establishing an Hypothesis**

Based on its knowledge about the human resources records preserved as operational records and held at the main central agency responsible for the human resources management function, the team developed the following hypothesis:

By virtue of the central co-ordination of the human resources management function through government-wide mandates to specialised central agencies; by virtue of the growing level of accountability structure built into modern government; and by virtue of the increasingly common nature of the human resources administrative record across all types of institutions, the archival record of the human resources management function is preserved in selected portions of the central agency record, principally but not exclusively from the Treasury Board. This core central agency record comprises the best of the human resources record, from both the policy and delivery streams, as well as enough of the human resources record for archival accountability. Thus, we do not recommend the preservation of other departmental common administrative human resources records in any medium, including those in electronic information systems, and none from regional or district offices.

### **Verification of the Hypothesis**

Having identified the human resources records universe (submission) and confirmed the breakdown of the human resources management function into sub-functions, programmes and activities, the team set about to verify its hypothesis. This was done in two stages: first by analysing the central function and then by analysing selected records and processes.

## **Analysis of the Central Function**

The team began by analysing the function itself and the administration of that function over time. Their analysis involved background research into the historical context of human resources management, review of human resources legislation, analysis of central agencies with human resources mandates and consideration of the evolution of human resources administration since 1966. One of the graphic results of this background analysis was a rather simple chart that aligned each sub-function

(such as staff relations) with its supporting legislation (such as, for staff relations, the *Public Service Staff Relations Act* and the *Canada Labour Code*) and the central agencies mandated with responsibility for the sub-function, or parts of it (for staff relations, the Treasury Board Secretariat, the Public Service Staff Relations Board, and the Canada Labour Relations Board). The chart showed that the myriad pieces of legislation help to ensure accountability and the maintenance of a core record representing the eleven sub-functions (this chart is included as Appendix 1).

For the historical context, the team showed how the human resources management function has evolved from a simple set of rules and processes into the much more complex system. In the past few decades, the Treasury Board has become in effect the management board for the Government of Canada. It serves as the government-wide enforcer of cabinet policy applied to the public service through its delegation of authority to deputy heads of departments. The past thirty years represent a dynamic evolution from a simple ‘command and control’ administration prior to 1966 to an increasing application of delegation of authority. Simultaneously, complex accountability regimes have been substituted by two key central agencies for the function, the Public Service Commission and the Treasury Board.

Four central acts and several related pieces of legislation underpin the human resources management function. Taken together, these acts divide the responsibility for managing and co-ordinating human resources practices across the federal government into three jurisdictions: the Treasury Board, the Public Service Commission, and departmental heads accountable to the Treasury Board and the Public Service Commission for conducting the affairs of their departments in conformity with policies. Other pieces of legislation govern aspects of the management of human resources. In many cases (such as the *Employment Equity Act* and the *Canadian Human Rights Act*), the law does not apply directly to the public service. Rather, the Treasury Board takes the essence of the law, translates it into policy, then monitors implementation.

The laws spell out which central agencies are mandated with responsibility for aspects of the function; every aspect of human resources management is assigned to one central agency or another. The various central agency roles, such as policy formulation, enforcement, co-ordination, audit, accountability and quasi-judicial review, are governed by legislative mandates. The existence of these mandates guarantees that a substantial evidential record will be preserved for the entire human resources management function across government.

Because the central agencies had a responsibility to retain valuable records, it was found that the process of administering human resources in any particular department is inconsequential from an archival perspective. If an aspect of human resources administration required analysis, examination or judgment by a central agency, then the case would be captured in the *operational* records of the central agency. For example, it was found that a staff relations case making it to the quasi-judicial Public Service Staff Relations Board (PS SRB) was clearly documented in the board’s records; the original departmental records were less comprehensive. This aspect of the hypothesis was tested many times, and the best record consistently was found in the central agencies and not in the administrative records of departments.

Thus far, the appraisal team had shown that the interactions of central agencies and departments, driven by supporting legislation and related mandates and functions, guarantees the preservation of a substantial evidential record. The team also wanted to tighten the argument and mollify doubts that they may not yet have guaranteed the preservation of the *best* or *complete* archival record. This concern was addressed by describing key inter-related developments in the broad evolution of the human resources management function and reinforcing the original hypothesis by enhancing the quality, quantity and comprehensiveness of the central agency record.

The team demonstrated that paradoxically, under the rubric of delegation or managerial flexibility, the modern human resources management function is even more accurately and more completely documented by recourse to central agency files. Increasing delegation has meant increasing accountability, which has led to more--and more detailed--reports, audits, reviews and evaluations of the human resources management sub-functions, programmes and activities across government. Stated more specifically, decentralisation and delegation of authority has always been qualified by greater accountability. This increased accountability is further enhanced in a period of resource constraint and government downsizing.

As the details of the records submission showed, delegation has led to the creation of formal agreements between departments and the central agency for a whole range of human resources management sub-functions. Departments send the Treasury Board huge amounts of aggregated data, internal programme review and internal audit reports. They send staffing data to the Public Service Commission, occupational safety and health data to Health Canada and Human Resources Development Canada, staff relations records to the Public Service Staff Relations Board, and so on. Departments even have to send reports to the Treasury Board proving that they have procedures for internal audit.

The trends of the past thirty years provided clear evidence that the central agency human resource record has been greatly enhanced, made comprehensive, and grown to the point where the records held in non-central agencies have become redundant for evidential purposes.

## **Analysis of Selected Records and Processes**

The broad analysis of the human resources management function examined the historical context, the legislation underpinning the function, the institutions responsible for the human resources management sub-functions under the law, and the major inter-related developments of the broad evolution of the function. Taken together, these segments - the first level of functional analysis - nearly convinced the team that the archival records of the function were protected via the central agencies responsible for aspects of the function.

However, the team wanted to be as sure as possible that they were not allowing significant archival records to fall between the cracks. They wondered about the 'grassroots,' non-central agency documentation of any significant human resources project. Would the department's documentation on the project differ substantially from the central agency record? The team also wondered about the record of process,

of the actual steps taken to do the work involved. What added value does the record of process bring to the archival record? If there is added value, is there a viable mechanism to capture a consistent and representative supplemental record?

Before the team answered detailed questions about the record of process, they examined some contemporary common administrative human resources records from ten representative institutions across government. They also consulted records already in the custody of the National Archives to test the hypothesis. They particularly wanted to discover if there were areas where the common administrative record at the departmental level was unique, such as in the area of policy development, or if there were innovative ideas that resulted in specialised human resources programmes or aberrations. Although the team was confident that the ongoing, standard human resources sub-functions of compensation and benefits, staffing and staff relations were well documented at the central agencies, they were less confident about those more recent sub-functions that have appeared since the GRDS of 1986. They challenged their Departmental Group of records managers to identify such particular records, if they existed in their departments.

Perhaps not surprisingly, the team found no supplementary archival records at the representative institutions. Rather, they found only routine, administrative documents, with many duplicates and copies of Treasury Board policies in the files. For example, at a few institutions the team discovered special learning centres that, like many such centres across government, are customised training shops. One of the training centres has taken on such importance that it has become an operational concern; the records are captured on operational not administrative files. But as the submission showed in its description of the training and development sub-function, significant departmental training initiatives are monitored by the Treasury Board. Departmental human resources administrative records contained no added value to the archival record already protected at the central agencies.

Nevertheless, as intimated above, the team did locate records that were unique and that challenged its hypothesis. One example was the record of all process details and minutiae of the implementation of workplace day care within a particular department. In order to prove its hypothesis from the perspective of information flow and process, the team examined the workplace day care policy in detail and also consulted with the policy analyst at Treasury Board responsible for the policy. They pursued the following questions:

- What is the process involved in setting up a workplace day care?
- How important is the departmental record, or delivery stream record, in comparison to the central agency record or policy record?
- Does increasing accountability over the years result in a better (archival) day care record at the Treasury Board?
- Where is the best archival record to represent day care in government?

The team discovered that the Treasury Board record shows summaries of the departmental 'process' record and much more. In addition to the legal, fiscal and other concerns about viability on the part of the employer, the record also shows reasons at the grassroots level behind the ongoing proposed revisions to the policy.

The Treasury Board record also shows the research phases leading up to the departmental submissions to the Treasury Board, including those that are rejected. Moreover, the day care policy analyst at the Treasury Board reported that she is in regular contact with all federal government workplace day care centres across Canada. She not only *receives updates* and reports from these centres, but she also *provides advice* based on her accumulated knowledge at the hub. In that one person, the Treasury Board has more knowledge about day care in the government than any other department.

The day care policy analyst confirmed that the Treasury Board record is more than the official record from her perspective; it is also the complete record. In addition to a detailed, long model with many examples, representing an accumulation of summarised detail from years of experience, the Treasury Board record contains all federal and provincial laws and regulations concerning day care. Further, its contents are shared and the variety of day care arrangements possible is included. The workplace day care policy files and general files at the Treasury Board already have been judged by the appraisal archivist to have archival value, along with a number of other file subjects in the day care file block. The team concluded that, as an example of process in one Treasury Board policy area, the workplace day care records at the central agency provide the best representation of the delivery of policy, as well as the official policy record itself. From the team's investigations, it found that central agency influence and monitoring in all of the human resources areas results in the best record, sufficient for research and evidential purposes.

To summarise, the NA appraisal team's findings were varied, in that they saw many different types of common administrative human resources records. The findings were also consistent, in that all of the records seen had no archival value once the team considered all factors. They did find interesting records with potential archival value, and this made them realise that, short of looking at all records, the possibility of losing some archival records still exists. But trying to retrieve these potential archival records was an impossible task, unless the team threw an extremely wide net, which would result, yet again, in vague and ineffective 'consult with the Archives' clauses. The functional analysis approach has always recognised that there was a risk of losing some archival records, but the loss can be justified, particularly for the common administrative record. The monetary, resource and time costs of casting a wide net was too great for the gains in the evidential record.

As for those unique human resources records from a few isolated institutions with highly specialised mandates (such as agencies specialising in national security), their records are in fact not that common: a common administrative records disposition authority would not be the most effective mechanism to capture them. In this case, the team was able to rely on records disposition experience since 1991 at the National Archives of Canada. Macro-appraisal is a recommended, effective and proved mechanism to capture pockets of archival human resources records from a few special institutions; macro-appraisal allows for the top-down planned approach to appraise records of individual institutions. Where the particular or peculiar nature and mandate of an organisation suggest to the subject specialist archivists, analysts and records managers that isolated portions of the human resources records might have

evidential value, such records should be included in submissions for that individual institution's records.

## **Status Report**

At the time of writing of this case study, the archival appraisal of the common administrative records representing the human resources management function has been approved in principle by the National Archivist of Canada. The appraisal team is in the process of testing the terms and conditions as well as the retention guidelines for the disposal of these records with internal archival and external client groups. It is crucial that archivists and the community of records and information managers who have to apply the authority and retention guidelines understand these documents. For example, it must be clearly communicated and clearly understood that all operational authorities supersede common administrative records authorities.

As a pilot project, several observations can be made about this appraisal exercise.

- The success of using functional analysis as the appraisal tool for this huge group of common administrative records is undeniable.
- The success of the project was also directly dependent on the previous archival appraisals of operational human resources management records at the Treasury Board and the Public Service Commission.
- The appraisal team did not allow itself enough time to undertake such a massive project. While the project had been waiting in the wings for years, once it was finally chosen as a priority, the timeline turned out to be slightly unrealistic.
- A decision halfway through the project to downplay business transactions - those detailed endpoints in the hierarchy of functional analysis - and focus instead on the common administrative record was a welcome decision. This approach freed the group to concentrate its research and analysis on the upper levels of sub-functions, programmes, activities and groupings of records. They only focused on actual records and on the detailed processes that result in records near the end of the project, in order to verify its hypothesis and high-level findings.
- It was not clear until halfway through the project if the resulting retention guidelines would hinge directly on the descriptions of the functions and sub-functions, programmes and activities in the initial submission. Had it been determined early that the guidelines would relate to the descriptions, this information would have provided the descriptive framework for the submission.



## Appendix 1

| Sub-function                               | Legislation   | Central Agencies  |
|--|---|---|
| Staffing                                   | <i>Financial Administration Act</i><br><i>Public Service Employment Act</i><br><i>Public Service Reform Act</i> | Public Service Commission<br>Treasury Board   |
| Training and Development                   |   | Treasury Board<br>Public Services Commission<br>Canadian Centre for<br>Management Development             |
| Performance Assessment                     |   | Treasury Board  |
| Occupational Safety and Health             | <i>Canada Labour Code</i> and<br>related regulations  | Treasury Board<br>Health Canada<br>Human Resources<br>Development Canada<br>Canada Labour Relations Board |
| Staff Relations                            | <i>Public Service Staff Relations<br/>Act</i><br><i>Canada Labour Code</i>                                      | Treasury Board<br>Public Service Staff Relations<br>Board<br>Canada Labour Relations Board                |
| Compensation and Benefits                  | <i>Canada Pension Act</i> and other<br>pension and unemployment<br>legislation                                  | Treasury Board<br>Public Works and Government<br>Services Canada<br>Pension Appeal Board                  |
| Human Resource Planning and<br>Utilisation |   | Treasury Board  |
| Special Programmes                         | <i>Public Service Reform Act</i><br>(Work Force Adjustment<br>Directive)  | Treasury Board  |
| Classification                             | Public Service Employment Act   | Treasury Board  |
| Official Languages                         | <i>Official Languages Act</i> and<br>related regulations  | Treasury Board<br>Office of the Commissioner of<br>Official Languages                                     |
| Employment Equity                          | <i>Employment Equity Act</i> and<br>related regulations<br><i>Canadian Human Rights Act</i>                     | Treasury Board<br>Canadian Human Rights<br>Commission   |

# **Appraisal of Common Administrative Records of the HR Management Function of the Government of Canada**

## **Teaching Notes**

### **Educational Objectives**

This case study has emphasised the importance of seeking efficient and comprehensive methods for appraising records. Focusing on the macro-appraisal approach, it has shown how an analysis of key functions can save time, resources and effort. The archival team in this case approached their task by developing a hypothesis, drawn from a top-down analysis of the function of human resources management.

Through macro-appraisal, redundancies in functions, activities and record keeping were identified and effective decisions about archival retention were made. This ensured that the best possible information was retained, while keeping the least amount of documentation necessary. The archival record was found most often in central agencies; departmental records were often of lesser value as they did not contain all the information necessary to understand the policies, functions and processes involved.

At the end of this case study, you should have a clearer understanding of the following issues:

- The importance of a planned approach to appraisal
- The concept of macro-appraisal
- The value of functional analysis in appraisal
- The importance, particularly within a government setting, of relating central agency activities to departmental or delegated activities.

### **Study Questions**

To understand more fully the lessons offered from this case study, you may wish to review and answer the following questions.

- 1 Outline the specific steps taken by the team to develop this functional analysis approach. Identify any steps you might take differently or in a different order.
- 2 Define functional analysis and identify three advantages and three disadvantages to the approach.

- 3 Within the context of your own institution, identify a type of administrative record that might be found across several agencies or departments. Identify which agencies would consider that an operational record and which would consider it an administrative record.
- 4 Also within your own government or organisation, identify two agencies or departments that have headquarters offices and regional offices. Consider how the record keeping systems in the two types of offices relate to each other.
- 5 Explain the purpose of developing an hypothesis before beginning an appraisal exercise.
- 6 In this case, the archival team found that the task took longer than they expected. How might you plan such a project to determine the amount of time required and ensure time schedules are met?

## **Exercise**

Select a small, manageable section of an agency or department within your organisation. The area chosen should be small and discrete, in order to allow you to complete this exercise quickly and without too much difficulty. Conduct a macro-appraisal of the records of that section you have chosen, following the steps outlined in this case study. Be sure to follow these steps:

- Identify the section of the agency or department
- Determine its key functions and activities
- Identify the types of records that will be created or held by that section of the agency
- Develop an hypothesis about what records will or will not be worth keeping and why
- Examine the actual records, identifying their physical quantity and nature
- Determine if your hypothesis is correct
- Develop a records disposition schedule based on your findings
- Document the appraisal process, including your decisions about what you would keep or destroy.

## Bibliography

Catherine Bailey, "From the Top Down: The Practice of Macro Appraisal," *Archivaria* 43 (Spring 1997), p. 89-128.

Richard Brown, "Macro-Appraisal Theory and the Context of Public Records Creator," *Archivaria* 40 (Fall 1995), p. 121-172.

Terry Cook, *Mind over Matter: Towards a New Theory of Archival Appraisal in The Archival Imagination: Essays in Honour of Hugh A. Taylor*, Barbara Craig, ed. Ottawa: Association of Canadian Archivists, 1992.

Terry Cook, *The archival appraisal of records containing personal information: A RAMP study with guidelines*. Paris: UNESCO, 1991.

Victoria Lemieux, "Applying Mintzberg's Theories on Organizational Configuration to Archival Appraisal," *Archivaria* 46 (Fall 1998), p. 32-85.

Jean-Stéphen Piché, "Macro-Appraisal and Duplication of Information: Federal Real Property Management Records," *Archivaria* 39 (Spring 1995), p. 39-50.

Helen Samuels, *Varsity Letters: Documenting Modern Colleges and Universities*. Metuchen, N.J: Society of American Archivists and Scarecrow Press, 1992.

Bruce Wilson, "Systematic Appraisal of the Records of the Government of Canada at the National Archives of Canada," *Archivaria* 38 (Fall 1994), p. 218-231.

# Macro-Appraisal: The Case of Income Securities Program Branch

Catherine Bailey<sup>1</sup>

## Introduction<sup>2</sup>

In 1992, the Income Security Programs Branch (ISPB) of the Canadian Department of National Health and Welfare was faced with a growing problem in the storage and handling of its vast amount of records. The problem affected both its electronic records -- increasingly large and complex electronic databases -- and the millions of paper client case files supporting these automated systems. In addition, because the records were becoming increasingly difficult to manage, the Branch was finding it more and more difficult to locate key supporting information to carry out its responsibilities.

Officials of the Branch were aware that their disposal of these records is governed by two sections of the *National Archives of Canada Act* of 1987:

5 (1) No record under the control of a government institution and no ministerial record, whether or not it is surplus property of a government institution, shall be destroyed or disposed of without the consent of the [National] Archivist.

6 (1) The records of government institutions and ministerial records that, in the opinion of the Archivist, are of historic or archival importance shall be transferred to the care and control of the Archivist in accordance with such schedules or other agreements for the transfer of records as may be agreed on between the Archivist and the government institution or the person responsible for the records.

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<sup>2</sup>This case study is based upon the author's "Archival Appraisal Report on the Records of the Income Security Programs Branch, Human Resources Development Canada" (1995). The views expressed herein are her own, and do not necessarily reflect those of the National Archives of Canada.

Schedules - now called records disposition authorities by the National Archives of Canada (NA) - are issued by the NA following an archival appraisal that identifies those records of historic or archival value that must be permanently preserved by the NA.

The NA had issued ten schedules/authorities to the Income Security Programs Branch over a thirty-year period beginning in the late 1950s. Over the years, NA and ISPB staff experienced problems applying these documents. Most problems stemmed from the fact that the schedules were neither comprehensive (ie they did not cover all records in all media) nor complete (ie they did not cover all records created both in headquarters and in regional offices across Canada). The schedules generally covered only one or two specific paper client case file series.

Further, the schedules were usually one of two types: they either permitted the 'stripping' of specific types of transactional documents from individual files, or recommended the destruction of the bulk of the series, provided that a small 'sample' of original files were transferred to the NA. Several of these schedules included imprecise wording, and no clear methodologies or guidelines existed to help staff decide which records to 'strip' or which files to retain as samples. Consequently, large quantities of records with potentially low archival value were often retained unnecessarily.

Both NA and ISPB staff found the application of the schedules confusing, labour intensive and time consuming. In addition, the retention periods in these older schedules did not necessarily reflect ISPB's current operational requirements for its records. Finally, without an accurate disposition authority to cover all of its records, the Branch's access to NA storage facilities was limited; ISPB had to pay for private storage, which was increasingly expensive.

In 1994, the archivist responsible for the health and social welfare portfolio at the NA was faced with carrying out an archival appraisal of all records created by ISPB across Canada. By appraising the records, the archivist would identify those records of lasting archival value that document the programmes and functions of the Branch and also make the necessary preservation recommendations to the National Archivist. These recommendations were to form the 'Terms and Conditions for Archival Transfer' portion of the new records disposition authority. In order to complete this task, the archivist employed the functionally based macro-appraisal model, which had been developed and used at the NA since 1991.

## **What is Macro-appraisal?**

Macro-appraisal is a strategic, conceptual approach to the appraisal process; it consists of two parts, both of which are supported throughout by carefully executed research and detailed analysis. The first part of macro-appraisal is an assessment of the structures and functions of record creators, their capacity to create records of value, and the assignment of priority rankings to determine the order in which the creators will be appraised. Once it has been applied to a body of record creators (such

as a federal government), then the functional-structural analysis is applied internally to specific institutions within the larger organisation, such as agencies or departments.

The second part of the macro-appraisal model (which uses terminology appropriate for government records) focuses on the interaction of the citizen with these record creators. The relationship between functions (programmes), structures (agencies) and individual citizens (clients) is assessed, along with an examination of how these relationships are manifested in records. In order to be completely effective, macro-appraisal must be accompanied by an examination of the records; this examination often encompasses many of the activities more traditionally associated with appraisal.

## Overview

The Income Security Programs Branch was created in 1975 as part of the Department of National Health and Welfare and later transferred to the control of the newly created Department of Human Resources Development (HRDC) in 1993. The Income Security Programs Branch is the main Canadian federal government agency responsible for promoting and preserving the social security and social welfare of the Canadian population. It administers(ed) income support or benefits in two main areas: assistance to families with children, often known as ‘family benefits,’ and retirement income to elderly Canadians.

Family benefits were first provided by the former Family Allowances (FA) Program, which was established in 1945 to make monthly payments to the parents or guardians of children under the age of 18 born in Canada or living there for three years. The cheques, given almost exclusively to the mother of the children, were intended to provide a steady source of funds to help Canadian families supply their children with good food, clothing and other necessities to ensure that they grew up healthy and well cared for. The programme was replaced in 1993 with the Child Tax Benefit (CTB) Program administered by the Department of National Revenue-Taxation. ISPB retained the responsibility for determining eligibility for the CTB until 1996.

Canada has what is often referred to as a ‘three-tiered’ retirement income system. The first tier consists of universal financial assistance programmes provided by the government out of general tax revenues, such as the Old Age Security Program (OAS) and Guaranteed Income Supplement (GIS). The second tier is the Canada Pension Plan (CPP), a compulsory, contributory social insurance programme jointly administered by ISPB and National Revenue-Taxation. CPP is funded by contributions made by all employers and employees and from the interest generated by excess funds. The third tier of the retirement income system is private retirement income arrangements, including personal savings, registered retirement savings plans (RRSPs), and employer-sponsored retirement pensions. All Canadians are eligible to receive their full OAS/GIS and CPP retirement benefits after attaining their 65th birthday. Other benefits under CPP, such as disability or survivor’s benefits, may be attained at an earlier age, provided that the applicant meets the eligibility requirements.

The legislation, regulations and policies developed at ISPB national headquarters in Ottawa are administered all across Canada through an extensive client service network. Some statistics will give an idea of the size and scope of this network. In 1995, there were 69 full-time and 208 part-time ISPB field offices and Client Service Centres (CSCs) across the country employing well over 2500 staff. ISPB made 120 million payments to 9.4 million clients across Canada and around the world in 1991-92; in 1993-94, the Branch administered over 19.7 billion dollars under OAS/GIS and related Spouses Allowances, and 14.4 billion dollars in benefits under CPP; it also approved 4.9 billion dollars in eligibility for the Child Tax Benefit. It is estimated that with the ageing of the Canadian population, ISPB's client base will increase 22 per cent by the year 2000, to 11.5 million clients.

## **The Development of a Records Disposition Submission**

Since the late 1980s, the National Archives and ISPB had been working together towards the creation of a new and comprehensive records disposition authority. In 1992, records analysts in the Document Management Division of the Department of National Health and Welfare, working with the Information Analyst in the NA's Records Disposition Division, began to prepare the records disposition submission. This submission is a package of information that describes the record holdings for which the agency requests disposition authority from the National Archives.

Presented to the NA in the fall of 1994, the ISPB submission contained information on all records created by the Branch across Canada. The submission outlined the functions and programmes for which ISPB was responsible, provided an overview of the nature of the records, their classification systems and their location, and user contact names for each operational area.

The records in question consisted of 45 linear kilometres of textual records, including subject and individual client case files. As well, there were 5 large mainframe computer systems that had been operating since the mid-1960s and held millions of records; numerous individual electronic statistical data files; and assorted collections of audio-visual, photographic and documentary art records.

The submission also took into account a project ISPB had developed to cope with changing demographics in Canada. In the mid-1980s, it was realised that the ageing Canadian population would continue to put an increasingly heavy burden on branch operations, particularly the computer systems. In 1987, with the approval of the Treasury Board (the central agency of the Canadian federal government, responsible for approving government spending), ISPB embarked upon a major multi-million dollar, nine-year, three-phase project to plan, define, develop and implement a new Client Service Delivery Network (CSDN), which would make the best use of new scanning and computer technology to automate more fully the process of providing benefits to its clients.

At the time the records disposition submission was being developed, this ISP Redesign Project (ISPR) was just entering Phase III (Implementation). It was



suggested that because ISPR would change the work processes used to carry out the Branch's functions, it might have a strong impact on the method of creation and preservation of records deemed to have archival value and therefore on the archival appraisal and the resulting terms and conditions for transfer.

## **Developing an Appraisal Strategy**

Once the submission was completed, the actual analysis of records began. The archivist had to contend with many issues when carrying out this appraisal. First, the sheer volume of the millions of paper client case files and related subject files meant that, at best, the National Archives could only preserve a very small fraction of the documentation. In order to cope with the vast quantity of records, a broad appraisal strategy was developed, based on initial research carried out at the NA over several previous years. The strategy stated that since the three benefit administration programmes operated in the same general fashion, the NA would appraise the paper and electronic client information as a whole and would acquire only a representative sample or a selected example of the paper client files to complement the related policy and subject records recommended for preservation.

Second, the same appraisal principles would apply to the electronic databases. Because of the volume of information, the NA would need to develop an appropriate electronic sampling methodology. This methodology was made more complicated by the fact that, as the submission noted, there was extensive electronic information-sharing between ISPB and two other large central federal government agencies: Revenue Canada-Taxation, which collects all Canadian taxation data, and the former Department of Employment and Immigration, which was responsible for the maintenance of basic identification for all employed persons in Canada. The extent and character of this information-sharing would need to be investigated before a final appraisal recommendation could be made for the electronic records.

Third, the nature and extent of regional records, and their relationship to the records held at headquarters, were not clearly established. Therefore, the archivist would have to make site visits to view records. Two visits were planned by the archivist, one to the Alberta regional office in Edmonton, and one to the Mid-Ontario regional office in Scarborough. A third visit to the British Columbia regional office in Victoria, made by another archivist based in the NA office in Vancouver, would further confirm or deny the findings about the nature and extent of regional records.

The relationship between the ISPB and a related agency, the Pension Appeals Board (PAB), also needed to be clarified. In 1990, an appraisal of the records of the Board -- an independent, arms-length agency that serves as the highest level of appeal under the Canada Pension Plan -- had indicated the presence of large amounts of documentation copied from ISPB client case files. The level and nature of the potential duplication remained to be determined.

Finally, the archivist had to determine and assess the nature of subject-based documentation held in the ISPB headquarters. In the early years of the Branch's operation, a centrally controlled corporate registry system had been maintained by departmental records staff, channelling all information on particular subjects into

specific primary file blocks and files. Increasing physical and operational decentralisation of the Branch had resulted in decreased use of this single corporate registry system. Consequently, there was a proliferation of record keeping systems in each operational area of the Branch. These 'user-held systems' generally followed highly individualistic classification methods, and the procedures were not applied consistently between operational areas. As a result, there was a potential duplication of key corporate information.

## **Developing an Appraisal Hypothesis**

As stated earlier, the archivist worked within the framework of the research-based, macro-appraisal model developed at the National Archives of Canada, which advocates a 'top down' approach to the appraisal of records. In other words, appraisal proceeds from the highest level -- the function (such as the development of supporting legislation or policy) down to the actual implementation of that function (such as the delivery of specific services to individual clients).

The archivist began the appraisal process by carrying out detailed background research into the nature of the Branch and its functions and programmes. Several key functions were identified. These included

- the development of underlying legislation, regulations and policy
- benefit programme administration (assessing eligibility, determining amount and type of benefits, and administering payments)
- detection of fraud
- appeals of decisions
- communications to the public.

Based on this background research and, in part, on a number of existing assumptions within the NA, an appraisal hypothesis was developed. This hypothesis suggested where the records of highest archival value would be found, considered what they should document in the way of interaction between the programmes, structures and clients of ISPB, and therefore which records should be preserved permanently by the NA.

Once this appraisal hypothesis had been developed, the archivist prepared to examine the records according to the strategy outlined in the previous section. In order to confirm or deny the hypothesis, the archivist had to consider the following issues:

- Did the paper client case files contain sufficient information of archival value to warrant their preservation, either in whole or in part?
- What was the relationship between the paper client case files and the electronic databases?
- Did the electronic records contain sufficient information to warrant their preservation in whole or in part?
- What was the relationship between regional and headquarters records?

- What was the nature and extent of duplication of information within the Branch, or between the Branch and other external agencies?
- What was the nature and extent of subject-based documentation, and how did it relate to client records?
- What would be the effects of changing technology on the records?

## **Analysis of the Records**

The archivist began the actual analysis by appraising the existing centrally controlled corporate registry system, which she had determined should contain many records of archival value. Despite its decreasing use within portions of ISPB, this system gave a clear overview of all of the Branch's functions and activities and allowed for the recommended preservation of many of the older records within ISPB.

The second phase of the appraisal process attempted to determine the future impact of the ISP Redesign Project on the Branch as a whole. The archivist determined that, despite initial impressions in the records disposition submission, the redesign project would not change the fundamental nature of the records created to support branch programmes. Rather, the redesign would merely alter their physical format by making them more heavily dependent upon technology. This meant that the appraisal recommendations would not have to allow for regular revision of terms and conditions to account for technological changes.

As the archivist was already conversant with the basic nature of the paper client case files and their contents from previous appraisals, she then chose to assess the electronic databases and their inter-relationships and determine their ability to produce statistically valid samples of archivally valuable records. It was determined that these electronic databases did in fact contain large amounts of duplicate information held on the ISPB client case files. As well, it was found that they did not necessarily contain the most complete archival record, which might be found in other sources. For example, census records maintained by Statistics Canada give a much more complete demographic view of the Canadian population. Since the responsibility for the collection and maintenance of complete information on personal incomes (including contributions to and benefits from the CPP, or benefits from OAS/GIS) rests with Revenue Canada-Taxation, copies of this CPP information is sent from Revenue Canada to ISPB for the latter's use in administering the CPP programme. Likewise, information relating to the identification of clients through the Social Insurance Number (SIN) is the responsibility of another department, the former Employment and Immigration Canada (EIC), which preserves its own large database. Finally, the Program Statistics area of the Policy and Legislation Directorate of ISPB already had the responsibility to develop, collect and maintain a variety of statistics on income benefit programmes for internal and external use. Much of that information was already in the public domain.

Therefore, contrary to the initial appraisal hypothesis, it was determined that the electronic client information was not of sufficient archival value to warrant preservation of any such information by the NA.

When appraising the paper client case files, however, the appraisal hypothesis proved correct: the records were not of sufficient value to recommend permanent preservation of all of them. However, contrary to the hypothesis, it was determined that sampling was not an acceptable archival option. Information about functions and programmes would be better preserved in the key policy and subject files taken from high-level operational areas within ISPB. Client file information, including that originally created for files held in the regions, would be found throughout the records of these areas.

Of particular importance were the records of the Policy and Legislation Directorate, where client information formed the basis for many changes in policies, legislation and regulations. Also important were the records of the Appeals Program. In appraising the CPP appeals process, the archivist discovered that all appeal files held by the related agency, the PAB, were composed in part of complete copies of the original ISPB client files. Therefore, to document this appeal process, it was not necessary to preserve any ISPB CPP client file. The PAB appeal records, combined with similar appeal records within ISPB for OAS, create a rich source of documentation for the entire benefits programme across the country. Retention of those records provided a better archival record than retention of disparate samples of records from within ISPB.

## **Conclusion**

Macro-appraisal has proven to be a valuable method of appraising government records, particularly for agencies that create large amounts of client records. By using an analysis that focused on the interaction of function, structure and citizen, the archivist was able to identify areas of duplication and overlap; this allowed for the preservation of the best and most complete archival record. Had a “traditional” appraisal of these records been undertaken, by focusing directly on the value of the records themselves, the archivist might have recommended the preservation of more records of a lower value and not identified the related records held in other agencies. Macro-appraisal in this instance was certainly the method of choice.

# **Macro-Appraisal: The Case of Income Securities Program Branch**

## **Teaching Notes**

This case study has emphasised the importance of seeking efficient and comprehensive methods for appraising records. Focusing on the macro-appraisal approach, it has shown how an analysis of key functions can save time, resources and effort during appraisal. The archivist in this case was able to make many decisions based on a thoughtful hypothesis, drawn from a review of the functions and activities of the agencies and departments in question, rather than from an examination of actual records held in storage areas.

Through macro-appraisal, redundancies in functions, activities and record keeping were identified and effective decisions about archival retention were made. This ensured that the best possible information was retained, while keeping the least amount of documentation necessary.

At the end of this case study, you should have a clearer understanding of the following issues:

- the importance of a planned approach to appraisal
- the concept of macro-appraisal
- the value of functional analysis in appraisal
- the importance, particularly within a government setting, of identifying overlaps or duplication in functions, activities and record keeping.

## **Study Questions**

To understand more fully the lessons offered from this case study, you may wish to review and answer the following questions.

1. Outline the specific steps taken by the archivist within this macro-appraisal approach. Identify any steps you might take differently or in a different order.
2. identify three advantages and three disadvantages of a macro-appraisal approach.
3. Within the context of your own institution, identify two agencies or departments whose functions, activities and record keeping systems might overlap with another agency or agencies. Explain the nature of these overlaps.
4. Also within your own government or organisation, identify two agencies or departments that have headquarters offices and regional offices. Consider how the record keeping systems in the two types of offices might relate to each other.
5. Explain the purpose of developing an appraisal hypothesis.

6. In this case, the archivist found that many of the electronic databases included information held in other agencies; how might you appraise/assess these electronic information systems so that overlaps in the archival record are reduced?

## **Exercise**

Select a small, manageable section of an agency or department within your organisation. The area chosen should be small and discrete, in order to allow you to complete this exercise quickly and without too much difficulty. Conduct a macro-appraisal of the records of that section you have chosen, following the steps outlined in this case study. Be sure to follow these steps:

- Identify the section of the agency or department
- Determine its key functions and activities through research
- Identify the types of records that will be created or held by that section of the agency
- Develop an hypothesis about what records will or will not be worth keeping and why
- Examine the actual records, identifying their physical quantity and nature
- Determine if your hypothesis is correct; correct it if/when necessary
- Develop a records disposition authority based on your findings
- Document the appraisal process, including your decisions about what you would keep or destroy.

## Bibliography

Catherine Bailey. 'From the Top Down: The Practice of Macro Appraisal,' *Archivaria* 43 (Spring 1997), p. 89-128.

Richard Brown. 'Macro-Appraisal Theory and the Context of Public Records Creator,' *Archivaria* 40 (Fall 1995), p. 121-172.

Terry Cook. *Mind over Matter: Towards a New Theory of Archival Appraisal in The Archival Imagination: Essays in Honour of Hugh A. Taylor*, Barbara Craig, ed. Ottawa: Association of Canadian Archivists, 1992.

Terry Cook. 'Many are called but few are chosen: Appraisal Guidelines for Sampling and Selecting Case Files' *Archivaria* 32 (Summer 1991), p. 25-50.

Victoria Lemieux, 'Applying Mintzberg's Theories on Organisational Configuration to Archival Appraisal,' *Archivaria* 46 (Fall 1998), p. 32-85.

Jean-Stéphen Piché, 'Macro-Appraisal and Duplication of Information: Federal Real Property Management Records,' *Archivaria* 39 (Spring 1995), p. 39-50.

Helen Samuels, *Varsity Letters: Documenting Modern Colleges and Universities*. Metuchen, N.J: Society of American Archivists and Scarecrow Press, 1992.

Bruce Wilson, 'Systematic Appraisal of the Records of the Government of Canada at the National Archives of Canada,' *Archivaria* 38 (Fall 1994), p. 218-231.

# Managing Electronic Documents in Office Systems using IMOSA

Rosemary Murray-Lachapelle<sup>1</sup>

## Introduction

In developed countries around the world, the 1980s were a period of transition toward the information age. Technologies appeared in offices at a rapid pace, leading to the creation of electronic documents in a variety of incompatible and short-lived formats. Organisations began to notice that it was not always possible to find the ‘twin paper copy’ of an electronic document in filing registries. At best, some of these electronic documents were printed to paper to be processed manually throughout the remaining stages of their life cycle. Hoping to reap the benefits of the electronic workplace, organisations invested large amounts of money in a multitude of technologies and yet, the paper store remained the safest and most common place to find corporate information. Much information existed in electronic format somewhere on a disk on a departmental local area network, but the lack of a well-articulated set of policies, tools and procedures prevented the effective use, management, and preservation of electronic records in office systems.

Several questions began to preoccupy professionals working in information disciplines:

- How can new technologies assist in implementing sound methods for managing institutional information holdings throughout the stages of the life cycle, regardless of the form and medium on which this information is recorded?
- How can organisations ensure that all electronic documents of institutional significance find their way to the central filing registry, where they could be available to support decision-making and operational needs, without having to print them on paper?

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- How can archivists protect electronic records of enduring value from the obsolescence of technology and the fragility of the electronic media?
- How can archivists ensure that records are preserved through time with the required contextual information that documents the organisation's business activities?
- How can organisations apply retention and disposition schedules to electronic records?
- How can archivists identify and describe documents of enduring value in the electronic office?
- How can archivists ensure document integrity during system migration?
- What practices should be implemented to manage electronic documents and directories in the electronic office in order to reflect individual and organisational needs?
- Is it possible to construct the facilities necessary to maintain electronic media, particularly in environmental conditions that are subject to extremes in heat, cold or humidity?

In an effort to address a number of these questions, the National Archives of Canada (NA) and the Department of Communications (DoC) established a partnership project in 1989 to advance the knowledge and awareness of, and to develop tools and techniques for, the effective management of information in office systems. The initial objective of this project was to design, develop and test a prototype software application designed to manage electronic documents at various stages of their life cycle. This project was eventually referred to as the IMOSA Project, after the particular software developed.

## **Project Approach**

The partnership approach was an important element in the IMOSA Project. The preliminary set of functional requirements on which the prototype was based had been previously developed by the two government agencies responsible for this project. The agencies had distributed these requirements widely, upon requests from several organisations in the public and private sectors and in Canada and abroad. Government-wide interest in the requirements stimulated the onset of the project. A third partner joined the NA and DoC: a private sector software developer who also had a strong interest in resolving issues pertaining to the management of electronic records. From the initial three partners, it was possible to maximise the resources and bring together an additional eight partners with a variety of expertise at different phases of the project.

The project found a wealth of knowledge and expertise in the multi-disciplinary team approach. Included in the work were records managers, information scientists, archivists, policy officers, systems developers and programme managers. The multi-disciplinary approach proved necessary in order to find comprehensive solutions to the challenges the team faced. The multi-disciplinary team offered varied perspectives

and experiences, which were often complimentary but at other times led to disagreement and conflict. Disagreements often resulted from the fact that the functionality the team was trying to define was so closely related to the way people work, and everyone had a different vision of best working practices.

The development of the prototype software was 'user driven'; it was conducted with continuous input from the user community. Team members who co-operated on the functional specifications were often in contact with a government-wide clientele and therefore understood user needs. In addition, project management consulted on an ongoing basis with a government interdepartmental committee, which provided regular feedback on the project. This interdepartmental committee represented over twenty government departments and agencies. Members were involved with the introduction of office systems into the workplace of their home organisations.

## **The User Site**

Within the context of the IMOSA project, the prototype application was installed on a local area network (LAN) in the then Government Records Branch of the National Archives. Through this LAN, the software was made available to the seven group members responsible for the testing. The group included six office systems users and the branch records manager. The prototype was available to the group in the same way as other common LAN applications: ie through the list of menu options normally available to users, which included software users normally employed in the creation, editing and exchange of documents. Available software included, among others, WordPerfect, Lotus 1-2-3, Harvard Graphics and Electronic Mail.

The prototype provided users with a tool to file, browse, search and retrieve electronic documents in a corporate database server. The prototype was essentially a database application designed to protect the corporate holdings of organisations while also providing the necessary functions to control and manage these holdings regardless of their format or medium. The preliminary requirements on which the prototype was based did not include, at that time, retention and disposition requirements for electronic documents. Given the short development time allocated to the project, the prototype was not to include this last stage of the life cycle. However, these requirements were completed later in the IMOSA Project.

