Rwanda Parliament Support Project

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PHASE TWO CONSULTANCY ON ELECTRONIC ARCHIVING

DocuSite Analysis

Version 1.0

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Acknowledgments

This consultancy would not have been concluded without the contribution and support of all parliament's member of staff we met and the ARD team members.

We would like to thank all those who contributed to the success of this mission.

We would like to issue our special thanks to the initiator and supporter of this project: Dr. Vincent BIRUTA President of the Senate, for his fruitful contributions.

Anselme R. Bappock

1 BACKGROUND

Responding to the Rwanda Transitional National Assembly's request for assistance, USAID/Rwanda commissioned SUNY to conduct a legislative needs assessment in 1999. Following the recommendations of this report, USAID contracted with SUNY and ARD to provide long-term technical assistance to support the institutional development of the Assembly. This initial assistance continued for nearly three years, laying an important foundation for continued support to the new Parliament, whose members were elected in late September and early October 2003.

The prior USAID Task Order, authorizing the former Rwanda National Assembly Support Project, was issued to SUNY under the Deliberative Bodies IQC and covered the period from November 2000 until September 2003. Responsibility for implementing the project was shared between SUNY and ARD. The new ARD project, authorized under the USAID Analytical IQC, was undertaken in response to the Rwanda legislature's request for continued assistance.

This is a dynamic time for Rwanda with the nation in a period of change and evolution towards democracy. A new Constitution was adopted by national referendum on May 26, 2003, and was followed by Presidential and legislative elections. The newly elected Parliament, consisting of 80 Deputies and 20 Senators, was sworn in on October 10, and the leadership of both chambers was elected by the Members of Parliament (MPs) of each chamber. The top leadership of the Senate is the same as the former Transitional National Assembly, but the Chamber of Deputies leadership is entirely new.

The new post-transition Parliament faces numerous challenges and changes, including the shift from appointed to elected legislators; an influx of many new MPs, many of whom
have no legislative experience; a large increase in the number of new women legislators; and many functional changes resulting from the new Constitution, including legislative autonomy and the shift to a bicameral Parliament. At the same time, there is a need to better professionalize staff support and make the work of the Parliament more accessible to Rwanda's citizens.

The current Scope of Work follows on the Phase One consultancy conducted last year which included an inventory of legislative paper documents and began a process of making them more accessible to the public through electronic means. The prior activity included training on document management and acquisition of two computers and a scanner. The current Phase Two follow-up on the prior activity will result in an operational plan for electronic archiving which will convert many of the Parliament's paper documents to electronic format and make them accessible to the public.

This activity is incorporated in the project's Preliminary Work Plan and responds directly to the USAID project Scope of Work, specifically that the project, "Provide continued modernization consultation with the legislative documentation center, with particular focus on electronic archiving and making documents more accessible via the legislature's web site."

1.1 Priority Needs

The prior ARD/SUNY project implemented the Phase One electronic archives consultancy conducted by Jonas Mutwaza of the National University. He began the 21-day consultancy on February 10, 2003 and completed his work with delivery of a final report dated April 14, 2003. As part of this effort, Mr. Mutwaza conducted a two-day training on management of documents and electronic archiving for 19 Assembly staffers on March 24-25, 2003. His final report includes inventory data, recommendations, the training syllabus, and details of a new document inventory system.

The project also provided material assistance. After receiving technical recommendations from ARD consultant Kim Glenn and the electronic archives consultant Jonas Mutwaza, specifications were drawn and sent out to several vendors. After a procurement analysis, the firm Computer Bytes was selected as the vendor of a scanner and two computers with printers. These were delivered to the Assembly in May 2003, and the vendor conducted a brief training on their usage.

This new Scope of Work (see Appendix A on page 36) is intended to build upon the work to date and bring the electronic archiving into the implementation phase.

2 INTRODUCTION

The timely availability of accurate data and information is of paramount necessity in facilitating the process of Legislation-making of the rwandan parliament and/or decision-making by the civil society, private sector and donor community. Decision-making and effectiveness of the parliament's staff and members of parliament at all levels is greatly impaired by lack of accurate, reliable and timely information. The absence of a coordinating mechanism results in compartmentalized and fragmented systems with poor or total lack of information coordination.

A lot of data and information is produced, analyzed and disseminated as reports, transcripts or workshop papers etc, by various resource people, and committees at the parliament, but few people get access to them due to lack of information coordination. This is further aggravated by existing poor record management systems, which are obsolete and over whelmed by newly emerging requirements for speed and accuracy. Paper-based systems have resulted into severe retrieval problems and high costs in terms of wasted office accommodation, equipment as well as staff time.

An electronic document management system will therefore collect information. There is a need to set well-defined sourcing, management, selection and maintenance policies.

On this behalf this document has been drawn up on the basis of the information gathered during the assessment held at the Parliament of Rwanda including the details from various entities currently interacting with the Parliament.
The following persons participated in various meetings and contributed to the establishment of this analysis:

Mr. HABARUREMA Anicet	Secretary General, Parliament of Rwanda
Mr. MWEMAYIRE Dominique	Director of Parliamentary works, Parliament of Rwanda
Mr. GATWAZA Charles	Director support to parliamentary committees, Parliament of Rwanda
Mrs. NZAMWITAKUZE Sandrine	Director of documentation center, Parliament of Rwanda
Mr. RWEMANGEYO Manassé	Head of Plenary sessions, Parliament of Rwanda
Mr. RUSINGIZWA Moise	Head of archive division, Parliament of Rwanda
Mr. KALISA Pasteur	Intern, ARD/SUNY

Mr. NGAMIJE Joseph	Head of IT department, Parliament of Rwanda
Mr. MWITABANGOMA Ivan	System administrator, Parliament of Rwanda
Mr. Anselme Bappock	Consultant, ARD

2.1 Purpose of the document

This document describes the Parliament of Rwanda's actual situation with regard to the ameliorated semi-automated document processing and management solution. The tasks and objectives derived from this consultancy are presented.

2.2 Objectives

In analyzing the current processes, this document represents an element of the project process chain and thus provides the basis for further development of a target organizational concept.
All future requirements are to be taken into account in defining the given tasks - insofar as this is possible at the present moment.

2.3 Summary of the most important results

The project objective is to improve the **document processing solution**, which captures, classifies data and relevant information for the processing of the various parliamentary files (Bills) and creates records in a central application (Archive) as well as providing an access to these files on the parliament's web site.

The requirements pertaining to the system have been presented in the form of a model. In order to meet the requirements for a high degree of automation and the most extensive possible process control, interdependencies between the processes have been identified and corresponding application setup made.

On the basis of this analysis, further improvements of the Parliament of Rwanda's system will be recommended outlining the requirements to enable an assessment that will help continue the process of computerization.

3 DESCRIPTION OF TASKS

3.1 Background to the identified tasks

In connection with an optimization process and the streamlining of parliamentary processes, the Parliament of Rwanda wishes to improve its document Workflow. This results in the following scope of tasks:

3.1.1 Document Workflow

The parliament of Rwanda is in possession of a great amount of pre- and post genocide historic documents such as transcripts of the plenary sessions (procès verbaux), bill proposals and minutes (compte rendus). The current workflow of the Parliament is entirely paper-based. These paper documents are distributed all over the entire site, occupying considerable office space most of them in the parliament's library, thus resulting in an enormous effort to locate and find them in case of need. Moreover, although the parliament is in possession of a sufficiently equipped IT environment, most users creating files, still rely on their desktops for storage thus limiting their use to basic functionalities and running the risk the loss of their files in case of a system breakdown (due to viruses etc.).

In view of the diverse possibilities (with regard to the contents of the documents and its accessibility in case of need), an approach based on *"recording every entry file"* has been adopted. Currently, the arrival, movements and destinations of all Files are written down in Registers that may be used to localize the file in case of need. Today all paper files are manually passed over to the various entities of the parliament. The passing over process is extremely time consuming and non-efficient especially in the localization of required information (e.g. searching for a specific bill proposal or a transcript of a plenary session).

On this regard it would be advisable for the parliament to strive for a safety-oriented and automated acquisition solution for the above-stated documents (whereby the environment should cover scanning, classification, indexing, archiving and later the implementation of an adequate document workflow of Parliament of Rwanda) as a productive central solution.
The solution should ideally be scalable and expandable, as a further expansion of the system to include additional documents (incorporation of further transactions) is also foreseeable today.

3.1.2 Summary

With regard to the above stipulated reasons, it arises a need of a deployment of a general document management policy involving scanning and archiving enabling an easy retrieval of these documents and offering access to remote users (e.g. via the Web site).
The deployment of such a policy will considerably increase the efficiency of all processes bringing in some interesting side effects such as the optimal use of office space and others.

The following points give reason to consider an improvement of the existing solution in the document and data acquisition environment:

- Excessive scope of acquisition work due to manual data input.
- Time-consuming transaction inquiries due to slow, paper-based processes.
- Hand over delay due non-defined document destinations.
- Absence of a well-structured archive.
- Storage space shortage.
- High scope of searching effort.

The following specifications are based on the above-stated premises.

3.2 Planning environment

3.2.1 Hardware environment

Host:	…
Server:	IBM Netfinity 5100/xSeries 230
Clients:	Compaq D300 P IV 1.5GHz
Network LAN	Cat 5e 100 Mbit/sec
Network WAN:	none
Scanner:	HP / Fujitsu FI- 5750C
Archive system:	FileMaker Pro
Database:	IBM Netfinity 5100/xSeries 230
Current acquisition environment:	manual recording
Existing interfaces of acquisition system:	none

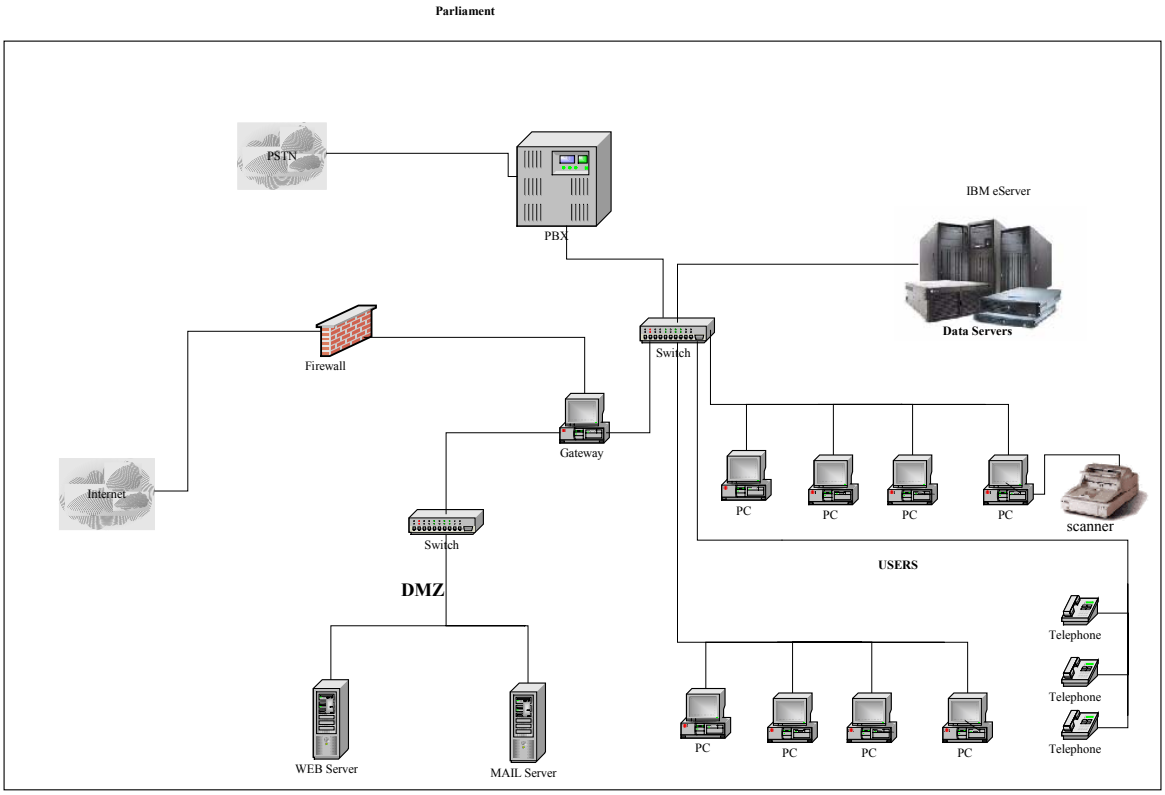


Diagram 1 Topology

3.2.2 Software environment

Network protocol:	TCP/IP
Client OS	Windows XP/2000/Me/98
Server OS	Windows 2000, SP 4
Acquisition system:	FileMaker Pro®
Database	FileMaker Pro®
ERP system:	none
DMS software:	FileMaker Pro®
Consultancy:	...
Groupware:	none

3.2.3 IT Resources

3.2.3.1 Database Server

Database Server	
Server type	IBM Netfinity 5100/xSeries 230
Processor	P III
RAM	512 MB
OS -HD	SCSI
Total size	5 GB
available space	3.2 GB
Data- HD	SCSI
Total size	27 GB
available space	26.5 GB
Slots on rack	4
Used slots	3
available slots	1
Netwerk Controller	Fast Ethernet NIC 64 PCI Dual Base 10/100
Storage Controller	Int. Smart array controller(Supporting RAID 0,1,0+,5 and ext DAT)
OS	Win 2000 Server
Database	Aquarius

3.2.3.2 File Server

Database Server	
Server type	IBM Netfinity 5100/xSeries 230
Processor	P III
RAM	512 MB
OS -HD	SCSI
Total size	5 GB
available space	3.17 GB
Data- HD	SCSI
Total size	27 GB
available space	24.2 GB
Slots on rack	4
Used slots	3
available slots	1
Netwerk Controller	Fast Ethernet NIC 64 PCI Dual Base 10/100
Storage Controller	Int. Smart array controller(Supporting RAID 0,1,0+,5 and ext DAT)
OS	Win 2000 Server

3.2.4 Present application environment (current situation)

The current document and data acquisition environment is modeled as an SA model (structured analysis model). The system's external interfaces are presented in the "context diagram".
Each box here symbolizes an external system (terminator), which communicates with the data acquisition system. The system itself is symbolized by the sphere in the middle of the context diagram. The content of the communications is symbolized by "data flows". Arrows with names symbolize data flows. The precise meanings of all the names of data flows are defined in the "data catalogue".