## **Key Features of the Prototype Application**

The following paragraphs describe briefly the main functions and associated features of the prototype software used for testing purposes. Note that the electronic documents referred to in the following paragraphs may be created using any one of the software packages available to the users on the local area network. While becoming familiar with the functions of the prototype, it may be useful to revisit the questions listed at the beginning of this case study. It is also important to remember that, in order to ensure consistency in the management of documents, software applications must be supported by relevant procedures. Otherwise, document control remains with individual users. In

other words, functions such as document naming, document deletion and document access remain with the user who created the document. This individual control can threaten the survival of the electronic component of the corporate memory, unless the user is fully aware of and able to implement adequate record keeping requirements.

Several functions in the software permitted users and the records manager to interact with the electronic registry. The following functions are described in further detail below:

- filing
- retrieving and searching
- editing documents
- verifying and other managing functions
- classifying.

### **Filing Electronic Documents**

At the time of filing an electronic record, a document profile was completed and appended to each document for indexing and retrieval purposes. The profile consisted of fields of information or attributes relating to the document being filed. At the point of submission, the document moved from the 'personal' work space of the individual user to the 'corporate' holdings of the organisation. Once the document was submitted, the user could not delete it from the corporate holdings. Profiles of non-electronic documents could also be filed electronically, in order to provide a linked, integrated view of all documents contained in files regardless of the medium on which they were recorded.

As a new document was submitted to the corporate holdings, the file name assigned to it (in the DOS operating system, this is usually an 11-character name: eight characters for the actual name and three characters for an extension, such as 'record.doc') was replaced by a number assigned by the application. The document number also included a version number to permit version control. Through this numbering method, several versions of the same document could be identified. Each time a document was retrieved from corporate holdings and edited, it could only be resubmitted under a new version number, ensuring preservation of the previous version. The name of the user submitting a document was automatically recorded as part of the document profile for each version.

The document was also described by a 'document subject' field (part of the document profile). This document subject field was a 60-character field used to create an abstract of the content of the document. The document subject field and document number were displayed on the screen during the search and retrieval process, providing a much more useful description of the document than an 11-character DOS name. This concept is already familiar to WordPerfect users acquainted with the 'document summary' feature.

### **Retrieving and Searching for Electronic Documents**

After a document became part of the corporate holdings, it became accessible to other network members. According to assigned security levels, users could browse, search and retrieve from the corporate holdings any documents submitted by colleagues. Users

could not delete or remove a document from corporate holdings; a copy of the retrieved document could, however, be added to the user's personal space.

Users could retrieve documents directly by the document number or indirectly via the search function. While the 'retrieve document' function required the user to know the document number, the 'search document' function offered three different ways of searching the corporate holdings.

- One method involved searching by file number if the number of the file, or group of files, containing the required document(s) was known.
- The second method allowed users to search on any one of the fields in the document profile (ie attributes entered at the time of filing).
- The third method consisted of using a full text search of the document summary field (which forms part of the document profile). (This latter search method was provided as an interim tool until it would be possible to integrate full text search of entire documents).

### **Editing Electronic Documents**

Once the document was retrieved from the corporate holdings and placed in the user's personal workspace, the application provided an option to 'work on' the document. The application enabled the launching of the software programme originally used to create the document, such as WordPerfect or Microsoft Word, allowing the user to edit the document. (The only requirement was that the software was one of the packages already available to the user on the LAN.) The application then flagged the document that had been retrieved from corporate holdings, in order to inform any potential users that the latest version might not be in the corporate holdings because another user was working on the document.

### **Records Management Functions**

The application also provided the records management specialist with adequate functionality to manage and control the corporate holdings at both the file and document levels. For instance, when a new document was submitted to corporate holdings, a 'verify submissions' function permitted the records manager to verify the various fields of the document profile completed by the user; the records manager's job was to ensure that the information was accurate. Traditional functions performed by the records manager, such as create or bring forward files, were also automated. Other functions allowed records managers to create new users and assign them security access levels, parallel to the paper file access scheme.

### **Document Classification**

The fully automated file classification index provided a powerful tool to users. Using key words from the subject field or section titles, users could find the right file number in the index, allowing them to classify documents regardless of their knowledge of the classification system. User access to various files was limited by the security access level assigned by the records management specialist.

As indicated earlier, the design of the IMOSA prototype was based on the block numeric file classification system used in the Canadian federal government. The block numeric file classification system is one kind of classification system and is based on the principle that information will progress from the general to the specific. Its general structure includes two parts, 'administration' and 'operations,' which are, in turn, divided into sections such as 'finance,' 'personnel' and so on. Each section is then organised in blocks, such as 'accounting' or 'inventories,' which comprise primary, secondary and tertiary numbers and associated subject descriptors.

## **Work Process Re-engineering**

Information technology is continuously changing and evolving in parallel with the organisations implementing it. Therefore, there is a need to understand the various stages of development that organisations must go through as they are making changes in the way they work. As organisations move from stage to stage, they must continuously review their work processes and tasks to ensure they are as efficient and effective as possible.

For example, there is a significant difference between automating specific tasks and automating entire work processes. A task might be the act of withdrawing cash from an automated banking machine. The work process, however, is the overall job of managing one's finances. An early data-gathering exercise at the National Archives demonstrated that in the process of preparing ministerial correspondence, a total of thirty-seven tasks took place before the correspondence was ready for approval. Interestingly, the people responsible for that work process, and the required tasks, were not really aware of all the steps involved. The automation of such work processes is not a trivial task; it requires a clear understanding of the entire work process, step by step.

The IMOSA Project reinforced this finding. As the project team worked to automate the records management process and associated tasks, fundamental questions arose:

- Who is responsible for filing the document? (the author, the manager or the secretary?)
- How can the organisation ensure that the right version is the one sent to the registry?
- What if not everyone uses the system?
- Should filing be verified by the records management office?
- Should filing be made mandatory and, if so, at what time in the process of document preparation?
- If an error occurs in assigning the file number, who has authority to change it and who should be informed?
- Is electronic mail a record?
- Should appraisal of documents be made at the beginning, in order to ensure the identification and protection of documents with archival value before they

disappear as a result of human error or negligence or because of technology obsolescence?

Based on this sampling of questions, it is not surprising that one of the major findings in this project was that the most critical issues in implementing electronic records management are organisational issues, such as the establishment of an information management infrastructure, as well as companion policies, procedures and training.

## **Developing Records Management Policies**

Arising from this concern for ensuring adequate work processes are in place came a concern for the development and implementation of appropriate records management policies. Information technology has forced individual users to become more responsible for the management of their information in office systems; information technology has also led to a concern for compatible work processes. The users of personal computers, regardless of their role and level with the organisation's infrastructure, tend to think of the documents they create as their own, not those of the organisation. Perhaps the name 'personal' computer promotes a false interpretation of the records contained within office computers. However, corporate documents must be accessible, to ensure the accountability, transparency and efficiency of the agencies using that information.

This fundamental change in how employees think about their work must be addressed by new policies that represent new realities. Policies need to reflect the new requirements for managing electronic records, ensuring information is both widely accessible and protected. Users, programme managers and information managers must understand those requirements to ensure that organisations as a whole are accountable to law, policy and society.

As a result, there is a need to establish guidelines for day-to-day work. Just as drivers using a common highway need to conform to a set of rules while driving, people using common records management software applications need guidance to help them work well with the software and with each other. These guidelines need to address issues such as

- Who should file what?
- When should records be filed?

Although written rules and procedures may appear to be unpopular in offices, they provide a reliable source of information on processes. They are a starting point, allowing a consistent message to be communicated to the user population.

For this consistent message to develop, office systems managers and planners must outline the objectives of any new software application and document the particular business function(s) the application supports. They must understand how the organisation and staff will be interacting with the application. The rules they develop need to be based on real business needs. Questions that must be answered include

- What are the security requirements for protection of these records?

- How long should these records be kept?

## **Defining Functional Requirements**

The definition of functional requirements -- in other words, the basic needs of the organisation -- constitutes a fundamental step in planning for information management solutions. A statement of functional requirements is necessary to integrate the day-to-day business needs and records life cycle considerations into system development. It is critical to involve users in the process of defining needs. Through an understanding of, and documentation of, an organisation's information needs, information professionals can develop comprehensive solutions in a collaborative fashion. In the IMOSA Project, the functional requirements document was considerably improved as a result of the learning that took place during the testing of the prototype. Today, the functional requirement document continues to evolve as needs are reassessed.

## **Training and User Support**

The importance of a training and user support programme cannot be over emphasised. As discussed earlier, the impact of introducing an automated work process is much greater than the impact of introducing an automated task. Although a task such as word processing may require a fair amount of training, it is trivial compared to the critical training requirements for an information management application. In addition to technical skills, the guidelines and procedures associated with information management concepts must be incorporated into the training programme. This means that the trainer should have the skills and knowledge associated with those processes in the organisation. During the IMOSA implementation, it was found that if a user (especially the records manager) did not know how to solve a particular problem (whether technical or procedural) it became a roadblock to progress with the testing.

Also necessary is a strategy to communicate with users at all levels of the organisation and in a timely fashion. The aim is to have open and continuous communication directed to the right audience and through a variety of channels, both formal and informal. Communicating project objectives, benefits, plans and expectations, as well as anticipated problems and delays, contribute to a higher degree of acceptance and motivation on the user's part. This, in turn, requires the assignment of adequate resources to fulfil these needs, to manage user expectations and to monitor user feedback.

Users may be apprehensive about the new software, which may hinder its use. The reliability of the system used can determine the success of the information management application implementation. The results of the IMOSA implementation showed that user apprehensions may occur at two levels:

- To what degree should this new approach/tool be trusted?
- To what degree is it necessary to automate records management, for what purposes, with what objectives?

These questions reflect user concerns about having to change work habits and having to trust that the system will make access and retrieval possible. Users also worry about the physical safety of their documents in a new system. For example, they may question what would happen to their information if there were a power failure. An issue such as continuity of power must be addressed by policies, procedures and practices that ensure the protection of information.

Users will always have reservations about new systems. Consequently, it is critical to conduct pilot tests of any new system. Once the test is successful, full implementation is much easier and more welcome.

## Conclusion

In the IMOSA Project, the partnership approach allowed the team to work together to seek common solutions to common issues. Increasingly, it is recognised that offices across governments have similar functions and, therefore, similar needs. Senior management in the Canadian federal government has had to deal with the limitations of budget restraints over the last five years; as a result, co-operative projects allowed agencies to spend less and gain more. The IMOSA Project benefited, in turn, from the input of the private sector, as well as university and research centres. This collective approach enriched the final results; it is a valuable approach to managing the challenges of automation.

In summary, the IMOSA initiative highlighted the need to plan for and select technological solutions within an overall pre-defined management framework, which incorporated essential policies designed to address the new realities of electronic records management. As a result of the findings in the initial phase of the IMOSA Project, a number of products were developed to advance the management of information in office systems.\*

Several of the issues outlined above are not unique to the IMOSA experience. They have been reiterated time and again through subsequent automation projects and in the professional literature about electronic records management. The issues addressed here are important and relevant to modern organisations that share the challenges and opportunities of using technology to manage electronic records. It is hoped that the results of IMOSA can be useful to others who wish to embark upon such endeavour.

As a wise man once said, 'change is the only constant in the continuously evolving workplace.' It may be difficult to look down the road when dealing every day with the challenges of paper-based records management. It is important, however, to anticipate the consequences that technological changes bring about, as they will, sooner or later, affect the whole world. In the light of the current technological climate, it is probably wise to identify and select technology that is expandable and open, allowing for change over time.

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\* For more information about the IMOSA Project, readers can contact the National Archives of Canada, Archives and Government Records Branch, 395 Wellington Street, Ottawa, Ontario, Canada, K1A 0N3.



# Teaching Notes

## Educational Objectives

This case study is intended to illustrate the opportunities and challenges posed by the electronic workplace and the process one organisation followed to develop and implement an automated records management system. Particular points addressed include a description of the project approach, the key functions of the prototype software, the importance of work process re-engineering, need for records management policies, the identification of functional requirements, and the importance of training and user support.

At the end of this case study, you should have a clearer understanding of the following issues:

- The importance of a planned approach to the development of information management systems, whether manual or automated
- The concept of electronic information management
- The importance of work process re-engineering as part of an information management programme
- The importance of identifying functional requirements (needs) before developing any management system.

## Study Questions

To understand more fully the lessons offered from this case study, you may wish to review and answer the following questions.

- 1 Outline the specific steps taken by the archivist to develop this electronic records management programme. Identify any steps you might take differently or in a different order.
- 2 Identify three advantages and three disadvantages of an electronic records management system, versus a manual records management system.
- 3 How can organisations ensure that electronic documents of institutional significance find their way to the central filing registry or records office, without having to print them on paper?
- 4 How can organisations apply retention and disposition schedules to electronic records?
- 5 How can archivists identify and describe electronic documents of enduring value?
- 6 What steps should be taken within an organisation before a software programme is installed to manage electronic documents?

## **Exercise**

Identify a process undertaken in your institution that would benefit from automation, such as accessioning records, transferring files from inactive storage to archives, or answering user requests. Write a plan for the automation of that process. Include in your plan the following points:

- the purpose of the automated system
- the tasks it will document
- the general resources required
- the general time frame for implementation
- the methods to be used to train staff
- the methods to be used to maintain the system
- the methods to be used to ensure the system is physically and administratively secure.

# Bibliography

## Papers

*The IMOSA Project: functional requirements for a corporate information management application (CIMA): final report* / a joint initiative of the National Archives of Canada. Government Records Branch et al. Ottawa: National Archives, 1992. 102, [17] p.

*The IMOSA Project: information management and office systems advancement. Phase I report* / a joint initiative of Department of Communications. Canadian Workplace Automation Research Centre, Laval and National Archives of Canada. Government Records Branch. Ottawa: National Archives, 1991. 61, 71 p.

## Articles

McDonald, John. 'Managing information in an office system environment'. Menne-Haritz, Angelika, ed. *Information handling in offices and archives*. München: New York: Saur, 1993. 138-151

Murray-Lachapelle, Rosemary. 'Canadian international development assistance in the field of archives and records management'. *Basic Archival Problem: Strategies for Development*. *Archivum* 44. München: New Providence: Saur, 1999. 221-246.

## Internet

National Archives of Canada website: <http://www.archives.gc.ca>

IM Forum website: <http://www.imforumgi.gc.ca>

Provenance Systems Inc: <http://www.provsys.com>

# Developing an Automated National Records Centre Management System in Ghana

Laura Millar and Harry Akussah<sup>1</sup>

## Introduction

In 1994, Harry Akussah completed a feasibility study into the development of an automated National Records Centre Management System for Ghana, in partial fulfilment of the requirements for the degree of Msc. in Information Science at the School of Library, Archives, and Information Studies at University College London. This case study is based on that research.

The purpose of the research study was to undertake a comprehensive systems analysis of the temporary Ghana National Records Centre, in order to establish requirements for the design of an automated system to improve the functionality of management systems. The study included data collection, data analysis and the preparation of a final report.

## Records Management in Ghana

The management of public records in Ghana is governed by the Public Archives Ordinance No. 35 of 1955, and the related regulations implemented in 1958. The Public Archives Ordinance established the National Archives and empowered it to preserve public records. As well, the Archives was given the authority to examine any public records in government offices and advise on their care, storage and control.

The ordinance includes regulations that allow the National Archives to transfer government records to archival storage, through the use of disposal schedules. Thus, by implication, the National Archives has direct responsibility for both the inactive and archival stages of the life cycle. However, the ordinance does not provide the National Archives with authority to manage records during the active stage of the life cycle.

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Laura Millar received her MAS degree in Archival Studies from the University of British Columbia, Canada, in 1984 and her PhD in Archival Studies from the University of London in 1996. She has developed and taught archival education programmes both in Canada and internationally, including at the University of British Columbia, Simon Fraser University and the University of Alberta. She is the author of a number of books and articles on various aspects of archival management, including *A Manual for Small Archives* (1988), *Archival Gold: Managing and Preserving Publishers' Records* (1989) and *A Handbook for Records Management and College Archives in British Columbia* (1989).

The management of active records is the responsibility of the Management Services Division (MSD), which has a broad mandate to ensure maximum effectiveness in the execution of government plans and programmes through the development of efficient management techniques. This division, established in 1971, is a distinct branch of the office of the Head of the Civil Service.

At the time that the National Archives was created, no National Records Centre was established, and over the years there has been a build up of unmanaged and uncontrolled records in registries, storage areas and offices. Because of the lack of comprehensive policies for the management of records throughout their life cycle, the state of public records in Ghana in the 1990s has been poor. There has been little or no co-ordination concerning records care, and there is a dearth of adequately trained professional staff in place to cope with the volume of work. A 1989 report commented on the severe breakdown of registry systems in government offices, resulting from the lack of management, training and systematic control.

In 1989 and 1990 two practical workshops were held in Ghana to develop systems to manage semi-current records held in Accra. These workshops were able to clear quantities of non-current records, which involved destroying ephemeral files, transferring valuable records to the Archives and storing useful semi-current records in appropriate conditions. Staff were also trained in records management procedures, and manuals were developed to help manage processes more effectively. In the 1990s programmes were set up to develop and implement more efficient records management systems throughout the Ghanaian government. Among the objectives of these programmes were

- the restructuring of the National Archives into a National Records Administration
- the development of a records class for the civil service
- the establishment of retention schedules for general and specific records series
- the restructuring of registries and records services in ministries
- the establishment of a records centre
- the development of training schemes.

These activities are still in process of development and are meeting with success throughout government.

## **Developing a National Records Centre**

One of the tasks identified above is the development of a National Records Centre. This centre came into being as a temporary facility in 1989; by 1994 it held over one thousand boxes of records from over forty different ministries and government departments. Practically speaking, the Records Centre is part of the Records Management Unit of the National Archives; it has a staff of two.

The records centre has the broad objective of providing safe and orderly storage for all non-current government records, prior to their disposal as obsolete or archival. The Records Centre also exists to provide rapid retrieval of records for use by creating agencies.

Records centre staff are also supposed to conduct records inspections in government offices, advising on the handling and storage of semi-current and non-current records. The Centre is also expected to establish controls to ensure a continuous flow of records from government offices and registries to the Records Centre and, from there, to the Archives or to secure destruction.

## **Information Technology in Ghana**

Information technology has been used increasingly in governments in developing countries, but the application of computer technologies is often characterised by inconsistencies, lack of co-ordination and inadequate assessment of needs. The end result is waste and frustration.

The first computer was installed in Ghana in 1963. By 1978, there were twenty-two computers in the country, most shared or rented by departments, ministries and organisations without their own equipment. These computers were mainly used to solve data processing problems.

Computers in Ghana have been characterised by high costs and low performance. The result is a negative feeling about computers; they have been considered inefficient and problematic. In order to use computer technologies more efficiently, the government of Ghana took the initiative to develop a framework for computerisation in the public sector. The government sought to develop a system for automation, administered by a Data Processing Control Board (DPCB). The DPCB was charged with the following tasks:

- to promote the development of computerised systems in public administration
- to promote the development of professionally trained human resources in data processing
- to approve and control the acquisition and use of computers in the public service
- to approve and control the importation of computers into the country.

The Board was joined by a Central Systems Development Unit (CSDU), responsible for the execution of more specific tasks within the DPCB mandate. In 1982, the DPCB was abolished and the CSDU took over its functions. The CSDU became the primary agent of government responsible for the acquisition and implementation of computer technologies.

Although this agency is active in the pursuit of new computer technologies, training in computer technologies has not been extensive in Ghana. Many programmes are unco-ordinated and inadequately resourced. As a result, there are not enough trained professionals in Ghana to undertake the work required to implement new automated systems.

## **Developing an Automated Records Centre System**

Given the conditions outlined above, Harry Akussah undertook to develop a proposal for an automated records centre system for the Ghana National Archives. To do this, he began by analysing the present systems used to manage records centre work, by having the Records Centre supervisor complete a questionnaire and by studying the research documents prepared to date on the Records Centre systems in Ghana. He identified the following desirable actions.

- The Records Centre requires a firm organisational structure in order to function efficiently
- The Records Centre requires adequate staff numbers, with appropriately trained personnel in place
- The Records Centre needs to manage its own finances, at least in part, in order to entitle it to an annual budget
- Records Centre procedures, including the accessioning, processing and documentation of records transfers, must be reviewed prior to automation to ensure their currency and adequacy
- Reference service procedures must be reviewed and revised to ensure currency
- Disposal procedures, including destruction and transfer to the Archives, must be clearly documented in order to ensure accountability, transparency and efficiency in the management of records
- Systems must be developed to compile and distribute management reports and statistics, in order to track the efficiency of the Records Centre.

Each of these actions would benefit from automation of Records Centre operations. Automation would help the systems run more effectively and would help ensure activities were clearly documented. In the course of his research, Akussah developed a definition of the best system for automating the Records Centre's operations. Following is a list of the proposed data elements needed to describe records within a computerised system.

### ***Data Elements for Box-level Records Description***

- Name of ministry or department from which records are transferred
- Ministry or departmental code
- Status of box (confidential or open)
- Consignment number
- Box inclusive dates
- Box disposition date
- Disposition action
- Records Centre box number
- Location number.

### ***Additional Data Elements for Item-level Records Description***

- Records centre box number
- File title or description
- File reference number
- File inclusive dates.

## **Factors in Automation**

The following general factors were identified as important to automating the Records Centre system adequately:

- variable length data fields, to allow flexibility in data entry
- a sufficiently large system, to ensure adequate space for growth of the database
- detailed procedures for capturing and entering data into the computer, to allow for ease of use and later modification as required
- appropriate data validation systems, to ensure the presence of mandatory fields, the conformity of data to predetermined formats



- adequate procedures for the retrospective conversion of data currently held in manual systems
- adequate indexing and search systems to aid in the identification and location of records
- adequate physical resources (numbers of computers) to allow access to data as required
- policies about access to information, to protect the integrity and authenticity of data
- ability to provide on-screen and print output of the data
- the ability, in future if not at present, to develop local area networks to share data across government
- the mechanisms necessary to ensure complete backups are made of all data in a regular and secure fashion
- specific systems for transferring and accessioning records
- systems to assist with the effective use of storage space, by providing efficient location assignment and control
- reference tracking systems, to document all access activities
- systems for the creating of management and statistical reports.

As well as these specific programme requirements, the following actions would be necessary in order to ensure the success of the automated management system.

- All Records Centre staff must be thoroughly trained in the computer system procedures and ongoing training must be provided.
- Overall responsibility for the system should rest with the Records Centre supervisor.
- The actual design, installation and maintenance of the system should be the responsibility of the Central Systems Development Unit.
- Comprehensive systems documentation must be developed to ensure all processes are clearly identified and tracked.

## **Conclusion**

According to Akussah, most of the processes undertaken in the Records Centre are adaptable to automation. He feels that the Records Centre should seize the opportunity to automate its procedures now, as the Records Centre is just being developed, rather than wait until later, when there will be more work involved in revising processes and systems.

Automation will permit future expansion of the system and will enable the Records Centre staff to exploit facilities for inputting and outputting data. It will also allow speedy indexing and information retrieval and will ensure data can be stored, manipulated and used more efficiently.

Any action to automate the Records Centre's operations must be done in conjunction with overall information technology plans and policies in place in the Ghana government.

# Teaching Notes

## Educational Objectives

This case study has considered the importance of automation in a Records Centre in a developing country environment. It has stressed the importance of a planned approach to automation and to the need to develop systems that can be flexible and expandable over time.

At the end of this case study, you should have a clearer understanding of the following issues:

- The importance of planned management of resources and systems, particularly automation.
- The importance of training and adequate personnel resources.
- The reality of implementing automated systems in developing countries.

## Study Questions

To understand more fully the lessons offered from this case study, you may wish to review and answer the following questions.

1. Outline the specific steps recommended by Akussah to develop an automated system for the Ghana Records Centre. Identify any steps you might take differently or in a different order.
2. Review the data elements identified by Akussah. Identify any elements you would change, delete or add.
3. Akussah does not discuss specific software. Identify three advantages and three disadvantages to purchasing already developed software, and three advantages and three disadvantages to developing software specifically for this requirement. Be sure to address the issue of managing automation systems in a developing country.
4. Institutional requirements are always changing and it is often necessary to plan for software upgrades. What steps should the Ghana Records Centre take to ensure its automated system is useful for the foreseeable future, and that any changes can be made efficiently and effectively?
5. Staff resources are critical to the success and continuity of any technical or operational system. Outline a plan for the training of staff at the Records Centre, to ensure systems are well maintained, even if people leave their positions or are posted elsewhere.

## Exercise

In order to think through this case clearly, consider the four options carefully. First,

- identify three advantages and three disadvantages to automating the Records Centre's systems
- identify three advantages and three disadvantages to developing and maintaining a manual system.

Based on the information provided in this case study and on your thoughts outlined above, prepare a proposal for the automation of the Ghana Records Centre. In your proposal, do the following:

- summarise the current situation
- explain the specific steps you would take to automate the system
- identify the organisational structure you would propose
- identify the resources you would require
- identify the estimated time frame
- outline the data structure you would use, based on (but not limited to) the proposed data elements outlined above
- identify the products expected at the end.

Be sure to explain your reasons for the actions you have chosen.

# Automating the Archives and Records Management Programme at the University of the West Indies

Victoria Lemieux, Brian Speirs and Nicolas Maftel<sup>1</sup>

## Introduction

In 1995, the University of the West Indies (UWI) decided to develop an automated Archives and Records Management Programme (ARM Programme) to manage the

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She holds a Bachelor of Arts in History from the University of Toronto and a Master's in Archival Studies from the University of British Columbia in Canada. She is a member of a number of archives-related professional associations, including the Association of Canadian Archivists, and she is a founding member of the Jamaica Chapter of the Association of Records Manager and Administrators (ARMA) International. She has spoken at numerous conferences; has taught records management and archives administration for the University of Alberta, the Alberta Society of Archivists and the University of the West Indies; and she now serves as the co-ordinator of UWI's Certificate Programme in Records Management. She has published widely in the field of records and information management and archives administration. In addition, she has also served as an international adviser and consultant on records and information management projects for several governments in the Caribbean region, the International Records Management Trust, the Commonwealth Secretariat and the United Nations.

After receiving a MA in History from the University of Windsor Brian Speirs began his career as a government records archivist at the Archives of Ontario in 1969. During his 30 year career he has established two archives, the Yukon Territorial Archives in 1972 and more recently the University of the West Indies inter-campus Archives and Records Management Programme in 1991. In the 1980s he served as Provincial Archivist of Alberta and when he returned to Canada from Jamaica in 1997 he became Provincial Archivist of Nova Scotia, the position he holds now. Over the years he has taught archives and records management at the University of Alberta, the University of the West Indies and Dalhousie University. His involvement in the Canadian Council of Archives (CCA) dates from its inception. He was its first Vice-President and chaired its initial Planning and Priorities Committee. Since his return to Canada has become a member of the CCA Board of Directors and its Canadian Archival Information Network Steering Committee.

Nicolas Maftel has 29 years of experience as an information systems consultant, including 23 years with IBM. In 1992 he established his own consulting firm and has specialised since in records management and archive applications. He was involved in the design and the implementation of automated archives and records management systems for, among others, the National Archives of Canada, the Metropolitan Toronto Archives, the National Moving Image Database (NAMID, the American Film Institute, Los Angeles) and the Public Records Office of Hong Kong. He is a frequent speaker at archival conferences and schools for archival studies in Canada and the United States and he is the author of the successful seminar *How to position your Archives for Internet Access*.

recorded information created and used by the university community. In order to develop this automated programme, the staff at the UWI Archives had to conduct research into suitable computer software and hardware, determine the needs of the university, and plan the development, implementation and maintenance of the automated ARM Programme.

This case study reviews the steps involved in developing this ARM Programme and outlines some of the issues concerned with such a project.

## **Overview**

### **The Organisation of the University of the West Indies**

The University of the West Indies (UWI) is a tertiary-level educational institution that serves 14 countries and territories. Each national and territorial government contributes to financing the recurring budget of UWI. For capital expenditures and project initiatives, the university relies heavily on funding from developed countries, international agencies, foundations and major concessional loan programmes.

Students can pursue diplomas, undergraduate and graduate degrees in the Faculties of Agriculture, Arts and General Studies, Education, Engineering, Law, Medical Sciences, Natural Sciences and Social Sciences. The current (1995) enrolment of over 15,000 is projected to increase to more than 20,000 by the end of the century. UWI has three campuses: at Cave Hill in Barbados, at Mona in Jamaica (the oldest and largest) and at St Augustine in Trinidad.

Because of the regional nature of the institution, the organisational framework and collegial decision-making process are unlike that of other universities. In response to the pressing need for greater devolution of authority, extensive restructuring has been undertaken since the mid-1980s. Campuses have received more autonomy, and a University Centre, headed by the vice-chancellor, was created to provide university-wide central planning, administrative, financial and support services.

This decentralisation has led to the proliferation and replication of committees and boards. For example, instead of just one Council or one Planning and Estimates Committee, there are now usually four of each: one for the University Centre and one for each campus. This duplication and layering of bureaucracy presents some interesting challenges for archives and records management.

### **Planning the Automated ARM Programme**

When a University Archivist was appointed in September 1991, there were no developmental plans for an archives or records management programme, nor were there any resources in place to implement it. Faced with severe financial constraints, budgets that existed only on paper and cash flow problems beyond the comprehension of people in the developed world, the watchwords for programme development at UWI have been pragmatism, innovation and phased implementation.

To counteract the perception of records as administrative overhead, the archives and records management programme has been promoted and sold on the argument that university records constitute a valuable asset. They are an investment that deserves to be managed well in order to pay dividends, especially in an information age.

One of the first steps in developing the ARM Programme was to create a comprehensive position paper, outlining the principles, policies, procedures, plans and priorities that would govern the programme. This position paper was endorsed by the newly created University Archives and Records Management Advisory Committee and adopted by the Finance and General Purposes Committee on behalf of the University Council.

The purpose of the Archives and Records Management Programme, as stated in the mandate statement, is to

provide professional, efficient and consistent handling of University records by implementing policies and procedures based on recognised principles and practices for the appraisal, organisation, maintenance, retention and disposition of University records, including their systematic transfer to the Archives for preservation, arrangement, description and availability for research, reference and related purposes.

Envisioned as an integrated inter-campus programme charged with the provision of common services to the entire institution, the ARM programme is logically part of the University Centre and not administratively aligned to the Library.

Responsibility for the programme is vested in the University Archivist. The programme includes the following features:

- centralised co-ordination and control of strategic planning for the programme
- programme evaluation
- implementation and adherence to standardised policies and procedures
- the application of archival and records management principles and methodology
- uniformity in descriptive standards.

From a purely functional perspective, the programme is characterised by decentralised operations and services at the campus level. These services conform to overall programme design and parameters yet are flexible enough to meet the specific demands of each campus.

To achieve a successful Archives and Records Management Programme, it was decided to follow a results-oriented, building-block approach. This approach was considered the most realistic way in which to initiate and nurture a new programme and strengthen its credibility and acceptance. It was also decided, for strategic and tactical reasons, to concentrate initially on the current records stage of the life cycle, particularly for the core administrative records of the institution maintained by campus registries.

## **The Decision to Automate**

What were the reasons that UWI chose to automate its Archives and Records Management Programme? Some of the most compelling reasons are as follows:

- to postpone automation and wait until the ultimate software with every feature imaginable appeared on the market, would mean that automation would never occur
- there was an opportunity to automate from the beginning of a programme, when the likelihood of securing the requisite resources is greater
- as there was no archival programme of any kind, it would have been inappropriate and wasteful to develop outmoded manual research and reference tools, which would only have to be converted and replaced later when automation was implemented
- automation was a better means than manual systems for allowing the archives to improve and extend intellectual control over and access to its holdings
- as there was also no records management programme, it would have been equally inappropriate and wasteful to develop manual records management systems and have to replace these later
- since some records systems had already been automated (including some student records and financial records such as payroll) the continuation of antiquated and increasingly non-functioning paper-based records management systems would make access to these automated records worse, not better
- client complaints, from university staff, students and others about the lack of access to information meant that there was a climate of strong support for an efficient automated records system.

## **Determining Software Requirements**

The automated system would in essence be a large database, consisting of many computer records, with fields for various types of information about university records. Information might include titles of records, creating agencies, dates, quantity, restrictions on access and so on.

The automated database system would have to possess certain characteristics and capabilities if it were to be an integral component and cornerstone of the embryonic Archives and Records Management Programme. The Archives' choice of software was influenced by a number of guiding principles and operational imperatives. These principles included the following:

- the software chosen must be compatible with software and systems used by the University Centre and all three campuses



- only one software package must be used, and it must be able to handle all the core functions and ancillary support services involved in the management of the entire life cycle of records from creation to final disposition, including transfer to Archives and subsequent processing and access
- the software had to be able to manage different elements, such as files and file parts/volumes, series of records, retention schedules, loan and research control records, accession records, file classification systems and subject indexes
- the software must allow for searching and indexing of all fields, with automatic updates to ensure information about records remained current
- the software must be relational, not a flat file or tabular data management system. In other words, information in each record in the database had to be linked to other records, so that from one record any number of one-to-one, one-to-many and many-to-many links would be possible. (For example, a file as part of a series could also be linked to authority records and to operational records, eg accessions. Thus, it should not be necessary to enter the same data more than once and it should be possible to provide the linkages for multi-level description and access at the various hierarchical levels of archival arrangement).
- the software must allow for flexibility in inputting, formatting and changing information. Database field lengths, for example, must be unlimited, to accommodate the wide range of data elements encountered in records management and archives applications.
- the software chosen had to conform to the Canadian Rules for Archival Description (RAD), the Canadian extension to the General International Standard Archival Description (ISAD(G)). The UWI Archives had selected this as the standard it would follow in its archival work.
- the software must allow for controlled vocabulary for access points, such as personal or corporate names, places or subjects
- the software had to be able to be connected with ('communicate' with) major database management systems already in place or planned for UWI
- the software must not require specific hardware or network systems; this would ensure the university was not restricted to having to purchase and use only one 'brand name'
- the software must require minimal technical support once it became fully operational
- the software must be one that is being regularly reviewed and upgraded by its manufacturers; this was important to ensure the university did not end up with an obsolete package with no ongoing commitment from its creators
- the software must be 'user friendly', driven by menus and not requiring extensive programming after purchase
- ongoing training and technical support must be available from the software manufacturers

- the software must have a proven track record and be available from a reputable and reliable source
- the software must have the potential for future application to the management of electronic records, not just textual records
- the software must be designed to allow for cost-effective and non-disruptive changes, as operational requirements inevitably change overtime. (For example, adding a new data element (field) or a new application to the system should be possible without having to reprogramme the system and should not require a reorganisation of the database. Similarly, creating and changing reports should be a task that an end-user with no programming background should be able to perform).

## **Funding and Developing the Automated System**

Realising full well that nothing was going to happen without an infusion of financial resources, efforts began early on to explore funding possibilities. Before a University Archivist was appointed, a number of University Centre consultancy projects had been proposed, to be funded by the Inter-American Development Bank (IDB). Some US\$48,000 plus transportation had been allocated to a consultancy to examine the need, functions and organisation of a UWI archives programme.

The University Archives was able to convince the responsible officials that to expend any funds on this redundant project would be a waste of money. Rather, the Archives persuaded the officials to reassign funds to engage consultancies to evaluate, select and purchase the necessary software and to design, tailor, install, test and document the data bases and applications on the chosen software. The consultancy would also provide staff training.

By June 1992, the University Archives had developed and received IDB approval of the project. The Archives could then solicit quotations from consultancy firms to supply the software and deliver consultancy services. By December 1992, it was decided to purchase GENCAT generic cataloguing relational software from Eloquent Systems Inc., a Canadian firm based in North Vancouver, British Columbia. Nicolas Maftei, an authorised GENCAT consultant from Vancouver, was awarded the contract to undertake design of the total system, application customisation and staff training.

As no money was available for hardware, a case was made for funding from a Canada/UWI-Institutional Strengthening Project (ISP). Fortunately, ISP approval was forthcoming for a number of phased project proposals to enable enough computer and networking equipment and materials (eg cable, connectors, and network cards) to be purchased so that the system could become a reality on all three campuses.

However, there were funds enough to purchase the full developmental package of GENCAT for only one campus. The Mona campus was chosen, because Mona's manual systems were in the worst shape and because its commitment to the ARM Programme was more solid than the other campuses.

As a prelude to the consultant's initial visit to Mona in late February 1993, an intensive two-day seminar was held for Registry Filing Room staff as a means of preparing them for what was in store and why.

By early June 1993, the consultant had spent four weeks at Mona. During this time, he completed the following tasks:

- prepared the design, structure and linkage of all data elements, fields and authority tables for the system data bases
- created input and search screens and output report formats
- entered and tested sample data
- installed, modified and validated the system in a stand-alone mode
- provided demonstrations to senior administrative staff
- provided basic training for staff in data entry.

Throughout the consultancy, the University Archivist and the Mona campus Records Manager worked closely with the systems consultant. The consultant became quite knowledgeable about archival and records management issues and about the functional requirements of an ARM Programme. Similarly, the Archives staff became familiar with the functions of the software, which allowed for further system improvements.

Throughout 1993, some progress was made in installing a fibre optic backbone at Mona and in developing a campus-wide distributed client-server network on Novell. This was encouraging, but none of the locations in which the automated system was to operate initially were on the network; plans and funds to connect them were uncertain at best. Moreover, the network was experiencing technical difficulties; the use of any existing file server for archives and records management purposes was problematic.

Instead of waiting until the network was operating smoothly and extended to all the critical locations, it was decided to get started with an ARM Programme local area network on some ten PC work stations in the Registry Filing Room, Records Centre and the offices of the University Archivist and Records Manager.

## **The Nature of the Automated System**

The automated system created manages records throughout their life-cycle, from the active phase, through their inactive retention period in the Records Centre, to their eventual transfer to the Archives or destruction. To do this, the software provided for the automation of records at various levels, such as the file, folder and, if required, box levels as well as all the levels of archival arrangement.

## **Management of Active Records**

The software supports the following processes for the management of active records in Registry Filing Rooms:

- creating and updating control records for files and their constituent parts or volumes
- producing, tracking and completing file loan records
- searching files, parts and loan records using various access points
- assisting in the implementation of approved retention periods and final dispositions
- generating an array of output products and statistical reports to support and document the operations of the Central Registry Filing Rooms.

## **Management of Scheduling and Records Centre Operations**

The software is also used for scheduling and records centre operations as follows:

- preparing, amending and implementing records retention and disposition authorities
- accessioning records transferred to records centres
- preparing and revising detailed records centre inventory control and retrieval records at the file and part level
- searching records centre inventories using various access points
- creating and completing records centre loan records
- generating a host of output products and statistical reports to facilitate and document implementation of schedules and records centre operations.

## **Management of Inactive and Archival Records**

In managing active and inactive records, the basic element in the automated system is a file record. A database record is created for each file/folder; it includes parameters such as the file number, title, description, date opened and date closed, and so on. Files can be grouped into series, which in turn are covered by Records Retention and Disposition Authorities (RRDAs). An RRDA typically includes the type of files and series of records, their retention periods, final dispositions and access restrictions. The software allows for the establishment of links between a file record and the corresponding series and RRDA records. Through these links, the file inherits the final disposition code, retention period and access restrictions from the series or RRDA records to which it is related.

The relational nature of the software makes it possible to avoid duplication of data. No data element is entered into the system more than once. In addition, the inheritance function facilitates the presentation of information in context. For example, when a file record is found as a result of a search, the file data is displayed together with context information inherited by the file record from the related series or RRDA records.

The following archival functions are targeted for automation:

- compiling and updating as required accession control records
- describing records at all levels of arrangement on a cumulative basis and in compliance with recognised descriptive standards
- searching at all levels of arrangement using various access points
- compiling and (where available) receiving through electronic transfer detailed information on academic and senior administrative staff no longer employed by UWI to serve as career profiles for research purposes
- producing request slips for retrieval and refiling
- producing file and box labels for identification and location purposes
- generating various output products and statistical reports to record and support archival functions.

When the evolution and expansion of the automated ARM Programme has reached the appropriate stage, it is also intended to use the system software to develop file classification plans and assist in managing active records in the Bursaries, Faculties and Departments.

## **Evaluating the ARM Programme**

The successes and failures of the project must be evaluated against the initial desired outcomes of system implementation. It should be noted that both funding agencies, IDB and Canada/UWI-ISP, regard the project as a 'success story' and the money well spent.

The primary desired outcomes for this project were

- to improve intellectual control over university records throughout their life cycle
- to improve information retrieval.

Both of these goals have been achieved with respect to the University's Mona campus and Centre administrations, although they have yet to be realised on a wider scale within faculty and department offices and on all three campuses. The University Archives expects that these goals also will be achieved on a wider scale in time.