The functions and data are specified in the form of SA models (/RAASCH 1992). All the systems that adjoin the system currently under review are shown in the context diagram. These are subsequently referred to as terminators. Terminators communicate with the ***data acquisition system***. The center circle represents the system itself. Arrows with names symbolize the data flows. The precise meanings of all names and data flows are specified in the data catalogue beginning on page 22

The internal structure of the system is explained in the "data flow diagrams". Here the **data acquisition system** is broken down into individual processes. Each of these processes is represented by a circle with a hierarchic number and a name. Data memories are represented by two parallel lines and a definition of the contents. Data flows are represented in the form of lines with appropriate arrow directions for reading and writing access to a memory.

We are referring here to the data flow of level 0. The processes of level 0 are either refined in subsequent levels 1 to n or their functions are explained in the form of process specifications, so-called "mini specifications" (elementary processes). The elementary processes are described in the mini specifications with the aid of "structured language". The aim of structured language is to attain the highest possible level of non-ambiguity with "normal language". To this end, simple sentences (sequences) are used together with a number of control structures (closed decisions, closed repetitions, block structures), but without applying a formalism, which is defined down to the last detail.

3.2.4.1 System model

The following context diagram shows the systems of relevance to the defined task which communicate with the current data acquisition system and the acquisition process:

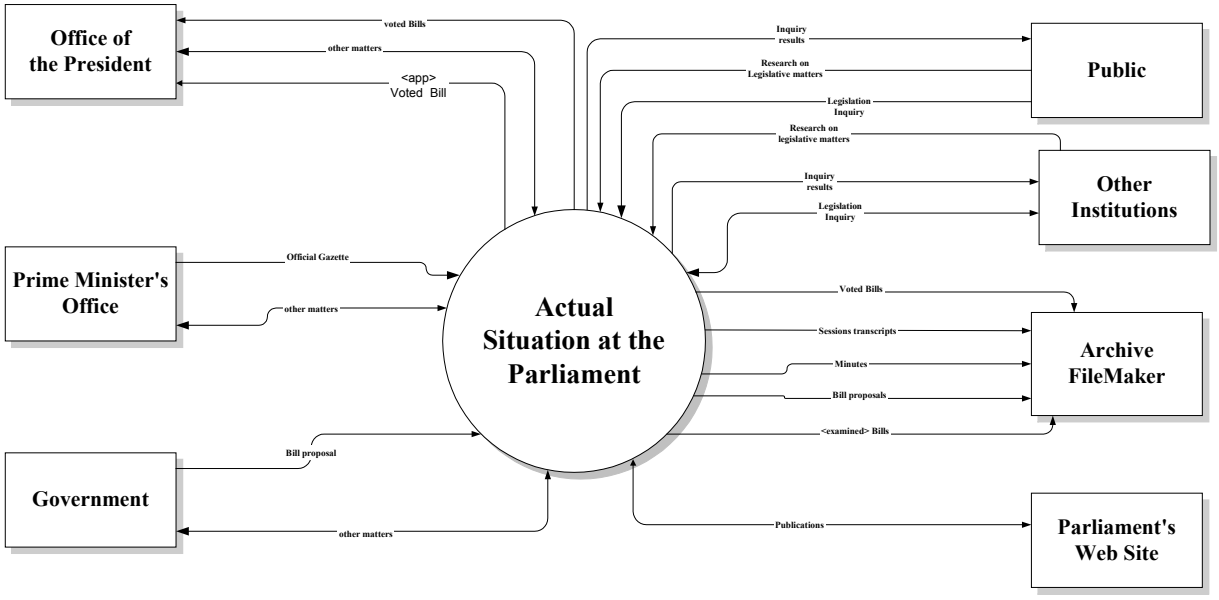


Figure 1: Context diagram

The following external terminators communicate with the system:

Office of the President
Office of the President, responsible for the promulgation of the Rwandan legislation.

Prime Minister's office
Office of the Prime Minister, source of the official gazette of the republic of Rwanda

Government
Government of Rwanda (all ministries), submits the bill proposals to be treated in the parliament

Parliament's Web Site
Rwandan Parliament web portal

Archive FileMaker
Current acquisition system that manages the documents.

Other Institutions
Includes all other institutions (Universities, NGO, etc.) seeking for Legislative documentation

Public
Individuals seeking for information on rwandan legislation.

3.2.4.2 Data flows and process specifications (current situation)

In this section we describe the data flow diagram of the current process flow of the Parliament of Rwanda.
In unison with the scope of work of this consultancy (see appendix A page 38), we will concentrate in subsequent descriptions only on process 4 “Documentation Services”.