Intellectual control of University records housed in the Mona campus Central Registry Filing Room has improved markedly with the implementation of the automated programme. Prior to implementation of the system, no comprehensive file listing of central registry holdings existed, and existing manual control mechanisms were on the verge of collapse. As part of system implementation, the Archives undertook a

comprehensive retrospective data entry project to input descriptive information on over 50,000 files and file parts held in the Central Registry Filing Room and Records Centre. It is true that file listings can be produced manually; however, the entry of descriptive information about files into the automated system has several advantages over manual systems. These include the following:

- since the automated Archival and Records Management Programme has been designed with a view to managing University records throughout their lifecycle, it was only necessary to enter descriptive information into the system once. The system uses this same descriptive information to manage files in the active and inactive phases of the records life cycle and to implement file dispositions. For files that are transferred to the archives, that same description information is used to develop a multi-level archival description of the records
- automation of descriptive information about central registry files has allowed the Archives to produce customised listings and indexes. These lists may be used internally by Central Registry Filing Room staff or they may serve Records Centre and Archives users
- automation of the intellectual control of Central Registry Filing Room and Record Centre holdings has set the stage for vastly improved information retrieval capabilities.

The automated system has improved the Archives' ability to retrieve information in a number of ways.

First and most obviously, now that a comprehensive listing of Central Registry Filing Room and Records Centre holdings exists in automated form, it is much easier to identify requested files and information.

The system also aids file and information retrieval because of its flexible search capabilities. For example, if asked for a general administrative file on a particular subject, staff can search for the file by a number of access points, individually or grouped, rather than having to know the exact file title or number. The system will locate any files, no matter what their physical location or life cycle phase, containing the specified access parameter.

As a result of the system's flexibility in performing searches, central registry staff can locate requested files or information even when users' requests are not particularly precise.

The system also allows staff to track the movement of requested files that have been marked out of the central registry and the length of time they have been out on loan. This facility makes it much easier for staff to locate such files when these are subsequently requested by another user or when new documents must be placed on file.

# Identifying the Advantages and Disadvantages of the Programme

In evaluating any completed project, it is important to consider the specific factors that lead to its success or contributed to problems. There follows a list of factors that contributed to the success of the automated ARM Programme or that proved a potential pitfall or learning experience.

## 1 Senior Management Support

Since its inception, the automation programme has had excellent credibility with senior management. Senior management support was critical to the successful implementation of the system for two main reasons. First, such support helped secure project funding. Second, implementation of the automated system required the co-operation of Central Registry Filing Room users and campus systems staff. Senior management support was crucial in achieving this inter-departmental support for the project.

## 2 Adequate Resources

Also critical to the success of the project were realistic and accurate projections about both the financial and human resources that would be required to complete it. From the outset of the project, the University Archives sought a system that could be tailored to suit its own requirements and sought a consultant who could ensure this customisation. If the Archives had only budgeted for the purchase of the hardware and software for the system and not for its customisation, the success of the project would have been compromised.

## 3 Stable and Accessible Software Vendor

A stable software manufacturer is critical to the success of any automation project. Stability ensures that the company will enhance and improve its product over time. If the developer goes out of business, purchasers may be left with an outdated system that becomes increasingly difficult to maintain. A reliable software vendor is also important, as the vendor is often involved in providing for installation and front line system support. In our case, the software we used has been developed and distributed by the same company, which has offered excellent system support. Such support is critical to the success of the project and the continuing viability of the system.

With the purchase of the chosen software package, the University Archives received one year of free system support from the vendor. This proved absolutely critical. First, since the software had never before been used in the context of an integrated archives and records management programme with responsibility for managing records throughout their life cycle, the UWI staff had to work very closely with a systems consultant to customise the system to meet specifications. Staff had to communicate regularly with the systems consultant and programmers to sort out system problems.

System support was also essential as there was no local or regional source of expertise about the system in Jamaica. One of the facts of life of working in the context of a developing economy is that there is often a general lack of indigenous technical expertise. Although the University of the West Indies has in-house systems experts,

they were unfamiliar with the software chosen; further, they were so over-extended because of the general acceleration in automation developments at the university that they often could not provide technical support on a timely basis. Consequently, Archives staff had to take on responsibility for system repairs and maintenance. These tasks would have been impossible without the benefit of the systems support agreement that came with the purchase of our system.

Long distance telephone and fax charges have mounted up. Although the supplier of our software has a toll free telephone number, it has not been economical for staff to use this service because Telecommunications of Jamaica charges clients who access 1-800 numbers in order to maintain its monopoly as a long distance service provider in the Jamaican market. The most economical approach has been to reverse charges to the supplier and have them return the call. However, because of the difficulties associated with placing a long distance phone call in Jamaica, staff have most often opted to dial direct as the easiest and quickest course of action when under pressure to resolve system problems. Recently, programme staff have gained access to the Internet. Sending e-mail messages has proven an effective way to reduce the cost and speed up communications with overseas system experts.

The distance between the system installation site at the University of the West Indies' Mona campus and the system vendors in Canada has often led to delays in resolving system problems. Staff have not had the luxury of being able to contact a local vendor and have someone sent the same day to resolve the problem. Lag time has occurred as a result of the time it has taken staff to connect with the supplier, communicate the problem and work with the overseas experts on a solution. Very often experts were not able to identify the cause of the problem immediately because of the need to rely on what staff communicated about the problem (sometimes imperfectly) rather than examining the system themselves.

After the system had been in place at the Mona campus for one year, the Archives received an invoice from the supplier for the cost of the next year's system support. We debated whether to purchase this service, as the cost of system support was quite expensive and required that we pay in US dollars. However, the Archives chose to renew the service, a decision that turned out to be critical, as much work was undertaken in the second year to modify and enhance the system. Without the technical support agreement, the Archives would have been hard pressed to resolve the systems problems it experienced.

The challenges associated with relying on an overseas vendor for technical support are numerous, but not insurmountable. However, lessons from experience at the University of the West Indies suggests that, all other things being equal, preference should be given to a product that has been locally developed or distributed.

#### **4 Well-defined Requirements**

There is an old saying that goes: if you don't know where you are going, any road will get you there. At no time is this more true than when implementing an automated system. Without a clear picture of desired system functions and performance criteria, it becomes very difficult to select appropriate software for the job. Clearly defined



system requirements were critical to the selection of appropriate software and to the eventual success of the project.

## **5 The Right System**

Rarely is it possible to identify software that will meet all of the predefined system requirements; therefore, requirements will have to be prioritised, in order to decide the right software product for the purpose. There are great advantages to choosing a software programme that can be tailored to suit individual requirements. However, such tailoring requires a great deal of development to meet specific needs. It is then often necessary, and wise, to hire a consultant to help do the job. While it is possible for staff to do the work themselves, they often lack the required technical expertise; their learning curve is thus quite steep. While software that requires some customisation can end up costing more money to implement properly, the advantage is that a purchaser can often end up with a system that more closely matches operational needs, which is the case at UWI.

## **Acquisition of Equipment and Supplies**

As computer hardware (eg hard drives, monitors, keyboards, network cards, cabling and so on) is not produced locally in Jamaica, this type of equipment must be imported from overseas, usually the United States, even if it is purchased through a local vendor. Consequently, there are often serious delays in receiving equipment, as the local reseller must obtain enough foreign exchange to secure the order from off-island suppliers, which is not always easy, and the supplies must be shipped from overseas and clear customs before they can be delivered to the local reseller and, finally, the purchaser. Obtaining customs clearance can also be difficult, and this can delay the development process. The best advice is to be prepared with all necessary documentation well in advance to reduce the chance of delays.

## **Technology Fit**

Choosing the 'platform' refers to selecting the hardware on which the system will run, the operating system to be used and, if the system is to be networked, the communications software to be used. The choice of system platform will have a bearing on technical support, if hardware or software components are chosen for which there is no local base of expertise. Support can become more costly and time consuming. In addition, choice of a system platform can also have an impact on future development of the system and its long-term viability. For instance, in the UWI case the system chosen was designed only to run on a DOS operating system. However, the university is now finding that UNIX is an increasingly popular operating system on campus, and there are plans to purchase a large UNIX server in the future. The fact that Archives' system runs only on a DOS platform presents limitations in terms of being able to take advantage of system developments on campus if UNIX becomes the new standard.

In addition, the Archives chose LANtastic as the platform to get the network going. Since this decision, the Mona Information Systems Unit has selected Novell as the standard network software and TCP/IP as the standard communications protocol. As LANtastic uses a different communications protocol than is now being used for the campus-wide network, the Archives will have to switch over. Until they do, remote users will not have automatic access to the ARM Programme database when they log on to the campus-wide network. Instead, to access the system, users must log off of the campus-wide network and log on separately to the Archives' system. The lesson to be learned from this is that, whenever possible, the platform should follow existing in-house standards, whether prescribed or de facto.

## **Training**

Having selected the right system, it is essential that system users receive adequate and appropriate training. Without proper training, system users will remain incapable of taking full advantage of system features and the results desired of automation may not be achieved. The importance of training to the successful implementation of an automated system cannot be over emphasised. Upon installation of the university's system, the system consultant provided some very basic training to select programme staff; however, time was limited and, in retrospect, the training was insufficient. The software system did come with documentation, to which staff were able to refer for answers to some questions. But many of the software's features were undocumented. For the first few months, staff found themselves on the telephone to system consultants seeking answers to questions about how to perform certain functions with the new system. It would have been much better if select staff had been given intensive system training in the first place both to allow them to use the system more effectively to ensure problems could be solved more easily and locally.

Once a core of programme staff were familiar with the system, it was up to this group to train the other system users. This was accomplished by holding in depth training sessions with two or three individuals at a time. Each staff member was shown how to perform the basic functions they would need to know. Initially, staff focused on data entry, as entering data was critical to bringing the system into operation. Once data entry was complete and the system was brought into full operation, programme staff were trained to perform searches, print reports, and track files using the system. This 'just in time' approach to training worked most effectively, as programme staff remember skills more readily when they require them to perform a task soon after training.

The Archives also appointed one staff member in the Central Registry Filing Room, the unit that uses the system primarily at this time, as a 'computer monitor'. This individual serves as a contact point for other staff in the unit who might have questions about system functions or problems. The appointment of a computer monitor has also streamlined communications by centralising information in one source.

## **System Documentation**

Related to training and equally essential to the successful implementation and use of an automated system is adequate system documentation. Documentation may be divided into two types: technical documentation aimed at technical support staff, and user documentation, which, as the name suggests, is intended for system users. Both types are necessary for the effective operation of an automated system.

With the purchase of the software chosen, staff received a manual outlining its generic features and functions. This documentation, while useful, has not proven to be sufficient information for staff involved in the provision of technical support of the system. Many important technical questions remain unanswered in the manual. However, the supplier has been very good about responding to technical questions; the company also produces a newsletter containing technical tips for its system users. This kind of service is crucial (as documentation received with the purchase of software is so often inadequate). Any good system distributor should offer it.

The system consultant also produced a user manual specifically describing the functionality of the university's customised system. Because many system users were completely inexperienced in the use of computers, the Archives have found it necessary to expand on this manual by including more detailed instructions and examples. The preparation of this documentation has been very time consuming, as revisions have been required each time the system has been altered or enhanced. However, the time spent to produce this documentation has been worthwhile, as users can refer to the manual for answers to most of their questions.

## **Data Entry**

Any system is useless until it contains data. Bringing a system into operation entails performing data entry. The Archives chose to undertake comprehensive retrospective data entry of control mechanisms and indexes for all files maintained in the Central Registry Filing Room. This is certainly not the only approach that can be taken; an institution may decide to begin data entry of only new files after a certain cut off date or to enter only files that are in current use. However, the experience at the UWI suggests that comprehensive data entry is worth the time and money spent to enter all of this information. The system's usefulness is directly related to the amount of data it contains.

Rather than employing contract staff to perform the data entry, the university had its own Archives staff undertake this work. The rationale in taking this approach was that the data entry project would provide the programme staff with valuable experience in using the system, making it easier for them to use it when it was ready to be brought into full production. This certainly proved to be true. Staff were given special project pay to perform this work outside of regular working hours. This pay was calculated on a per entry basis.

Although staff had been given data entry training, the Archives still discovered errors in the data entry after the fact. For example, individuals' names and file numbers had sometimes not been entered in the specified format. If left uncorrected these data entry

errors would have created problems in performing searches, so it was necessary to correct errors as they were discovered. It might have been advisable to monitor data entry work more intensely in the early stages of the project to ensure that problems are sorted out before it is too late.

## **Phased Implementation**

With automation, as with so many other projects, it is important to build on success. It is much easier to achieve success by taking small steps toward goals, rather than by leaping into a new situation. The approach with this project was to divide it into manageable components that offered a greater chance of success, building on each successfully completed task to realise the overall project objectives.

The university planned a phased approach to the implementation of its system. The first phase involved installation and system testing. The second involved retrospective data entry of manual indexes. In the third phase, staff began to use the system as the primary tool for intellectual control of files and to search for files. Next, they brought the system into full production, using its file tracking features. Most recently, the Archives introduced system enhancements that improve system functionality in such areas as searching and file tracking.

As the software chosen is modular in nature, there will be little difficulty in phasing in other functions, such as bar coding and imaging, when the university is ready to take advantage of these features. The phased approach has worked well in that it allowed staff time to become comfortable with the system and to build upon successes along the way.

## **Adequate Support Infrastructure**

It is not possible to complete an automation project successfully without adequate technical support. The use of a systems consultant to customise software and assist in its implementation helped ensure success. In addition, the University Archives enlisted the co-operation of staff from the campus systems unit to assist in system installation and maintenance.

## **Work Process Re-engineering**

In this project, the implementation of the automated system took place in conjunction with a project to conduct a comprehensive review of all Central Registry Filing Room work processes. With the completion of this review, the Archives staff undertook a physical and functional reorganisation of the Central Registry Filing Room, which changed much of the way in which work was performed. As the computer system requirements had been developed prior to this re-engineering of Central Registry Filing Room, a number of changes had to be made to the system to accommodate new work processes. For example, staff were experiencing serious problems with the manual

system of tracking files out on loan from the Central Registry Filing Room. After an exhaustive review of work processes, it was decided to limit the loan period for records to two weeks and send out overdue loan notices to file users after that time. Fortunately, the systems consultant was able to visit the Mona campus in March 1995 and help build this functionality into the system. Now this system automatically calculates the due date of files and produces overdue loan notices. The lesson to be learned from this experience is that, whenever possible, work processes should be reviewed and redesigned in advance of system selection and implementation.

Even if work process re-engineering takes place before system requirements are defined and the system is implemented, it is virtually impossible to select or design a system that performs all of the functions an organisation will eventually want it to do. This is because implementing a computer system will not just automate work processes; it will change them. As staff begin to work with the new system, they will begin to see possibilities they did not see before. They may also discover that a function that worked during the testing phase does not work as planned in production.

For these reasons, it is wise to select a system that is easily tailored (eg without programming and a complete reorganisation of the database) and to budget, at least initially, for the assistance of a technical expert who can help with the necessary tailoring. Our experience definitely indicates that it is best to be prepared for the revolutionary effect that automation will have on your work processes, although these often cannot be predicted, and plan to build in system changes and enhancements as work processes evolve.

## **System Backup**

It is essential to be prepared for that dark day when the system crashes and wipes out the entire database. Regular system backups are essential to ensuring this crash is not a serious problem. One mistake to avoid in a networked system is backing up a logical version of the system rather than the actual physical system. For example, if your system resides on the C drive of your server and the network drive is designated as D drive, ensure that you are backing up the correct directories on the C drive. This may sound obvious, but the UWI staff made this error. Fortunately, they discovered it before having to rely on backup tapes! By obtaining the advice and guidance of systems experts in setting up backup routines, it is possible to avoid making the same mistake. Although performing regular backups of the system takes time, the UWI staff have no regrets about doing so as they have had to restore the system from tape backups a number of times.

## **Power Problems**

Another fact of life in working within the context of a developing economy is that power supply can be inconsistent and intermittent. Persistent power problems have both technical and non-technical implications. In theory, the power supply in Jamaica is 120 volts at 50 hertz. The reality is that the voltage can vary significantly and cycle

times can range from 40 to 60 hertz. In addition, the Jamaica Power Supply Company periodically shuts off the power supply in various districts as part of a procedure known locally as 'load shedding'.

The University's Mona campus does have a number of backup generators, but these are unreliable because they are, by and large, quite old, temperamental and frequently out of fuel when power outages occur. Not surprisingly, these power fluctuations and cuts can have negative repercussions for computer equipment. One electrical storm completely 'fried' an expensive network card. Power cuts have frequently corrupted index files in our database forcing staff to bring down the system for days at a time while they rebuilt the indexes. It is critical to work closely with the organisation's physical plant staff to ensure the best electrical systems available are in place and to train staff to take appropriate action in the case of a power cuts.

Persistent power disruptions can also mean the system is periodically down. Nonetheless, requests for files are still made and work must still go on. At UWI, this has meant that staff have been unable to dispense with manual backup systems entirely. They keep computer printouts of file lists and indexes on hand in case the power goes out and they must search for a file. They are also still running a manual file tracking system so that in the event of a power failure they can still locate a file that is marked out from the Central Registry Filing Room. Although they would like to do away with these manual systems, until the power supply on campus becomes more reliable they will continue to run manual systems in parallel with and as a backup to the automated system.

## **Conclusion: Planning for the Future**

The automation goals of the Archives of the University of the West Indies have been achieved with respect to the records of the Mona campus and Centre administration. They have yet to be realised on a wider scale within faculty and department offices and on all campuses. With a view to making the automated system available outside the Archives and Records Management Programme, the Archives recently purchased an upgrade to the software that will allow an unlimited number of users the ability to search the database and allow as many as thirty users to perform data entry simultaneously. The Archives has immediate plans to expand its network to the University Vice-Chancellor's Office and Office of Administration, as well as to the Mona campus Principal's Office, campus Registrar's Office, Personnel Department and Appointments Section.

In addition to network expansion, plans are underway at the Mona campus to phase in the software's bar coding component. With the introduction of bar coding, Archives staff hope to reduce data entry time by 24 hours per week and make transfer and tracking of files much easier.

Increasingly, University records are created and maintained in electronic form. Now that the management of University records in paper form has been automated. Staff at the Mona and St Augustine campuses are exploring ways of using the automated system to manage electronic records and scanned images. Mona staff have already carried out some initial experiments using the software's imaging program. With some

simple modifications to the existing system, the management of electronic records and scanned images should be entirely possible in the not too distant future.

Automation of records management and archival functions is also underway at the University's St Augustine campus in Trinidad. An automated system based on the Mona system was installed in March 1995. St Augustine staff are currently undertaking a comprehensive retrospective data entry project like the one conducted at Mona to bring the system into production. It is anticipated that the system will be in full production by January 1996. The University's Cave Hill campus in Barbados will follow suit by late 1995 or early 1996. The St Augustine and Cave Hill campuses will definitely benefit from the experience already gained at Mona in implementing the system, which will minimise, if not eliminate, certain previously experienced problems.

Further visits by the systems consultant are scheduled for all three campuses in order to fine tune the systems at Mona and St Augustine and assist in the implementation of the system at Cave Hill. Advanced training for key staff on all three campuses has been approved under the ISP staff development award programme. The training will enable staff to design new databases and applications and modify existing ones. They will also be able to maintain and manage the system better, improve in-house diagnostics and take far greater advantage of the software's capabilities. This is critical if we are to sustain and build on a successful automation effort in the post-consultancy period.

Although automation of archives and records management functions at the University of the West Indies has not been easy and was fraught with many challenges along the way, it is gratifying that the UWI has become a leader in archives and records management in the Caribbean region and that our system has generated interest and favourable comment outside the region.

# Teaching Notes

## Educational Objectives

This case study focuses on technical issues, such as the selection of appropriate software for particular tasks. However, it is also a management problem, as decisions must be made on the basis of the strategic and daily management of staff and resources and the short- and long-term goals of the organisation.

At the end of this case study, you should have a clearer understanding of the following issues:

- the importance of planned management of resources and systems
- the importance of selecting software and hardware in conjunction with larger organisational objectives, not just in order to achieve immediate results
- the role of consultants and contractors in a large project
- the importance of training and education to sustain project goals.

## Study Questions

To understand more fully the lessons offered from this case study, you may wish to review and answer the following questions.

1. Outline the specific steps taken by the Archives to select, develop, and implement its ARM programme. Identify any steps you might take differently or in a different order.
2. Should the Archives have relied on a software vendor located thousands of miles from the office where the software was being used? What were the advantages and disadvantages of such a choice?
3. How has the Archives set up its training programme for the use of this software? How might the training programme be improved to ensure the widest possible knowledge of the software?
4. What steps has the Archives taken to ensure the sustainability of this programme in future? What actions might it take?
5. How might the Archives reduce reliance on an external consultant and increase internal knowledge of the systems in use?
6. Why is work process re-engineering important for such a project? What are the consequences of automating systems without reviewing and revising the actual processes involved?



7. What reasons were given to automate the system, rather than using a manual system? What reasons can be given for maintaining a manual system instead of automating? Which method makes more sense in the long-term?

## **Exercise**

Identify a process undertaken in your institution that would benefit from automation, such as accessioning records, transferring files from inactive storage to archives, or answering user requests. Write a plan for the automation of that process. Include in your plan the following points:

- the purpose of the automated system
- the tasks it will document
- the general resources required
- the general time frame for implementation
- the methods to be used to train staff
- the methods to be used to maintain the system
- the methods to be used to ensure the system is physically and administratively secure.

## Bibliography

- Davis, James V. Jr. 'Choosing Records Management Software'. *Records Management Quarterly* Vol. 22, No. 3 (July 1988)
- Department of Defense, United States. *DoD 5015, Standard for Records Management Applications*. November 24, 1997
- Duff, Wendy. 'Ensuring the preservation of reliable Evidence: A Research Project Funded by the NHPRC.' *Archivaria* 42
- Duranti, Luciana and Terry Eastwood. 'Protecting Electronic Evidence – A Research Study'. *Archivi and Computers* 5/96
- Hedstrom, Margaret. 'Building Record Keeping Systems: Archivists are not alone on the wild frontier'. *Archivaria* 44
- O'Connor, Dee Dee. 'Automating a Records Index'. *Records Management Quarterly* Vol. 23 No. 1, January 1989
- Phillips, John T. *Software Directory for Automated Records Management Systems*. 1997 Edition. Prairie Village, KS: ARMA International, 1997. ISBN 0-933887-74-4
- Ricks, Betty R., et al. *Information and Image Management*, 3<sup>rd</sup> edition. Cincinnati, OH: South-Western Publishing, 1992
- Stillman, Juanita and April Dmytrenko. 'A Comparison of PC Based Records Management Software'. *Records Management Quarterly* Vol. 23 No. 2 (April 1989)
- Volkema, Roger J. 'Computer-Assisted Meeting Management and Record keeping'. *Records Management Quarterly* Vol. 22 No. 4 (October 1988)
- Yen, David (Chi Chung), and Hung-Lian Tang. 'Future Trends of Computer-based Information Systems'. *Records Management Quarterly* Vol. 22 No. 4 (October 1988)

# Systems Downfall or Organisational Shift? The Case of Andover University Archives

Laura Millar<sup>1</sup>

## Introduction

It is mid-February 1996. Andover University Archives is faced with a decision about whether to restructure its existing, but inadequate, automated information management system or to scrap the system entirely, purchase new software and develop a new system better suited to its changing information management needs.

The university has a pool of reserve uncommitted funds that will become available on 1 March, as part of year-end financial reallocations. If the university wishes to use these funds to improve its information management systems, a detailed application to this effect must reach the University Finance Department in the next two weeks. If the university gives the IT management systems restructure the “green light”, management must decide whether to revamp the existing system or replace it and, for either case, what resources will be required.

The Director of the University’s Archives knows that, aside from these year-end funds, money for such a significant project will not be available for at least another two years, as the university has imposed a freeze on all non-essential spending.

## Overview/Analysis

In 1992, six months after his appointment, the Director of the Archives began to develop an automated information management system. This system would be used to manage the following tasks:

- establishing and maintaining a records retention schedule for university records
- providing annual disposition documentation to advise departments of pending destruction or transfer of records
- accessioning records into the records centre and into the archives

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- tracking the movement of records retrieved for reference
- maintaining statistics on the uses of the records centre and archives.

The Archives chose the Paradox relational database software package. Its decision was based on the fact that the university's finance and personnel departments were acquiring Paradox at the same time and a bulk purchase agreement permitted other units to acquire the software at a special reduced price with two years' service and assistance included. Since the assistant university archivist was well-versed in the use of Paradox and would be responsible for its maintenance, this purchase seemed logical and wise.

The Archives subsequently invested the intervening years adapting and extending the database functionality to meet archival needs, but gradually found that the software was not flexible enough to handle all of the required tasks. It became necessary to bring in a computer programmer every six months to download and reload the data to eliminate errors generated in the data processing stage. Further, the Archives wished to expand the capabilities of its information management system to include the following tasks:

- automatic generation of standardised records descriptions based on administrative information entered into the computer
- printing of labels, finding aids and lists as required
- on-line searching of files, by title, by creating department or by keyword searching of the database
- expansion of the database to include all archival records in the repository, both institutional and private
- possible Internet access to the archival data, with restricted access to selected information about current records.

As of 1992, the Archives had a staff of four: two full-time professional staff, one full-time clerical assistant and one part-time student assistant. In 1996 the staff complement was reduced to three when the assistant archivist retired. At present this position has not been filled, owing to the budget freeze.

In 1996 the Archives engaged a contractor to assist with improving the capacity and archival capabilities of the database. The consultant advised that the Paradox was not adequate to the task, but at that time the Archives was not in a position to consider a change. After eighteen months the contractor provided an interim report recommending that no further data be added to the database until new software suitable for archival applications was obtained.

Faced with the need to keep the finding aids up to date, at least at a minimal level, the Archives continued to add data until spring 1998, when the system suffered a collapse and two week's data had to be re-entered. At that time the Director requested emergency funds to take action to restore and upgrade the system, but the university was only able to provide \$1,000, which enabled the Archives to purchase and install a tape backup system.

Since that time, the Director has been researching other information management systems, including the most recent records management software, and has determined that TRIM could perform most of the functions desired, such as textual search and retrieval, reporting and generating disposition schedules and annual records updates.

In February this year, a colleague in the Finance Department notified the Director of the University Archives that some funds would be available for end-of-year projects, which is why the Archives is now considering a major change in the software and systems used.

## **Status Report**

By March, the Director had obtained preliminary quotations from two consultants for (1) revision of the existing system and (2) development and installation of a new system.

Consultant A estimated \$10,000 for revision and \$65,000 for installation of a new system but advised against revision, claiming it was a poor use of resources. Consultant B estimated \$15,000 for revision and \$35,000 for installation of a new system and felt either approach was feasible.

Given the short time frame available for preparing their quotations, both consultants reserved the right to provide revised estimates prior to commencing any work.

## **Case Problem**

The Director is concerned that he may not have sufficient information to make a valid decision about which direction to go, but he knows that if he does not act now when the funds are available, he will lose his chance and be stuck with a collapsed system. He calls you in to help him by assessing the situation and recommending a realistic and effective course of action. You have been asked to produce a three page report summarising the issues, analysing the alternatives and making a recommendation.

Think over the situation and prepare an annotated plan of how you would approach advising the Director of the University Archives. Starting from your return to your office to begin the task, outline and explain the rationale behind the steps you will take in preparing the advice, the form you will be choosing to deliver and briefly summarise the key points you have decided to make in the three-page report.

## Appendix: Data Structure

### Existing Data Structure

| <i>Code</i> | <i>Field Name</i>                | <i>Indexable</i> | <i>Searchable</i> |
|-------------|----------------------------------|------------------|-------------------|
| ID          | identification number            | No               | Yes               |
| DN          | department name                  | No               | Yes               |
| ON          | office name                      | No               | Yes               |
| CN          | contact name                     | No               | Yes               |
| SDR         | start date of records            | No               | Yes               |
| EDR         | end date of records              | No               | Yes               |
| DE          | date information entered/updated | No               | No                |

### Proposed New Data Structure

| <i>Code</i> | <i>Field Name</i>                | <i>Indexable</i> | <i>Searchable</i> |
|-------------|----------------------------------|------------------|-------------------|
| ID          | Identification Number            | No               | Yes               |
| ME          | Main Entry                       | Yes              | Yes               |
| DN          | department name                  | Yes              | Yes               |
| ON          | office name                      | Yes              | Yes               |
| CN          | contact name                     | Yes              | Yes               |
| SDR         | start date of records            | Yes              | Yes               |
| EDR         | end date of records              | Yes              | Yes               |
| DNR         | date note                        | Yes              | Yes               |
| PD          | physical description             | No               | Yes               |
| LMM         | linear metric measurement        | No               | Yes               |
| ROA         | restrictions on access           | No               | Yes               |
| RM          | related materials                | No               | Yes               |
| AH          | administrative history           | No               | Yes               |
| SC          | scope and contents note          | No               | Yes               |
| AP          | access points                    | Yes              | Yes               |
| DE          | date information entered/updated | No               | Yes               |

# **Systems Downfall or Organisational Shift? The Case of Andover University Archives**

## **Teaching Notes**

### **Synopsis**

In 1992 the Andover University Archives installed the Paradox software package to manage its information systems, including managing retention schedules, preparing disposition documentation, controlling accessioning and tracking activities and maintaining statistics. Over the years the Archives has found the software to be increasingly inadequate for given tasks and unsuitable for new tasks the Archives wishes to automate.

As of March this year, the Archives has an opportunity to apply for funds for a special project, either to restructure the existing system or to scrap it entirely and develop a new system. The Director of the Archives knows that, aside from these year-end funds, money for such a significant project will not be available for at least another two years, as the university has imposed a freeze on all non-essential purchases.

The Director solicited preliminary quotations from two consultants for (1) revision of the existing system and (2) development and installation of a new system.

Consultant A estimated \$10,000 for revision and \$65,000 for installation of a new system but advised against revision. Consultant B estimated \$15,000 for revision and \$35,000 for installation of a new system and felt either approach was feasible. He calls you in to help him by assessing the situation and recommending a realistic and effective course of action in the next three days. The deliverable is a three page report summarising the issues, analysing the alternatives and making a recommendation.

### **Educational Objectives**

This case study may seem to focus largely on technical issues, such as the selection of the most appropriate software for various tasks. However, it also involves management problems.

At the end of the exercise, students should have a clearer understanding of the following issues:

- The importance of planned management of resources and systems. Topics of relevance include budgeting, planning and utilising resources such as permanent staff and consultants.
- The importance of project planning. Topics to discuss include determining institutional and systems requirements, identifying and addressing changes to those requirements and allocating resources effectively.

- The requirement for technical and systems structures. Topics to discuss include the identification of computer requirements, the choice of software and planning for upgrades.

## Discussion Outline/Question Set

Following are key issues or questions to raise to encourage discussion about this case. These are not presented in any particular order.

1. The Archives is facing a deadline for action; is this a realistic deadline?

*Possible Points:* Perhaps the Archives should not be concerned about applying for these particular funds. Perhaps it should instead investigate other options that allow it to make decisions in a more planned fashion.

2. Is the software chosen in 1992 still adequate to meet the needs identified?

*Possible Points:* It seems that at the present time, the Archives wishes to use the software for much more than was intended when the software was first proposed in 1992. Is the Archives trying to accomplish too much with one software package?

3. In the period between initial analysis and selection and now, institutional requirements have evolved. How should an institution manage change in an area that is volatile, like IT?

*Possible Points:* Institutional requirements are always changing and it is often necessary to plan for software upgrades. It is not clear that the Director has done so. Would he be hasty in making a decision now rather than taking more time to assess and plan to integrate the new current and emerging future requirements?

4. Does it matter that the one individual in the Archives familiar with the software has retired, leaving a gap in knowledge? What actions might be taken now to fill the expertise gap?

*Possible Points:* Describe how staff can be vital to the success and continuity of any technical or operational system. How could the Director have overcome the risk of a “knowledge gap” due to staff retirement or resignation? For instance, he could have arranged for cross training for all key staff, arranged for ongoing training as part of software maintenance contract. To fill the gap, he could invite the retired staff member back as consultant to shepherd conversion through and/or to prepare an ongoing manual on how to operate the system [download his knowledge into a sharable form].

5. The consultants’ estimates vary considerably. Given that they both had mere days to prepare their quotations, does the Director have any guarantee that their estimates adequately address the needs of the situation? What courses of action should he consider and what are the pros and cons of each?



*Possible Points:* Highlight the problems of rushing to judgement; the results could be very expensive and still not meet the needs. Alternatives are: choose one of the estimates and move ahead. Reject both estimates and call for full reassessment. Defer action and investigate other options, as well as revisiting the estimates

6. At the end of the discussion, the students should be asked what options they see to resolve this problem.

## **Possible Activities**

The following are possible activities that could be used with this case study.

Learners could brainstorm, role play or write an assignment to do the following:

- Identify the key players, factors and issues in the case.
- Tease out the underlying problems, prioritise them, then identify resources and gather information pertinent to addressing them: Do you have sufficient information or will you need to gather more? What sources of information are critical?
- Identify and analyse the various options, perhaps using a SWOT type analysis. For example, the Director sees his options as follows:
  - submit a proposal for revision to the existing system
  - submit a proposal for development of a new system
  - submit a proposal for a project to conduct a complete investigation of the Archives' information requirements and options
  - forego the opportunity and make alternate plans.
  - Are there other constructive options he hasn't considered? Do you have to consider all of them in equal detail?
- Make and justify appropriate recommendations.
- Decide the best way to present the research and its findings in three pages.

Another activity would be to have students use the data elements as a starting point to identify all the functional and performance requirements for a fully integrated University Archives application and incorporate these into a specifications for tender document. If this option were chosen, two templates would need to be provided for learners to use in their work: Template 1: Record keeping Requirements Identification: gathering the necessary information; and Template 2: Tender Document Attachment formatting and presenting the finalised information as a specification for tender.

## Bibliography

Selected readings relevant to this case study include:

Cook, Michael. *Archives and the Computer*. 2d ed. London, UK: Butterworth's, 1986.

Cook, Michael. *Information Management and Archival Data*. London, UK: Library Association Publishing, 1993.

Hedstrom, Margaret. 'Electronic Records Research: What Have Archivists Learned from the Mistakes of the Past?' *Archives & Museum Informatics* 10, 4 (1996): 313-325.

Hedstrom, Margaret. 'Building Record keeping Systems: Archivists Are Not Alone on the Wild Frontier,' *Archivaria* 44 (Fall 1997): 44-71.

Hunt, John. *Managing People at Work: A Manager's Guide to Behaviour in Organisations*. London, UK: Pan, 1981.

International Council on Archives(ICA) Committee on Electronic Records. *Guide for Managing Electronic Records from an Archival Perspective*. Ottawa: ICA Committee on Electronic Records, June, 1996. It is a WordPerfect document for download at URL: <http://www.archives.ca/ica/p-er/english.html>

Kesner, Richard M. *Automation for Archivists and Records Managers: Planning and Implementation*. Chicago, IL: American Library Association, 1984.

Menne-Haritz, Angelika, ed. *Information Handling in Offices and Archives*. Munich, GER: K.G. Saur, 1993.

Penn, IA, Pennix, G, and Coulson, J. *Records Management Handbook*. 2d ed. Aldershot, UK: Gower, 1994.

Robek, Mary F, Brown, Gerald F and Maedke, Wilmer O. *Information and Records Management*. 3rd ed. Encino, CA: Glencoe Publishing Company, 1987.

Society of American Archivists. *Evaluation of Archival Institutions: Services, Principles and Guide to Self Study*. Chicago, IL: Society of American Archivists, 1982.

University of Indiana. Electronic Records Project.

Go to <http://www.indiana.edu/~libarche/index.html>

Wild, Ray, ed. *How to Manage*. London, UK: Pan, 1982.

Yorke, Stephen, Editor, *Playing for Keeps: Proceedings of an Electronic Records Management Conference Hosted by Australian Archives*. Canberra 8-10 November, 1994. Canberra: Australian Archives, 1995. An electronic version of this publication is available on the National Archives of Australia Home Page at <http://www.naa.gov.au>.

# **The Development of A Records Management Programme In The Gambia**

**Andrew Evborokhai<sup>1</sup>**

## **Introduction**

In 1965 when The Gambia, a former British Colony was granted independence, she found herself in a situation not different from most developing countries which at independence inherited records keeping systems which were designed to serve small bureaucracies. These systems which had remained in place for many years had outlived their usefulness and needed to be replaced in order to reflect the growth of modern government functions.

This case study describes how The Gambia developed an integrated approach towards the management of the entire life cycle of paper-based records and in particular, how it remedied the deficiencies in the records and archives management systems through the reform of registry and records services, the compilation and implementation of retention schedules, the establishment of records centres for semi-current records and the provision of a legal and organisational framework. The case study also outlines not only the critical success factors in the implementation of the records management programme but the lessons to be learned from the experience.

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Mr. Evborokhai who retired from the Nigerian Public Service in 1993 after attaining the position of a Zonal Director at the National Archives, is an experienced professional with an international reputation and extensive experience at senior management level in East, South East and West Africa. He served as consultant archivist at the United Nations Institute for Namibia and in Lusaka, Zambia from 1978-1980 as a CFTC expert to train Namibian Pupil archivists. In 1984 he undertook an advisory mission to East Africa on behalf of the International Council on Archives on the setting up of records centres in Botswana, Malawi, Swaziland and Tanzania.

Mr. Evborokhai has acted as resource person in various Association of Commonwealth Archivists and Records Managers (ACARM) records management workshops in West Africa and Tanzania between 1989 and 1995 and as a consultant in DFID and Commonwealth Secretariat funded Records Management Projects in West Africa and in Belize, Central America. He has also been a speaker at Association of Records Managers and Administrators (ARMA) International conferences. He was a founding member of the Nigerian Society of Archivists, Vice President (Africa Region) of the International Records Management Council and Associate Member, Nigerian Institute of Management. Currently he is Vice President of WARBICA.

## Evolution of the Records Service

The first real attempt to address the records situation by the Government of The Gambia began soon after independence in 1965 when at government request the British Colonial Office seconded for three months a Records Officer, Mr J Smyth from the Colonial Office Records Section to The Gambia to assist the Government in the establishment of a Public Records Office in Bathurst (now Banjul) in which to preserve its official records.<sup>2</sup> His terms of reference were:

1. Select and arrange the assembled records by Departments and then in chronological order.
2. Compile a brief handlist of the selected records.
3. Survey existing accommodation and report upon any immediate measure which should be taken.
4. Draw up a system for requisitioning items from the Archives and recommend any other administrative records which it is considered should be maintained.
5. Prepare a report on the general condition of the records and make recommendation upon any treatment for repairs considered necessary.
6. Draw up an outline scheme for the future administration of the archives.<sup>3</sup>

The Consultant, Mr J Smyth made two visits for three months between November 1965 and February 1966 and again returned for another month in 1968. During this period, he set out procedures for the administration of records selected as having permanent value as archives and for the management of semi-current records still in government offices. It was on his recommendation that The Gambia Records Act was drafted based on similar legislation in Britain and enacted in 1967.

A small Public Records Office was then set up in the Quadrangle on the ground floor of the old building housing the Ministry of Local Government and Lands. Ministries and Departments were then requested by a circular to close all their files on a five-year cycle and deposit them with the Records Office. The Consultant had envisaged that these records would be sorted, appraised and either destroyed if they had no ongoing value or transferred to the Archives on a regular basis. But that was not to be. In the interim, the records were to be held in a room attached to the Archives which became known as the File Depository.

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<sup>2</sup> Between 1914 and 1936, the British Colonial Office issued four circular letters to the Administrators in West Africa, ie Nigeria, Gold Coast (now Ghana), Sierra Leone and The Gambia, urging them to preserve colonial records. In fact the 1936 letter contained the following sentence 'the Preservation of historical records must be regarded as one of the first duties of a Government, a duty which deserves greater urgency from the fact that delay in the Institution of suitable protective measures may and does lead to the inevitable loss of Documents of value'. But no action was taken by the Administrators. See Enwere J. C. 'Archival Development in West Africa: A Historical Approach'. Text of paper delivered at the commemoration of the creation of L' AOF Dakar 16-23 June 1995.

<sup>3</sup> J.H. Smyth, *Report on The Public Records of The Gambia April 1966*. Sessional Paper No 10 of 1966.

The Public Records Act which was passed in 1967 made provision for the establishment of a Public Records Office ‘in which shall be preserved such records of historical value as are transferred thereto or acquired by the Keeper...’

The Act also defined ‘records’ as:

‘All public records, documents and other historical matter of every kind, nature and description which are in the custody of any Government or which may be transferred to or acquired by the Public Records Office...’

The Keeper under the Act

‘shall make provision for the custody, preservation, arrangement, repair and rehabilitation and for such duplication, reproduction, description and exhibition of records transferred to the Public Records Office...’

‘The Keeper... shall have power to examine any records which are in the custody of any Government office and shall advise such office as to the care, custody and control thereof.’

‘Records in the custody of any Government office shall be transferred periodically to the Public Records Office in accordance with regulations made under Section 11 of this Act’ which empowered the Minister to make Regulations providing for:

- ‘(a) the admission of the public to the offices of the Keeper and the inspection by the Public of the records
- (b) the transfer of any records from the custody of any Government Office having control to the Public Records office
- (c) the examination, disposal or destruction of any records which are not of sufficient value to justify their preservation in the Public Records office or elsewhere...’

The Act also provided for the appointment of a permanent committee on public records to be called the Public Records Committee whose duties among others were:

- ‘(a) to advise the Minister on all matters relating to records’
- (b) to examine the requests of Government Offices for the destruction or other disposition of records’

In 1986 an Act established the Gambia National Archives and thus repealed the 1967 Public Records Act. There were no significant changes in the 1986 Act. The powers of the Keeper remained the same except that the designation of Keeper was replaced by ‘Chief Archivist’ and the Public Records Committee was changed to the ‘Advisory Committee on Archives’. The act remained in force until 1993 when it was replaced by the National Records Service Act.

# **The Need for Records Management Reforms: Policy Context**

The need for records management reforms and improvement became evident in several ways soon after The Gambia gained independence in 1965 and was due to the following factors:

## **Administrative Reform Programme (ARP)**

After more than a decade-long trend of economic decline, the Government of The Gambia in 1985 decided to design a comprehensive set of adjustment measures aimed at rehabilitating the economy and laying the basis for stabilisation and growth. To this end, the Economic Recovery Programme (ERP) was launched in September of that year. As part of the first steps in the implementation of ERP, a comprehensive audit of the Civil Service was carried out late 1985 leading to substantial cuts in Government employment. This was quickly followed by the commissioning of the United Kingdom (UK) Overseas Development Administration (ODA) financed consultancy to review the Civil Service and advise on immediate and long term measures for improving the productivity and performance of the Civil Service.

The Personnel Management Office was established within the context of the ARP. It was recognised that access to information which is crucial to decision making was vital to the capacity of the administration in formulating and implementing its programmes. Records permit organisations to function. Indeed, the records keeping systems in the Civil Service had collapsed and there were symptoms of poor records and information practices in registries across the Civil Service. Most executives and administrators complained about lost time and a lack of adequate information to do their work. Records were poorly organised as active and inactive files were stored together and there were difficulties in obtaining information already available. Because of lack of creation, retention and disposal policies, ministries and departments created and maintained information no longer needed.

There were also no published manuals to standardise controls for filing operations. Offices and records areas were messy and a 'mix' of equipment and supplies showed evidence of haphazard purchasing. The problem had to be addressed and records management became an issue which could no longer be ignored. Since at the level of organisation units, the Administrative Reform Programme laid emphasis on the restructuring of key ministries to improve their management capabilities and productivity, the ODA in 1990 considered records management as one of the elements in ARP and was ready to support any initiatives towards improving records keeping systems in the Civil Service.

## **The National Archives and The Management of Records**

From the point of view of the Colonial administrators, Archives served only as cultural and historical purposes and the preservation of historical records was regarded as one of the duties of a government. As was observed by Kecskemeti, 'Archival institutions in West Africa, were regarded as brand images developed by

Archives in Europe during the 19th Century when they were laboratories for historical research'.<sup>4</sup>

This narrow interpretation of the use of records and purpose of Archives meant that right from the start, Archives in many West African States served only cultural purposes while their utility in the daily links, which should exist between them and Public Administration was ignored. Mr Smyth's terms of reference, already referred to, were a testimony to this view which also affected the provisions in the Public Records Acts which later emerged on the scene.

The 1986 National Archives legislation limited itself only to the management of public records at their archival stage, ie. at the point where they were required for reference and research purposes only, and not at the vital stages of creation, current operational use and semi-current stage when they were not in operational use but still required for ready reference. Management responsibility for the efficient and effective management of public records at the vital current and semi-current stages was therefore not clearly defined and assigned to one authority with the result that the level of efficiency of public records management at these stages was less than desirable. The Act therefore had become inadequate and out of date in the light of the prevailing circumstances. Although the National Archives may be empowered to inspect records in Ministries, it was only to ensure that suitable records were transferred to the National Archives for permanent preservation. The procedures for selecting records for archival preservation and for the disposal of the remainder were inadequate and lacked authority.

Apart from the inadequate provisions in the Act for managing current and semi-current records in the Ministries, the National Archives as an organisation lacked both human and institutional resources to manage the semi-current records. Even if these records were to be transferred to the National Archives, there would have been problems in processing them for archival custody. The lack of guidance for staff looking after current records resulted in the breakdown of file classification. The breakdown of filing practices also meant that the value of the files as historical sources was severely compromised because 'poorly kept files do not tell coherent stories'. By 1991, the need had been felt to restructure the National Archives in order to strengthen its capacity for the management of records throughout the entire life cycle in creating agencies and thus command a higher profile in government.

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<sup>4</sup> C. Kecskemeti. *Archives Development and National Sovereignty; Modern Archives Administration and Records Management; A RAMP Study*. UNESCO Paris 1980, p. 49.

## **Improvement Strategies - Stages in Development**

From 1988, a range of inter-related reforms were initiated to improve recordkeeping systems in The Gambia. These include:

### **University of London Field Project**

Between 1984 and 1988, a University College London Research team visited thirty-two countries in Africa, Asia, and the Caribbean to evaluate records management training requirements. The survey which included The Gambia, revealed a far more extensive set of problems with far greater impact on administrative performance than had been expected. The Gambia was one of the countries visited where the state of records keeping was quite bad. The survey highlighted the urgent need for appropriate systems on the ground. Meetings were held with the British Overseas Development Administration and with the Commonwealth Secretariat to identify a problem strategy. It was agreed that The Gambia, with a Civil Service of less than 10,000 at the time and which was experiencing record keeping problems, represented an ideal site for developing a model system.

The stage was set for improvement initiatives when in April 1989 the University of London ran a pilot field scheme in The Gambia with assistance from the Commonwealth Secretariat. Two lecturers from Ibadan University Nigeria and University of Legon, Ghana, were invited to participate in the scheme. They worked with 13 students from University College London and professional staff from the West Africa region to process the large quantity of official files which were left at the file depository when the National Archives moved to new premises in 1972. The students salvaged all intact files from the depository, sorted, arranged and appraised them, listed and transferred files of permanent value to the National Archives. Those that were of intermediate value were listed, assigned retention periods and transferred to a Records Centre located in the State House compound. Records of ephemeral value were destroyed. The students then undertook some preliminary work in a few of the key ministries where they processed all files closed over five years. In all, 75,000 files were handled and about 2000 files were transferred to the Records Centre.

The dramatic results recorded created a new awareness of records management in Government and its commitment and concern to finding solutions led to two other workshops in 1990 and 1991.

### **ACARM Workshops**

The workshop in April 1990 was funded jointly by the Nuffield Foundation and the Commonwealth Secretariat and run under the auspices of the Association of Commonwealth Archivists and Records Managers (ACARM). The participants were drawn from the same institutions as was the case in 1989. Among the objectives of the workshop were:

- to bring all semi-current records in from the Central Government ministries
- to establish retention schedules for the main development Ministries



- to provide participants with the opportunity to observe how a records centre operates in practice
- to participate in all phases of managing the records life cycle
- to practice records surveys techniques.

During the workshop which lasted for three weeks, participants were grouped into teams and each team under a team leader. The teams worked in the following Ministries:

- Justice
- Information and Tourism
- External Affairs
- Finance
- Works and Communications
- Local Government and Lands
- Interior.

The teams were supervised by a Central Co-ordinating Committee composed of the Chief Archivist of The Gambia, the Records Officer, Manpower Planning Office, and Lecturers from the three participating Universities. The teams met each morning for briefing and late afternoon for debriefing. Sessions were led by members of the Central Committee. They were each supplied with a manual to guide their operations. Their initial aim was to survey the ministries in order to understand where and how their files were kept and to remove all files which had been closed over five years to a working area. The files were then arranged in series and appraised to determine how long they were to be retained, if at all. Those required for only a short period or if their value was not clear, were listed, assigned review dates and transferred to the records centre. If they were of permanent value, they were listed and transferred to the National Archives. Those considered to have no legal, financial, administrative or historical value were destroyed.

While the clearing and processing was going on, two members of the Co-ordinating Committee were assigned to review retention requirements with officials of the Government. They met with legal and financial experts in the Ministries of Justice and Finance and reviewed requirements for the retention of house-keeping records with the Manpower Planning Office and other Ministries in the Government.

By the time participants had finished processing the records removed from the departments, the necessary basic information was available to enable them to prepare retention schedules in collaboration with officials of the Ministries with which they had been working. The teams then worked with Ministry staff to determine the retention requirements. By the end of the workshop, the targeted ministries had been cleared of the back-log of semi-current records and retention schedules (in draft) were available to them.

In July 1990, the government fielded a small-scale project in co-operation with the Overseas Records Management Trust (now International Records Management Trust,

IRMT)<sup>5</sup> to restructure the registry in the Office of the President as a model from which to draw lessons of best practice for the Civil Service. The achievements registered subsequently paved the way for a larger records management project and the involvement of the United Kingdom Overseas Development Administration (ODA) in systems development.

### **The ODA Technical Assistance**

In the financial year 1990/91 records management became a component of the ODA Administrative Reform Programme and a Records Management project was subsequently set up in early 1990 at the Personnel Management Office to underpin the Administrative Reform Programme. The project was aimed at developing uniform methods and procedures to be applied in all Ministries throughout the Civil Service and for co-ordinating the restructuring of the registries. Consequently a Registry Management Unit was set up to oversee the project.

During the year, significant steps were taken towards establishing basic controls of the records systems in key Ministries. The vast bulk of records which had accumulated in the Ministries had been cleared by the various workshops. Under the ODA project which was complemented by a Commonwealth Secretariat funded 'Training of Trainers' project in January, 1991, several hundred more boxes of inactive files were removed from these Ministries to a Records Centre, the remaining files were closed and new file keeping systems were installed. By 1991 six registries had been restructured - two in 1990 and the remainder in 1991. Those restructured in 1990 were Personnel Management Office (PMO) and President's Office, and Ministry of Finance and Economic Planning, Ministry of Education and Ministry of Health were restructured in 1991.

Although significant achievements had been made, concern was expressed over the considerable amount of development work which remained to be done. Barely half of the registries had been restructured. The standards of service in all the registries still needed to be raised through close monitoring and a local training programme. Records centre operations needed to be upgraded also. There was the need to clarify the institutional responsibility and management lines for the records service. A lot of work still lay ahead.

In the project memorandum submitted to ODA by IRMT for the financial year 1991/92, it proposed that

'the records management component of the ARP should continue in the year at the same level of consultancy support as in 1990/91 with clearly stated inputs on the part of the ODA and of the Government of The Gambia. The primary objective was expected to be a self-sustaining records management programme capable of providing the Government of The Gambia with greatly enhanced services.'

The project sought to:

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<sup>5</sup> IRMT was appointed as Consultant under assignment by the ODA (now DFID) and has undertaken all records management development projects in The Gambia since the inception of the programme.

- provide close monitoring of registry operations in all of the restructured registries
- provide in-country training to all registry supervisors
- introduce a records management component for action officers on the Civil Service Management Development Course at the Management Development Institute (MDI)
- restructure the remaining registries
- complete work on the draft retention schedules prepared during previous workshops
- reorganise the records centre physically and upgrade the retrieval system.

If the systems introduced were to be of lasting value to the Government of The Gambia and sustainable, it was necessary to ensure that they had a firm base in the administrative structure of the government and that provision was made for the ongoing local costs and the training and retention of Records Management Cadre staff. Agreement of the Government was therefore sought in the following areas some of which touched on legislation and others on the organisation framework

- 1 The institutional responsibility for records management should be determined and the management lines clarified...The Consultants recommended that the Records Service come under the Permanent Secretary, Personnel Management Office.
- 2 A permanent site should be identified for the records centre and funding allocated for the cost of shipping of shelving from the UK to re-rack the Centre.
- 3 Estimates for the ongoing costs of the Records Service should be prepared and included in the 1992/93 budget.
- 4 A Records Committee should be formed to assume responsibility for evaluating the draft records disposal schedules and making recommendations to the appropriate ministries on their implementation.

As the decisions of the Committee would have important financial and legal implications, its membership was to include the Auditor General, Accountant General, Solicitor General and Legal Secretary, Permanent Secretary, Personnel Management Office and Director of the Records Service.

## **The Integration of Records Management Functions**

### **Organisation Framework**

In 1992, another major step was taken when the Management Services Division of the Personnel Management Office (PMO) conducted a staff inspection of the National Archives as part of its schedules of activities. In reviewing the organisation and staffing of the National Archives, the staff inspection team observed the need for closer integration of the work of the Archives and the work being undertaken by the Personnel Management Office in the context of improved registry management.

Specifically, it recommended that the line responsibility for both the National Archives and Registry management in Government should be under one Permanent Secretary - instead of the National Archives reporting to the Permanent Secretary, Office of the Vice President and Registry management being under the Permanent Secretary, Personnel Management Office. This recommendation was approved early 1993 and the line management responsibility for National Archives was transferred to the Permanent Secretary, Personnel Management Office.

The driving principle behind the integration of records management was the inseparable link between the different stages of the records life cycle; from creation to operational use and local storage to reference use and remote storage, and finally to review and archiving or disposal. At each stage, the efficiency of the management of records depends on how records are being managed in both the preceding and the subsequent stages. Furthermore in The Gambian context, most of the materials that end up in the National Archives come through the registries in the first instance and are subsequently transferred to the records centre before reaching the Archives.

The transfer of oversight responsibility for the National Archives to the Permanent Secretary, Personnel Management Office, which ensured that policy development and management control over current, semi-current and archival records were brought under the purview of one authority, was regarded as a milestone in the move towards establishing a unified hierarchical records management cadre within the Civil Service. It was also the view that the integration would guarantee consistency and coherence in records management within the Civil Service. All that was needed then was to take the next steps in concretising what had been achieved through Ministerial clearance and the necessary legislative action thereafter. The new legislation was expected to restructure the National Archives to enable it to develop as part of a National Records Service integrated with the registry management function of the Personnel Management Office.

### **The New Legislation**

In moving the second reading of the Bill entitled '*Act for the Better Administration of Public Records throughout their life cycle and to make Provision for Matters Connected therewith*' the Vice President and Minister responsible for Civil Service said:

‘The introduction of this piece of legislation has been necessitated by the need to promote greater efficiency and the introduction of modern management practices in the maintenance of paper based public records throughout their life-cycle, from the current stage in the registries of Government offices through their semi-current stage to their Archival stage for use as research and reference material.’

The new legislation, the National Records Service Act 1993, addressed the deficiencies which had been highlighted earlier. In summary, the Act established a National Records Service responsible to a Minister advised by a National Records Advisory Committee. The Act provided for the appointment of the Director of the National Records Service and established his responsibility for implementing the general policy of the service and for the day-to-day management of the Service. It

also established a Records Cadre. (The cadre covers both the staff of the National Archives and those in registries as a prime component of a uniform system of care for records throughout their life cycle).

Some sections of the Act defined the respective responsibilities of the persons directing Government Offices and the Director of the National Records Service for the management of current records maintained in registries and for semi-current records which would normally be transferred to records centres under the control of the Director. These sections provide a mechanism for the authorisation of deferment of transfer of certain categories of records, considered sensitive. The sections also specify the framework within which improvements in registry offices would be effected and are therefore crucial to the success of the whole records management reform initiatives. The Director's responsibilities for the National Archives were also defined.

Although the Law provides that the primary responsibility for current records and the establishment and maintenance of good record keeping practices should rest upon the head of each public office, the Director is responsible for the oversight of records work within public offices, with power of inspection and in particular for providing professional assistance and guidance on the establishment and management of filing system, with standards for the management of public records. The Director advises the heads of public offices on the numbers and grading of posts in the Records Class and makes appropriate posting and arranges the necessary training. The Director is responsible for drawing up general retention schedules and agreeing on retention schedules relating to records specific to each public office after consultation with and involving the heads of these offices and ensuring that the provisions of retention schedules are implemented.

The Law established the National Records Advisory Committee whose membership is comprised of decision-making representatives from the key areas of the Public Service, Records Management, Legal, Accounting and Auditing departments and from the Personnel Management Office. Membership is limited to six in number and the present committee is chaired by the Solicitor General.

It is the duty of this body among others, to review and sign approval for all retention schedules once preliminary retention periods have been negotiated with user departments. The Committee should provide feedback regarding retention requirements for specific government records within each member's domain; for instance, Auditing is responsible for identifying audible records and verifying that the assigned retention periods meet audit requirements. The Committee has to verify the eligibility of records for destruction in the absence of approved retention schedules as well as verify the vital nature of specific financial records. It also has to verify the confidential nature of specific and operating records and approve procedures for the disposition of government records. On the eve of the passing of the Act in 1993, the following developments and achievements had been recorded:

- the backlog of closed or inactive files had been cleared from all ministry headquarters and steps taken to ensure that records with ongoing value have been preserved either for appropriate periods in intermediate storage or permanently in the National Archives

- a Records Centre had been set up in the State House compound supported by a Records Centre Procedures Manual. (The Records Centre is now located at the headquarters office of the National Records Service and no longer in the State House Compound)
- control systems had been introduced in the records offices of most ministry headquarters, supported by a Records Office Procedures Manual
- all records office staff in ministry headquarters had been trained in the use of the new systems.
- a scheme of service for the records management cadre had been introduced throughout the Civil Service and job descriptions prepared for the different grades in the Records Cadre.
- training Guides had been prepared for professional staff, records supervisors and administrators as users
- accommodation for the National Archives had been improved by the addition and refurbishing of the adjoining former offices of the Auditor General as well as the office of the Electoral Commission
- a National Archives Procedures Manual had been produced.

## **Organisation and Management of the National Records Service (NRS)**

At the head of the management structure is the Director who reports to the Permanent Secretary of the Personnel Management Office - Office of the President. The Director is responsible for carrying out the responsibilities assigned under the Act. He has overall responsibility for the direction, administration and development of the service. (See Appendix C for the Organisational Chart)

### **Organisation Structure**

The headquarters of the National Records Service is organised to reflect the activities of the Service. It consists of two Divisions - Current Records Directorate and the National Archives Directorate.

The National Archives Directorate is responsible for overseeing the operations of the main Records Centre and departmental records centres and the National Archives. It ensures that acquisitions to the Records Centre and to Archives conform to current retention policies. The National Archives carries out all other professional activities such as accessioning of records, organisation and management of the repository, arrangement and description of archives and also provides reader services in the Searchroom.

The Current Records Directorate is concerned mainly with the management of the various records offices across the Public Service on technical and procedural records management matters. Every Ministry and Department in The Gambia has at least one

Records Office (Registry) and often there are several, one for each department. The Current Records Directorate has overall responsibility for the management of current records across the Civil Service and ensures that the systems in place support the functions and information requirements of government. It develops, maintains, monitors and controls the registry systems, approves new file series and co-ordinates staff development. Since the introduction of the keyword filing system, twenty seven records offices have been restructured under the system and the restructuring of records offices is an on-going activity of this division.

The keyword system is used for policy and operational files because it provides an accurate and yet flexible means of subject retrieval which meets the needs of officials who make and implement policy. The keyword system makes use of a controlled vocabulary or keyword list which establishes the choice of words used when indexing files or classifying papers. This set of index terms or keywords is managed centrally for the Civil Service by the Current Records Directorate. This central control is important as it helps to avoid the danger of people indexing files under their own index terms which could conflict or overlap with existing terms. Any new additions must therefore be approved by the Keyword List Manager at the Current Records Directorate.

## **Critical Success Factors**

A list of factors contributed to the success of the programme.

### **Senior Management Support**

It has been said that the prerequisite for establishing a records management programme is top management support and, since the inception, the records management programme has had excellent credibility with senior management. The achievement of the programme has been due to the Government commitment to finding solutions to records management problems. This support was in evidence during the critical early stages of the development process. Circular letters issued by the Permanent Secretary, Personnel Management Office to his colleagues during the restructuring of registries were typical of the support that the programme enjoyed. See Appendixes: A and B. At other stages of the development of the systems and procedures, this level of support was sustained and a clear understanding was demonstrated by top management of the objectives of such a programme. On the issue of creating a Records Management Cadre, in a memorandum to the Permanent Secretary, Personnel Management Office from the Adviser, in the Management Services Division, he observed:

‘...The subject of creating a Records Management Cadre as a sub-cadre of the Executive Clerical Classes has been touched upon in discussions over recent months. This is because of our shared concern to improve registry systems and practices throughout the Civil Service and to provide a centralised professional monitoring and control unit based in the Personnel Management Office, to develop and maintain uniform procedures and standards of performance...’

As was observed during a consultancy visit in 1995, 'both the Permanent Secretary, Personnel Management Office and the Director of the National Records Service had shown mutual enthusiasm for the programme and their willingness to examine issues and arrive at new solutions are a major factor contributing to the success of the programme.'<sup>6</sup>

### **The Size of the Country**

The size of the country, The Gambia, has contributed immensely to the success factors of the programme. In a project proposal submitted to the Nuffield Foundation in November 1989 by University College London for a 'Practical Project in The Gambia to establish a Records Management System and Develop a field Training Model', it was stated:

'The project is to be carried out in The Gambia for a number of reasons. Experience has shown that much can be achieved in the field of records management in a small country (The Gambia had a population of less than one million at the time and with a Civil Service of less than 10,000) in a short space of time. The impact and effectiveness of the programmes can be readily evaluated, an awareness can be created in government. The Gambia is a particularly suitable choice partly because of the role records systems reform could play in the present structural readjustment programme...'

During the implementation of the programme, because of the size of the country's civil service and the number of Ministries involved, the programme recorded dramatic and visible results. It was not difficult to spot where mistakes occurred and to take necessary remedial measures. A great number of the Ministries' headquarters offices are located in the same area - the Quadrangle - and could easily be monitored.

### **Viable Legislation**

The National Records Service Act itself has contributed to the success of the entire programme. The Act could be regarded as a programme directive or policy - indeed the official charter for performing records management functions. The Act has embraced a total comprehensive records management package which provides for the management of recorded information through its life cycle and assigned to the National Records Service a number of general duties relating to the preservation and use of national heritage.

The composition and size of the membership of the National Records Advisory Committee, a committee made up of members including the Accountant General, the Auditor General, the Solicitor General, the Permanent Secretary, Personnel Management Office and the Director of the National Records Service has made it easy and possible to deal with overall policy issues and provided the necessary inputs for decisions of critical importance such as records retention schedules.

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<sup>6</sup> Dr. Anne Thurston. Report on Records Management, IRMT 1 - 8 December 1995.



## **Effective Monitoring of the Systems Installed**

Regular monitoring of the system has been another factor for sustainability. The Current Records Directorate regularly surveys the users' satisfaction with the services provided by the Records Offices and takes immediate action when problems are reported. Reports are submitted regularly regarding the performance of the Records Office to the Line Manager responsible with a copy to the Director of the National Service who takes up the issues involved with the Ministry affected.

## **Staff Training and Professionalism**

Records do not just materialise on desks, in file cabinets or in computer storage; people create them and put them there and people have to manage them in such a way that when the information in them is required, they will be available at the right time. The management of the entire records life cycle calls for some degree of professionalism on the part of the staff of any National Records Administration. Over the past years, the person responsible for the records/files in the registry was the junior office clerk with low pay, overburdened and underqualified, or a pending retiree who was tucked away in the records area awaiting retirement. The situation has now changed and the National Records Service has tried to improve the image of those handling records and officials have now realised the importance of good records management procedures and practices.

In today's office environment the records officer is required to be a professional. He or she has to have the knowledge, skill and expertise to advise and control the records used by other professionals in their day to day decision making. Without the right information within the records, these 'other' professionals could quite possibly make a decision rightly or wrongly that could affect the livelihood of thousands of taxpayers. If these professionals are to make decisions from existing records, then these records must be managed professionally. It is important that the records officers build their confidence by displaying some degree of professionalism because that is the way to convince the users that records management is worthy of their support, as without user support even the best records management system is doomed. This display of professionalism by the staff of the National Records Service during the installation of the new system in records offices has been a strong factor in promoting confidence and trust in the system by users.<sup>7</sup>

Without proper training, the records management team responsible for service delivery could not succeed in achieving the desired goals. The importance of staff training was emphasised at the inception of the programme and the provision of training to both staff at the headquarters office of the National Records Service and those in the registries as well as the provision of awareness sessions for the users of the system has been another success factor.

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<sup>7</sup> There is a consistent flow of requests from departments whose records offices are yet to be restructured for the new system to be quickly extended to them having seen the effectiveness of the system in other departments.

## **Lessons from Experience: Challenges, Issues and Concerns**

Despite the successes recorded in the development of the records management programme, its implementation was not without hurdles. Many lessons had been learnt along the path which have been discussed in the sections which are described below:

### **Inherited Staff**

The National Records Service Act had hardly been enacted when the Chief Archivist of the National Archives retired from the Service in early 1994. This meant that the new department which the Act created had no substantive head. The Act had also brought together all persons who were serving on the staff of The Gambia National Archives, the Registry Management Unit and the Executive and Clerical Class in the Civil Service under the new Records Management Cadre. When a substantive Director was appointed early in 1995, he accepted a position of managing staff who he did not select or hire, an unknown quantity, people with different skills, abilities, personalities, attitudes and work ethics, people with unique perception and certain characteristics. The staff themselves had their own feelings.

One of the immediate challenges the new Director was faced with, was that of building the team. Now was the time to apply Prochnow's definition of management - 'the ability to let other people have your way'.<sup>8</sup> The ability to make people want to follow your goals and objectives is a combination of your personality, your managerial style and your ability to lead. Team building was achieved through some practical ways such as conducting staff meetings from the first day to share with the employees their experiences, training and education and, later, by reviewing and planning programmes of activities over a period. Work plans were developed and regularly reviewed and individual work schedules were discussed.

In the course of the implementation of the different stages of the programme, some staff found it difficult to cope with the requirements of the job mainly because they were of the wrong calibre, with low academic qualifications. Although nothing could be done to change them or replace them, as vacancies occurred new appointments were made based on the qualifications as provided for in the scheme of service which was already in place.

For some other staff, postings and redeployment were resisted owing to their failure to recognise the change that had been ushered in by the new dispensation of records management. But with the passage of time, it became real and they were assimilated.

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<sup>8</sup> Prochnow Herbert: *The Successful Toast Master, Epigrams, Humours and Quotations* (Harper and Row, New York 1976)

## **Funding and Inadequate Support Infrastructure**

Records management has, in the past been of low priority with not only very little personnel resources and expertise being expended, but also with very little financial support given to the improvement of the storage and protection of the government's corporate memory.

As was observed by a visiting consultant, Don Brech<sup>9</sup>

‘Vital to the success of initiatives to improve financial records management in the Ministries and Departments is the support of an effective central records service.... The National Records Service lacks the resources to do this in two important respects - funding and accommodation.’

‘The National Records Service is presently budgeted for within the Personnel Management Office and is only separately identified in the Estimates in respect of salaries. The commitment of fielding for records services from Government's own resources and the allocation of such funds under a separate expenditure head is seen as a necessary and important step.’

How to convince the executive to invest in records management had been a matter of great concern in the implementation of the programme. Generally by the time an organisation realises that its file system is not performing as required, the situation has reached crisis point and users have lost all confidence in its ability to ever perform again. This is where unauthorised satellite/departmental file systems and individual ‘bottom of the drawer’ files are created outside the main framework.

Inadequate support infrastructure results from lack of funding to acquire some very basic facilities and supplies to enable the system to function properly - filing supplies - folders, shelves, record boxes and even photo-copiers. Shortages are common features in programme operations and a constant cause of concern crippled by the fact that some of the supplies and equipment are not locally produced and therefore have to be imported and paid for in foreign currency. The ability to maintain a reliable level of smoothly functioning equipment has often been called to question as there is critical shortage of technicians, spare parts and back-up systems.<sup>10</sup>

The National Records Service does not have a vehicle of its own and lack of means of transportation hinders effective monitoring of the system and carrying out journeys to the Divisions. A departmental vehicle which is available all the time will surely assist in the development of the programme.

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<sup>9</sup> Don Brech, Report on Records Management (Financial and Accounting and Personnel Records, Government of The Gambia 21 October - 16 December 1994)

<sup>10</sup> One of the department typewriters has broken down and has been out of use for almost a year because of non availability of spare parts to repair it. The Conservation Unit of the National Archives which consisted of a lamination machine, a hand guillotine and a press, had not functioned for over ten years owing to lack of supplies and spare parts for the equipment.

## **Disposal Schedules**

The Disposal schedules which were circulated in 1993 and 1994 and were formally approved in principle by the National Records Advisory Committee in 1995 have not yet been implemented. With the change in government in 1994 and in the wake of the setting up of Commissions of Enquiry into the activities of Department and their Line Ministries, Government imposed a ban on the destruction of public records.

As a result of this ban both the main records office and the departmental records offices at the Auditor General's Office, the Accountant General's Department, Internal Audit, Income Tax and Customs and Excise have become similarly affected as they are not able to transfer closed files to the Records Centre. It is important that the present embargo be lifted at the earliest opportunity to allow authorised disposal schedules to be implemented and total records holdings to be reduced and to put a stop to the backlogs of files now building up again in records offices.

## **Commissions of Enquiry**

The impact of the services of the National Records Service were felt during the sittings of the Commissions of Enquiry set up in 1994 and which daily highlighted the significance of well kept records as evidence of state operations. The National Records Service, through its control of records offices, the Records Centre and the Archives, made it possible to provide a far greater retrieval rate than would otherwise have been possible. These Commissions which were set up to look into the activities of departments and their line ministries were mandated to retrieve evidence back to 1976 and the marked difference in record keeping after the Records Project began in 1989 was noted on many occasions by officials involved. There were obvious lessons learned from the work of these Commissions about the critical importance of efficient record keeping.

## **Restructuring Records Offices**

It is important that key action officers or users should be involved when their records systems are being restructured. A case in point was the restructuring exercise that took place in the office of the Auditor General during the absence of some key officers. The officers returned to find a different system in place. They could not understand the system and there was no way the records clerk could explain to them unless and until the Records Management Team had gone through the exercise again. It was a costly experience.

## **Management of Financial Records**

A source of concern has been the lack of records management expertise and capacity to support the records management function within some sectors in the Department of State for Finance and Economic Affairs. While the administrative and policy records are being properly managed, there has been no proper control in the management of the operational records. There is need to improve storage of current and semi-current records as well as control procedures. Although it has been suggested that the position of a Records Manager might provide the required support, much more would

be expected on the part of the Department to address the question of supply of equipment and storage materials.

## **Future Programmes and Directions**

Although it could be said that a legal and organisational framework is in place for managing government records efficiently and cost effectively and that very solid foundation has been laid, much still remains to be done in order to enhance the present records management system. Future developments and concerns are discussed below:

### **Lifting the Ban on the Destruction of Records**

The removal of the ban by Government on the destruction of records will ease the problem of congestion both in records centres and records offices as approval to destroy particular categories of records can be carried through. It will enable the Records Management Team to develop the expertise and experience in the application of disposal schedules.

### **Computerisation**

The developments that have so far been achieved have been focused around paper-based records. There is now the need to build capacity for computerisation in the National Records Service, to include the design and implementation of a database to manage materials stored in the National Records Service Records Centre. Apart from that, some agencies within the Civil Service have now acquired computers and at no distant date the National Records Service will be required to manage the electronic records generated.

### **Records Management in the Administrative Divisions**

So far, all the records management improvement reforms had been concentrated in the capital city, Banjul, where the headquarters offices are located. There is a plan to undertake a survey of current, semi-current and non-current records held in the five administrative divisions and to develop a programme that will achieve the standards required to manage divisional records efficiently. Such a programme also includes the provision of the infrastructure and equipment for two records centres in Kerewan and Janjanbureh Divisions.

### **Judicial Records System**

Records office restructuring exercises undertaken in 1992-93, focused on the administrative and subject files of the Attorney General's Chambers. There is a plan to look at other 'technical' records generated by this department and to develop and implement records management improvement system to handle these operational records. Apart from the Attorney General's Chambers, it is hoped that it would be possible to restructure the registry systems in the judiciary as a whole but more specifically at the level of magistrates' courts.

## **Accommodation**

The National Records Service expects that in the near future, a purpose-designed building could be provided by the Government - a building which would address safety controls, temperature and humidity controls and space allocations. The present accommodation is rather cramped and considering the rate at which records are building up, the situation calls for urgent steps to be taken. National Records Service accommodation housing the archives does not meet the requirements for three-hour fire resistant construction. Such a purpose designed building would enable the question of preservation and conservation of archival records to be properly dealt with.

## Appendix A

Personnel Management Office  
The Quadrangle  
Banjul  
The Gambia

7th January 1991

### **BANJUL RECORDS PROJECT**

TO: PERMANENT SECRETARIES, MINISTRIES OF AGRICULTURE,  
EDUCATION, FINANCE AND HEALTH.

FROM: PERMANENT SECRETARY, PERSONNEL MANAGEMENT  
OFFICE (PMO)

A Records Management Project has been set up at the Personnel Management Office (PMO) to underpin the Administrative Reform Programme. The project is aimed at developing uniform methods and procedures to be applied in all ministries throughout the Civil Service and for co-ordinating the restructuring of the registries.

The Personnel Management Office and the Office of the President's registries have been restructured in this exercise. We have already been able to see an enhanced level of efficiency in these registries.

We are now moving into the third stage that will involve your Ministry. The objectives will be to ensure that in normal circumstances, incoming letters will reach action officers within 24 hours of arriving in the registry; that papers are filed correctly; that all files in the Ministry can be traced within minutes and that bring-up files are delivered to officers on the day that they are required.

These objectives can only be achieved through close co-operation between your office and the project team which will be carrying out the work.

I hope that you will do everything possible to assist in this exercise.

(SIGNED) PERMANENT SECRETARY

## Appendix B

Personnel Management office  
The Quadrangle  
Banjul

22 October 1992

### **Re: Management of Registries under the Restructured System**

The Records Management Team at the Personnel Management Office has played a key role in restructuring the registries of a number of Government Ministries and introducing new systems and procedures for improved registry management. Given the leading role we have played in putting the new restructured system in place, we feel it is our responsibility to provide these restructured registries with backstopping support and technical advice whenever it might be needed.

However, in setting up the Records Management Team it was never the intention that the day-to-day operations and the functioning of these registries would be the responsibility of the Personnel Management Office. While this office will continue to have a vested interest in seeing that registries function effectively in view of the contribution this will make towards improving the productivity and efficiency of the Civil Service, it would be understood that the responsibility for the day-to-day management of these units still rests with individual Ministries.

Therefore, disciplinary matters, such as the punctuality and unauthorised absence of staff, should be handled by individual Ministries in line with the provision laid down in the General Orders. In addition wherever the new system has been introduced and the staff appropriately trained, it is the Ministry that is responsible for ensuring that the registry staff work in such a way that the new system functions properly. In this connection, regarding the management of the staff, this office would encourage Ministries to avoid the redeployment of trained registry staff to other sections or units within the Ministry as this would not be the best use of trained resources. Operational issues, such as the requisitioning of adequate supplies of stationery to ensure the smooth functioning of registries, are the responsibility of individual Ministries.

The Personnel Management Office is keen and anxious to see the system working efficiently and we will do what we can at our level to help you get improved service from your registry. In order to assist management in their responsibility, the Records Management Team will be providing management with regular monitoring reports based on periodic and systematic visits. The team is also ready and willing to intervene where there are special problems pertaining to registry management that need to be resolved.

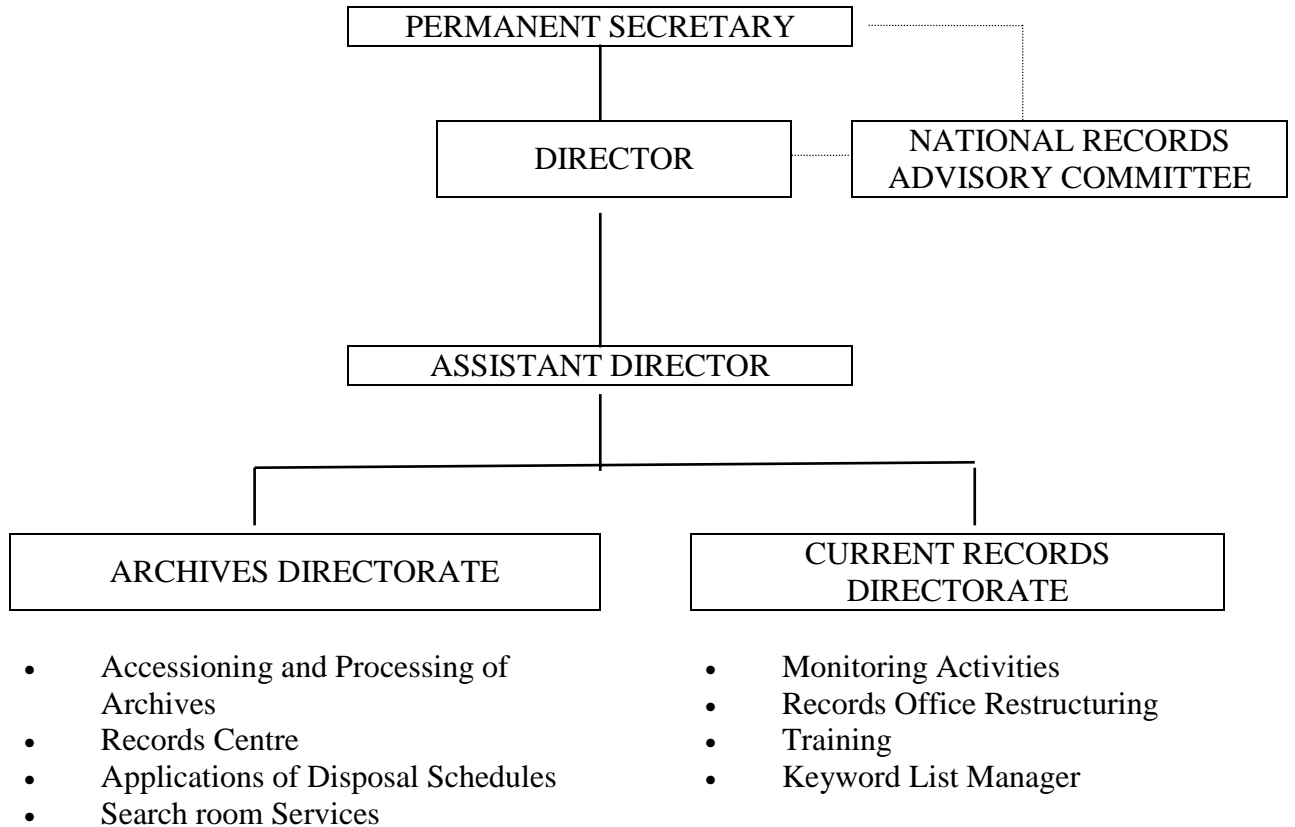
We are confident that the system can work satisfactorily if all of us who are interested parties discharge our respective responsibilities effectively.

(SIGNED) PERMANENT SECRETARY



## Appendix C

### ORGANISATIONAL CHART, NRS



# Preserving Electronic Records at the National Archives of Singapore: A Balancing Archival Act and A Shared Responsibility

Pitt Kuan Wah<sup>1</sup>

## Introduction

### Institutional Background

The National Archives of Singapore (NAS) is an institution under the National Heritage Board (NHB). It was formed in 1993 with the mission to ‘explore and present the heritage and nationhood of the people of Singapore in the context of their ancestral cultures, their links with South-East Asia, Asia and the world through the collection, preservation, interpretation and display of objects and records’. NAS was, however, established much earlier by an Act of Parliament in 1967 ‘for the purpose of providing for the custody and preservation of public records in Singapore’. Its mission is to ‘intelligently build a comprehensive documentary heritage of our nation and to become a leading resource centre for the research and dissemination of information on the history of Singapore’. Before NAS became part of NHB<sup>2</sup>, it took the opportunity to review and amend the 1967 Archives Act. The new Act now officially included electronic records in its definition of public records:

. . . papers, documents, records, registers, printed materials, books, maps, plans, drawings, photographs, microforms, videotapes, films, machine readable and electronic records, sound recordings and other forms of records of any kind whatsoever, produced or received by any public office in the transaction of official business, or by any officer in the course of his official duties, and include public archives.

Notwithstanding this, it remains a fact that NAS does not have access to electronic records from certain government agencies, notably the defence, foreign affairs and internal or home-front security agencies, as for administrative and security reasons,

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<sup>1</sup> Pitt Kuan Wah joined the National Archives of Singapore (NAS) in 1983 and worked in various divisions including oral history, reference services and micrographics. He is currently the Deputy Director. Pitt graduated from the National University of Singapore in 1983 and obtained an MA in Overseas Records Management and Archives Administration from University of London, UK. Between 1992 and 1996, he served as a member of the ICA Committee on Electronic Records. He was also the Chairman of the Technical Committee on Microfilming (1994-1999) of Singapore’s national standard body, the Productivity and Standards Board.

Pitt is currently on a one-year secondment to Ministry of Information and the Arts (MITA), as Deputy Director, Heritage. MITA is the parent ministry which oversee the Archives and Museums.

<sup>2</sup> See Appendix 1 for organisation chart.

they have established their own archives. Otherwise, both organisationally and legally speaking, NAS has the authority and mandate to acquire and preserve public records including electronic records.

Over the past 33 years, NAS has built up fairly comprehensive multiple media holdings comprising:

- 7,500 linear metres paper records
- 110,000 reels of microfilm
- 8,340 reels of audio-visual recordings
- 17,000 reels oral history interviews
- 1,500,000 still images
- 126,500 maps & plans
- A small, but growing, digital records collection either via direct disposition (eg soft copy of political speeches) or reformatted by NAS (eg oral history interview transcripts, photographs etc)

## **Beyond the Archives' Walls**

Looking beyond NAS' institutional boundary - the environment in which it operates - there are also several critical factors which influence our approach in managing electronic records.