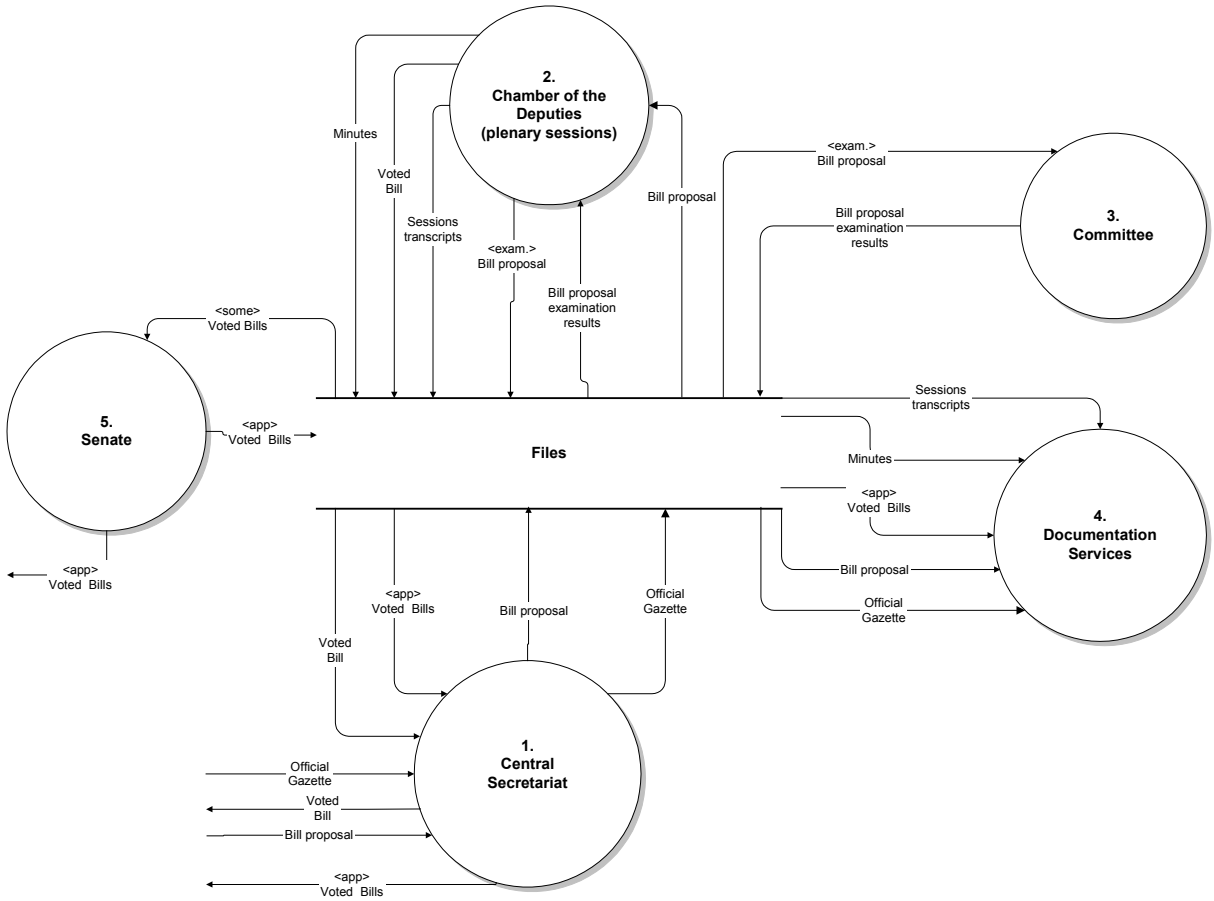


Figure 2: Data flow, level 0

3.2.4.2.1 Data flow of level 0, process 4 "Documentation Services"

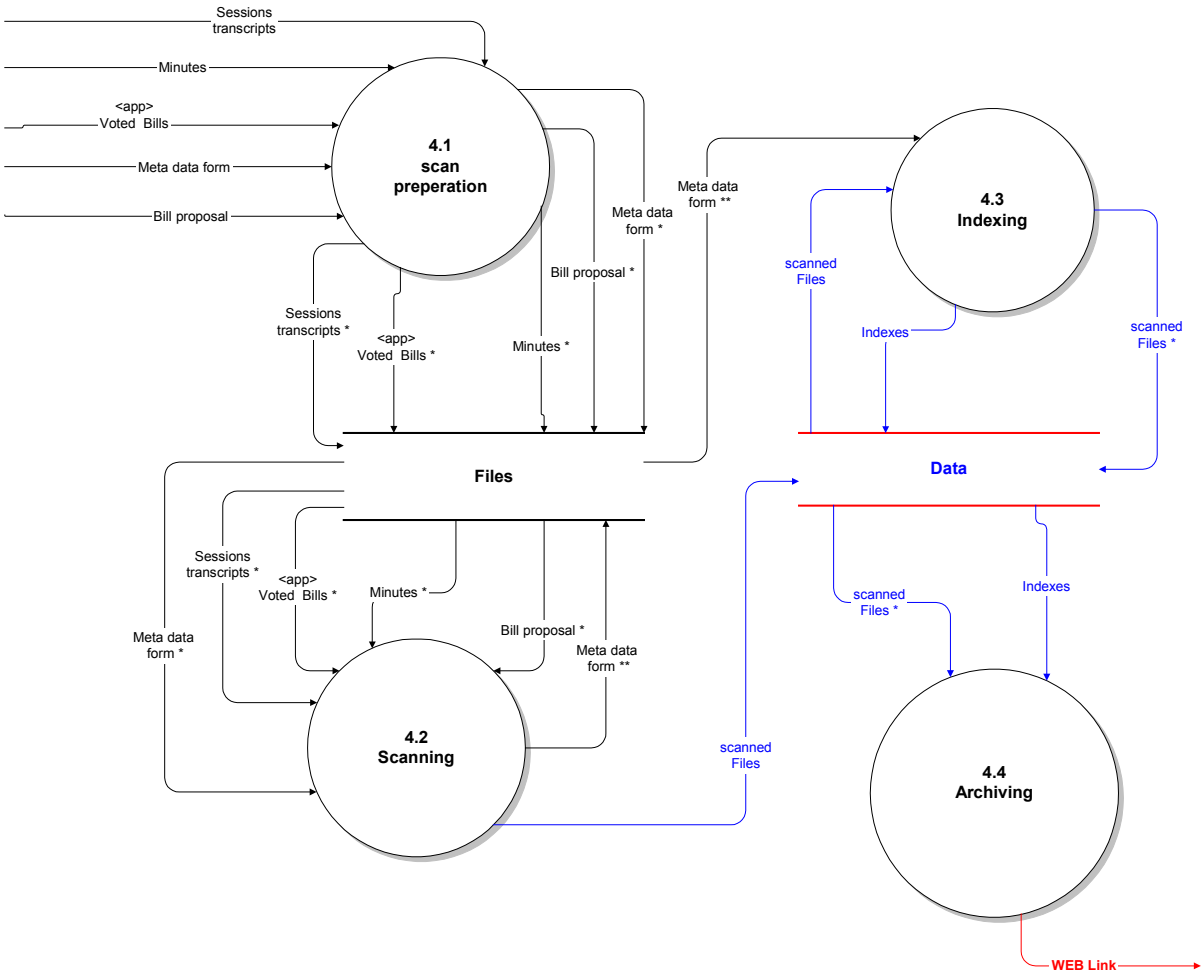


Figure 3: Data flow, level 1 process 4

3.2.4.2.1.1 Data flow of level 1, process 4.1 "Scan preparation"

Scan preparation	
Input data flow:	Sessions transcripts, minutes, bill proposal, <app> voted bills, meta data form
• Files are gathered • Presorted according to the content and type (transcripts, minutes etc) • Freed from all paper clamps, clips and arranged in order • A metadata form with some keywords retrieved from the files (e.g. date, Title etc.) • Forwarded to the scanning process Employees in this area: • 1 person	
Output data flow:	Sessions transcripts *, minutes *, bill proposal *, <app> voted bills *, meta data form *
Referred to:	

3.2.4.2.1.2 Data flow of level 1, process 4.2 "Scanning"

Scanning	
Input data flow:	Sessions transcripts *, minutes *, bill proposal *, <app> voted bills *, meta data form *
• Metadata form is removed • Paper documents are put onto the scanner's automatic document feeder (ADF) and scanned as a PDF (portable document format) storing them directly on the database server. • The metadata form is completed with the scanned image file name, which will be needed during indexing to create a reference to the file. • Forwarding to the indexing process. Employees in this area: • 1 person	
Output data flow:	scanned files, meta data form **
Referred to:	

3.2.4.2.1.3 Data flow of level 1, process 4.3 "Indexing"

Indexing	
Input data flow:	scanned files, meta data form **
• The filed metadata form is used to enter the required index data on FileMaker Pro. • Employees in this area: • 1 person	
Output data flow:	Indexes, scanned files * Referred to:

3.2.4.2.1.4 Data flow of level 1, process 4.4 "Archiving"

Archiving	
Input data flow:	Indexes, scanned files *
• Using the index data, a link with the scanned files is created. • A copy of this data is transferred to the web server for publication on the web site. • The paper documents are returned to their previous storage location. Employees in this area: • 1 person	
Output data flow:	Web Link Referred to:

3.3 Data catalog

3.3.1 Data catalog syntax

Name	Symbol	Meaning
Composition	=	is equivalent to, is composed of
Linkage	+	and (enumeration)
Selection	[.../...]	either or
Iteration	{ } 1 {...}6	multiple occurrence from 1 to 6 times
Option	( )	can apply
Discrete value	"..."	value of variables
Comment	*...*	additional information
Modifier	<...>	Comment supplementing name

3.3.2 Data catalog

The data catalog provides a mapping between the abbreviations used in the data flow diagrams and their actual meaning or definition.