### **Physical Environment**

Singapore is a small country. Its total land area is about 647.5 sq km and, of this, about 49.6% is used for residential, commercial and industrial purposes and another 1.7% for agriculture. The rest consists of forest and water reserves, marsh and other non-built up areas.

Office space is expensive. In the Central Business District where many government agencies (including NAS) operate, the average rental cost there can be as high as S\$8 per sq foot (US\$1 = S\$1.65). Storage cost is therefore high which poses a major problem for all record keeping, let alone archives keeping which is indefinitely accumulative by nature. As far as NAS is concerned, almost 95% of our paper-based archival records have already been re-formatted to microforms - films and fiche, achieving a saving of more than 85% against the space needed to store comparable paper records. Even then, the 5% of paper records we have accumulated over the past 30 years alone occupy some 2,000 sq meters of repository space. As the demand for land use tightens, we are unlikely to get more space for the ever increasing records - no matter how slowly the growth rate rises may be. It is therefore pertinent for both record creators/users and archives to be always on the look out for new technology applications offering more effective and efficient management of corporate information.

Indeed, not only do we lack the storage space, our geographical setting on the Equator makes the long term preservation of archives very challenging. An average daily temperature between 24-34°C and high humidity above 75% all year round make preservation of most original record media extremely costly, if not impossible. Colour film (negatives and slides) is probably a good illustration. The recommended temperature and relative humidity for the archival storage of colour film is  $-1^{\circ} \pm 1^{\circ}\text{C}$  and  $30\% \pm 5\%$  respectively. It would be extremely costly, if not operationally impossible, for us to meet these requirements.

### **Revision of Evidence Acts**

Besides climate constraints, we also need to look at the environment under which the entire government and its agencies operate. There are two recent significant changes that give impetus for NAS to speed up establishing its electronic records management programme.

The first contextual change emerged from the review of the Evidence Act in 1996. Prior to this, microforms were considered the only reliable and acceptable substitute for paper by the Singapore courts. The amended Evidence Act of 1996, however, has made provision for 'computer output' to be tendered as evidence admissible in courts as indicated below:

Section 35 of the Evidence Act of 1996: Where the computer output is obtained from an approved process and duly certified as such by a person holding a responsible position in relation to the operation or management of the approved process, it shall be presumed that it accurately reproduces the contents of the original document unless the contrary is proved.

The definition of 'computer output' is 'a statement or representation (whether in audio, visual, graphical, multi-media, printed, pictorial, written or any other form) produced by a computer or accurately translated from a statement or representation so produced.

As for 'approved process', it means 'a process that has been approved in accordance with the provisions of any regulations made by the Minister, by a person or an organisation appointed by the Minister to be a certifying authority under such regulations.'

In early 1998, the Act was further amended to facilitate the introduction of electronic commerce, E-Commerce, in the public sector, immediately impacting heavily on electronic records production. As a consequence, electronic records must be preserved for as long as needed, but not necessarily in their original or 'native' format and form, since a certified representation may also be acceptable. In time to come, we can expect the growth of electronic records in the archives to escalate as, even now, some agencies would certainly prefer to send us their records in digital form.

### **Computerisation in the Civil Service**

The second agent of change is the impact of information technology applications on work patterns in the Civil Service. Although large-scale computerisation in Singapore

was evident from the 1970s, it was the introduction of PCs in government agencies during the mid-1980s that gradually changed the way in which records were created and kept. Increasingly, computers are used as the only means to conduct business and thereafter to record the transactions. The implementation of Civil Service-wide email system known as SGEMS (Singapore Government Email System) in 1996 has further intensified the adoption of electronic means for communications among government agencies. The current *Lotus Notes*-based SGEMS has wired up some 20,000 middle and senior civil servants (one-third of the entire civil service), generating no less than 4 millions email messages per month last year (July 1998). While admittedly not all messages are 'official records', the impact of these high-volume communications on records management cannot be ignored.

Against this background, this case study will highlight NAS' limited experience in dealing with some of the critical issues in managing electronic records, ie how we have gone about making choices based on administrative and practical considerations.

### **NAS' exploratory efforts**

As mentioned earlier on, although NAS is now part of a larger statutory board, financially it is still fully funded by the government. Its operating budget has consistently been small. For financial year 1998 (April 1998- March 1999) NAS was granted an operating budget of S\$5.67m. Of this, manpower alone amounted to 42.3% and another 44.1% for one-off development projects (the bulk of which went to the new NAS Building and finding aids automation projects), leaving behind less than \$1m for everything else including the preservation of records – paper and electronic<sup>3</sup>.

The functions of NAS are rather diversified and oversee several 'heritage' programmes. In addition to the normal activities expected of a national archives, we run an Oral History Centre [OHC] and operate a Historic Sites Unit [HSU]. The HSU serves as the administrative arm of the Preservation of Monuments Board whose main task is to preserve and protect buildings and structures that are of national and historical significance. These extra activities have a bearing on the limited resources we have and are a large factor in the approach we have adopted in managing and preserving electronic records.

Under the National Heritage Board Act, the NAS is the central authority in records management and has the necessary mandate to preserve public records of national significance regardless of media. However, NAS is currently outside the mainstream of digital information management decision-making in the government, nor does it have the technical capability to address electronic record keeping and its challenges. The new areas of responsibility related to electronic record keeping include:

- issuing binding regulations which government agencies must follow in determining what electronic records to be preserved
- drafting of archival standards for document interchange

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<sup>3</sup> See Appendix 2 for a break-down of NAS FY98 budget.

- selecting suitable storage and preservation media.

Between 1993 and 1997 NAS has explored various attempts to develop its technical capability to acquire and preserve electronic records.

### **Survey on Electronic Records**

As a first step, NAS conducted a civil service wide survey on electronic records soon after it revised its Act in late 1993. Some 25 government agencies responded to the NAS questionnaire seeking information on existing and defunct computer applications in the various ministries and departments. The findings helped us to better understand the volume and types of existing electronic records and enable NAS personnel to identify those of archival value. The survey revealed that the

- majority of the systems reported generated statistical and administrative data sets, although a few departments had included office automation systems such as e-mail and registry software in their survey returns
- agencies used a wide variety of backup processes and media for their data, making it necessary for NAS to consider acquiring a few popular ones to facilitate ongoing archival care.

### **Review/Recommendations by Canadian Electronic Records Expert**

In July 1994, NAS invited Mr R L Schnarr, the Project Leader of Electronic Systems Projects Division, National Archives of Canada, to further analyse the survey and comment on NAS' preliminary plan to establish an electronic records programme. Mr Schnarr recommended that the NAS

1. Revise the original plan to establish a full-scale electronic records unit instead and create a basic electronic record keeping research unit that could investigate what was needed to preserve the electronic heritage of Singapore and to contribute to intra-governmental standardisation efforts. This unit would enable NAS to slowly build up the required electronic expertise and experience necessary for eventual establishment of an ongoing electronic records programme within the NAS and for continuing technical co-operation with the National Computer Board [NCB], Singapore's national body that oversees and co-ordinate computerisation efforts.
2. Investigate using the facilities of an existing academic or governmental computer service centre, to do the conversion of data of huge and complex data sets onto an acceptable medium. This alternative assumes that productive and cost effective arrangements can be negotiated that will outweigh the cost and effort needed over the next 5-10 years for NAS to acquire all of the tools to do everything.
3. Identify key problems that concern the preservation of official information, including records, generated by office automation systems, establish priorities for ameliorating them on a short term, medium term and long term basis. For example, to facilitate access and retrieval of electronic information from creation and over time, the NAS could devise and promote a standardised file naming and directory structure for end users. In the longer term, NAS could

explore using telecommunications or networking systems to copy/transfer electronic records from the host system to NAS and/or to disseminate electronic records to users because of the rapidly evolving availability and convenience of this technology.

### **Review/Recommendations by IT expert from Information Technology Institute: Phase I of the Pilot Project**

As a follow up to Mr Schnarr's recommendations, in October 1994, NAS engaged the Information Technology Institute (ITI), an applied research arm of National Computer Board [NCB], as our electronic records project consultant to conduct R&D on technical issues relating to the appraisal, acquisition and preservation of electronic records. Based on the returns of the survey, the project team comprised of both NAS officers and ITI staff, selected three government agencies for the R&D project: Meteorological Department, Port of Singapore Authority and Hawker Department. From the survey returns submitted by these agencies, we selected sample data bases and conducted technical appraisal on them and the findings were presented at a joint NCB-NAS seminar in November 1994, attended by some 130 senior civil servants. Key outcomes focused on the following points:

a) Data conversion formats and storage media selection

The project team recommended the use of Hierarchical Data Format (HDF) as a more suitable data format (as compared to flat files and relational database format) because of its flexibility and open structure. Recordable compact disc (CD-ROM) was the preferred storage medium because of its low cost in copying/duplicating as well as the integrity it can maintain. The project team cautioned the use of lossy compression technique in reducing storage space/cost as generation loss could occur during re-copying. The project team has also studied the issue of evolving standards for digital archiving and urged NAS to keep in close touch (probably via the Internet) with overseas archives and IT standards bodies, among them US-based organisations such as the National Archives and Records Administration (NARA), National Institute of Standards and Technology (NIST) and National Task Force on Digital Preservation, in order to keep abreast of the latest developments.

b) Administrative matters and operational requirements.

Besides the basic hardware/software needed to set up an in-house electronic records programme, the consultant recommended that the tasks of technical appraisal, data conversion and preservation be performed by a digital archiving specialist, ie an IT professional expert in data structure programming etc. This was because most of the data sets kept in the various government agencies were not standardised in format and required programming and copying expertise to achieve optimum technical appraisal and conversion. Furthermore, it would be more cost effective for NAS to buy these expert services than to develop them in house.

c) Appraisal and Acquisition of Electronic Records for Preservation.

The consultant team recommended that archivists should continue to perform content analysis/selection to identify which electronic records should be preserved. The archival appraisal should be done first before technical analysis takes place to ensure

that the technical assessment is made on only those records deemed worthy of retention. The consultant also agreed with the comments made by Mr Schnarr that NAS should not attempt to apply statistical sampling technique to preserve portions of very large data sets without the assistance of a professional statistician to ensure the statistical validity of the samples.

d) Guidelines on Electronic Records Preservation

The project team has encountered several administrative problems during the pilot project, in particular, ensuring data confidentiality/legality and streamlining the amount of time and efforts required by both parties (project team and creating agency) to accomplish competent data transfer and acquisition. If left unaddressed, such problems could undermine productivity once NAS initiated full-scale acquisition operations in the near future. Thus NAS, in consultation with all parties concerned, would need to adopt standards and establish concise guidelines and procedures for accomplishing all tasks.

e) Phase II of the Pilot Project: Digital Archiving Standards & Procedures

The project team felt that NAS should immediately initiate Phase II of the Pilot Project, ie to engage the services of NCB/ITI to develop the necessary technical guidelines and procedures for achieving optimum digital archiving, including exploring the various viewing/retrieval techniques.

### **Progress Made To-date**

In April 1995, the NCB/IT team presented its final report to the Chief Executive Officer of the NHB and NAS' supervisory ministry, the Ministry of Information and the Arts. The CEO of the NHB enthusiastically supported the recommendations and authorised a Task Force on Digital Archiving to be formed to assist NAS in speeding up the establishment of a programme in managing electronic records.

In July 1995, the task force presented the concept paper on the establishment of an Electronic Records Unit (ERU) to the Minister for Information and the Arts during a Senior Management Meeting. The Minister gave his 'in principle' approval for NAS to set up the unit but cautioned NAS in certain operational issues relating to appraisal and acquisition of electronic records. In short NAS should first establish rapport with agencies and seek mutual co-operation rather than issue unrealistic directives to take over the records.

Concurrently, in an independent but related initiative, the Ministry of Finance decided to implement a Civil Service-wide Electronic Registry System (ERS). The timing was fortuitous as it permitted NAS to be actively involved in the formulation of archival policies for electronic documents from the conception of this new system.

The ERS was to be pilot tested first by a group of key government agencies including Ministry of Finance, Ministry of Trade and Industry, and Public Service Department (under the Prime Minister's Office). The project team, led by the National Computer Board (NCB), consulted the Internal Security Department (information security aspect), the Attorney-General Chambers (legality aspect) and the National Archives (archiving aspect). This proposed system aims to integrate existing Singapore Government Electronic Mails System (SGEMS) with a standardised automated office



workflow management system that enables civil servants to assign, monitor and manage allocated tasks more effectively based on a customised functional and organisational structure. It will serve as a model for the rest of government agencies when it is made available Civil Service-wide in mid-1999.

While the system aims to make the public service more responsive to its customers and to improve civil servant productivity, it will also have a great impact on archives. For the first time it will address the issue of preserving digital corporate memory of the government in a holistic manner. By streamlining and standardising software used in generating records, it not only entails a significant saving in government operation but also makes the archiving aspect much easier and less costly. NAS need not worry about having to preserve and migrate records of a wide range of often incompatible digital formats. The system would also enable NAS to acquire a more complete set of public records, including email and related electronic documents which otherwise have to be separately kept.

### **Consultation from US National Archives & Records Administration**

In January 1999, NAS engaged another external consultant, this time from US NARA, Dr Kenneth Thibodeau, Director, Electronic Records Programs to review and advise on the preliminary work and efforts NAS has put in with respect to managing and preserving electronic records. The following are his key observations and comments:

- a) The NAS electronic records programme should encompass all public records in electronic form regardless of provenance or technical characteristics.
- b) NAS should promote a life-cycle approach to the management of electronic records both to maximise the value which records management adds in the conduct of business and to ensure that electronic records with archival value are properly identified, controlled and transferred to the NAS.
- c) NAS should make the promotion of dissemination and research use a major criterion in policies, procedures and systems for appraisal, transfer, accessioning, preservation and control. With the records acquired in electronic format, NAS could promote optimal access to electronic records by relying on the Internet as much as possible and by using access technologies which can readily be replaced to take advantage of continuing improvements in IT.

In addition, Dr Thibodeau recommended that NAS articulate a comprehensive framework for achieving its goal for electronic records. The framework must include policies, procedures and people, as well as information technology. The timely review affirmed that we are on the right track in dealing with electronic records.

# The Balancing Act

## General Principles in Electronic Records Management

As a result of its experiences, the NAS has worked out several key precepts to guide its own electronic record keeping:

1. Electronic records may not last forever in their 'native formats' because
  - storage media do not last physically or logically
  - technical obsolescence affecting hardware, software and media occurs very fast
  - languages, logic, tools and methodologies used to structure and manage digital information change even faster.
2. The role of NAS is to make electronic records last longer via the following actions:
  - ensure that appropriate electronic records are captured in the first place
  - develop long-range preservation strategies for digital media to meet challenges posed by IT, as well as to take advantage of opportunities brought by IT
  - adopt migration rather than media refreshing or duplication as the most critical fail-safe mechanism in digital preservation (but we are aware that it can be highly labour-intensive and not without possible fatal technical flaws).
3. NAS should undertake its preservation initiative co-operatively as there are similar preservation needs amongst agencies holding records of long term business or regulatory concern and other cultural/heritage organisations. Such common objective should lead to co-operation and collective efforts in problem solving.

Based on these principles, we have further developed our interim policies and strategies for the next three to five years and proceeded with small scale acquisition, preservation and making accessible electronic records.

### Should Archives be responsible for preserving electronic records?

The issue of physical preservation is related to whether NAS would adopt a custody or non-custody policy and more importantly, could that be done cost effectively? The issue is both technological and organisational. Our view is that we cannot avoid handling or physically keeping electronic records as it is our statutory function to do so. We may choose to delay the transfer but unless we have worked out a migration plan or preservation strategy prior to their disposition, we will not be able to access and preserve these records later on. NAS does not believe that there is a perfect solution that is mutually exclusive. The pros and cons to keep or not to keep electronic records are obvious in theory, but individual archives will have to make its own decision based on practical reasons. In our case, we are likely to keep electronic records but we shall do it very selectively, partly based on our own technical

competency in managing them and partly based on the standard appraisal criteria which is also applicable to paper records.

A related issue is the authenticity and reliability of electronic records. Can NAS ensure record creating agencies create and retain records which are authentic, reliable, and preservable? What authority must archives have? How do we know whether records are reliable or authentic at time of creation, usage and deposit at Archives? When do we need to check and how frequently must we do it? NAS maintains that creating agencies should be responsible and account for their own records with sound record keeping practices such as:

- verification systems for accurate records capture and output
- use of standard compression and decompression algorithms
- stringent security system to prevent alteration.

NAS' role is to preserve evidence and protect the authenticity and reliability of records deposited. In other words, NAS provides a place that has public faith and protect records from unauthorised alterations and access and we will use storage format and media that prevent unauthorised changing of contents

### **What does the Archives want to preserve in the records?**

Operationally, NAS uses the concept of 'records' as defined in ICA's *Guide for Managing Electronic Records from an Archival Perspective*:

**a record is** 'recorded information produced or received in the initiation, conduct or completion of an institutional or individual activity and that comprises content, context and structure sufficient to provide evidence of the activity.'

We think that the emphasis on context and structure may pose technical problems to the preservation of records which we cannot 'see' and 'touch' as in a paper world, where the medium is the message. Strictly speaking in an electronic environment, a recordkeeping system (where records are generated and maintained) is no longer just a tool, but it forms part of the context of the record as it provides contextual information that may be crucial to 'prove' that the records are authentic and it enables us to accurately understand the content of the record. However, on a practical level, we have to be realistic. Not all electronic records can be preserved 100% the way in which they were created and used, nor it is necessary for us to do so. A good example is the electronic form. It may be more cost effective to preserve the template of one form and the rest of data in a structured database format than trying to preserve each and every form in the entire application. Invariably, our decision will be influenced by a combination of factors: cost, technical complexity (of the data), technical competence (of staff and facilities) and administrative and future research needs. NAS is of the view that a record keeping system or the detailed documentation of it can be preserved separately, probably not electronically.

### **How should electronic records be kept?**

There are four possible approaches in preserving electronic records:

- preserve the entire system (hardware + software + operating system) over time. It is like creating many Noah's Arks.
- change the media by transferring the information to a more stable media such as paper and film. This may be the cost effective move at this point of time but not necessarily applicable to multimedia content records. Moreover, it may incur great loss of structure, context or even contents, eg formulas and hyperlinks.
- emulate/recreate the system. Computer scientists like Jeff Rothenberg have been advocating this approach for the past five years. They suggested that we could design emulation software that instructs new generations of computers to behave like old ones so that they can decipher obsolete digital data. NAS does not think this is cost effective nor practical to do. Even if we could preserve as much documentation of both the hardware and software as possible today, we know very little the cost and technical problems associated with this approach and it is too much of a risk.
- change the format by transferring the records to open and standardised format and 'migrate' them accordingly from one hardware/software configuration to another, or from one generation of computer technology to subsequent generations using standard interchange algorithms. The following are key factors to the success of this approach:
  - ◊ choose the 'right' format(s) that minimise subsequent changes
  - ◊ avoid using compression where possible
  - ◊ save as much metadata as possible – these will be the keys to enable future generations to unlock the contents.

The term 'migration' and not 'refreshment' or 'copying' is used here indicating that the duplication may not (and most likely will not) be exact! NAS thinks that this is one of the two viable options (the other is to change media).

### **Preservation Formats & Standards**

Then there is the technical question of in which format(s) should electronic records be preserved - with a view to protecting their authenticity and immutability over time. Like appraisal, we can also determine this during the conception stage or wait till the disposition stage. In some instances, it may still be possible and cost effective to retain electronic records in paper form or microfilm, but increasingly, as electronic records become more pervasive and complex (eg multi-format and multi-media), we will have no choice but to preserve them digitally if we are to retain their meaning and value. For certain type of records such as colour still negatives and slides, it may be more cost effective to preserve them digitally as the long term preservation cost resulting from a rigid storage environment (ie -10°C and 25% RH) can be extremely prohibitive for many tropical country archives.

In a rapidly changing computing software and hardware environment, it is almost impossible to preserve electronic records in their original recordkeeping system and format. We must therefore decide on an archival format that is open and durable. An archival system is one that has been specifically configured to satisfy archival

requirements, but it does not necessarily mean that it has to replicate the original system used to create the records. Such archival requirements must include:

- importation of records from current records systems (with minimal changes)
- preservation of the required content, structure and context (and documentation of any changes)
- migration of archival records across successive generations of computer technology (with minimal dependency on specific hardware and software)
- retrieval and output of records for access.

Choosing viable preservation formats will enable us to minimise migration cost. Our wish list is that the format should be

- reliable and authentic
- minimum change from current record keeping system
- able to preserve as much as possible content, structure and context
- easily migrated across successive generations of computer technology
- easy access and output.

NAS reckons that an important consideration in preserving electronic records is the necessity to preserve the logical and conceptual structures of the records. In general terms, the logical structure is the way in which the data within a record is organised, whereas the conceptual structure is how the data is actually being seen by users. In the most ideal situation, preserving electronic records entails both the ability to preserve the logical structures and the ability to present the data as it was presented to the original users of the record. To do this cost-effectively, NAS advocates that it is important to use open standards from the start, ie at the point of creation. How do we go about choosing suitable preservation formats then? Our selection is based on the following considerations:

- internal evaluation in meeting our needs and capability
- cost - not only the initial conversion cost but also the subsequent migration cost and access/distribution cost
- what have been accepted by other major national archives and institutions eg National Archives of Australia, National Archives of Canada, US Department of Defence (DoD), US Library of Congress, US National Archives and Records Administration (NARA)
- ISO standards or major de facto standards which are fairly open or can be easily and effortlessly migrated with minimal loss of information or functionality.

The first three are self-evident. The fourth needs further elaboration. Generally speaking, while NAS fully supports the principle of adopting standards as a strategy to minimise risks in information loss due to technical obsolescence as well as to reduce migration cost, we are also fully aware that the proliferation of computers and the rate of technological changes that come along make setting *de jure* standards very difficult if not impossible. Pushing a standard too early may entail the risk of

entrenching an approach or technology that does not meet real-world needs. On the other hand, standardising too late (which is usually the case as a standard takes time to develop and promulgate and it is not unusual that by the time it went through many reviews and made several compromises, a new standard on more efficient or newer technology may have appeared) causes arbitrary diversity and therefore it will not help the archives in any way. We must therefore decide whether to go with a *de jure* standard and old technology or new technology and take a calculated risk and standardise around Commercial-off-the-Shelf (COTS) products that have become *de facto* standards.

Therefore, NAS' approach is to adopt both standards approved by major formal national and international bodies such as International Organisation for Standardisation (ISO), the American National Standards Institute (ANSI), the Institute for Electrical and Electronic Engineers (IEEE), the International Telecommunications Union (ITU), and the Internet Society (ISOC) as well as informal standards developed by either single company (Microsoft's RTF), or consortia or alliance of a few companies (TIFF developed by Microsoft, Aldus, and Hewlett-Packard). Although these informal standards are not necessarily technologically superior as well as not formally accredited, many of them have already become *de facto* standards because of their popular use. While we are aware that by adopting them we may compromise certain record keeping and long-term preservation requirements, they do fulfil our short-to-medium term needs. Below are examples of how NAS has decided to adopt or not adopt.

#### *ASCII and Unicode*

NAS considers ASCII a stable and most basic interchange format for purely English text-based documents. It works well with almost all applications and platforms and is human readable. However, increasingly its limitation, it is unable to support multilingual and multimedia text documents that come with graphics, images and annotations has made it a less suitable preservation format. In this respect, Unicode seems to meet our needs better as Singapore is multilingual society, non-English character sets prevail. Unicode which enables interoperability and data exchange beyond the English-language community will facilitate searching and sorting of international data and information.

#### *SGML*

NAS reckons that SGML is the only formal standard approved by ISO for the production of documents intended for long-term storage and electronic dissemination for viewing in multiple formats. It allows users to define, in machine-readable form, the structure and content of any class of documents. Because it is able to separate the logical and physical structure of text, ie distinguish between the content, context and structure (eg., type face, font, size, margin), it fully meets archival requirement in preserving the three elements of a record. However, NAS is also aware that SGML is a costly format. According to a US Department of Defence Report, SGML conversion cost in 1997 was almost double than that of PDF format (US\$4.75 - \$7.25 per page vs US\$2.75 - \$4.00 per page in PDF). The cost may have been further reduced by now but it remains a critical but difficult deciding factor. Assuming that

SGML is the best possible solution at this point in time, how can we be sure that it will remain so in the next five years? Will its subset XML be more cost effective to implement? Even then, can NAS address the issue of dissemination at the same time?

### *PDF*

PDF is the file format on which Acrobat products rely. It is platform independent and can be viewed by anyone with an Acrobat Reader which can be downloaded free from the Internet. The format enables exchange of graphical documents over a network, is independent of hardware platforms and operating systems - notably Windows, Macintosh and UNIX. Although not yet an ISO standard, it fulfils many archival requirements. The format can faithfully reproduce the documents during exchange and prevent contents alteration - Text from a PDF file can be easily exported in Rich Text Format (RTF) but the document itself cannot be edited. For this reason, Singapore's Courts have accepted electronic records submitted as PDF documents. Most important of all, its source code/documentation of data structure (PDF Reference Manual) has been made available openly since Nov 1996. NAS has officially adopted it for textual documents. Indeed, in Singapore, PDF is fast becoming a popular format adopted by many government agencies including the National Library for multimedia (including graphic) documents.

### *JPEG*

An ISO standard for still pictures, it is probably the most widely used colour compression format especially for Internet application. Users of JPEG can decide whether to use the progressive, sequential, baseline, or a supposedly 'lossless' format. Although JPEG loses some colour information, it may be possible to correct the image exposure using a colour compression toolkit. While we reckon that several archives and libraries have chosen it for long-term storage, we share the same view as the Library of Congress which uses JPEG but recognises that this is not the answer for long-term preservation because of the lossy nature of the compression algorithm. Currently NAS uses this format to disseminate our photograph collections on Internet but we are also closely monitoring the progress of the development of SPIFF (Still Picture Interchange File Format), which may replace JPEG in the near future.

### *GIF*

GIF is an extremely stable, lossless colour format that is fully backwards compatible. It basically caters for colour images where each pixel represents one of 256 colours (the same for b&w images and therefore would occupy as much memory). Although also widely used, NAS has not adopted it because it contains a patented algorithm for which the patent holder can charge royalties for its usage.

### *TIFF*

TIFF has become a widely used de facto specification since it was first developed in 1986. Although its version 4 and above is likely to be accepted by NAS as one of the standards for preserving imaged documents in the near future, we are still monitoring the technology closely. This is partly because TIFF is too flexible in allowing

designers to create their own tags which resulted in different versions of TIFF files being released over the past five years and they were not compatible with each others and therefore not necessary interchangeable and backward compatible. Besides, because TIFF can be compressed using several different compression formats including JPEG and CCITT Group 3 and 4, it complicates the preservation process.

### *PCD*

NAS has officially used PhotoCD as the format to preserve photographic records (estimated about 1.5 million images will be stored in this format). The technology, developed by Eastman Kodak Company, is one of the world established leaders in digital imaging. Since its introduction in 1992, it has fast become a de facto standard for high-quality, low-cost storage of digital images used in many museums, and libraries notably the Smithsonian Institute, Library of Congress, National Library of Australia, the Louvre Museum and Victoria & Albert Museum. It allows for direct input from a wide range of film media and uses lossless compression technology. Although the technology is still considered proprietary, the platform is fairly open, images can be easily migrated to other common imaging formats. NAS sought written confirmation from Kodak that migration tools will be provided should NAS need to do so. One major consideration is that each digital image stored in this format can contain multiple resolutions ranging from high (4,000 dpi) to very low (72 dpi), it serves our varied functional needs for Internet display; desktop printing for quick reference, exhibition display and publishing.

### **What storage media should NAS look for?**

As archivists, we always like to look for an information storage device that can last 'forever'. Although we have yet to find one, we are quite happy with acid-free paper and microfilms which have been well-tested and proven to be fairly 'permanent' if handled properly and stored in a conducive environment. It is likely that a small volume of paper records will continue to exist (print and file). Microfilms/fiches will remain a cost effective carrier for at least another decade. Preservation and migration costs will influence decisions - whether digital records will continuously be preserved digitally. Indeed, it is now possible to store electronic records on microfilm. NAS is now exploring the use of Kodak's Archive Writer System to convert black and white A4 size text-based electronic records on 16mm silver halide microfilm. The system has an input process which is independent of software, hardware and original digital media such as CD-R, Optical disk, magnetic tape, Zip drives. It has two image orientation modes, simplex and duplex and 'write' images on film at various reduction ratios from 24x to 40x with blips or image-mark coding for automated retrieval.

However, it will remain a fact that not all electronic records can be preserved this way. A small percentage of electronic records will exist electronically throughout their life cycle and NAS is expected to re-format a significant volume of electronic records and keep them digitally. When NAS selects a preservation medium/carrier to store electronic records, we can no longer look for a 'permanent' medium like the way we look at paper and microfilm. NAS will preserve a storage medium only as long as it is supported by available hardware. This is because existing digital media



are generally not as durable as traditional media such as paper and film and they ought to be replaced periodically, perhaps once in 10-20 years. Indeed even if physically a digital medium may be intact and last a century or two, the recorded information may be un-readable or un-retrievable due to hardware and software obsolescence. NAS must not become a museum of obsolete equipment. Based on these guiding principles, NAS has expanded its selection criteria and look for the following properties that make up a good storage medium:

- durability (good chemical/mechanical resistance)
- universality
- versatility
- cost-effectiveness
- open-ended
- high standardisation
- legally binding (WORM/un-erasable).

NAS thinks that the medium used should be well-known in terms of its expected life span, its optimal storage and handling, and its susceptibility to environmental factors such as fluctuations in temperature and humidity, and airborne pollutants. More importantly, for practical reasons, NAS would only consider media that have sufficient market penetration so that both new supplies of the media and parts and support service for the playback equipment will be available for the foreseeable future. Among these competing media, preference should also be given to those which conform to internationally recognisable standards. Along this thinking, NAS accepted ISO 9660-compliance CD-R as a transfer medium as well as a short to medium term carrier for electronic records.

Even then, there are other technical considerations we need to decide and these can be tricky. For example, whether we should choose phthalocyanine CD-Rs or those made with cyanine? It is a fact that CD-Rs are sensitive to light (fluorescent, ultra violet etc) as it can 'fade' the marks (data) recorded. Therefore it is seemingly correct to assume that since phthalocyanine dye is less sensitive to light, CD-Rs made of this material will probably last longer and preserve the information better. However, this need not be so. In practice, it is very unlikely that we will allow these precious discs to be exposed to adverse conditions such as under the sun! As such, this seemingly important factor may not be a critical one after all. If we were to look again at the same issue of durability and use a different set of criteria: eg reliability of the disc in recording and playback, we may actually arrive at a different conclusion. Phthalocyanine dye has a narrower range of  $5\text{mW} \pm 0.5\text{mW}$  for writability with laser light that a CD recorder uses in 'burning' the data. Whereas the range for cyanine dye is  $6\text{mW} \pm 1\text{mW}$ . It is this wider recording (and error) margin that make the cyanine CD-Rs more suitable for a greater range of recording speeds, ie more compatible with more CD-R recorders/players.

An interim conclusion NAS has derived is that while media longevity is an important factor - as reliable and good quality digital media can reduce frequent and costly transfers (from one medium to another) we must not assume that at this point in time

there is a single digital medium that can last forever! What about in the near future? We are looking at a few promising ones and surprisingly, some of the latest storage innovations seem to be going 'backward'. The Kodak's Digital Archives Writer solution is one such approach that transfers digital information onto microfilm. NAS will soon conduct a joint feasibility study with another government agency to transfer a small volume of digital records in various formats (TIFF images, MS Word documents etc) to 16mm silver halide microfilms.

Another more expensive idea is to use 'focused ion beams' that can write data at pit size of seven nanometres (nm) onto high density optical disc. A product currently marketed by Norsam Technologies, it is capable of storing records up to 650 GB of data - 1,000 times that of conventional CD and 100 times that of the currently available DVD. The recording can be done both digitally or in analogue. NAS will explore this option in a year or two when the technology becomes more affordable.

A related point to make is that besides media lifespan, it is equally important for us to ensure that the system used to read and write on the medium should provide automatic error detection and correction. Otherwise, it is highly probable that nobody will notice when the storage medium eventually reaches catastrophic failure level. It will be too late then. When records are tightly linked to proprietary or uncommon hardware or software or both, migration across generations of technology may be very difficult, if not impossible.

Equally important is to provide a clean and conducive storage environment to store the physical carriers because with proper care and handling, the media should last as long as the technology. Dust, smoke particles (eg the haze that we have been experiencing in the past few years) and debris presented in the repository can get wound into magnetic media resulting in dropouts when the tape is played. Dust can also interfere with the laser in an optical system and cause a misread of recorded data. Airborne gases such as chlorine and sulphide, combined with high temperatures (eg above 21°C) can accelerate the degradation of magnetic media and discs. While dust particles can be relatively easy to remove with mechanical filtration, chemical filtration to remove harmful gases is more complex. At the NAS, we store our electronic records in low temperature and relative humidity, at 15°C ± 2°C and 40% RH ± 5%. We have also used a chemical filtration system which enables us to reduce the following harmful gases to a minimum:

|                   |  |
|-------------------|--|
| Sulphur dioxide   | <=0.35ppb up to <=4.0ppb                               |
| Nitrogen dioxide  | <=2.50ppb up to <=3.0ppb                               |
| Ozone             | <=0.90ppb up to <=1.0ppb                               |
| Carbon dioxide    | <=2.50ppm  |
| Hydrogen chloride | As determined by the best control technology available |
| Acetic acid       | As determined by the best control technology available |

### **When should NAS preserve electronic records?**

When should NAS take over and physically preserve electronic records? We believe that the decisions on preservation can be made at various stages of the record cycle:

the conception stage, the creation stage and the maintenance stage. Each has its advantages and disadvantages. Ideally we would like to see appraisal at record 'conception' or 'creation' stage to help determine transfer medium and preservation format. However, the increasingly short life cycle of digital information makes it harder for us to figure out what will have enduring value at the early stages. Therefore, although NAS advocates strongly involvement at the early stage of the records life cycle, we reckon for administrative constraints. We will have to be flexible and prepare to accept records after they become non-current. But this could translate into cheaper operating cost for us due to a shorter migration path or higher capacity of storage media not previously available. Documentation, more importantly adequate documentation, will be essential for records that come to NAS at the tail-end of the life cycle. But such documentation need not be captured on electronic media. It may be better off using straight-forward media that are hardware and software independent - paper or microfilm.

### **Access Issues**

NAS addresses the accessibility issue as an integral part of preservation. It will, within its limited resources, provide timely, equitable and continuous access to electronic records. As the saying goes: 'If you don't preserve, you can't serve; if you don't serve, there is no point in preserving.' Notwithstanding this, there is a larger issue we will also need to address. As preservation of electronic records can be extremely costly, we have to look at the critical issue of the financial viability of providing on-line content access. This will be an issue affecting not only archives but probably libraries and museums. There will be three possible options for NAS to explore further in the near future:

- continue to provide content for free while seeking advertisement revenue to offset high running cost
- charge 'subscription fees' for unlimited access (time-based)
- charge per item (per click) using micropayment arrangement.

### **Conclusion**

NAS believes that policies and guidelines on electronic records will not remain static. Indeed, NAS must constantly review and make modifications and corrections whenever necessary to take into account the rapid changing technologies and records creation/keeping environment. It is both a change in mindset as well as a major challenge for the archives profession where 'permanence' is a relative term and managing uncertainty and change has become an important part of archival work.

## Bibliography

- Bikson, T. K. 1999. 'Managing Digital Documents: Technology Challenges and Institutional Responses.' In *Proceedings of the Internal Conference of the Round Table on Archives, September, 1998*. Stockholm, Sweden: International Council on Archives, forthcoming, 1999.
- Cox, Richard J. 1996. 'The Record in the Information Age: A Progress Report on Reflection and Research.' *Records & Retrieval Report* 12(1): 1-16.
- Day, Michael. 1997. 'Extending Metadata for Digital Preservation.' *Ariadne*. Available from <http://www.ariadne.ac.uk/issue9/metadata/> (May).
- Dublin Core Metadata Initiative. 1998. 'The Dublin Core: A Simple Content Description Model for Electronic Resources.' Sponsors: Online Computer Library Center, The Library of Congress, Coalition for Networked Information, National Science Foundation, National Libraries of Australia and Finland, National Computational Science Alliance, Distributed Systems Technology Centre (Australia), and UK Office for Library and Information Networking. Available from <http://purl.org/dc>.
- Erlandsson, Alf. 1996. *Electronic Records Management: A Literature Review*. International Council on Archives (ICA) Study. Available from <http://www.archives.ca/ica>. ISBN 0-9682361-2-X.
- Fonseca, F., P. Polles, and M. Almeida. 1996. *Analysis of Electronic Files of Bank Reports*. Washington, D.C.: World Bank, Business Unit Document Services.
- Getty Conservation Institute, Getty Information Institute, Long Now Foundation. 1998. 'Time & Bits: Managing Digital Continuity.' Available from <http://www.ahip.getty.edu/timeandbits/intro.html>.
- Higgs, Edward, editor, 1998. *History and Electronic Artefacts*. Oxford: Clarendon Press, 1998. See papers by J.D. Morelli [169-83], R.J. Morris [31-38], Doran Swade [195-206].
- Indiana University Electronic Records Project, 1997. 'A Methodology for Evaluating Recordkeeping Systems.' Draft (March).
- Kenney, Anne R. 1997. *Digital to Microfilm Conversion: A Demonstration Project 1994-96. Final report to the National Endowment for the Humanities*. Ithaca, N. Y.: Cornell University Library. Available from <http://www.library.cornell.edu/preservation/com/comfin.html>.
- Records Continuum Research Group. *Reports, Publications and Links of Continuum Based Recordkeeping Regimes*. URL: <http://www.sims.monash.edu.au/rcrg/index.html>
- Rothenberg, Jeff. *Avoiding Technological Quicksand: Finding a Viable Technical Foundation for Digital Preservation: A Report to the Council on Library and Information Resources*. Washington, DC: Council on Library and Information Resources, January, 1999. Order pub77 and download directly from CLIR Web Page at URL: <http://www.clir.org/pubs/reports/reports.html>

Waters, Donald, and John Garret. 1996. *Preserving Digital Information. Report of the Task Force on Archiving of Digital Information.* Commissioned by the Commission on Preservation and Access and the Research Libraries Group, Inc. (May 1). Read and download from URL: <http://www.rlg.org/ArchTF/>

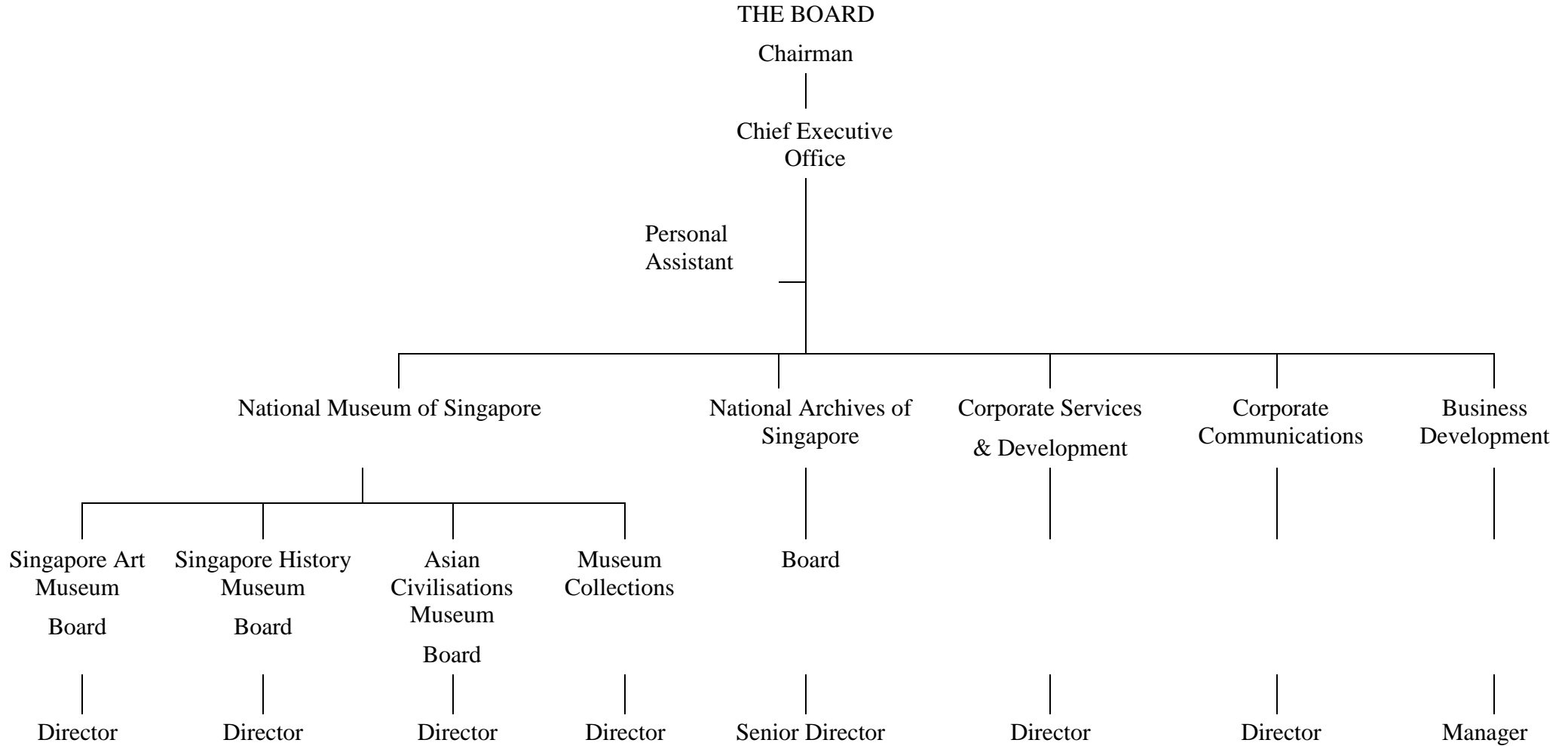
***Audio Visual Productions:***

Rothenberg, Jeff. 1997. *Digital Information Lasts Forever—Or Five Years, Whichever Comes First.* RAND Video V-079.

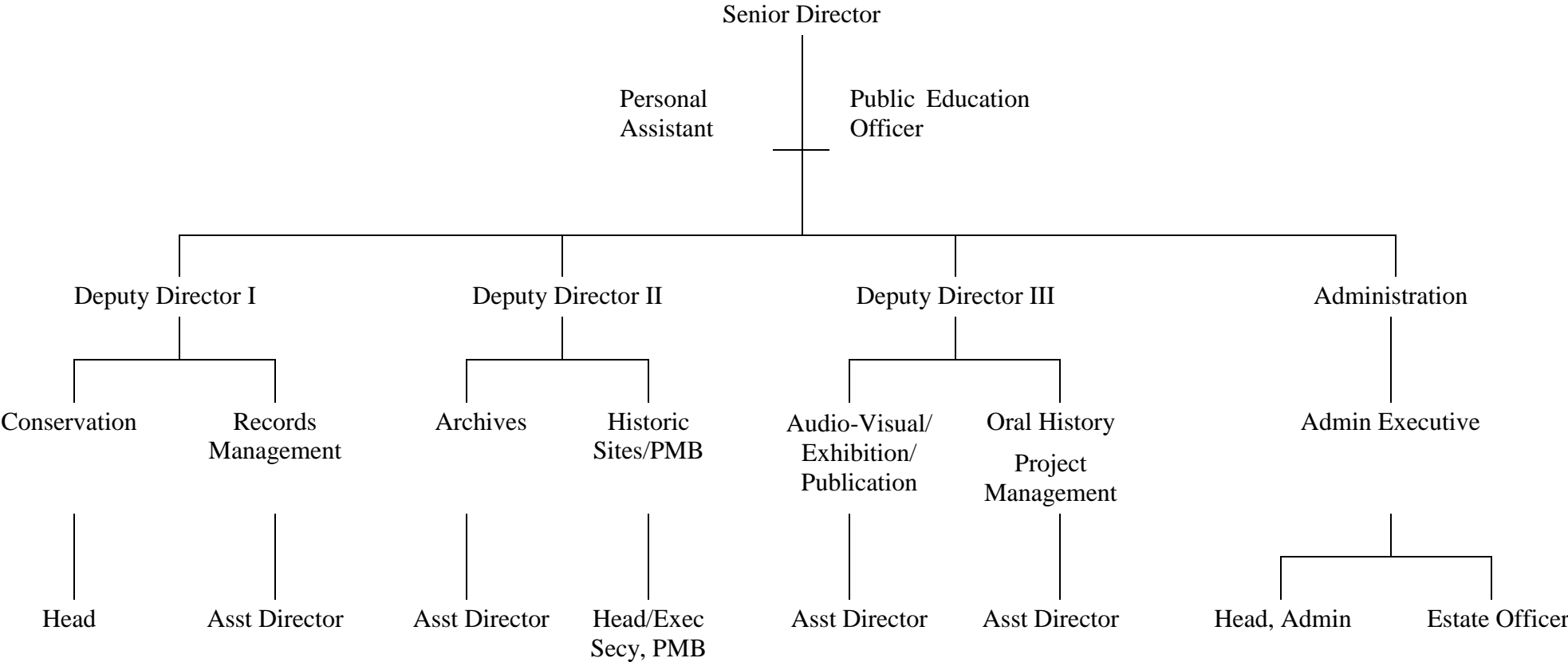
Sanders, Terry. 1997. *Into the Future.* Video/film (60-minute version shown on PBS; 30-minute version also available). American Film Foundation, 1333 Ocean Ave., Santa Monica, Calif. 90406.

# Appendix 1

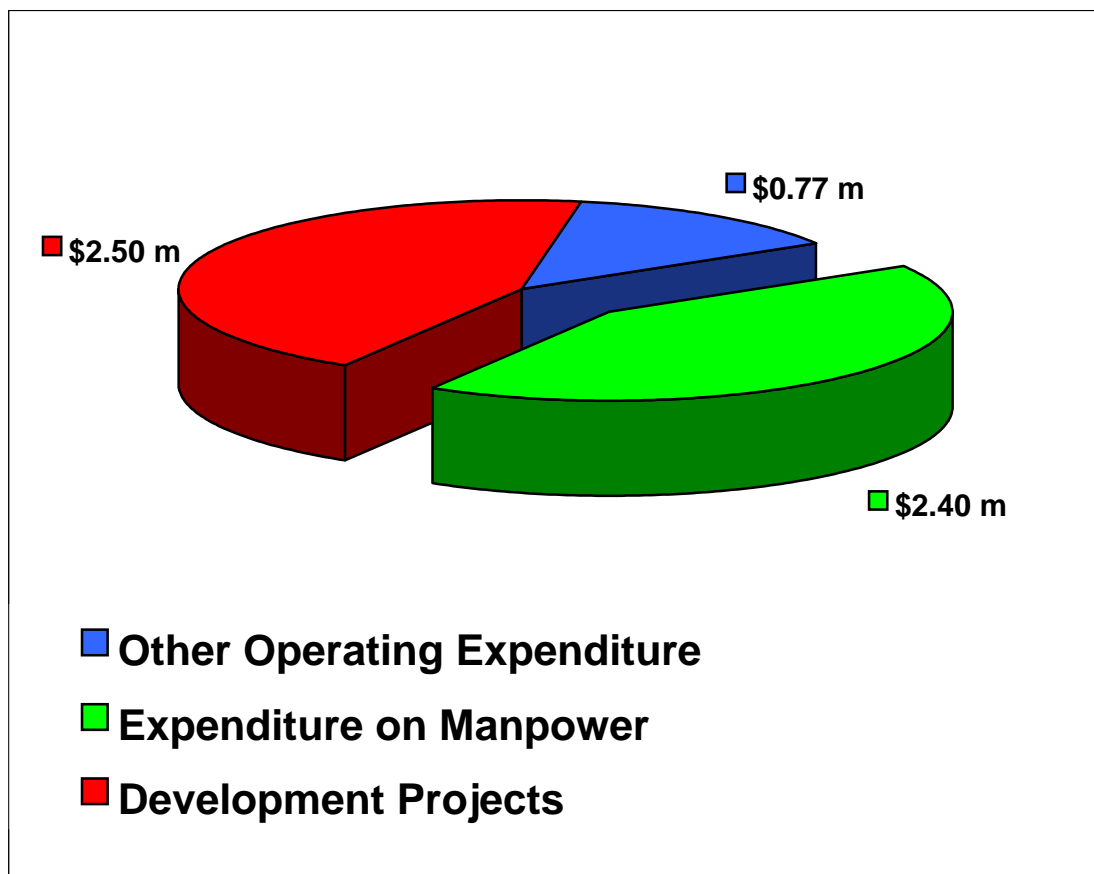
## NATIONAL HERITAGE BOARD ORGANISATION STRUCTURE



**NATIONAL ARCHIVES OF SINGAPORE**



## NAS 1998 Financial Year Budget





# **A Disaster Preparedness Plan for the Cayman Islands National Archive**

## **A Case Study**

**by Roger Craig<sup>1</sup>**

### **Introduction**

During the past decade and a half a considerable number of books and articles have been written in Britain and North America on disaster preparedness plans for the unforeseen disaster. This case study attempts to look at the broader picture of preparing for predictable disasters that are common in certain regions of the world. In this particular case it is the probability of a hurricane strike to a Caribbean Island, but many of the principals applied could relate to other predictable disasters.

### **Description of the Islands**

The Cayman Islands, a British Dependency consisting of three small islands, lie approximately half way between Jamaica and the western end of Cuba. As far as is known there were no permanent inhabitants until the early 1700's but during the past 100 years the population has risen from approximately 1,000 to 35,000.

In 1985, due to a growing concern over the accompanying growth of its modern records and the condition of their historical records the Cayman Islands Government appointed a British consultant to advise on the establishment of an Archive. By June

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During his eight year sojourn in the Caribbean, in addition to working for the C.I. National Archive, he has been involved with a 'West Indian Archives and Records Management Needs Assessment and Planning Study Project' for 22 regional archives; undertaken consultancy work for the Organisation of American States, relating to archive and preservation projects for the National Archives of Guyana and the Belize Archives Department; and continued working with the UK Society of Archivists on training. He is currently a member of the International Council on Archives Preservation Committee.

of 1991 the selected building was in the process of being modified to house an Archive and Records Centre, and a management team had been appointed.

## **Overview/Analysis**

The management team comprised the Director of the Archive and two, experienced archive professionals recruited from Britain, the Senior Archivist and Senior Conservator. The management team was aware that the government, which had little knowledge of archives, had been very supportive in this early establishment but the expectations and resulting continued support were unknown factors.

The three professionals were faced with the somewhat daunting task of organising every facet of an Archive's routine. The Archive was charged with "operating a records management service for all government departments and with offering a service to preserve and make available for research historical archives for the whole community".

For the two archivists this initially meant identifying those records worthy of retention, that were currently held in basements, warehouses, offices, etc.; establishing physical and intellectual control of the records once they were housed in the Archive; and establishing the records management system for current government records. It would also be necessary to recruit and train staff.

The Senior Conservator's mandate was to "Formulate and organise the National Archive's Preservation and Conservation Programmes to preserve or stabilise the condition of current government records, to protect current government records during hurricanes, and to preserve and make available government and private historical archives for research purposes". A work plan would need to be organised.

By the summer of 1992 the management team had moved into the Archive building and one of the first tasks of the Archivists was to initiate a Records Management system for government.

Records were identified and transferred to the Archive and Records Centre from government offices and other government storage areas, many of which were unsuitable for record storage. A trainee Archivist and trainee Records Officer had been recruited from the local community and training programmes established. The Senior Conservator was organising the equipping of the conservation laboratory and had begun to establish a conservation programme. A trainee conservator had also been recruited. The possibility of establishing a micrographic unit and a photographic unit was being considered and he had also begun to prepare a Disaster Control Programme as he considered this of high priority.

The Senior Conservator had prepared Disaster Control Programme before, but only for UK-based institutions. Would these translate to a Caribbean Archive? What other factors were likely to be relevant? He began to research the question in both government departments and through the Archive's holdings.

It became apparent that the records were at considerable risk from two forces not usually present in the more temperate climates of Britain; insect infestations and hurricanes. Whilst insect infestations are not unknown in Britain they are usually viewed as a routine preservation problem as opposed to a potential disaster. The voracity of the termites in the region however presented a problem of far greater proportions. Boxes of records were being transferred to the Archive where up to a third of the contents termites had destroyed. Alternative solutions were considered and at the beginning of 1993 a blast freezer was installed. All records to be housed in the archive repository were first to undergo a blast-freezing programme.

The second potential risk, destruction by a hurricane strike, is more difficult to protect against but one that the Islands can be fairly certain will occur. Each year, during the hurricane season, winds sweep off the coast of Africa, building, as they transverse the Atlantic Ocean, into tropical storms or hurricanes many of which lash the islands of the Caribbean and the coastal regions of the United States or central America. For the Cayman Islands the season runs from the 1<sup>st</sup> June to the 30<sup>th</sup> November, although storms outside these dates do occur. Each year approximately eight to ten tropical storms effect the region of which three to four will become hurricane strength. In the past 100 years 14 major hurricanes have struck the Cayman Islands, the most devastating being the storm of 1932, during which 10% of the population of one of the islands were killed.

By the beginning of the hurricane season of 1993 the National Archive had a reasonably comprehensive disaster control plan for the Archive. The repository is a two-floor building, housing a records centre on the ground floor and archive strong rooms, a reading room, offices and conservation facilities on the upper floor. In the course of conversion for archive use it had been fitted with a fire suppressant system and flood warning circuit and undergone structural alterations to comply with building regulations pertaining to hurricanes. Initially therefore, as with many archives, a simple in-house disaster programme for dealing with minor disasters such as burst pipes was designed. The Disaster Control Programme as prepared by the Senior Conservator contained the usual flow charts for responsibilities, lists of emergency contacts and lists of available emergency supplies.

The Senior Conservator was, however, faced with two dilemmas. The first was one of resources. He had a limited number of inexperienced staff to assist if a disaster occurred and a limited quantity of emergency supplies. The second dilemma was over the vast majority of government records, held in extremely vulnerable government buildings. When a hurricane occurred it was probable that these buildings would be severely damaged and a large proportion of government records suffer water damage, either from the potential tidal wave or from rain (one estimate of a strike by a moderate hurricane put the loss as high as 70%). Should the protection of these records be considered the Archive's responsibility and, if so, how could it provide a disaster rescue service for other government departments?

With the limited staff and resources available it was quite apparent that salvaging records from a major disaster was impractical and not an option. Steps would need to be taken to secure government's most important, or vital, records prior to the event.

The purchase and installation of microfilm equipment had been considered desirable, from an early stage in the conception of the Archive. Could this equipment be utilised for the protection of vital records? Historically archives have purchased such equipment to make preservation copies of fragile archival holdings. In addition to advancing this argument the Archive focused on certain vital records held by ministries and departments, pointing out that while these records were not open to the public they were at risk. If government could not function in the wake of a hurricane without these records then why not copy them on to microfiche or microfilm and store the microform copies in secure storage? Senior management within government was responsive to this idea and this appeal to government's vital records needs strengthened the Archive's proposal for microfilm equipment and permission to purchase was granted. One microfilm technician was employed and a programme implemented. Fifty percent of the time was dedicated to filming archival material and the remainder for filming vital records, including Executive Council Minutes (ie. Cabinet Minutes) and the records of other important bodies, such as the Central Planning Authority and the Public Service Commission. With the limited resources of the micrographic unit however, and the necessity to re-film current vital records prior to the annual hurricane season, it was realised that these measures were still insufficient.

Like other Caribbean Islands, Cayman has an official body responsible for disaster preparedness, known in Cayman as the National Hurricane Committee. Fourteen sub-committees responsible for such areas as 'Search and Rescue', 'Utilities and Communications' and 'Transport' support this committee. As the micrographic programme got underway, the Archive raised its concerns with the National Hurricane Committee and an invitation to form a sub-committee called the "Disasters and Records Committee" arose. This committee, chaired by the Director of the National Archive, included representatives from the National Archive, Computer Services (advising on government's electronic data) and the Public Works Department (advising on building standards and 'safe' areas).

The Disasters and Records Committee was made responsible for producing a Records Security Plan for governments records and in particular 'Vital Records'. Initially a 15 page document *Preserving Records - Record Control Prior to and in the Aftermath of a Hurricane* was circulated to all departments. It included information on 'The Disaster and its Aftermath', 'Priorities', and 'Guidelines and Procedures for Salvaging Water Damaged Records'.

In addition the Archive decided to provide temporary storage for other vital records which would be at risk during a hurricane. To facilitate this, special survey forms were to be sent annually to all government departments, prior to the hurricane season, requesting information on their records.

A further objective of the committee, was the efficient retrieval and processing of records, not secured in the Archive which were damaged during a hurricane. In all probability those records would be damp, if not waterlogged, and given the high temperatures and humidity would deteriorate rapidly due to physical and chemical breakdown and insect and mould infestation if not quickly dealt with. Two courses of action were implemented to deal with this problem. The aforementioned National

Archive's in-house plan included the organisation of 'recovery teams' with 'disaster kits'

These 'teams' would have the capability to deal with low volumes of moderately damaged records, but for the purposes of salvaging large volumes of water damaged records from departments following a hurricane strike the Archive needed to look for outside assistance. Arrangements were made with an American company, Disaster Recovery Services, Inc. This company could both offer assistance of experienced personnel and necessary equipment and undertake the freeze drying of records. To facilitate this retrieval of water damaged records by freeze drying the National Archive made provision for a refrigerated container to be located on-site prior to a hurricane.

## **Status Report**

As the National Archive moves into its eighth year of full operation, plans are underway to withstand more effectively and respond more efficiently to a hurricane strike. These include an extension to the existing building. The building has been designed to stringent building regulations pertaining to hurricanes and will have a ground floor sited a minimum of four feet above the surrounding terrain, to minimise the possibility of flooding. Facilities include an emergency generator to operate strongroom air conditioning units, in the event of power loss, and a blast freezer room for freezing waterlogged records. This latter unit will also be used for the treatment of insect infested material prior to inclusion in the repository. It is envisaged that on completion departments will be encouraged to remove all records from government office basements and transfer them to the safety of the records centre

During the past six years the National Archive has to some measure implemented its Disaster Preparedness Plan on four occasions. The most recent was in 1998 when Hurricane Mitch, one of the fiercest hurricanes to sweep through the Caribbean this century, was at one stage predicted to strike the Cayman Islands within 48 hours. In the event the hurricane turned away from the islands, but despite its never being closer than 200 miles, wave action caused considerable damage to buildings.

Since the Archive has raised the awareness of the vulnerability of records and, offered a measure of solution to the problem, many senior members of the Civil Service have taken a more serious approach to the protection of their department's records. Many departments now utilise the service offered by the Archive and readily participate in the transfer of records prior to a pending disaster. The National Archive, for its part, continues to refine the programme, and with the realisation that little could be done with the staff and local resources available after a hurricane, it continues to concentrate more on safeguarding the information by refining its plan to protect the records during the disaster.

# **A Disaster Preparedness Plan for the Cayman Islands National Archive**

## **Teaching Notes**

### **Educational Objectives**

Despite this case study describing a plan of action for the protection of records in a region subject to hurricane strikes, in reality it has three learning objectives. As a result of undertaking the study, students will develop

1. an understanding of the need to set priorities for disaster minimisation and salvage that are realistic and that optimise cooperative use of limited resources such as the existing emergency response infrastructure, the available archives/records and preservation expertise, funding and supplies.
2. appreciation of the role of the archival authority and its programme within government.
3. basic knowledge and skill in preparing a Disaster Preparedness Plan for any region subject to predictable disasters.

### **Case Synopsis**

Preparing plans to cope with unforeseen disasters within Archives has become a popular subject during the past 10 years. Most plans, however, are primarily seen as an efficient way to respond to the aftermath of a disaster. This particular case study looks at ways of preparing for predictable disasters. The Cayman Islands National Archive used its resources to protect government information during the disaster in preference to rescuing them in the aftermath of the disaster.

Prior to 1991 no Archive had existed in the Cayman Islands. Initially the staff comprised of three professionals, this increased to twelve over the next few years with the recruitment of local, un-trained personnel. The government had no real expectations as to the role of the Archive other than 'resolving the record keeping problem' and although initial support had been good the degree of continued support was unknown.

It was necessary for the management team to identify its priorities, define its responsibilities towards government records, define the nature of disasters likely to occur, and also work within its limited resources of manpower and finances.

The decision was taken to

- consider the implementation of a Disaster Preparedness Plan a high priority
- consider the protection of all government records an Archive responsibility

- consider how to protect government records with limited resources.

A plan was initiated to

- microfilm government vital records
- move vital records from vulnerable government buildings prior to a disaster
- salvage records damaged in a disaster.

## Case Problems

1. **Outline a disaster plan.** You have been given the responsibility for designing a disaster plan for your archives. Drawing upon the case study and the readings in the bibliography, outline and explain with brief notes the steps you will take and the components you will include in your disaster plan.
2. **Strategy for ‘People Management’.** Successfully managing the human aspects of a disaster minimisation and recovery operation, that is dealing effectively with the people [individuals or groups] who may or may need to be involved in order to achieve optimum results, is the single most important factor in disaster planning and response. For example, there are public emergency response bodies and staff, representatives from the media, various government officials and managers, staff from affected work units, experts in preservation, even volunteers and ordinary citizens. Make a list of the different people or groups that are [or could be!] important to the successful handling of a particular type of disaster in your context. Explain the ideal role that each should play and things you would want them to do or provide to assist the effort. Then list and explain any obstacles or challenges that you must address in order to obtain their wholehearted support and how you would go about overcoming them. You could organise your notes into a table format similar to the one below

| Name of Group or Individual | Desired Role and Actions/ Services/Products | Obstacles and Methods for Overcoming them |
|-----------------------------|---|---|
|                             |   |   |
|                             |   |   |
|                             |   |   |
|                             |   |   |

## Tips

The following are tips and comments related to the case study presented here; instructors may wish to use this information to raise questions during discussion or to guide students to activities or tasks as they work through the case.

- When considering disasters in a Caribbean island, students should also consider what ‘predictable disasters’ occur and which are applicable to their own region. These could include hurricanes, tidal waves, earthquakes, flooding, forest fires and armed conflict.
- When considering the management team and its resources, students should remember as they consider this case that they cannot necessarily rely on financial support for expensive programmes.
- When considering the archival institution’s mandate, students should determine functions that might have a bearing on that mandate. Responsibilities include the security and environmental control of the building; purchasing and fitting out the conservation laboratory; preparing a conservation programme; recruiting and training staff; and undertaking a needs assessment for a micrographic unit, photographic unit and disaster preparedness plan. The priority for each of these tasks needed to be decided.
- Ask students why records management would be viewed as a high priority? Remember that the status of many of the government records being stored in basements and so on was unknown. No records scheduling existed and it was not apparent whether the records were still current, were for destruction or should be retained as archival material. Taking an organised approach to the receiving of records stopped the Archive from becoming a ‘dumping ground’ and forced departments to play a role in the identification of their records.
- Ask students whether a Disaster Control Programme would be considered a priority at this time. Such a programme might be high priority for a number of reasons. It would raise the profile of the Archive within government. It would help to establish credibility, as there had been some scepticism from a few Heads of Departments as to the location and structure of the building, with regard to its suitability as a safe storage for records during a hurricane. It was a paper exercise that could be undertaken while waiting on equipment and furnishings. As a prime function under the Archive’s mandate, protection of the holdings was necessarily a high priority in a hurricane region.
- Students should be encouraged to consult bibliographies and contact meteorological offices, river authorities, hurricane or earthquake centres, government records or even newspapers to learn more about local conditions. The instructor can use the Disaster Control Programme document in the appendices as teaching tools.
- Students should consider whether the protection of these records should be considered the Archive’s responsibility. If so, how could the archival institution provide a disaster rescue service for other government departments?
- Students should realise that secure storage in this case is viewed as off-island storage. The Cayman Islands are very flat and no area could be considered safe from flooding. During processing extra microfiche sub-masters are prepared and sent to the UK for archival storage.



- When considering the various committees involved with disaster preparedness, students should remember that all the subcommittees were involved with the preservation of 'life and limb'. The archival institution was more concerned with the ability of the Island to re-establish itself in the aftermath of the hurricane. Much of the island's wealth is dependant upon the international financial industry and the Archive saw it as paramount that government should be fully functional as soon as possible.
- Students should know that at the time of a hurricane in the Cayman Islands, emergency procedures are in place to devolve power under the authority of the Governor to the National Hurricane Committee. By instigating the Disasters and Records Committee the Archive again raised its profile and also acquired emergency powers to requisition equipment, vehicles, personnel, etc.
- When considering the document *Preserving Records - Record Control Prior to and in the Aftermath of a Hurricane*, students should consider the advantages of such a document. For example, in reality the rescue procedures would probably never be undertaken by departments, but the document once again raised the profile of the Archive. It created awareness by Heads of Departments that they were responsible for the safety of their current records and advised them that there was a department which could assist.
- Students should consider what information would need to be acquired to operate the plan proposed. They should look at the attached survey form for more guidance.
- Students should consider the types of supplies should be included in a 'disaster kit'. They could then examine the attached list for guidance.
- It is worth noting that the National Archive has an arrangement with the local shipping company to supply and site a container in the early phase of a hurricane. It is necessary to keep the container on its trailer, to avoid flooding, and to have it securely strapped to the ground.

## APPENDICES

### Forms for Disaster Preparedness

#### Supervisors to be Called in Case of Disaster

| <b>Position</b>                           | <b>Name</b>  | <b>Specific Responsibilities</b>   |
|---|--|--|
| <b>Disaster Reaction<br/>Co-ordinator</b> | .....<br>Tel. N <sup>o</sup> .....<br>Pager N <sup>o</sup> ..... | Assess disaster<br>Take appropriate action<br>Co-ordinate response   |
| <b>Director</b>                           | .....<br>Tel. N <sup>o</sup> .....<br>Pager N <sup>o</sup> ..... | Act as Disaster Reaction<br>Co-ordinator (D.R.C.) in<br>absence of D.R.C.<br>Contact Services/Staff/Portfolio<br>Set up lines of communication,<br>monitor weather reports |
| <b>Conservator</b>                        | .....<br>Tel. N <sup>o</sup> .....<br>Pager N <sup>o</sup> ..... | Serve as Disaster Reaction<br>Co-ordinator Assess<br>conservation needs Head-up<br>recovery teams  |
| <b>Archivist</b>                          | .....<br>Tel. N <sup>o</sup> .....<br>Pager N <sup>o</sup> ..... | Act as D.R.C. in absence of<br>D.R.C.<br>Co-ordinate Records<br>Management Service<br>Co-ordinate recovery of<br>Archives  |

## **Services Required in an Emergency**

The name of the company or service should be listed, along with a telephone number and contact person.

Fire, Police, Fire Suppressant, Air Conditioning, Hospital, Electricity, Water, Telephone, Refrigerated Container, Commercial Recovery Services, Security Microfiche, Government Departments (such as: Public Works, Environmental Health, Legal, Senior Government Officials), Ministry responsible for National Archive.

## **Off-site Equipment Required**

The items should be listed with the name of contact and/or company, with telephone number, where they may be obtained.

Portable generator, Power cables, Auxiliary lights, Torches, Portable sump pump, Electrical fans, Dehumidifiers, Heaters, Trucks, Plastic crates, Refrigerator trucks, Folding tables, White newsprint, Freezer/Wax paper.

## **Disaster Kits**

Plastic safety helmets, Rubber boots, Plastic aprons, Cotton gloves, Surgical gloves, Rubber gloves, Face masks, Water spray bottles, Sponges, Gauze bandages, Polythene sheet/roll, Polythene bags, Cling film/Saran wrap, White blotting paper, White newsprint, Scissors, Knives, Adhesive tape & dispenser, Adhesive strapping, Cotton tape, Damage lists, Clipboards, Pens & pencils – waterproof, Paper clips - brass or plastic, Labels - tie on, plastic, String, Torches, Lantern

# Hurricane Preparedness Plan For The Cayman Islands

## Disasters and Records - Grand Cayman

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### VITAL RECORDS FORM

**‘Vital Records’** may be identified as essential records without which government could not function after a disaster, including records that secure the rights of government, its employees and the public.

As a general guideline **vital records** may include evidence of

- the legal rights of government, its employees or the public
- major policy decisions, including preparation of legislation
- proceedings of important committees
- precedents for important future decisions.

They do not include records that are not essential to the operation of government.

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In accordance with the Hurricane Preparedness Plan it is the responsibility of an HOD to make provision for the safe-keeping of departmental records during a hurricane.

Does your department hold vital records? **Yes No**

(If **Yes** please complete **Part A**)

In the event of a hurricane do you wish to transfer these vital records to the National Archive? **Yes No**

(If **Yes** please complete **Part B** during **Phase I** of the hurricane and contact the National Archive for transfer of records)

In the event of a hurricane do you intend to move these vital records to a ‘safe’ area within the department? **Yes No**

(If **Yes** please complete **Part C**)

Signature Head of Department..... Date: .... / ..... / .....

Department: .....



**Please estimate the linear footage of your Vital Records: ..... ft.**

(1 Archive box = 1 linear foot)

**PART B - Records transferred to The National Archive in Phases I and II by prior arrangement with the Archive.**

During **Phase I** of a hurricane the Archive will deliver boxes to your department for the transfer of **vital records** (exact number as calculated in Part A). Once you have packed and labelled your boxes, (with labels provided), please notify the Director of the National Archive **immediately** -government extensions 2357 and 2362 or telephone 949-9809. **Return this form with the boxes.**

If additional space is required to list your boxes please use extra pages as needed, and number accordingly: **Page N<sup>o</sup> ..... of .....**



**PART C -** If you have chosen to keep your **vital records** in a **'safe'** area within the department, in the event of a hurricane, it is recommended that you fill in this form and return it to the National Archive. This will assist you or the Archive staff in **salvaging records** that might have been damaged, in the event of a disaster.

**Please indicate the location of departmental 'safe' area for storage of your vital records:**

**Identify area on simple floor plan below:**

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Produced by the Cayman Islands National Archive



## Bibliography

A number of the large national and state archives have websites with excellent, downloadable publications and reports. Among them are

US National Archives and Records Administration (NARA). *A Primer on Disaster Preparedness, Management and Response: Paper-Based Materials* Available at URL: <http://www.nara.gov/nara/preserva/>

Georgia Dept of Archives and History website: URL: <http://www.sos.state.ga.us/archives/ps/gps.htm> has a lot of disaster preparedness material including

### Technical Leaflets

*Preservation Basics for Paper-Based Records*  
*Disaster Preparedness*  
*The Storage Environment*  
*Selecting an Off-Site Records Facility*  
*Reformatting Records*

### Other Resources:

*Disaster Recovery and Preparedness Guidelines*  
*Disaster Preparedness*  
*Salvaging Your Valuable Personal Belongings*  
*Wet or Broken Objects*  
*Water Damaged Paintings*

### Southeast Regional Conservation Association (SERCA)

*Model Disaster Response Database Proposal*  
*Emergency Preparedness Project*  
*Emergency Preparedness Survey*

## Books and Articles

Alegbeleye Bunmi, *Disaster Control Planning For Libraries, Archives and Electronic Data Processing Centres in Africa* (Options Books and Information Services, Nigeria, 1993).

Anderson H & McIntyre J, *Planning Manual for Disaster Control in Scottish Libraries and Record Offices* (National Library of Scotland, 1985).

Australian/New Zealand Standard AS/NZS 4360-1995, *Risk Management*.

Buchanan S, *Disaster Planning Preparedness and Recovery for Libraries and Archives* A RAMP study with guidelines. Bibliography by Toby Murray (UNESCO, Paris 1988). PGI-88/WS/6

Disaster Mitigation of Libraries and Archives, articles compiled by Yujiro Ogawa (Yushodo Press Co. Ltd., 1996)

Emergency Management Australia. *Non-Stop Service: Continuity Management Guidelines for Public Sector Agencies*, Commonwealth of Australia, Canberra, 1997.

Fortson, Judith, *Disaster Planning and Recovery. A How to do it Manual for Librarians and Archivists* (Neal-Schuman Publishers Inc, 1992)

Hendricks K.B. & Lesser B., 'Disaster Preparedness & Recovery: Photographic Materials' *American Archivist* 46(1) (Winter 1983) pp. 52-68.

'Home Office Guide, Bombs: protecting people and property: a handbook for managers and security officers' (London, Home Office public relations branch, 1994)

International Council on Archives. Committee on Disaster Prevention, *Guidelines on Disaster Prevention and Control in Archives*. ICA Studies 11 (December 1997)

Jones, V.A. and Keyes, K.E. *Emergency Management for Records and Information Programs*, ARMA International, Kansas, 1997.

Kahn M. *First Steps to Handling & Drying Water-Damaged Materials* (Ohio, MBK Consulting, 1994) ISBN 0409 90035 4

Ling Ted, *Solid, Safe, Secure, Building Archives Repositories in Australia* (National Archives of Australia, 1998).

Nesheim Kenneth, 'The Yale Non-toxic Method of Eradicating Book-eating Insects by Deep Freezing' *Restaurator* 6 (1984) pp.147-164.

Smith Richard D., 'The Use of Redesigned and Mechanically Modified Commercial Freezers to Dry Water-wetted Books and Exterminate Insects' *Restaurator* 6 (1984) pp. 165-190.

State Records Authority of NSW, *Guidelines on Disaster Management for Records*, 1998. There are two parts to this: a set for managers and a set for staff in affected sites. Available for downloading at URL: <http://www.records.nsw.gov.au> by clicking the appropriate references.

Waters Peter, *Procedures for salvage of water damaged library materials* Library of Congress Publications on Conservation of Library Materials (Library of Congress, Washington DC, 1979).

# Management Decision Making and Teamwork Case Study

Chris Seifried<sup>1</sup>

## Introduction

The Federal Archives has just completed a comprehensive review of its information technology (IT) strategy. Ten years have passed since the initiation of an ambitious programme of automation. Many of the systems which were first planned a decade ago are finally in operation, and it seems an appropriate time to take stock and to determine whether the results of the automation projects meet their original objectives, and whether the benefits justify the significant expenditures which have been incurred.

Much has changed at the Federal Archives in those ten years. Many of the senior managers, including the Federal Archivist (the CEO), have retired. At the same time, because of government cuts, the organisation has grown smaller. The number of staff has been reduced from 600 to 450, and the annual budget appropriation has decreased from 65,000,000 Economic Currency Units (ECU) to 40,000,000 ECU. While some services have been chopped, the institution is trying to provide the same core services, and is even trying to expand its clientele. This increased attention on attracting users is based on an urgent need to justify publicly-funded programs to an over-taxed and over governed citizenry and to a government in deficit concerned with reducing debt.

The annual Information Technology [IT] budget of the Federal Archives is 5,500,000 ECU, of which 2,000,000 ECU represents salaries. Throughout the period of cutbacks this amount has remained stable, and even increased slightly. The ratio of computers to employees at the Federal Archives is 1.5 to 1. Almost all employees have a personal computer on the desktop, and some have been provided with a second computer for tele-work from home. There is a solid Local Area Network (LAN) infrastructure connecting all employees to each other, to application and data servers, and, through a high-speed link, to the Internet. Many of the institution's central administrative functions, such as financial and human resource management, the records office, the library, building services and security services use standard

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application systems that are widely shared among government departments. The systems which support the core archival functions, on the other hand, tend to be either custom-built or tailored commercial packages.

The benefits of all this automation are not evident to everyone at the Federal Archives, including some senior managers. Concerns have been expressed that too much money is being spent on IT, without sufficient results. Some managers would like to make greater use of the systems, but they are frustrated because there is not enough money to pay data capture costs. There are frequent complaints that funds are being allocated to IT projects instead of being used to support core archival functions such as acquisition, description and reference. These concerns were given serious consideration in the recently completed review of the IT strategy, and some causes, and potential solutions, were identified.

## **Overview/Analysis**

### **Background**

The Federal Archives established a strategic planning process in the late 1980s. Corporate strategic plans were developed, guided by the mission of the archives. [see Appendix One for downloaded mission doc.], that identified key areas of concern, defined priorities and set out action plans. Soon after the planning process was adopted, management and staff acknowledged that the explosion of information was a major challenge for archives. Growing demand for access and use of archival records would require greater application of information technology and an increased dependence on automated systems for information control, retrieval and delivery.

With these challenges in mind, the priorities defined in the first strategic plan were:

- obtaining adequate accommodation
- improving management of government information
- implementing departmental automation
- developing a conservation programme
- increasing public access and awareness.

Responsibility for implementing departmental automation was assigned to a member of the Federal Archives Executive Committee, the Director of the Informatics Division, while other senior managers were assigned lead roles for each of the remaining priorities in the strategic plan. The Informatics Division was a relatively new unit of the Federal Archives organisation. Previously, most automation work was contracted out to private sector companies. Now, senior management had decided that it would be necessary to maintain a small permanent staff of computer specialists to manage the automation process, while still making use of contractors for specialised tasks such as analysis, design, programming and installation.

The task of implementing departmental automation was divided into a number of projects that became the responsibility of different specialists within the Informatics Division. Of these, the most important were:

- long-range information technology planning
- installation of the LAN, office software and other physical infrastructure
- development of application systems.

In carrying out these activities, the IT specialists adopted standard methodologies and used conventional systems development techniques. For example, the development projects followed a classical systems development life cycle methodology, consisting of planning, analysis, design, construction and implementation. The methodology was one used in many government departments, while the analysis and design techniques were industry standards.

While much of the infrastructure work was highly technical in nature, the participation of archivists and managers was deemed essential in the planning, analysis and design of the system which was to support core archival functions. Therefore, a project management structure was adopted consisting of a Project Steering Committee (made up of directors of core archival activities), a Project Director (Director of Informatics), a Systems Development Team (a project manager, systems analysts and database administrators) and a User Team (archivists and supervisors). Additional professional services in the form of senior systems analysts were acquired from a large private firm.

The project to develop the Archives Management System (AMS) had strong support from all stakeholders during the planning and analysis phase. The User Team members were given ample time to work on the project, as well as considerable authority to define the data, functionality and procedures for the new system. It worked very closely with the systems analysts, both in a series of requirement analysis workshops and throughout the feasibility and cost-benefit studies.

From the outset, a number of objectives for the system were confirmed by the Project Steering Committee:

- improving the speed and breadth of client and staff access to records and services
- improving and increasing the availability of information about the records
- increasing the effectiveness of the archives.

The result of the planning and analysis phase was a functional specification, a project plan and a business case for an integrated system that would support a number of archival functions, including:

- Control - accessioning, arranging and processing, description, and authority control
- Reference - registering, assigning and replying to inquiries, and monitoring reply information

- Circulation and tracking - assigning locations, tracking movements, evaluating requests, picking/putting away containers, circulating containers and copying material for clients
- Conservation - monitoring physical condition, performing preventive conservation and conservation treatment of selected records.

The analysis of the data required to support these functions showed that much of the information in the system would be used in more than one function. The technical feasibility study determined that an integrated system, capable of sharing common data among the four main archival functions and able to support the language requirements and other distinctive business standards, rules and policies of the Federal Archives, was not available commercially. It would have to be custom built.

A consultant hired by the Informatics Division provided the methodology for the cost benefit study, while the Project Steering Committee and the User Team defined and estimated the benefits. The study determined that an integrated system would provide improved control of holdings, lower file maintenance costs, lower search costs, enable access to previously unavailable information, reduce equipment and space costs, and eliminate support costs for legacy systems.

Detailed systems development and support cost estimates were also prepared. The high cost of custom development compared to the value of the system benefits meant that it would take about six years before the break-even point was reached and there was a positive return on the investment. Even so, an economic life of about 15 years could be assumed for the application system, based on similar applications in other institutions.

A proposal was made to the Executive Committee to fund the project, based on the following business case:

|  |            |
|--|------------|
| One-time development costs                       | 5,400,000  |
| Ongoing costs (per annum)                        | 930,000    |
| <hr/>  |            |
| Total Investment Cost (development + 5 yr. ops.) | 10,050,000 |
| Benefits (same period)                           | 13,345,000 |
| <hr/>  |            |
| Net Benefit (same period)                        | 3,295,000  |

Upon reviewing the proposal, the CEO said that the estimated cost was much higher than expected and that the planning of the system was taking too long. He felt that the Federal Archives did not need a perfect system, but only one that functioned well, and as soon as possible. The CEO also thought that, because the cost was too high, it would be necessary to determine what could be removed from the proposed system. Some of the directors thought that the Informatics Division was already getting too large a proportion of the annual budget and that any further allotments would result in lower budgets for them to carry out their own functions.

While the Executive Committee, chaired by the CEO, was unwilling to commit all the resources that the project required, neither did it want to lose the considerable momentum that the project had attained. It was decided, therefore, to study the funding requirements further, while approving funds for the immediate development of the circulation and tracking module.

The CEO asked the Chief Financial Officer (the Director of Administration), assisted by the Director of Informatics, to conduct a thorough examination of expenditures on information technology in order to ensure that they supported departmental priorities and to identify the resources that could be reallocated to priorities. A consultant was hired to conduct the review and assess the informatics function in the Federal Archives. The hiring of the consultant, and the review itself, took longer than expected, and more than a year passed before the consultant's report was presented to the Executive Committee.

The consultant's report contained a number of observations and recommendations, including:

- The proportion of the overall budget devoted to informatics was lower than in other government agencies, especially information management agencies like the Federal Library and the Federal Patent Office.
- The 5 million ECU that the Federal Archives were spending annually on informatics was sufficient to maintain the current level of automation, but insufficient to implement the integrated AMS. The consultant also discovered that the Informatics Division had control of only 50% of the informatics budget, with the rest being spent by the other divisions. The 2.5 million ECU being spent by other divisions was not formally tied to any strategic priorities. The consultant recommended that priority in allocating funds for informatics be given to establishing a separate budget for the AMS.
- There was confusion about who was ultimately responsible for the AMS. The Director of Informatics had been given responsibility for building it, but there was no agreement on for whom it was being built. Indeed, many thought that the Informatics Division was the system owner. The consultant recommended that a senior manager responsible for the business functions the system was to support should be appointed Project Director.