Bill proposal		The bill submitted by the government
<exam.> Bill proposal		Examined bill proposal
Bill proposal examination results		Assessment results produced by the committee concerned with the technical analysis of the bill.
Committee		The parliament has a total of 11 committees, which deal with various matters. The members being the MPs
Sessions Transcripts		Session transcripts (Procès-verbaux)
Sessions Transcripts *		Session transcripts, prepared and ready for scanning
<app> voted bills		Approved voted bills sent to the office of the president of the republic for promulgation.
Voted Bill		Voted Bill
Minutes		Plenary sessions minutes (comptes-rendus)
Minutes *		Plenary sessions minutes, prepared and ready for scanning
Bill proposal *		Bill proposal, prepared and ready for scanning
Scanned Files		All PDF files produced by the scanner and stored on the server
Metadata form		Paper form used to record the required index information
Metadata form*		Partially filled metadata form
<some> voted Bill		Some Bills e.g. the so-called organic laws have to pass through the senate.
Indexes		Composed of keywords, content extracts of the file used for subsequent retrieval of the document in the archive (search criteria)

3.4 Current document processing system of Parliament of Rwanda

3.4.1 Process specifications

This section is simply illustrating the currently implemented process flow of the Parliament document-processing unit.
The process involves the following components and steps:

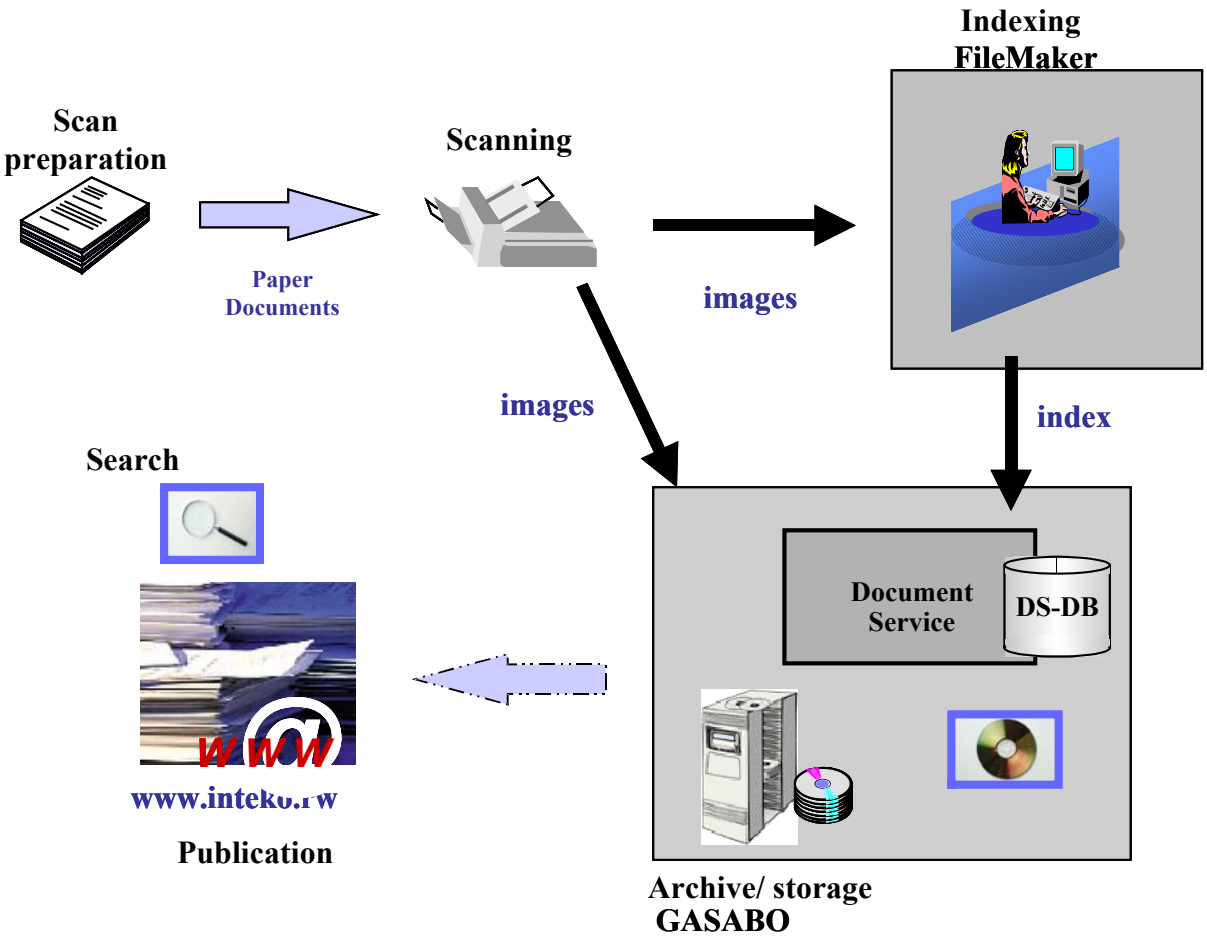


Figure 4: Topology

This process means a centralized scanning of all documents and also, for all the parliament's personnel, an administrative use of electronic documents besides paper documents.

3.4.2 Process description

For efficiency reasons, a break down of the whole electronic archiving process into basic processing step was necessary. The four basic steps that resulted from these reorganization measures are the following:

- Scan preparation
- Scanning
- Indexing
- Archiving/Storage

3.4.2.1 Scan preparation

The scan preparation is one of the most challenging steps of the whole process chain. It involves the gathering of document that are not always easy to find, reorganization of these documents, removal of all paper clips that could damage or prevent a smooth scanning and the filling of a newly introduced metadata form that will accompany the paper documents until they are finally archived.

3.4.2.2 Scanning

Using the high-duty scanner, the paper-based documents are converted into electronic files (in this case PDF files). The files are named using the naming convention (see appendix D)and then stored directly on the file server. The file name is recorded on the metadata form for later use during the indexing step to create a link with the physical file.
The actual scanner scans at a speed of 57 pages per minute in the simplex mode and is capable of producing up to 96 images per minute in the duplex mode, which should be a good speed to handle the current volume within a period of six months.

3.4.2.3 Indexing/ Capture

This step comprises the creation of indexes, which simply means entering the data required in the corresponding fields on FileMaker Pro. The filed metadata form helps increase the efficiency at this particular step since all its content is required to complete this step. The hereby generated content, is used to retrieve the documents from the system
In the past users working here, used to refer to the paper documents to retrieve the information required. This was time-consuming and inefficient.