Following a review of the consultant's report by the Executive Committee, the CEO named the Director of Planning and Budgeting as the new Project Director of the AMS, and asked him to perform a rapid assessment of the situation and to make recommendations on how to proceed. It was decided that no separate budget would be established for the development of the system, but that funding would be considered on a year to year basis, as resources permitted.

Soon after, the new Project Director tabled a revised strategy for the AMS. Instead of building an integrated system, a modular approach would be taken. Where possible, commercial off-the-shelf products would be bought and tailored, to keep the costs as low as possible. Although there would be no common database, and system modules based on different software packages might support each of the archival functions, the new Project Director thought it would still be possible to create a system providing a

single window for public access. Given a very tight deadline to come up with the revised strategy, there was no time to revise the cost-benefit study, so no criteria were established to determine, in a post-implementation review, whether the new approach would still provide a net benefit. Eager to make up for lost time the Executive Committee approved the new strategy and the funds for the first year of development.

## **Status Report**

Within five years of the approval and funding of the revised strategy, three of the original four functions are automated with systems in full operation: Control, Reference, and Circulation and Tracking. Although the Conservation function was never automated, an Online Public Access System was implemented, based on Internet/World Wide Web tools.

Each of the modules uses different application software. Some of the modules run under Unix and others under Windows NT. At least four different programming languages and database management systems are being used.

The new Control module is only a partial implementation of the original design, accommodating only high level ISAD [G] descriptions, while the old legacy system it was intended to replace is still in use, providing the main repository for inventories and finding aids.

A comprehensive review of the IT Strategy which has just been completed has analysed user perceptions and assessments of the AMS modules, and identified a number of issues:

- the original objectives of the system are still valid
- information is not integrated between the modules
- finding aid data is located in multiple local legacy systems in both manual and electronic form
- the Reference Module, based on a commercial package, has poor reliability
- multiple and redundant control numbers are being used throughout the modules
- workflow across the functions is not supported
- there is a lack of technology and data standards across the modules
- legacy data is not contained in the AMS
- control data in the AMS is incomplete.

The conclusion of the IT Strategy review is that the AMS does not support the objectives of the system very well. However, development and support costs have proven to be considerably lower than the estimated cost for the integrated system planned initially.



|  |           |
|--|-----------|
| One-time development costs                       | 2,673,000 |
| Ongoing costs (per annum)                        | 506,000   |
| <hr/>  |           |
| Total Investment Cost (development + 5 yr. ops.) | 5,203,000 |

To correct the shortcomings of the system, the report of the IT Strategy Review proposes a number of projects, including:

- integration of the AMS modules
- replacement of the Control module with a system that can accommodate inventory and finding aid information
- development of a Conservation Module
- implementation of workflow automation to support the interdependence of the modules
- implementation of a new management structure and roles and responsibilities.

## The Case Problem

You have been appointed by the Executive Board to prepare a brief synopsis of the pros, cons, costs and benefits of each of these five projects, to recommend which should go ahead or be put on hold and to align them in order of priority for action. Explain the steps you will follow in preparing yourself and in undertaking the task. Based upon the information provided [and your own research and creativity] write [or develop an outline if it is to be used as a class exercise] a summary report incorporating the information requested for presentation to the Board.

### Deliverables required:

- 1 Steps in preparing and undertaking the task, including resources you would consult.
- 2 The summary report is to be five pages or less in an appropriate corporate style [you may use phrases, point form rather than full narrative sentences throughout] incorporating the information requested in a final form suitable for presentation to the Board.

# **Appendix One: Mission Statement and Charts**

## **Mission Statement of the Federal Archives**

The mission of the Federal Archives is to serve the nation by preserving and making available those records of government which define the rights and freedoms of citizens, document the history of the nation, and provide evidence of the acts of public officials. To fulfil this mission, the Federal Archives will:

### **Goal I**

Acquire, preserve and make available government records of enduring legal, administrative and historical value.

### **Goal II**

Provide leadership to government officials and agencies on significant issues of record keeping by promulgating policies and standards, providing training in the management of public records, and promoting awareness of the role and value of record keeping systems in public administration.

### **Goal III**

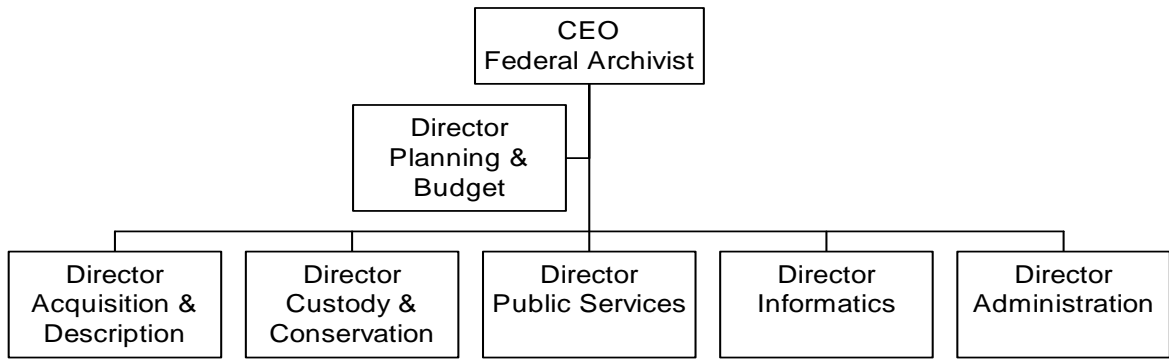
Offer archival products and services that are responsive to the legal, economic, educational, social and technological needs of citizens.

### **Goal IV**

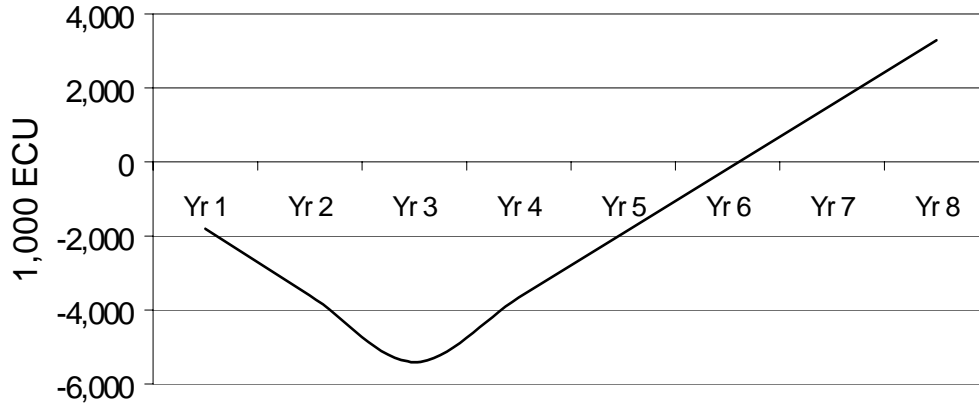
Develop the overall effectiveness of the Federal Archives through organisational and professional development and financial, human and information resource management.

# Investment Profile from Business Case for an integrated AMS

Federal Archives Organization Structure



Cumulated Cost-Benefit



## Appendix Two: SWOT Analysis

SWOT Analysis is an effective method of identifying your Strengths and Weaknesses, and to examine the Opportunities and Threats you face. Often carrying out an analysis using the SWOT framework will be enough to reveal changes that can be usefully made.

To carry out a SWOT Analysis write down answers to the following questions:

Strengths:

- What are your advantages?
- What do you do well?

Consider this from your own point of view and from the point of view of the people you deal with. Don't be modest, be realistic. If you are having any difficulty with this, try writing down a list of your characteristics. Some of these will hopefully be strengths!

Weaknesses:

- What could be improved?
- What is done badly?
- What should be avoided?

Again this should be considered from an internal and external basis - do other people perceive weaknesses that you don't see? Do your competitors do any better? It is best to be realistic now, and face any unpleasant truths as soon as possible.

Opportunities:

- Where are the good chances facing you?
- What are the interesting trends?

Useful opportunities can come from such things as:

- Changes in technology and markets on both a broad and narrow scale
- Changes in government policy related to your field
- Changes in social patterns, population profiles, lifestyle changes, etc.
- Local Events

Threats:

- What obstacles do you face?
- What is your competition doing?
- Are the required specifications for your job, products or services changing?
- Is changing technology threatening your position?
- Do you have bad debt or cash-flow problems?

Carrying out this analysis will often be illuminating - both in terms of pointing out what needs to be done, and in putting problems into perspective.

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# **Management Decision Making and Teamwork Case Study**

## **Teaching Notes**

### **Synopsis**

The Federal Archives have a well-established strategic planning process, which has been used to define corporate priorities and review progress. Among these priorities was automation, to which considerable resources have been allocated. Over the last ten years, a team of technical specialists and a solid technical infrastructure have been created, but the archives have been less successful in the development of application systems supporting archival functions.

The push to automate the core archival functions began with a well-organised planning and analysis project that defined requirements, created specifications, and confirmed both the technical and economic feasibility of an integrated Archives Management System. Because of the policies, standards, procedures, regulations and language requirements of the organisation, no commercial product was found to be satisfactory, and it appeared that only a custom-built system would do.

Upon reviewing the project proposal and business case, senior management was not prepared to go ahead with the investment because the costs were too high. Instead, they decided that a less expensive system should be built as quickly as possible. There was some reorganisation of the project, and, after some delay, work began on a number of separate projects to automate several archival functions using off-the-shelf products as much as possible. Five years later, three of the four core archival functions are automated.

A review and assessment of the results has indicated that they are less than satisfactory. While the objective of limiting expenditures has been met, the systems do not meet other key objectives that were set at the beginning of the project. In order to correct these shortcomings, a number of new systems development projects have been proposed. The Executive Board will be meeting shortly to determine which of them is suitable for optimising the situation and you have been given the task of preparing the core information on which their decision will be based.

### **Educational Objectives**

The purpose of this case study is to examine factors in management decision making, teamwork and consensus, as well as to consider how perceptions about cost, benefit and value affect outcomes.

Through this case study students will have an opportunity to explore problems such as:

- 1 Concepts of strategic planning, priorities setting and cost-benefit analysis.
- 2 Identifying and minimising mission conflict.
- 3 The influence of external factors and stakeholders' perceptions on strategy and decision making.
- 4 Fear, rivalry, uncertainty and doubt as factors influencing formal management processes.
- 5 Organisation structure, accountability and teamwork as critical elements affecting capacity to meet strategic corporate objectives.
- 6 Discrepancies between management theory and aspirations on the one hand and management conduct and actualities.
- 7 Need to harmonise impact of differing views of the role and value of information technology ie as essential or optional, as benefit or distraction, as overhead or investment.

## **The Case Problem**

You have been appointed by the Executive Board to prepare a brief synopsis of the pros, cons, costs and benefits of each of these projects, to recommend which should go ahead or be put on hold and to align them in order of priority for action. Explain the steps you will follow in preparing yourself and in undertaking the task and, based upon the information provided [and your own research and creativity] write a summary report incorporating the information requested for presentation to the Board.

### **Deliverables required:**

- 1 Steps in preparing and undertaking the task, including resources you would consult.
- 2 The summary report is to be five pages or less in an appropriate corporate style [you may use phrases, point form rather than full narrative sentences throughout] incorporating the information requested in a final form suitable for presentation to the Board.

## **Discussion Outline/Question Set**

Information Technology is a tool used by organisations to support their products and services, not an end in itself. Do you think that the decision by the Federal Archives to make automation a strategic priority was appropriate?

(Some possible responses include:)

By making automation a priority, have the Federal Archives set it up as a programme that competes against rather than supports other priorities such as improving information management or service to the public. Would a better approach be to identify elements of the core mission as strategic priorities and then to use automation as a means of achieving specific goals?

Was the project management structure that was adopted the right one? Might it have contributed, and how, to the perception by some of the other Directors that the Director of Informatics was getting too big a slice of the budget pie?

(Some possible responses include:)

Information Systems methodologies usually recommend that an executive responsible for the business function that the system is to support should be the Project Director. The consultant hired to review Federal Archives spending on IT made the same recommendation. Reasons could be given as to why a business line executive should be designated as the manager responsible for a systems development project. Suggestions could be given as to how rivalry amongst functions and programmes could have been minimised.

The Informatics Division provided the methodology for the cost-benefit study and provided the estimates for the cost of developing the system. Members of the Project Steering Committee and the User Team, however, identified the benefits. Why or why not was this an appropriate division of responsibilities?

(Some possible responses include:)

An analysis of how the presence of a project sponsor other than the Director of Informatics might have affected the CEO's and the Executive Committee's willingness to fund the project would shed light on the effectiveness of the division of responsibilities.

(Some possible responses include: )

To achieve full realisation of benefits, someone must be responsible for their management after the project is completed. Was the management structure of the AMS project a good one for ensuring that the benefits of the investment would be exploited? What suggestions would you make to be sure?

(Some possible responses include:)

Systems development projects construction projects, and other large capital investments are often concerned with delivering, on time and within budget, a result that meets user requirements. When the project is finished, the development team usually moves on to something else. But the end of the project is not the end of the story. There remains the question of whether the benefits are realised.

What were some other management decisions that may have contributed to the failure of the project to meet its objectives?



(Some possible responses include:)

- asking the Director of Finance to review spending by the Director of Informatics suggested a lack of trust and perhaps punishment for delivering bad news about the cost of a system that would meet requirements defined by the User Team
- the transfer of overall responsibility for the project from the Director of Informatics to the Director of Planning and Budgeting, which did not address the problem of a need for project sponsorship by a business function manager, also suggested a lack of trust
- the business case study was not modified to determine if the revised approach was cost-effective, so there is no way to respond to criticism that the system is too expensive
- the revised approach was no longer driven by measurable objectives such as improved efficiency or productivity
- selection of technology primarily on the basis of lowest cost and not value
- focus on short term goals, e.g., emphasis on getting systems in place as soon as possible with no compelling business reason to do so, failure to adopt and adhere to technology and data standards.)

## Suggested Reading

- Albrecht, Karl. *The Northbound Train*. New York, Amacom, 1994.
- Argyris, Chris. *Overcoming Organisational Defenses: Facilitating Organisational Learning*. Boston: Allyn and Bacon, 1990.
- Aubrey, Robert and Paul M. Cohen. *Working Wisdom: Timeless Skills and Vanguard Strategies for Learning Organisations*. San Francisco, Jossey-Bass Publishers, 1995.
- Bearman, David. *Electronic Evidence: Strategies for Managing Records in Contemporary Organisations*. Pittsburgh, Archives and Museum Informatics, 1994.
- \*Beckhard, Richard and Wendy Pritchard. *Changing the Essence: The Art of Creating and Leading Fundamental Change in Organisations*, San Francisco, Jossey-Bass, 1992.
- Block, Robert. *The politics of projects*. New York, Yourdon Press, 1983.
- Boar, Bernard H. The art of strategic planning for information technology: crafting strategy for the 90s. New York, J. Wiley, c1993.
- Boar, Bernard H. *Practical steps for aligning information technology with business strategies: how to achieve a competitive advantage*. New York, J. Wiley, 1994.
- Bridges, William. *Managing Transitions: Making the Most of Change*, Boston, Addison-Wesley Publishing Company, 1991.
- \*Champy, James and Michael Hammer. *Reengineering the Corporation*, New York, HarperCollins, 1993.
- \*Davenport, Thomas H. *Process Innovation: Reengineering through Information Technology*, Boston, Harvard Business School Press, 1993.
- Firdman, G. R. (Genrikh Romanovich). *Strategic information systems: forging the business and technology alliance*. [New York], McGraw-Hill, c1991.
- Gessford, John Evans. *How to build business-wide databases*. New York, Wiley, c1991.
- Gouillart, Francis J. and James N. Kelly. *Transforming the Organisation*. New York, McGraw-Hill, Inc., 1995.
- International Council on Archives. Committee on Archival Automation. *Planning for Information Technology in Archives*. Paris, ICA, 1996.
- Jacobs, Robert. W. *Real Time Strategic Change: How to Involve an Entire Organisation in Fast and Far-Reaching Change*. San Francisco, Berrett-Koehler Publishers, 1994.
- Kaufman, Roger. 'Strategic Planning and Thinking: Alternative Views,' Performance and Instruction, September 1990.
- Kovacevic, Antonio and Nicolas Majuf. 'Six Stages of IT Strategic Management,' Sloan Management Review, Summer, 1993.
- Schoemaker, Paul J. H. 'Scenario Planning,' Sloan Management Review, Winter 1995.

Scottish Record Office, *Information Systems Strategy Statement*, 1993.

Senge, Peter M. *The Fifth Discipline: The Art and Practice of The Learning Organisation*, New York: Doubleday, 1990.

\_\_\_\_\_, Charlotte Roberts, Richard B. Ross, Bryan J. Smith, and Art Kleiner. *The Fifth Discipline Fieldbook: Strategies and Tools for Building a Learning Organisation*, New York: Currency Doubleday, 1994.

Silk, D. J. (David J.). *Planning IT: creating an information management strategy*. Oxford, Butterworth-Heinemann, 1991.

Swartz, James B. *The Hunters and the Hunted: A Non-Linear Solution for Reengineering the Workplace*, Portland: Productivity Press, 1994.

Umbaugh, Robert E. *Handbook of IS Management*, 5<sup>th</sup> edition. Boston, Auerbach RIA Group, 1997.

Ward, John. *Strategic planning for information systems*. Chichester, Wiley, c1996.

# **The Transition to Electronic Government: The Challenge for Records Management**

**Greg O'Shea<sup>1</sup>**

## **Abstract**

This case study addresses the challenge presented by electronic government to the archives and records management fields, particular at the national level. It focuses on the Australian environment.

The case will begin by looking at electronic government generally before moving to address specific initiatives. The focus will then shift toward archives and records management issues and examine the impact of electronic government on this function.

## **Introduction**

The fact that the nature of the record has changed in the electronic environment has profound implications for the archives and records management profession and for the institutions whose duty it is to protect the public record. No longer can institutions or governments rely on traditional record keeping methods to safeguard their corporate memory.

While traditional practices were satisfactory for offices and for repositories with suitably resourced and staffed regimes managing mostly paper records and archives, times have changed rapidly. In many countries today, most documents come to life as electronic objects. And, although many officials persist in printing 'important documents' to paper and in maintaining paper record keeping systems to parallel their electronic ones, the gross inefficiency and cost of this practice becomes increasingly apparent as time goes by.

Already, in some countries legal challenges have attacked the 'print-out' practice, most notably in the PROFS case in the USA. In Australia evidence law has been amended to allow fully electronic documentary evidence to be produced and accepted by the courts.

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With many governments aiming to transact most of their business electronically after the year 2000, the strategies that agencies and institutions (particularly archival authorities) are employing to create, manage and provide access to the electronic public record must change.

Revising public record keeping regimes is a serious undertaking with profound implications for citizens and governments who rely on the preservation of access to the public record for the maintenance of their rights and entitlements under the law. It is an essential, but daunting task to preserve full access to the community memory whilst concurrently devising and bringing into operation a trustworthy electronic record keeping regime. However, there is no question that the transition must be accomplished quickly with record keeping effectiveness, continuity and integrity rigorously protected. Otherwise, community memory is at risk, as is citizens' access to evidence of their role in the community and of the community's responsibilities towards its citizenry.

## Electronic Government

In affluent metropolitan countries, many people are increasingly dependent on some advanced mode of telecommunications for the conduct of their lives and primary business. It might be mobile telephone, cable or satellite television or even the Internet. However, for most people populating the developing world, the high technologies of information revolution have far less impact on daily life, other than as entertainment and information via communal television or shortwave radio. While many have little or no real access to information technology we should not always make assumptions about the technology 'haves' and 'have nots'. A recent newspaper report about a tribe of Brazilian Indians gives us cause to think.

The newspaper article relates the story of the Guarani tribe had just taken possession of an 'ayuryrurive', which roughly translated means a 'box for accumulating language': a computer. Provided by a community aid project, the computer runs on power provided by a petrol generator. The Guarani elders see benefits in the new technology for keeping health records, developing educational materials and documenting tribal history, myths and traditions, but are wary about the impact the computer might have on their primary task; maintaining food supplies.<sup>2</sup>

This example reminds us of the varying degrees to which communities are exposed to the impact of technology and therefore of the extent to which this may impact on the country's archives and records management infrastructure.

However, in the realm of government and politics, advanced telecommunications is having a large impact that is percolating down to bring change in the lives of citizens around the world. The main area of impact is increasing access to information and increasingly to goods and services.

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<sup>2</sup> Michael Astor. 'Petrol Powered Computer to Accumulate Language of Brazilians'. *Canberra Times*, Monday, 11 January 1999, p.13.

Governments around the globe have some form of electronic systems in place, the means to access electronic systems or plans in place to acquire the means. The ability to deliver services electronically to citizens or citizen access is another matter and may be some way into the future. However there is no doubt it will eventually happen.

I am looking at this topic from the perspective of the delivery of government services and mindful of the developed country context in which it is set. I believe, however, that regardless of the stage of a country's development with electronic systems and electronic government the issues addressed here will be relevant to all, sooner or later. I am also mindful of the widespread connection to Internet services already particularly in developed and developing countries around the globe. In a very real sense this story begins and ends with the Internet. The Internet provides the technical backbone of protocols and infrastructure that enables electronic government.

### **Definition of Electronic Government**

What is electronic government? Electronic government is the electronic delivery of government services direct to the citizen, business and community.

In this context we differentiate from *corporate* electronic government services used within government, although we recognise some of the issues will be relevant in both contexts. In particular the record keeping implications arising from the electronic delivery of government services are relevant.

The challenge for governments all over the world is to deliver better services to more people at the same or reduced cost. The expectations of government, the community and business is changing and often encompasses the belief that government should be able to deliver services comparable with the best practice of the private sector. For many government services this includes the option of electronic service delivery. Widespread access to the Internet enables opens the potential for enhanced service delivery to the public 24 hours a day, seven day per week at home, at work or via information kiosks avoiding the need for citizens to physically travel to government offices and also avoiding lengthy phone delays. Of course it also opens the possibility for government to reduce its delivery costs through redeployment of personnel and real estate.

Many government services are amenable to electronic delivery. Opportunities exist for most services currently delivered across a counter or by mail to be delivered electronically, over the Internet or by telephone. These services include information services as well as transactional services.

## **Case Study: Australian Initiatives in Electronic Government**

Service delivery strategies in the public sector are changing in response to budget imperatives and community expectations. The management of the public sector continues to faces two challenges:

- to improve value for money in service delivery methods
- to manage change: allow flexibility in organisational structure and service delivery options so that responses to changes in the political, social and economic environment can be made quickly.

Agency managers are being challenged to find more productive ways of delivering services to Australian business and to the community. Confronted with increased community demand for quality services, the imperative is to find innovative ways of providing those services, opportunities to significantly improve effectiveness and ways to reduce the cost of service delivery by redesigning or re-engineering the processes. A business process re-engineering review gives management the opportunity to address the question

If I were re-creating this process for producing goods and services today, given modern advances in information technology, what should the process look like?"

This re-engineering or redesign of processes can be enabled by information technology and communications technology offering alternative ways to deliver services to the community and business.

A very significant proportion of public sector service delivery across all levels of government is based on information resources. These services are essentially of three types:

- information provision: What is my land tax liability? To what benefits am I entitled? Where do I catch the bus to St Kilda?
- non-payment transactions: change of address notification, birth registration, reminders
- payment transactions: tax payments, business licences, registration, ticket purchases.

Traditional ways of delivering these services include over the counter, by mail and by telephone. This case explores the opportunity to provide these services using electronic means, where this is appropriate and cost-effective.

## **Electronic Service Delivery**

Electronic Service Delivery (ESD) can be defined as electronic information provision and transactions between the government and the community and business.

ESD includes services delivered

- over the Internet, at a personal computer, or from a 'smart phone' with a screen, at home, work or a local library
- from a kiosk in the local shopping centre or local government outlet
- by telephone using Interactive Voice Response software (currently used by organisations such as Telstra for credit card payments of accounts)

- by telephone to Call Centres (such as the DSS Teleservice Centres), where skilled staff are linked to a range of high speed computer systems.

These services can usually share a common database holding all the relevant information. Different delivery options such as the kiosk or the telephone present the information in different ways. As technology, particularly bandwidth, improves and becomes less expensive some of these services may merge. ESD is a valuable option in determining the most appropriate service delivery mix to meet the requirements of government policy, budgets and consumers. It offers the citizen faster services from more convenient locations, usually with 24 hour access.

Australian governments are starting to adopt electronic service delivery as a strategy. A number of Commonwealth agencies have adopted this approach, including the following.

**The Department of Education, Employment, Training and Youth Affairs (DEETYA)** provides the 'Jobsearch' service for job seekers through touch screens and over the Internet.

**The Department of Industry, Science and Tourism (DIST)** is actively pursuing the development of electronic services aimed at small to medium Australian businesses. Information services such as BIZLINK are available now and registration processes are being developed to enable businesses to provide basic information once for use by a number of agencies.

**The Australian Capital Territory government** is committed to the establishment of a variety of public access points to government information and services at both local and national levels, through the implementation of its community information strategy. The AGIG is an important step towards achieving this goal as a central point of access to government at the national, state and local level.

**The Commonwealth** has outlined its online service delivery objectives in a sequence of documents released over the past three years including the OGIT IT Blueprint. The most current and relevant is the Prime Ministerial statement, 'Investing for Growth', which includes the following objectives:

- delivering all appropriate Commonwealth services electronically by 2001
- establishing a single government information centre (the Commonwealth Information Centre).

The Initiative is the central element in a programme to fulfil the vision articulated by the OnLine Council in September 1997. Three of the strategic priorities set there would be supported by this proposed project.

- 'Maximise opportunities for all Australians to benefit from the information economy' (strategic priority #1).
- 'Build a world class infrastructure for the information economy' (strategic priority #3).
- 'Implement a world-class model for delivery of all appropriate government services online' (strategic priority #7).



In **New South Wales**, *Connect.nsw* is a strategy for the use of online technologies to

- streamline internal government practices
- reduce costs.
- improve service delivery
- generally enhance the quality of life for the NSW community.

The recently endorsed *Connect.nsw* Implementation Framework outlines the programme of activities to implement the strategy. One of the initiatives seeks to

- integrate the services of other Governments into ServiceNSW
- integrate the electronic services of other governments into ServiceNSW
- facilitate online access to information and services across all levels of governments (local, state and federal).

In May 1998, the Online Council agreed to the establishment of an Australian Governments Internet gateway subject to the completion of a satisfactory business case. NSW will participate in this initiative to ensure that community access to information and services is seamless and cohesive across local, state and federal levels of government.

The **Northern Territory Government** is involved in the new market space, particularly with its 'Integrated Information Management Strategy'. This integrates several whole of government information management initiatives with the Australian Government Internet Gateway. Critical to success of the integration will be consistency in the standard used and the management of the hub, directory, search engine and metadata (including classification schemes). Supplementing this will be policies supporting quality, access and utilisation. These initiatives will create efficiency dividends, consistency and integration across multiple jurisdictions enabling a seamless approach for government information services online.

The **Queensland government's** draft State Communication and Information Strategic Plan places emphasis on the need to ensure the government's approach to seamless, online service delivery should be consistent with other Australian governments.

In **South Australia** and **Tasmania**, the state governments are characterised by online service delivery and interoperability with facilities being implemented in other jurisdictions.

In **Victoria**, the Australian Government Internet Gateway provides another opportunity for the Victorian government to use the power of communications technology and multimedia to transform the way it provides services to and communicates with the public.

**Western Australia** is advancing the adoption of a 'Single Window' that will recognise multiple jurisdictions. Phase 1 of the Single Window project is primarily Internet based, but there is scope to employ other delivery methods such as call centres.

The choice to deliver services electronically offers not just the opportunity to automate but to integrate delivery for improved effectiveness and convenience. There is the potential for citizens can access services from across programmes, agencies and jurisdictions at the same time and governments can deliver new services using information from more than one source.

## **Single Window Electronic Service Delivery**

One way in which the public sector is redesigning its business processes is through integration of services from different agencies aimed at the same or similar target groups. This approach has the potential to deliver integrated services for the greater convenience of the community and business. The level and type of integration will vary according to the purpose.

One type of 'single window' for electronic service delivery is the electronic equivalent of the one-stop-shop<sup>3</sup>:

- citizens can gain access to all electronically available government services from a single access point
- access is simple and cheap, available to all citizens in a seamless or transparent manner, in a wide variety of locations
- all services are structured in ways that provide intuitive access for the client (rather than to reflect the differing programmes, departments or jurisdictions involved).

The structure of the 'window' depends on the business motivation for providing integrated access. Another version of a single window would see integration at deeper levels, perhaps allowing clients to provide data and information once to be shared between agencies rather than providing it to each of them separately. Appropriately managed to protect privacy and confidentiality, this approach could offer significant benefits to businesses and other agencies that interact with government frequently.

The benefits to government of the single window approach are

- economies of scale and scope for governments working together, in particular, in the areas of infrastructure provision, policy development and content/product development.
- enhanced community acceptance of electronic service delivery through the increased convenience, ease of use and accessibility of co-ordinated services.

For these reasons, governments around the world, including Canada, the UK and Singapore, are already adopting single window approaches to electronic service delivery. Overseas experience suggests that some of the greatest benefits of ESD to

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<sup>3</sup> This slang term denotes a neighborhood or village shop where a number of popular or essential services, such as staple foods, beverages, petrol, banking, LPG gas, oil, batteries, entertainment videos, basic cosmetics, hygiene, non-prescription medicines and snacks are offered for sale at the one place.

the community will be gained from integrating services across federal, state and local government jurisdictional boundaries.

An example of this approach can be found in the New York Geographic Information Systems Co-operative Project. Nearly all government information has a geographic dimension: a street address, a transport route, a local government boundary. This project links information from local, state and federal agencies to provide better information for the public and business and for improved government planning.

The state governments of both Victoria and South Australia are taking a whole-of-government approach to electronic service delivery and are involving local government. The ACT Government has already implemented AUSTOUCH to provide information from all its agencies through kiosks and over the Internet.

## **Benefits to the Community**

A single window approach can provide the community with an service delivery option that is

- cost-effective
- easily available
- easily useable
- provides a high degree of integrity.

Although most people could appreciate the increased convenience of the single window approach, some members of the community will stand to gain particular benefits.

### **People in regional, rural and remote areas**

Rural people are often forced to travel to the city to conduct their business with government. This is inconvenient and costly. It also takes people away from businesses in rural centres. The National Farmer's Federation initiated the Farmwide project allowing Internet access to farmers for this reason.

### **People with family or work responsibilities that restrict mobility or the amount of time they have available to access services**

This group includes parents caring for small children and people running small businesses, for whom the 9am to 5pm site-specific services are not always convenient.

### **People with limited mobility or with sensory restrictions**

By providing information in a variety of locations – including the home – people with limited mobility can more easily access services. In addition, most electronic information can be easily and automatically translated into a form available to people with sensory restrictions. The location independent nature of single window service

delivery will also allow people to access services in an environment in which they can also draw on additional resources for assistance such as supported accommodation.

Careful planning will be necessary to ensure that members of the public gain real benefits through using single window electronic service delivery. Benefits to the community can include

- cost reduction
- significantly increased convenience
- new services to the public.

However, without careful planning the community may reject the concept. Without a convincing incentive for them, citizens will not be motivated to change their usual patterns of behaviour in relating to government. The most successful electronic service delivery applications are those that redesign business processes to provide strong motivators to all parties involved.

One of the earliest success stories relates to The Australian Taxation Office's Electronic Lodgement Service (ELS). This project allows taxpayers to lodge returns through tax agents and the Australian Post Office both of which are linked electronically to the tax office. This process has created a 'win/win/win' outcome. Tax agents get increased work, the ATO has less paperwork and the public receives their refunds much more quickly. As a result of the ELS system about 75% of annual tax returns in Australia are now lodged electronically with the Tax Office.

## **Benefits to Government**

### **Customer Service**

Single Window ESD provides the opportunity for

- better targeted, customised and more convenient customer service for clients and potential clients of government
- 24 hour services available 7 days a week
- the development of new service types by integrating of existing services or by creating totally new services in areas such as health care, education or training
- client access to systems, so that they can enter information directly - reducing the error rate and keying costs to agencies
- improved timeliness, accuracy and integrity
- improved information services provided to internal-to-government users as well as external clients.

## **Management**

ESD provides the opportunity for increased structural flexibility for management of service delivery: service delivery becomes location independent. The underlying service infrastructure can be used to deliver many different types of services. Services can move between agencies or be outsourced with little or no disruption of services. Outsourcing contractors can also be changed so as to gain the best service options with minimal disruption to service. ESD also provides better management information for planning purposes. Reports on client feedback, patterns in demand for services and service problems can be readily available.

## **Reduction in Operational Costs**

ESD can offer

- reductions in the level of customer inquiries by phone, mail and front desk visits and associated staff and physical resource costs
- reductions in publishing and distribution costs by making electronic versions of documents available
- administration of user surveys at a lower cost
- zero marginal cost for each additional information recipient
- avoidance of costs of redundancy and duplication between information resources of agencies.

ESD will not replace traditional service methods in the short term, but it will reduce citizen queuing and pressure on counter services, in particular because of its 24 hour nature. The objective is to create an environment enabling seamless electronic service delivery from different agencies and levels of government to the citizen and business. This objective was identified in *Clients First: the Challenge for Government Information Technology*<sup>4</sup> and elaborated in the exposure draft *Framework and Strategies for Information Technology* released in December 1995.<sup>5</sup>

Clients First suggests that successful single window approaches will depend on co-operation between jurisdictions primarily in three areas:

- information management policy
- information technology standards
- infrastructure development.

Agreement on a minimal set of the above will help provide a framework for the development of an open, multi-vendor technology and information management environment for electronic service delivery within the public sector in Australia:

- allowing maximum opportunity for interoperability and coordinated services

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<sup>4</sup> See <http://www.finance.gov.au/pubs/itrg/itrg-tc.html>.

<sup>5</sup> See <http://www.ogit.gov.au/publications/framework/framework.html>.

- minimising duplication at all levels
- enhancing the capacity of agencies to make sound investment decisions.

## **Key Players in the Planning and Implementation Process**

Planning for electronic government implementation needs to involve a range of key players within government. The responsibility for the planning process will normally reside with agencies responsible for whole of government or national planning and implementation for information technology and information management infrastructure projects.

In the Australian context the key agencies are OGO and the National Office of the Information Economy (NOIE)<sup>6</sup> at the Commonwealth level and at the State level Government agencies responsible for strategic information management projects. Significant OGO projects undertaken so far include the Australian Government Locator Service, Public Key Infrastructure, Shared Systems Suite, Australian Government On-line, Australian Cultural Network. The coordination of National activity occurs through a number of committees including the Online Council.

NOIE operates from within the Department of Communications, Information Technology and the Arts and has the responsibility for developing strategies to address the issues arising from the convergence of the information economy, information technology and telecommunications.

Its role is to encourage and facilitate a smooth transition to the information economy, through the development of a national strategic framework to ensure that all relevant bodies are moving in the same direction, and that a meaningful assessment of progress and world benchmarking is conducted.

An important part of the strategic framework is to ensure that Australians, including those in regional and rural areas, enjoy the social and economic benefits offered by the growth of the information economy.

## **Impact on the National Archives**

Archivists and Records Managers are not peripheral to this process but without an active strategy to ensure their voices are heard they may be overlooked. Consequently archivists and records managers need to position themselves to increase their profile and to ensure they have something of relevance to offer the process.

The National Archives has taken the opportunity to play a leading role in offering on-line services directly to the public through its own web-site or in cooperation with other key agencies.

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<sup>6</sup>see <http://www.noie.gov.au/index2.htm>.

For example the National Archives has played a leading role in the Australian Government Locator Service (AGLS) project, in cooperation with OGO to the extent where NAA now has lead agency status<sup>7</sup>.

The AGLS initiative, represents one of the three technical access architecture recommendations of the Information Management Steering Committee report for A search engine and the Australian Government's Entry Point. These latter two activities are being dealt with independently by the Search Engine Working Group and by a consultancy to provide a navigable common entry point. The National Archives of Australia in set up and chaired an AGLS Working Group.

The AGLS initiative is a key contributor in the process of getting Government Services online such as

- delivering all appropriate Commonwealth services electronically by the Internet
- establishing a Government Information Centre (through the OGO) as a single point of access to information about government services
- establishing electronic commerce as a normal means for Commonwealth payments
- establishing a secure Government wide intranet.

AGLS is critically importance in the process of standardising the description and location of Australian Government information reserves and services. The National Archives clearly has a significant role to play in such activity, particularly given its long history of developing information systems to describe and locate records in the context of Government structures.

The National Archives has also been taking steps to provide access to a range of information through its own website<sup>8</sup> about:

- archival policy and services
- the collection
- items from the collection
- products
- exhibitions and events
- educational resources
- the organisation itself
- locations, hours of opening and contacting the archives.

Two significant electronic services provided by the National Archives are access to the collections database and electronic inquiries. In the former the user can search the collections database or the items database using a variety search mechanisms such as

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<sup>7</sup> see <http://www.ogit.au/aglsindex.html>.

<sup>8</sup> see <http://www.naa.gov.au>.

the government functional thesaurus and agency / series lists. Hyperlinks are used to navigate between levels. In the latter users can send reference and general enquiries and receive replies via the web.

The National Archives in its role as Australia's principal archival institution also plays host to the Archives of Australia web site. In cooperation with all other archival institutions in the country through the Australian Council of Archives the NAA hosts institutional web-sites for other Australian archival institutions on its own servers until such time as institutions move to their own technology when links.

## **Record Keeping Issues**

At the heart of electronic interaction between the government and citizens is a requirement to keep track of the transactions. It makes sense to perform this task electronically but do we have the means to do so and what issues do we face in the process?

The National Archives has been involved in the process of establishing system requirements and evaluating software products for Records Management as part of the Shared Systems Initiative.

The Shared Systems Initiative (SSI) developed from the recommendation in the Clients First initiative, referred to earlier in the case study, which proposed that the number of administrative systems in use in Commonwealth agencies be reduced to improve administrative efficiencies. The key objectives of this initiative are to

- substantially improve the efficiency and effectiveness of administrative systems
- deliver better information to government, industry and to the community.

While this initiative did not specifically refer to record keeping issues it was clear to the National Archives that the SSI represented a key opportunity for the Archives to become involved in systems development and procurement process to ensure archives and records concerns were addressed. The Archives made representations that resulted in personnel being placed on the Senior Management Committee, the Requirements Committee and the Evaluation Committee for the project.

This tactic was successful in addressing concerns at the higher level. At a more fundamental level though, the first issue to face is the fundamental shift in thinking and practice required from managing traditional records to managing electronic records. To do that we have to think about the record itself.

To begin with we need to deal with the obvious point that the records of electronic government differ from other forms of record because.....they are electronic! Why do we need to do this? Don't all records possess similar characteristics regardless of their format? Yes they do.

For information objects, electronic or otherwise, to be records they must possess content, structure and context and be associated with some form of business or personal transaction.



For example, a reference enquiry received by an archive through the post or via e-mail is a business transaction. Associated with other related transactions the enquiry will become a reference enquiry record in the record keeping system. A diary is a form of personal transaction with ourselves in which we keep track of the daily transaction of our lives.

In the realm of a traditional record keeping regime the records are captured manually into an organisational record keeping system at some point after the initial document is received by the organisation. Dedicated agency staff in records management cells are required to maintain the system and its infrastructure and they or an agency clerk will be responsible for ensuring relevant items are placed 'on file'. With electronic government the situation changes!

All the transactions with government clients, whether they be in the form of information or as direct business transactions, occur via the medium of hardware and software. As we know electronic records differ from other forms of records in that they are hardware and software dependent. Without a suitable computer interface and the appropriate software electronic records cannot be captured, preserved or accessed. This situation made it imperative for the National Archives to become involved in the development of software systems with record keeping functionality. Hence involvement in the SSI process.

In addition to this because of the changes that occur to hardware and software platforms over time electronic records do not automatically remain accessible in the original software format in which they were created. As hardware and software platforms change electronic records need to be moved forward or migrated to maintain their accessibility.

The characteristics that distinguish electronic records from other forms of record have major implications for the conduct of business and the preservation of the record over time. These characteristics ensure that electronic records cannot be managed using traditional record keeping means and methods.

As a reminder, the characteristics are discussed briefly below.

### **Hardware and Software Dependence**

As already noted electronic records depend on host software and hardware for access. They also depend, in cases where documents are transferred from one system to another, on the receiving platform being able to open documents created on another platform.

### **Subject to Technological Change**

There is no such thing as a stable electronic environment. As each new level of hardware and software is being released the next two or three versions are being developed in Research and Development sections of vendor organisations. Consumers need to trust that each release of a new product is backward compatible ie that it can provide access to objects created on earlier versions. Consumers need to be particularly careful in this regard when shifting to a new proprietary platform eg Microsoft to Lotus.

## **The Separation of the Physical and Logical View of the Record**

A record may be viewed in logical form through the software interface but will be physically stored (for example on a hard drive) in a random fashion dependent on available space. Original order now resides at the contextual level and logical level not at the physical level.