3.4.2.3.1 Index structure

The following screenshots illustrate the current required indexes:

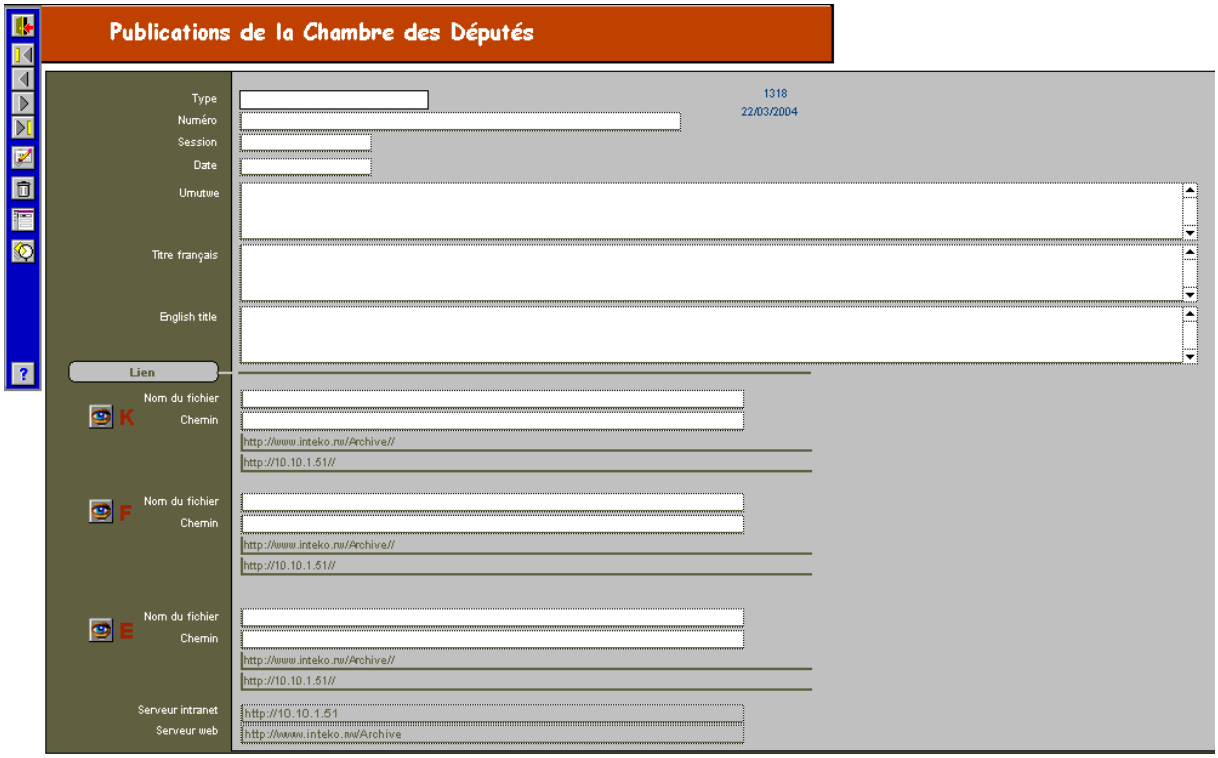


Figure 5 : Empty FileMaker Pro indexing form

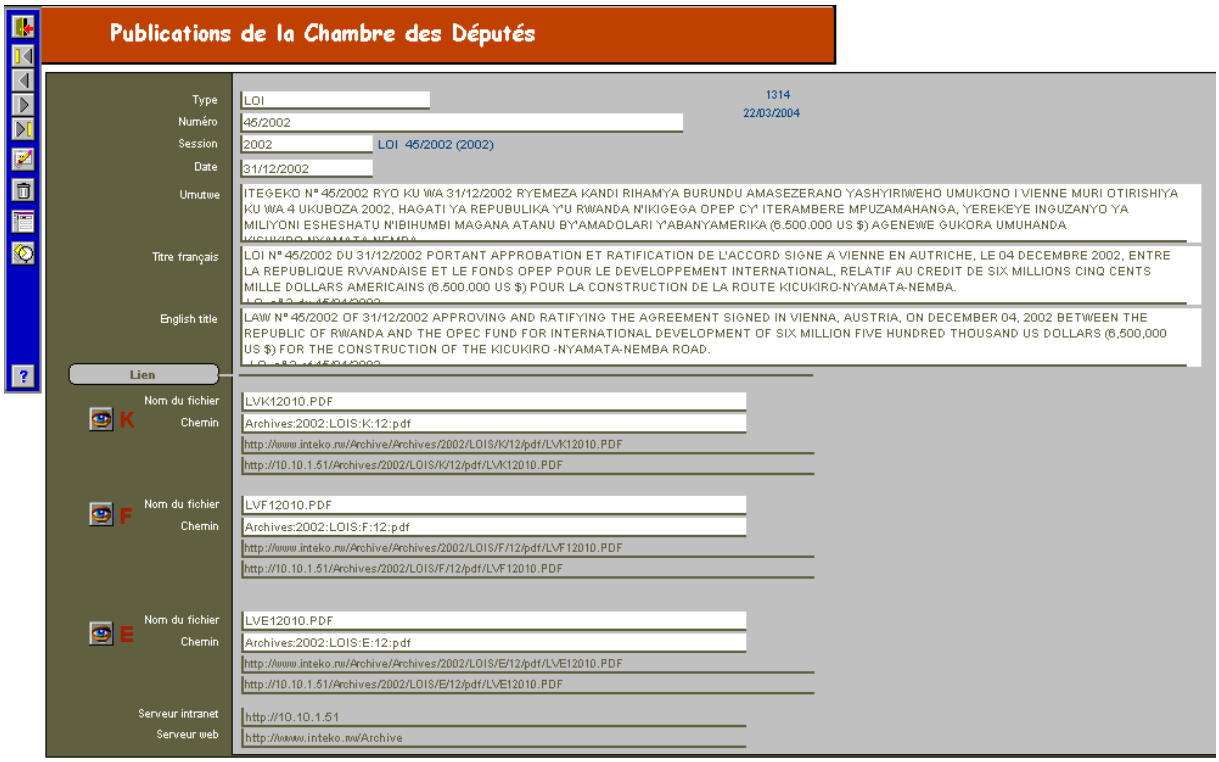


Figure 6 : filled FileMaker Pro form

3.4.2.4 Archiving

Scanned documents and recognized external integrated files are linked in their original format with the indexes. The files are accessible to all internal staff and can be retrieved using keywords. A copy of the archive is transferred to the parliament's web server to enable access to external users.
The electronic archiving chain ends with the completion of this step.

3.4.3 Limitations

The current processing particularly in the choice of the file storage format (portable document format or PDF), houses a number of concerns that might constitute a hindrance on future electronic document projects.

Full text:
The initial project goal was to transform and manage the paper documents electronically focusing on their accessibility via the Internet. To achieve this goal, a universal file format that would be interpretable by the majority of users had to be chosen. This resulted in the choice of PDF. Despite the advantage of PDF in terms of portability, we believe that if a full text retrieval of the current file content is required, The paper files will have to be rescanned to produce other binary formats (e.g. TIFF) that will be more suitable to apply OCR technologies to capture this content.

Storage capacity:
Due to the fact that PDF does not really provide enough data compression, storing file in this format will require sooner or later that the storage capacity of the current server be increased to handle the volume.

4 ORGANIZATIONAL TIME SCALE

4.1 Layout of Work

All the calculations in this section are based on the document inventory of Mr. Mutwaza's report (page 83-85). The table below shows the details of our calculations:

Category	Period	Number of Years	Number of pages	average/year
Conférence des Présidents de commissions	1995-2000	6 Years	1680 Pages	280 Pages/year
Projets de Lois	1994-2002	8 Years	15850 Pages	1981 Pages/year
Commissions	1995-2002	7 Years	2235 Pages	319 Pages/year
Comptes-rendus	1995-1999	4 Years	2320 Pages	580 Pages/year
Procès-verbaux	1982-1999	17 Years	42200 Pages	2482 Pages/year
Lois votées	1995-2002	7 Years	8800 Pages	1257 Pages/year
Contrôle de l'action	1999-2000	2 Years	1150 Pages	575 Pages/year
			Total volume per year	7475 Pages/year
			Estimated actual volume per year	9718 Pages/year
			Current volume on stock(1994-2004)	**92317 Pages**

Table 1: Volume of paper document on stock

The present volume that has gathered for the last ten years stands at approximately. **92317 pages**.

Considering the following factors:

- **Two individuals involved in the document processing as a full time task**
- **2 hours of scanning per day**
- **4 hours of scan preparation per day with an average of 800 pages prepared per day**
- **3 hours of indexing and archiving of 800 pages per day**

The period of time required to complete the job will be approximately **116 days or 5.3 months**.

Taking into consideration that the two individuals mentioned above are involved in other daily tasks and that archiving is currently not taken as a priority task, we estimate that the treatment of the old document stock might require a much longer period.

4.1.1 Man power

To handle the old stock of documents that have gathered over the last ten years, the parliament should consider increasing temporally its documentation center staff. We estimate that three temporarily hired staff members under the supervision of the current documentation center trained staff members, will complete the work within 3 months.

4.2 Current weak points

Some initial weak points like the scanner which used to constitute a major bottleneck in the electronic archiving chain, were eliminated following our recommendations for the purchase of a more performant scanner (see appendix C page 61).

- Many instances of media discontinuity throughout the treatment process
  The current process scheme does not totally integrate the paper document in the computerized chain.
- Irregular power supply

- Difficulties in retrieving the paper documents in case of need especially on non-recent cases due to manual searching.

- Insufficient document center staff to handle the old stock of documents.
  The parliament requires at least three temporary workers to help handle the old stuff.

- Lack of sufficient office space
  The actual allocated office space for electronic archiving, is insufficient and constitutes a major handicap.

- Redundancies in data recording at various processing levels
  There multiple copies of the same documents stored at various office locations occupying useful office space.

- Documents not recorded and processed on day of receipt.

- Increased scope of recording work due to manual input of the data.
  The current software application (FileMaker Pro) does not offer interfaces for an automated indexing to reduce the manual work.

- Loss of information due to the absence of a well-organized archive.

- Poor document management policy
  It is currently a very challenging task to try to locate the electronic versions of most of the documents created by internal users. Users still tend to rely on the printed-paper documents.

- Non-efficient backup strategy
  The parliament does not have a well-defined backup strategy, which is eminent for an organization of such importance.

- Absence of a clear management and job descriptions of staff members with a well defined supervision
  Some staff members do not feel responsible for their daily work thus affecting other units.

4.3 Current strengths

- A considerable number of personal computers that constitutes an asset to further computerization activities.

- A functional local area network (LAN)

- Easy web publishing capability
  The web publishing does not require any major effort. Information available on the FileMaker database can be easily published on the parliaments web site for external users access.
- The parliament is now in possession of a very performant scanner that could easily handle the old paper document stock, if the project is assigned a high priority.

5 FINDINGS AND RECOMMENDATIONS

Among all recommendations that will follow, we will like to highlight three that are critical cornerstones on which particular emphasis and attention should be laid in the implementation of future IT-Projects.

- Establishment of reliable and continuous power supply
- The information management facilities should be assigned a high priority with sufficient resource allocation.
- Improvement of the staff management policy with a clear job description and a continuous supervision of staff activities.

Most of the recommendations below are preceded with relevant findings, if any. The recommendations are intended to encourage the building of internal capacities with little or no external expertise.

5.1 Personnel and Training needs

5.1.1 IT Staff

Personnel and training needs in the information technology sector are a crucial issue all over the country and in the parliament in particular. We understand that this problem is usually not fully under the control of the unit of the public sector facing it, but that there are decisions that depend upon the ministry in charge of employment. Nevertheless some findings that follow, could be treated by simply bringing in some reorganization measures within the parliament.

It can never be over emphasized that the parliament needs an expansion of its IT unit particularly at this moment where there has been a change of the structure of parliament.
Here we will like to quote one of predecessors the consultant Kim Glenn who ones stated and proposed in his report: "*That no further new computerization initiatives be conducted until such a time as the IT unit is fully staffed*"

The parliament has now three individuals in their information technology unit. One of which has been the system administrator for a while and has gathered enough skills in his function. The growing need of his assistance particular now that the parliament is bicameral and resides on two different sites, has caused several daily tasks (e.g. regular server backups) to be neglected at a risk of loosing data like in the recent server crash case, where a great deal of work was lost after a restoration of the file server. Furthermore the absence of this individual (in case of illness or leave) often results in the breakdown of several IT activities. In this case we recommend that another individual be hired to assist and serve as a backup for the system administrator to provide a continuous run of the IT infrastructure.

The second individual was recently hired to assure the maintenance of computers, a task that is still outsourced to a local company. The individual is a fresh graduate of a local university and requires a lot of training (in hardware maintenance, networking etc.). Such trainings are offered locally for example by the Kigali Institute of Science and Technology (KIST) and can be attended on part time basis, that is in the evening hours.

5.1.1.1 Additional administrator training

Some of the IT staff members have received previous training on some specific applications like FileMaker Pro now running at the parliament. These trainings were simply based on the administrative areas. We suggest that the training be expanded to meet the growing needs of customization of these software environments.
Having closely worked with the IT unit, we realized that the IT unit requires additional training in the following areas:

- FileMaker development to carry out improvements on the existing application
- Web server hosting and maintenance
- Backup and recovery strategies
- Application programming
- Dynamic web design

5.1.2 User training

A continuous user training program is an eminent necessity at the parliament. Due to the frequent call of users for our assistance, we observed that users require a continuous training on basic applications and new network resources now available to them.
A training plan urgently needs to be developed to meet these needs. Most of the problems now existing at the parliament (e.g. poor file management) are simply a result of the lack of awareness and knowledge of users on the various capabilities that their computer environment can offer.
The training plan should include a clear motivation strategy encouraging the attendance to such trainings. Such a motivation strategy could involve measures of scheduling for example these training sessions off-side (in another location or even city). The training should be focused on basic computer skills like word processing, operation system Windows and the importance and use of shared folders on a local area network etc. We firmly believe that this will considerably help in the quality improvement. No advanced technology training (e.g. electronic archiving) should be given to users who do not master basic functionalities and applications of their IT environment. *Imagine training a pilot who cannot read the board instruments of an aircraft.*
A continuous assessment of users capacities should also figure in the training strategy to help improve the skills of those users with deficiencies.

5.1.3 Deputies

Besides the regular internet application training offered to the newly elected members of parliament, we will recommend that the training program be expanded to database applications like FileMaker to help them search and find the appropriate information on past legislation or specific sessions transcripts to assist them in their daily work. We recommend the installation of FileMaker access computers even in the plenary hall to recall the information in case of need. This training will bring interesting side effects like relieving the strain on parliament employees who have been in the past more involved in the search of historic documents.

5.2 Uninterruptible Power supply risks

The irregularity of power supply is a threat to the current IT infrastructure.
The parliament has a growing IT infrastructure with several personal computers and servers that need to be supplied with a stable and regular power supply. Today two functioning UPS support the parliament's network with a total capacity of approximately 20 KV, which is far less than what should be available to compensate the regular power outages for a substantial period of time. The power outages force the IT staff members to shut down all server as well as all UPS daily at 6 p.m. to avoid the drainage of the batteries during the night and weekends. The UPS and all server connections are only re-established on the next working day at the arrival of the IT staff members.
Although this procedure appears reasonable on the first look, it has a major impact on the whole IT environment and the actual behavior of users.