## **Lack of Reliance on Specific Media**

Electronic records can be easily transferred from one electronic platform to another without impacting on the qualities that make it a record. The downside of this is the potential volatility of individual media and the need for relatively stable environmental conditions to ensure the qualities of both media and records are maintained. Of equal gravity is the need for strict controls when migrating records forward over technological platforms.

## **The Importance of Metadata**

Metadata is information about information. Metadata information can come in two forms: technical and contextual. Technical metadata is systems-level information generally attached to the information object at the time of creation or access. Contextual information is information about the ‘who, what, where and why’ of the individual record ie the context in which it was created. For example, the name of the creating body and the details of the transaction would be contextual information. HTML or PDF (in reference to the digital object) would be examples of technical information.

Once we clarify the nature and attributes of electronic records we need to then focus on how we might manage these records in record keeping systems. Clearly, traditional paper systems will not suffice in an electronic environment. There are a variety of questions about the authenticity of paper versions of electronic documents. Remember the paper version of an electronic document is not the original nor does it carry all the metadata associated with the electronic document. There are questions about how practical maintaining traditional processes are in the face of the increasing use of electronic systems.

## **Solutions for the Archives**

The electronic world has major ramifications for all archival institutions. It has ramifications for the conduct of business generally and it has ramifications for the future of the ‘record’ both within and without the institution. The extent to which institutions grasp this reality will have an equally profound impact on how they manage into the future.

The impact can (or should) be felt in a variety of places; in collection management, training and re-skilling programs, archival outreach and marketing programs, resource management, dealing with client expectations and requirements, institutional culture and cohesion, policy, planning and strategy and so on. The extent to which it is felt

and acted upon might be an indicator of the extent to which particular institutions are coping.

The reality is though that electronic government for the purposes of record keeping ultimately equals electronic records. Whichever way you view it institutions need to be taking steps to deal with electronic records, particularly in the case of National Archives who usually have some responsibility for record keeping in their respective jurisdictions.

Some authors have already concluded that archival institutions are not coping well or not dealing at all with the impact of technological change on their institutions and environments. They suggest there are a variety of reasons for this; principally institutional focus on the preservation of objects, a poor technological skills base (and in many cases a poor technology base) and a reluctance to commit to creation oriented or front-end strategies (that is, crossing the boundary into records management strategies).

In this case study we would wish to avoid the issue of the extent to which archival institutions may or may not be taking the appropriate steps. In any case it will vary widely from country to country and has been canvassed elsewhere. This case study is about what steps can or should be taken, and (as they relate to the Australian context) what steps have been taken.

For a National Archives there are a number of issues that need to be confronted.

- Coming to a realisation that there is a problem requiring serious attention.
- Differentiating the elements of the problem and their particular focus.
- Defining roles and responsibilities within the context of the institutional responsibilities.
- Determining the extent to which the institutional skills base might be able to deal with the defined problem.
- Articulating cogent arguments for the inclusion of the Archives in strategic initiatives and marketing the Archives position.
- Gaining the support of key stakeholders (both inside and outside the institution), particularly senior management.
- Establishing strategic initiatives that draw in other key stakeholders.
- Developing whole-of-government or sectoral policies and strategies.
- Being involved in whole-of-government or sectoral initiatives.
- Developing strategic partnerships.

# **The University of the West Indies - Registry Filing Room Procedures Improvement Project: The Use of Total Quality Management in a Records Management Environment**

**Victoria Lemieux<sup>1</sup>**

## **Introduction**

The situation was desperate. No one could find anything. Files were always going missing, resulting in massive missing-in-action searches that rarely produced anything but another wasted day. If and when a file actually was found, it seldom contained information up-to-date enough to be of any use. Filing room users were exasperated and fed up. In their frustration, they had begun to keep 'guerrilla' filing systems, poorly organised stacks of papers stuffed into secret hiding places away from the incompetent clutches of filing room clerks. Procedures for the handling of files and correspondence had completely broken down; no one had faith in the system any more. Filing room staff morale was at rock bottom; there was a real culture of discontent. Realising that something had to be done, the University hired a Campus Records Manager.

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She holds a Bachelor of Arts in History from the University of Toronto and a Master's in Archival Studies from the University of British Columbia in Canada. She is a member of a number of archives-related professional associations, including the Association of Canadian Archivists, and is a founding member of the Jamaica Chapter of the Association of Records Manager and Administrators (ARMA) International. She has spoken at numerous conferences; has taught records management and archives administration for the University of Alberta, the Alberta Society of Archivists and the University of the West Indies; and has been published widely in the field of records and information management and archives administration. In addition, she has also served as an international advisor and consultant on records and information management projects for several governments in the Caribbean region, the International Records Management Trust, the Commonwealth Secretariat and the United Nations.

As the newly appointed Campus Records Manager, I knew the task would be a challenge. I knew huge changes to every single procedure relating to how files and correspondence were handled by the University's administration would be needed. I even knew right away what some of those changes should be. But I also knew something else: the old procedures that were causing everyone grief had been in place for decades, they were part of the University's culture, and I was an outsider. If I came in and told everyone how they should change their systems, they would probably listen and nod politely; they might even attempt to implement those changes half-heartedly, but eventually the situation would revert to chaos.

Enter Total Quality Management - or as we came to call it - Total Quality Service. Total Quality Service (TQS) was a means of introducing change in a methodical way, one which would also involve Filing Room staff and users alike in the change process. This case study will explore how the University of the West Indies' Mona Campus Registry used TQS to improve its filing room operations.

## Background

What is TQS? Basically, it is a management philosophy. In different organisations TQS may be known by different names, for example, Total Quality Control, Total Quality Leadership, Quality Improvement Programme, Continuous Quality Improvement, or Total Quality Service. Whatever name TQS goes by, its three basic ingredients are constant: quality, customer satisfaction and continuous process improvement. Essentially, quality means doing things right *the first and every time*. It is not only important to do things right, however, but to do the *right* things right. There is no point in producing round widgets, for example, when customers only want square ones. Quality is achieved by determining what customers want and consistently satisfying or exceeding their requirements. In order to achieve quality and meet customers' needs, errors and unnecessary rework must be eliminated from work processes through continuous improvement.<sup>2</sup>

For the purposes of the Filing Room Procedures Improvement Project, we adopted the following operational definition of TQS: a process which focuses an organisation's energies on consistently meeting customers' expectations by means of redesigning work processes. Work process redesign is an approach to transforming work processes by streamlining work flows, rationalising organisational structures and using information technology creatively to focus on customer needs.

Many critics of TQS argue that it is just the latest management fad. Far from being a new concept, the genesis of TQS is said to date back to the 1950s when W. Edwards Deming fathered the principles that have come to form the basis of this management philosophy. Deming, an American, did not find American business receptive to his ideas. It was not until the Japanese picked up on his philosophy that Deming's ideas

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<sup>2</sup> Lawrence A. Nicholson, 'Total Quality Management: Mystique or what?' *Caribbean Labour Journal* 3, 4 (December, 1993), p. 17-18.

were adopted to any great extent. TQS only gained acceptance in the US during the 1970s when Americans began to study the underlying causes of Japanese economic success. In recent years, its popularity as a management philosophy has become widespread.<sup>3</sup>

The basic concepts of TQS will not be all that new to records managers. The need to satisfy customer requirements is implicit in the popular records management slogan:

‘get the right information in the right form to the right person in the right amount of time.’

Many traditional records management functions, such as correspondence management, forms design and control, file classification system design and retention scheduling, require the records manager to analyse and improve work processes. Thus, TQS can be viewed as new packaging for tried and true tools and techniques. TQS brings many of the tools used by records managers over the years together under one common rubric. This does not lessen the value of TQS to the records manager. On the contrary, it allows the records manager to continue to use these tools while, at the same time, dressing them up in flashy new clothes that allow records managers to capture the imagination and support of senior management.

TQS’s ability to capture the imagination and support of senior management was only one of a number of reasons why this approach seemed well-suited to the work of improving the operations of the Registry filing room at the University of the West Indies’ Mona Campus.

First, TQS also was deemed appropriate because of its focus on satisfying customer service expectations. The Registry filing room provides an essential service to administrative personnel based at the Mona Campus; however, administrative staff were very dissatisfied with the level of service they had been receiving. They were finding it difficult to respond to correspondence, issue transcripts and perform other core tasks because of the problems in the filing room.

Second, TQS is premised upon the involvement and commitment of all personnel, in the University’s case both Registry filing room and administrative staff. It was anticipated that there would be three main advantages to using an approach that nurtures involvement of all employees:

- an improvement in the morale of Registry filing room staff by giving them an opportunity to air their complaints and suggest solutions to problems
- the ability to utilise the specialised knowledge of both Registry filing room staff and customers to create a synergistic effect in analysing problems and identifying solutions
- a reduced resistance to change in procedures because staff generally yield greater acceptance of change when they help to create those changes.

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<sup>3</sup>*Ibid*, p. 17.

Third, in the ‘culture of discontent’ that had developed in the Registry filing room, opinions had replaced fact. As a result, there was a need to gather hard data about the root causes of process problems in the filing room so that sound decisions could be made about how to resolve those problems. TQS, as a management philosophy based on the notion that work should be studied, analysed and scientifically measured, provided the means of replacing opinion with fact.

Fourth, much blame for the process problems of the Registry filing room had been laid at the feet of the filing room staff. Consequently, filing room staff mistrusted administrative staff and administrative staff mistrusted filing room staff. By using TQS, we were able to defuse some of the tension between the two groups because TQS focuses on process problems and holds that 85 percent of work problems are not due to poor workers but rather to poor work processes. Its emphasis, therefore, is on solving problems by redesigning flawed processes instead of laying blame. Once the blaming stopped, each group was able to focus on the real problems: outdated and cumbersome work processes.

Finally, as a management philosophy that espouses continuous improvement, TQS was judged to be the best means of ensuring that improvements would be lasting. Organisations are dynamic; what works one week or month may not work the next. TQS emphasises giving employees the skills to respond to this dynamic situation by making improvements to work processes not just once but continuously over time.

## **TQS Preconditions**

There are at least two important preconditions to successfully implementing a TQS programme. First, the TQS programme must be fully supported by top-level management. TQS is intended to be transformative; without management support employees may not be committed to the difficult task of changing the organisation’s work processes and culture. Second, TQS requires that employees be taught the skills they need to know to enable them to analyse and improve work processes. It was considered essential that training in the TQS approach and specific TQS techniques be provided to the personnel who would be involved in the Registry Filing Room Procedures Improvement Project.

An initial orientation was held for all filing room staff and staff who play a key role at various stages of filing room work processes (such as, Registry attendants who are responsible for the delivery of mail and files). In addition, all filing room staff were requested to attend a presentation of a series of three videos aimed at providing them with a basic introduction to the principles and concepts of TQS. The same video series was also presented to Registry filing room customers to sensitise them to the TQS approach. ‘Just in time’(JIT) training in specific skills or techniques was also provided to staff as appropriate. Personnel involved in the project received training in such methods as process mapping/flow charting, cause and effect analysis using the fishbone diagram, brainstorming, meeting skills and data gathering and analysis.

# Project Methodology

Once management support was secured and initial TQS training had been delivered, we embarked upon the actual project. We adopted a four step methodology after researching various TQS methodologies in the available literature and consulting with a lecturer in Management Studies at the University with expertise in the field of TQS. The methodology we chose follows what is known as the Plan, Do, Check, Act (PDCA) Cycle, which represents the basic steps in the process of continuous improvement. The four steps of the project were as follows:

- Step 1: Understanding and measuring the existing work processes and identifying customer expectations
- Step 2: Analysing existing work processes and developing improved processes that solve problems and improve service
- Step 3: Implementing new processes and testing them to ensure that they are working properly
- Step 4: Continually monitoring processes to identify problems and implement solutions.

A project team was formed to carry out Steps 1 and 2 of the project consisting of the Campus Records Manager, the Registry filing room supervisor and Registry filing room staff with expertise in the different file series maintained in the filing room.

## Step 1

The purpose of Step 1 of the project was to gather information about the current work processes and customer expectations in order to

- identify gaps between what our customers expect and what our work processes allowed us to deliver (that is, problem areas)
- identify key processes to be redesigned and develop goals for achieving measurable improvements.

We considered this step to be critical to the success of the project because it would replace opinion about what was wrong with the operation of the Registry filing room with factual data.

This step of the project consisted of a number of activities as follows:

- understand the work environment
- identify critical processes
- process map critical processes
- measure critical processes
- identify customer requirements
- identify areas for improvement



- establish improvement objectives.

As stated above, TQS aims to transform work processes by streamlining work flows, rationalising organisation structures and using information technology creatively to focus on customer needs. A work process may be defined as a system of work tasks and work flows that, from inputs, produces specific outputs or work products that meet customer needs.

We considered it essential to our understanding of the work environment in which we operated to identify those employees who contributed inputs into filing room work processes (suppliers). We also needed to list those who received outputs of filing room processes (customers) and those alternate sources of outputs similar to those produced by the Registry filing room (competitors). We accomplished this task by having the project team brainstorm ideas about suppliers, customers and competitors.

From this exercise we learned that our suppliers and our customers were one and the same. In fact, those who requested the retrieval of documents and files were the same University employees we relied upon to send documents for filing and to return files for refiling. We also realised that, although we were the only central registry servicing the Mona Campus administration and were not operating in a business environment, we still had competitors. Our competitors were the ‘guerrilla filing systems’ that dissatisfied customers chose to maintain in close proximity to their desks. However, we saw ourselves as having a number of advantages over these informal systems in that we

- were knowledgeable about records
- offered a file tracking service
- had an organised system of arrangement for the records in our custody
- had centralised storage space and equipment.

Furthermore, because we managed the complete records from all sections, we possessed ‘the big picture’- invaluable insights into the whole operation of the campus.

Another of the competitors that we identified was the computer and its promise of eliminating the hassle of paper-based records. However, we felt our advantage over computers was that paper-based records still existed in large quantities and played a critical role in campus affairs. Paper would not be replaced by electronic records in the near future for a number of reasons, such as legal requirements for documentary evidence and regular power cuts on campus that made total reliance on computers impossible. Therefore, the service we provided managing paper-based records was still of value.

After identifying suppliers, customers and competitors, we then identified which work processes were essential to accomplishing the Registry filing room’s functions. The key processes/services identified were

- provide information from files (and sometimes from other sources) as requested and locate files for delivery by attendants

- maintain the filing system, including filing documents and raising new files
- process the mail
- maintain the bring up (forward) system.

We determined that the key processes we had identified should be examined in detail.

To that end, we undertook process mapping of each of the critical Registry filing room work processes in order to gain a complete understanding of process inputs, operations and outputs. Process mapping involves creating a pictorial representation showing all of the steps in a work process. The process mapping, which was carried out by the project team at a series of ten weekly meetings, provided us with a solid factual foundation for the work of analysing process problems.

We next identified process bottlenecks and problem areas. Although this activity was initially scheduled to take place as part of Step 2 of the project, once process mapping had begun, we thought it would be fitting to examine simultaneously the current problems associated with these processes. The methodology chosen to identify process problems was the fishbone, or cause and effect, diagram. The fishbone diagram was developed to represent the relationship between a given effect and all possible causes of that effect. Diagrams for each process were prepared after completion of the process map. The major process problems identified were

- customers must wait too long to receive requested files/information
- items requiring action are not being dealt with expeditiously
- files cannot be located
- information on files is often incomplete and not kept up-to-date, or misfiled
- physical maintenance of files is poor.
- The root causes of these problems included
- many employees need access to the same file simultaneously
- files are missing from the Registry filing room and cannot be located
- annotations on minute sheets are overlooked
- lack of or poor equipment
- lack of space
- the file tracking procedure is not working properly
- access to the Registry filing room is uncontrolled
- the file delivery system is not working properly
- the distribution of Registry filing room staff responsibilities is uneven and does not reflect functionality
- Registry filing room staff and customers alike lack procedural information and training.

Once we had process mapped critical Registry filing room work processes and analysed process problems, we set out to identify customer requirements. Knowing what our customers wanted from us was essential before we could proceed to identify solutions to work process problems. To overlook customer requirements may have meant spending time on issues that were not important to our customers. The project team identified customer requirements during two meetings it held with TQS representatives from sections that used the filing room's services. These meetings resulted in a list of customer expectations which we later used to prioritise process problems and set improvement objectives.

Following the identification of customer requirements, baseline measures of the critical Registry filing room work processes were taken. This activity involved gathering two main types of data

- statistics about the volume and/or frequency of steps in Registry filing room work processes
- statistics about the frequency/incidence of problems in Registry filing room work processes.

The purpose of gathering these baseline measures of Registry filing room work processes was to place greater emphasis on dealing with those process problems that occur most frequently. However, we also intended to take other factors into consideration, such as customer service expectations, the magnitude of the problems created by certain root causes and, of course, funding. We were also concerned to optimise the timing of the implementation of various solutions. For example, it would make little sense to provide training prior to the implementation of new procedures. Therefore our goals became

- to assist in establishing priorities for dealing with process problems
- to quantify the volume of work being handled by Registry filing room staff to determine if the work load is equitably distributed
- to assist in setting measurable improvement objectives
- to assist in determining whether solutions to process problems are working by comparing baseline measures of critical Registry filing room work processes before the implementation of solutions with baseline measures taken after the implementation of the solutions.

The project team members decided that the period during which the data was gathered could be relatively short as only 'snap shot' data about filing room work processes was needed as opposed to longitudinal or historical data. A data gathering instrument was designed and then tested over a five day period. As a result of this test, a number of deficiencies in the data gathering instrument were identified. These were rectified, and the data gathering exercise was carried out over a two week period.

The results of the data gathering exercise provided some interesting findings which are set out in the table below.

| PROBLEM INDICATOR  | COMMENT  |
|--|--|
| Approximately 2,951 files or 21 percent of all files in the Registry filing room were marked out.  |  |
| File tracking information for the files in circulation was incorrect or incomplete 55 percent of the time.   | Of course, incorrectness or incompleteness of file tracking information meant that we frequently had to conduct massive searches for files, a factor contributing to the slow delivery of requested files and information. |
| It was taking approximately 1.6 days for our customers to receive requested files.   |  |
| We were able to provide Registry filing room customers with requested files only 67 percent of the time.   |  |
| Items requiring action were often not being dealt with because of a backlog delaying placing these items on file before sending them out for action. |  |
| Thirty-nine percent of the time, the file needed for the action item was marked out or missing.  |  |
| Eleven percent of all requested files were missing and could not be found.   |  |
| Five percent of all files needed for action items were missing and could not be found.   |  |
| The average length of time marked out files were out of the Registry filing room was 88.5 days.  | The length of time for which files were marked out was contributing to the incompleteness of information on file as they were unable to be updated whilst they are marked out for use.                                     |
| The current backlog of documents for filing was around the 900 mark.   |  |
| The filing backlog was growing at an approximate rate of 3.6 percent per day.  |  |

For instance, we discovered that 21 percent of all files in the Registry filing room were marked out. We also learned that items requiring action were often not being dealt with because of the practice of placing these items on file before sending them out for action; 39 percent of the time the file needed for the action item was marked out or missing. The data gathering exercise showed that fully 11 percent of all requested files and five percent of all files needed for action items were missing and could not be found. In addition, the data gathering exercise revealed that the length of time for which files were marked out was contributing to the incompleteness of information on file. Approximately 2,951 files were marked out during the data gathering exercise; the average length of time for which they were out of the Registry filing room was 88.5 days, during which time they were unavailable for updating. We also learned that the current backlog of documents for filing was around the 900 mark and that the backlog was growing at an approximate rate of 3.6 percent per day.

The data gathering exercise also provided information about the volume and frequency of the work performed by Registry filing room staff. It revealed inequities in the amount of work being handled by each person. Based on this information and using key workload volume indicators (such as, number of action items handled, number of requests handled, amount of filing), we calculated how Registry filing room work should be redistributed to achieve more equity.

Although the data gathering exercise provided some indication of how we should distribute filing room work, we decided that it alone could not be used to finalise the distribution of staff responsibilities because the figures derived from the amount of time *currently* spent on filing room work functions. We recognised that, once work processes had been redesigned and improved, certain functions would require less time. In addition, we were undertaking a data entry project to convert manual indexes into automated form which had the result of skewing the average for the amount of time spent on this task. After the completion of the project, the time required naturally was much less. Similarly, less time is spent on meetings and other special tasks now that the initial stages of the project are complete.

Based on the process mapping, process problem analysis and data gathering exercise, we identified a number of areas for immediate improvement. These were

- the file tracking procedure
- the incidence of missing files
- poor distribution of staff responsibilities
- lack of or poor equipment
- lack of space
- lack of knowledge and training.

We worked on the assumption that if we eliminated or reduced the occurrence of these problems that, ultimately, we would be able to improve customer service levels.

## **Step 2**

The second step in the project was to develop improved work processes to solve the process problems and improve service. The purpose of Step 2 was to examine the existing work processes to identify tasks that could be

- eliminated (for example, we asked: ‘What is the worst thing that could happen if we just did not do this anymore?’)
- combined with another activity
- moved to another stage of the process
- done simultaneously with another activity
- simplified
- improved by using computers.

This step of the project consisted of three key tasks as follows:

- identify work process problems and bottlenecks
- generate ideas for improvement
- quantify the improvement potential.

As we had already identified work process problems in preparing the fishbone diagrams, we began right away to generate ideas for work process improvement.

At a series of meetings, the project team members brainstormed ideas about how to improve the operation of the Registry filing room. These ideas resulted in the preparation of a detailed grid showing work process problems and their root causes along one axis and customer requirements along another axis. Solutions were placed on the grid to show their relationship to solving work process problems and meeting customer needs.

Ideas for improving work processes were also incorporated into a draft records management policy and procedures manual. The draft manual outlined in detail the recommended revised work processes that would solve work process problems. Now that we have had an opportunity to work with the new processes for awhile, we are finalising this manual.

Part of Step 2 involved quantifying, as much as possible, the degree of improvement to work processes that could be expected by implementing the recommended solutions to work process problems and to estimate the anticipated costs of implementation. The approach taken to quantifying the degree of improvement was to develop a set of performance standards for critical filing room work processes. The development of the performance standards took into account two key pieces of data

- the results of the data gathering exercise
- the list of customer expectations.

At a series of meetings, the project team met to identify key tasks for each critical work process. It was also important to designate the success indicators for each key task, the performance standards to be met with the implementation of the solutions to existing work process problems and control points for the measurement of the performance standards. These standards have been incorporated into the employee appraisal process. In addition, the cost of implementation for each proposed solution was also calculated.

The final task that the project team carried out prior to beginning implementation of the proposed solutions was to develop a mission statement for the Registry filing room, renamed Registry Records Services. Many TQS project methodologies recommend the development of a mission statement as one of the first tasks to be performed; however, we decided to leave this until last. We felt that we could not develop a mission statement without a clear understanding of our work processes, our customers' requirements and how we wanted to change existing work processes to better serve our customers. The mission statement developed by the project team, in consultation with all other Registry filing room staff, is

To support the University's administration in the fulfilment of the University's mission through timely provision of accurate and complete information by

1. Organising University records
2. Maintaining University records
3. Providing for the training of customers and the development of staff
4. Providing quality client-oriented service in a friendly manner.

It is essential in developing mission statements that all staff to which the mission statement is to apply be involved and consulted to ensure that everyone is equally committed to the fulfilment of the mission.

### **Step 3**

At last we were ready to begin to implement the solutions to work process problems which we had identified during Step 2. Our first task of the implementation phase, Step 3 of the project, was to develop an implementation plan. The implementation plan listed each proposed solution to work process problems and identified implementation priorities, implementation preconditions and implementation status, which was updated regularly. Implementation priorities were established on the basis of

- customer service expectations
- funding
- the magnitude of the problems created by certain root causes and the expected benefits of eliminating the root causes of these problems
- data obtained by measuring critical work processes. Greater priority was placed on dealing with process problems that occur most frequently
- timing.

A number of the proposed solutions that we implemented are as follows:

- installation of an automated records management system to enhance retrieval and tracking of files which gave us the means to produce file lists and indices for internal use and for distribution to customers
- reallocation of the workload in the Registry filing room for a more equitable and functional distribution
- installation and implementation of a customer service counter for improved customer service and security
- improvements to and re-organisation of the physical space in the Registry filing room, including
  - completion of an addition

- construction of an office for the supervisor
- retiling of the floor
- installation of air conditioning
- acquisition of new equipment and supplies, including
  - mobile shelving
  - end-tab folders and colour-coded labels
  - document sorters
  - additional telephone extensions
- provision of new services to customers, such as file lists and indices and research
- implementation of improvements to the file tracking system, including the introduction of improved file tracking forms and a two week maximum loan period for all files
- implementation of a new procedure for handling action items off file
- controlled access to the Registry Filing Room.

Of course, expenditures associated with each one of the proposed solutions had to be justified to senior management. Because we could link the expenditures with the resolution of process problems that were themselves costly, both in terms of time and money, and to improvements in customer service, senior managers were willing to make available the funding to implement the proposed solutions to work process problems. With the implementation of these and other changes to eliminate the sources of work process problems, we have been able to improve Registry filing room operations and thereby improve customer service and satisfaction.

#### **Step 4**

The purpose of Step 4 of the project was to ensure that the solutions we had implemented to improve work processes were, in fact, achieving this objective. If they were not, we sought, during this phase of the project, to re-examine root causes and develop alternate solutions. Step 4 brought the TQS PDCA Cycle full circle and started us on our journey of continuous process improvement.

One of the key activities that we undertook as part of Step 4 was a procedures audit. The word audit can be a threatening one. However, in the context of a TQS project, wherein all employees have been involved in the process of improvement, an audit becomes a useful tool, not a threat. We developed a checklist of procedural changes that we used to determine which procedural changes had been implemented, how completely they had been implemented, how well the new procedures were working and where adjustments to new procedures were required. The audit involved meeting with staff to discuss the new procedures and observing staff at work over a week long period.



During Step 4 of the project we also conducted another data gathering exercise using the same checklist as in Step 1. The data gathering exercise also aided us in deciding whether our solutions were working and whether we were meeting our proposed improvement objectives and our customers' requirements.

It was also important for us to obtain customer feedback during Step 4, because measuring quality service is as much about how customers *perceive* the level of service they are receiving as the actual level of service being provided. We gathered, and continue to gather, information about customers' perceptions through informal discussions with individuals and groups of customers. Some TQS experts advise a more systematic approach to gathering this kind of information, such as the use of a survey, but we found that this technique did not work well within our organisation.

The audit, the data gathering exercise and feedback from customers together revealed what was working and what needed adjustment. In fact, we found that a number of solutions needed further refinement. For example, procedures establishing a two week maximum file loan period proved to be cumbersome for staff to implement when the process was largely a manual one. As a result of the information obtained from the audit, we decided to make changes to our automated system to further automate this process. In some cases, the proposed procedural changes were so radical that staff were reluctant to implement them. The audit drew attention to this problem and gave us the opportunity to discuss their concerns in order to raise their comfort level to the point that made implementation possible.

In other cases, the proposed solutions were working only partially. The problem of the backlog, for example, unfortunately persists according to the results of our data gathering exercise. While we are now keeping up with the classification of documents, we are still not able to place documents on file at the rate that they are arriving in the filing room. We have taken another look at the root causes of this problem and have determined that one of its main causes is the seasonal nature of the workload in other sections which contributes to a large influx of documents in the filing room from time to time. Although we had identified this as a root cause of the problem earlier in the project, we then thought the main cause of this particular problem was poor distribution of workload. It was not until we had redistributed staff responsibilities and analysed the results in Step 4 that it became clear that poor distribution of workload would not eliminate the main cause of this problem.

## **Challenges**

Our TQS journey has not been without its challenges. Each step of the project has presented its own unique problems to overcome.

One of the major challenges we faced was the difficulties caused by carrying out the project activities in addition to performing our regular duties. The project team members attended two hour weekly meetings for several months. Registry filing room staff were also assigned the data gathering exercise during Step 1 which

required additional amounts of their time. As a result of the time required for the project, staff had fewer hours in the week to perform their regular duties.

Additional demands also were placed on Registry filing room staff who did not participate in the project team because they were the ones who had to cover for those staff members in the meetings. The need to cover off for staff who were on leave or absent due to illness created extra pressure. We attempted to lessen the pressure on staff who were covering off during meetings by letting our customers know about our project and its impact upon our services. We explained that for those two hours every week the filing room would be short-staffed, but that these meetings were being held in an effort to improve service to them. With very few exceptions, our customers were most supportive of our efforts and gave us their understanding.

We also tried to keep meetings within the two hour time limit and on the topics set out in the agenda. Meeting agendas were distributed well in advance so that project team members came prepared. Each agenda item was allocated a specific amount of time, and a time keeper was appointed at each meeting to monitor our progress.

At the same time as we were undertaking the TQS project, we had other special projects going on as well, a situation that compounded the pressures we were experiencing already. It is a wise policy to limit other special projects during the initial phases of introducing TQS; additional burdens will only lessen the likelihood of a successful TQS programme. Ultimately, the pressure caused by undertaking a TQS project will be alleviated when quality and continuous improvement become part of each staff members' regular job functions, not an extra project. As we implemented our changes and gradually moved into the continuous improvement phase, we experienced fewer stressful demands on our time.

Another of the major challenges that we faced, and one common to most TQS projects, is that TQS takes time. It is not a quick fix approach, but aims to eliminate the root causes of problems through careful analysis. Thus, it can be awhile before results are noticeable. Attempting to compress the amount of time needed for the completion of the project work is not recommended because it can create even greater strains on staff who must also carry out their regular duties. Stretching the project activities out, however, can cause staff to become discouraged when results do not come quickly. Making the weekly meetings as much fun as possible helped to keep up the level of enthusiasm among project team members; for example, we brought doughnuts and other tasty treats to the meetings and encouraged a relaxed but respectful mode of communication. The fact that all of the staff remained focused on the end results of the project that would benefit them directly, such as hassle-free work days and greater respect from customers, helped to maintain the morale of even those who were not participating as project team members.

It can also be difficult to sustain support from customers over the long period necessary to implement TQS properly. They are eager for changes and want to see improvements to service levels as soon as possible. Regular reports to customers on the progress of the project and the goals to be achieved helped to keep customers from becoming cynical about TQS efforts. The communication must be realistic about

time lines and goals to avoid raising customers' expectations beyond what can be delivered.

Staff turnover was another of the challenges we faced in carrying out our TQS efforts. Half way into Step 2 of the project, a new Registry filing room supervisor was hired. Although the new supervisor was familiar with TQS and, indeed, had attended a TQS workshop, she was unfamiliar with the details of how TQS was being applied in the case of the Registry Filing Room Procedures Improvement Project. It was necessary to allow extra time to bring her up to speed on the details of the project and for a period of adjustment while she settled into her new position. Keeping all members of staff involved in some way in the TQS programme will be of help in the event that replacements must be found for project team members.

It also proved to be a challenge to elicit opinions from customers about their service expectations because we have so many customers with such diverse expectations. This is probably true of any organisation. We handled this challenge by asking every section/unit that used the services of the Registry filing room to appoint a TQS representative with whom we could liaise on the project. Some sections appointed representatives as requested; others did not. If a section did not appoint a representative, we sent all requests for information and communications to the head of section. We then held two focus groups comprised of the TQS representatives from each section to find out about expectations. As not all sections sent a representative to the focus group meetings, we circulated the minutes from these meetings for comment by other customers so that no one would feel they had not been given an opportunity to provide their feedback. It was also difficult for us to determine whether our customers would support proposed process changes that would affect their work. One such proposed change involved the handling of correspondence for action. We canvassed our customers about their ideas by outlining the proposed options they preferred to see us implement. It was necessary to follow up with reminder memos and phone calls to ensure every major customer group provided their comments; however, this approach did yield a consensus about the best method of improving this particular work process.

Another form of information needed from customers that can be difficult to collect is factual data about work processes. For instance, we needed to find out from our customers how long it was taking for them to receive requested files and how often they encountered problems with the file when they received it.

To that end, we designed a questionnaire for our users to complete. The questionnaire asked two very straightforward questions which respondents were asked to track over a ten day period. Unfortunately, the response rate to the questionnaire was only 33 percent. Although the results were disappointing, in retrospect they were not surprising. Customers are busy with their own work and often cannot be bothered to take the time to complete a questionnaire. Often it is the most disgruntled customers who will complete surveys, which can lead to skewed results that do not reflect the average customer experience. However, some dissatisfied customers may refuse to complete a questionnaire thinking 'Why should I help them out when they don't help me?'

On the basis of the experience with administering a questionnaire to customers, we decided that, in future, we will not rely on customers to collect factual data about work processes but will find other means to collect this kind of information. Nevertheless, we will still need to find out how customers perceive the level of service they are receiving from the Registry filing room. We have decided that, in our situation, this kind of data is gathered best informally.

TQS is a management philosophy which uses the scientific measurement of work processes to replace opinion-based decision-making with fact-based decision-making. The scientific measurement of work processes can be a challenge, however. The first hurdle is deciding how to gather the required data. There are a number of different methods that one can use; the difficulty is in choosing a method that is suited to the situation and the type of data to be gathered.

We decided to collect most of the data we needed by means of a survey to be administered to all Registry filing room staff. The staff were asked to answer questions on the survey through self-observation over a ten day period. Good surveys are not easy to design, which is why it is crucial to test them. As a result of the test we ran on our survey, a number of deficiencies in the data gathering instrument were identified and corrected. The test results also pointed to a need to extend the duration of the self-observation from the initial five day period to ten days to capture bi-weekly fluctuations in Registry filing room workload.

Even though we tested the survey, it was far from perfect when we finally conducted the data gathering exercise. In retrospect, the survey included some irrelevant questions and did not include some questions that we should have asked.

Part of the problem was that the data gathering exercise had so many objectives. We used the survey to collect baseline measures of critical filing room work processes so as to have information with which to set priorities for dealing with process problems, to gather information about the volume of work and to assist in setting measurable improvement objectives. It might have been possible to design a data gathering instrument to meet all of these goals had we known the solutions to process problems at the time of the survey's design. However, we chose to design and administer the survey prior to the development of solutions to work process problems because the data collected in the survey was needed to assist in the development of those solutions.

In hindsight, we may have been able to gather more accurate and comprehensive data if we had designed and administered two surveys:

- one to gather baseline information about existing work processes and work load for use in developing solutions to work process problems
- another after solutions had been developed to gather baseline data on existing work processes for comparison with baseline measures to be taken after the implementation of solutions.

On the other hand, designing and administering surveys takes a great deal of time; the benefits of more precise and comprehensive data must be weighed against the cost in staff time to complete the survey.

Another challenging aspect of scientific measurement of work processes in the context of TQS is the requirement to measure quality as well as quantity; for instance, how does one measure a qualitative concept like ‘customer friendly’ service? Only customers can determine whether they are receiving quality service, so they are the ones who must be asked for their perceptions.

Although one of our objectives in implementing solutions to work process problems was to implement in such a way as to minimise the disruption caused to filing room operations and service delivery, it did not prove to be possible to avoid disruptions completely. For example, in preparing for renovations to the physical space in the filing room and the installation of mobile shelving, almost all of the files and cabinets had to be shifted, causing confusion in the process. Also, some of the renovations did not take place when scheduled which prolonged the disruption.

To a certain extent, Registry filing room staff had to ‘roll with the punches’ during the implementation phase. It is important for managers, during what can be a period of unnerving change, to keep staff and customers focused on outcomes so that they do not become discouraged by the apparent chaos around them.

Another challenge commonly faced is the ‘I’ve always done it this way’ syndrome. People react differently to change. While some embrace it, others avoid it like the plague. It can be quite difficult to convince such people to make the changes needed to improve work processes and deliver quality service.

One of the reasons why people sometimes resist the changes brought about by TQS is that they do not understand what TQS is all about. They may feel threatened by the questions asked by a TQS project team member, interpreting these questions to mean that they must be doing their job poorly. The key to preventing this type of resistance is to provide some basic level of education about the TQS process to all employees and to communicate regularly about the TQS programme to both staff and customers.

As a management philosophy built upon employee participation, TQS inherently supports the change process. It can be a mistake to set up a separate TQS unit, as many organisations do, because this approach takes away the very employee sense of ownership of the work process transformation that will facilitate the change. One of the best means of reducing resistance to change is to involve the employees who will be most affected by the change in determining what changes will be made and how these will be implemented.

It is also important to remember that people are more apt to accept changes when they can see how those changes will be of benefit to them. During the Registry Filing Room Procedures Improvement Project, we kept staff and customers alike focussed on the benefits to them of the changes taking place. Despite all efforts, we still lost a couple of employees who could not deal with the changes. This is not unusual in the context of a transformative process such as TQS; managers should be prepared to accept this.

The ‘blaming syndrome’ can also create a stumbling block in the implementation of TQS. When work processes break down, people tend to blame one another for the difficulties they are encountering in doing their work.

We certainly experienced our share of this syndrome during the Registry Filing Room Procedures Improvement Project. It was important to bring people together to discuss their needs and frustrations so that we could move beyond the blaming to a deeper analysis of what aspect of the work process was causing their problems to occur. This is not to suggest that employees should be absolved of personal responsibility for job performance, merely that managers must ensure that all possible barriers to successful job performance have been removed before holding employees accountable. Employees, however, have a responsibility to bring barriers to successful job performance to the attention of managers.

Employee recognition is another challenging aspect of implementing TQS. Recognition awards ceremonies and employee of the month awards are approaches often used by management to recognise outstanding employee performance. However, these approaches can be counterproductive. Unless award criteria are explicit and clear, staff who are not given awards may feel resentful of management and award recipients. Those who receive awards may be embarrassed. Further, such award programmes, rather than promoting a cooperative problem-solving ethic among staff, may promote competitiveness. Just as with acceptance of change, people are motivated by different things. Thus, the best form of recognition may vary from employee to employee. As a result, the Registry Filing Room staff have been asked how each of them would like to be recognised. So far they have been so busy implementing new work processes that they have not had a moment to discuss the question of recognition. Perhaps the satisfaction of a job well done is the best form of reward!

## **Conclusion**

Although the TQS process was not without its challenges, it provided us with an approach to improving the procedures for handling files and correspondence at the Mona Campus of the University of the West Indies that has yielded excellent results. Faith in the Registry filing room has returned. Instead of laying blame, customers now are expressing their appreciation of the many changes that have been made to improve service levels. Also, as a direct result of this project, Registry filing room staff morale has dramatically improved; staff now feel that they have more control over their work, that management listens to them and that customers show respect for them. Further, Registry filing room staff have acquired new skills owing to their participation in this project which they can employ to continually improve their work processes to achieve higher levels of customer service in future.

# **The University of the West Indies - Registry Filing Room Procedures Improvement Project: The Use of Total Quality Management in a Records Management Environment**

## **Teaching Notes**

### **Educational Objectives**

This case study focuses on the methodology used in a particular business systems analysis (BSA) project. However, it also touches on the management issues faced during a BSA project, as BSA initiatives often complex projects requiring close management of both technical and human resource aspects.

At the end of this case study, you should have a clearer understanding of the following:

- how BSA techniques and tools can be combined and applied in a project involving a total quality management review of registry operations
- the kinds of management issues that you are likely to encounter in conducting a BSA project
- the importance of managing and how to minimise potential human resource problems in a BSA project
- the importance of senior management support in a BSA project
- the importance of communication in a BSA project.

### **Study Questions**

To understand more fully the lessons offered from this case study, you may wish to review and answer the following questions.

1. How many of the management issues discussed in the case study relate to technical aspects of the project? How many relate to human resource aspects?
2. Of the management issues discussed in the case study, which do you think are more difficult to manage - potential technical problems or potential people problems? Which contributed most to the difficulties experienced in conducting the project?

3. How was senior management support sought for the project described in this case study?
4. What techniques were used to involve key stakeholders in the project described in this case study?
5. What techniques were used to communicate about the project described in this case study, and to whom?
6. What BSA techniques and tools were employed in the project described in this case study? How were they used?
7. Identify the steps taken in the project described in this case study. Identify the steps you might take differently or in a different order.

## **Exercise**

Identify a records management area or function within your organisation that would benefit from a BSA review, such as the one described in this case study. You may wish to choose your central registry, as in the case study, or focus on a function, such as accessioning records, transferring files from active or inactive storage, or answering user requests. Write a project terms of reference for the BSA review. Include in your terms of reference the following points:

- the problem to be addressed (project rationale)
- the objectives and benefits of the project
- the scope of the project
- project activities
- methodologies to be used to carry out the project activities
- project time lines
- project participants
- a risk assessment and critical success factors
- resource requirements.



## Select Bibliography

- Brown, Stanley A. *Total Quality Service*. Scarborough, Ontario: Prentice Hall, 1992.
- Covey, Stephen. *The Seven Habits of Highly Effective People*. New York, NY: Random House, 1990.
- Nicholson, Lawrence A. >Total Quality Management: Mystique or What? *Caribbean Labour Journal* 3, 4 (December, 1993): 17-18.
- The Memory Jogger: A Pocket Guide of Tools for Continuous Improvement*. Methuen, MA: GOAL/QPC, 1988.
- Zikmund, William G. *Business Research Methods*, 4th Edition. Orlando, Florida: The Dryden Press, 1994.