5.2.1 Users

5.2.1.1 Internal users

Internal users who might arrive earlier than the IT staff members or those who would like to extend their working activities beyond 6.p.m., face the temptation of plugging their computers onto the Electrogaz (local power supplier) power supply with all the risks of fluctuation it bears, thus exposing their hardware to damages.
The absence of running data and network servers, obliges the users to store their work locally. By the time the server connections and power supply are restored, users forget or even refuse to switch back to the uninterruptible power supply and transfer their previously created and locally stored files onto the server.

5.2.1.2 External users:

External users are those users who would like to visit the parliament's web site beyond local working hours.

The parliament is currently hosting its web site. This server is among those that are shut down at night, which means that the site is only available during local working hours.
Visitors of this web site who might like to consult the site do not have access to it.

Considering that the web site does not only serve as an information source but also contributes to the establishment a good image of the rwandan parliament, measures should be taken to durably solve the problem in this particular case. Either the reconsidering an external hosting of the site or increasing the UPS capacities.

5.3 Prioritization document processing project

Given the importance of documentation in our society, we believe that the document-processing project should be assigned a higher priority and resources allocated to it as it currently has.
Among the resources we recommend:

- Allocation of adequate office space
- Increase temporally the staff to handle the old stock of historic documents currently exposed to deterioration.

If no action is taken on this regard, the situation will further aggravate since documents continue to be created and these need to be accessible as well.

5.4 Current software application environment

Despite all the great skepticism we had at the beginning of this consultancy on Filemaker, we believe that FileMaker Pro is the most cost effective solution to handle the daily parliamentary work. Most of the weaknesses pointed out in the previous consultancy reports, arose firstly from the fact that FileMaker was implemented without the actual participation of the users as mentioned in Mr. Kim Glenn's recommendations and secondly due to the fact that no proper training and information sessions were held to outline the importance and strengths of using FileMaker at the parliament. FileMaker though implemented under these circumstances, has a great role in the actual computerized environment. Our observations are based on the following pros and cons:

5.4.1 Pros:

- The dependency of other applications on FileMaker
  The new parliament's dynamic web site is mostly dependent on the FileMaker database to display information to its visitors. A replacement of FileMaker will have as consequence a redesign of the web site.
- Document history
  FileMaker has a series of implemented applications among which figures the management of all file movements from the introduction of a bill to its adoption

by the parliament. These records constitute a good basis to produce a document history for example on the web site. Unfortunately the update of this section seems not to have been given enough consideration in the past.

- Licenses
  The parliament is in possession of a full FileMaker Pro server license with an unlimited number of user licenses. Which means that all user could be easily integrated in the applications environment without additional costs.
- Internal skills
  The parliament's system administrator has been trained in the basic administration tasks on Filemaker, which constitutes asset in the maintenance of this solution at the parliament.

5.4.2 Cons:

- Upgrades
  The parliament has an old version of FileMaker(Version 5) which requires to be upgraded since the vendor has already brought up the 7th version of FileMaker that can be purchased at lower rate due to the fact that the parliament is already in possession of a previous version. New versions usually supply several bug fixes and incorporate new technologies.
- Security
  The current version though protected at several levels through a user password, does not offer a real protection on files stored in its database. All file records stored in FileMaker are simply kept as links to external files on the database server. This is totally contrary to the electronic archiving principle, which requires that all files stored, be protected against any external manipulations or data losses. Though this point might seem crucial, this weakness can be easily compensated by the deployment of a better and secure backup policy on the database server.
- Development
  Improvements can be made on the existing applications but the parliament cannot develop new applications on FileMaker Pro because it does not possess a the developer version of this software that would be required if any new modules are to be developed.

Even though the above stated contra facts might be enough to replace the software, we still believe that it is the best solution to handle the current situation. A development of a new solution from scratch will engage highly skilled resources that might be currently very difficult to find in Rwanda. Furthermore all other solutions are far more expensive than FileMaker Pro.
We therefore recommend a re-assessment of the current software environment to improve all the weaknesses.

5.5 Backups:

The servers have high quality hard disk arrays with built-in protection. However, the data should be backup regularly on tapes to avoid data losses like in recent cases. Further the current hardware maintenance company should be requested to make RAID(Redundant Array of Independent Disks) system implementation to improve the data reliability. A RAID system duplicates data, instructions and information. This duplication can be implemented in different ways, depending on the storage design, or level being used. The simplest RAID storage design is level 1, also called *mirroring*, which writes data on two disks at the same time to duplicate the data. A level 1 configuration enhances the storage reliability because, if a drive should fail, a duplicate of the requested item is available elsewhere within the array of disks.

5.6 Parliament web site

The actual parliament web site was developed by a Belgian consultant, who still detains the source code of this development. We recommend that this source should be handed over to the parliament to enable the parliament make modifications.

The parliament's vision for its web site to provide public access to all legislative information, automatically and seamlessly, by projecting this information onto the web site automatically from the database and related applications that generate the information, was partially achieved with the development of the current version of the site. The site requires some improvements on a number of issues.
This issues include:

- Removal of all dead links
- Frequent updates of information
- Information consistency in the three languages currently used.

Further recommendations could be retrieved from the *Guidelines for the content and structure of parliamentary web sites* issued by the ***Inter-Parliamentary Council*** at its 166th session in Amman, 6 May 2000 (www.ipu.org) . Though this document dated in the year 2000, it contains useful tips for the required improvements.

5.7 Summary

To conclude this phase of the project, we will like to point out the most important needs, some of which arose during our presence but could not be handled due the fact that they were beyond the scope of work of this phase.
This project phase has skipped a major milestone towards the process of computerization of the parliament of Rwanda. To continue efficiently this process, some further effort is required to achieve the goal.
The following aspects show what requires immediate action and what should be achieved in the long run.

5.7.1 Immediate needs

The parliament immediately requires:

- Establishment of a reliable power supply
- Harmonization of all the content of the bill tracking system of FileMaker to comply with the actual archiving scheme
- Restoration of lost scanned file due to the last server crash
- Backup and recovery strategy
- Improvement of the paper mail tracking system
- Develop a user manual on the archiving process
- Advanced training on Scanning with the new scanner FI-5750C

5.7.2 Long term needs

In the long run the parliament will require the following issues to be settled:

- A clear job description of its staff member with a well structured supervision and reporting plan
- Allocation of an adequate office space for document processing
- Temporal additional staff to handle the old paper document stock
- Continuous training program for all staff members.
- An advanced training for the system administrator on FileMaker developer

6 APPENDIX A: SCOPE OF WORK

6.1 Objectives of the Consultancy

Objectives are as follows:

(1) To take the recommendation of the first consultancy and develop an implementation plan for electronic archiving

(2) To assist the Rwanda Parliament conform to “good governance” and increased transparency by making documents electronically accessible to the public

(3) To make existing paper documents accessible on the parliamentary web site

(4) To help ensure that old documents are not lost or destroyed, thus assuring preservation of important Rwanda history

(5) To increase the skills of parliamentary staff with respect to document storage and access using electronic means

(6) To increase the effectiveness of MPs by making important documents more easily accessible for their perusal and consideration

6.2 Tasks

The project will engage a Rwanda-based Electronic Archives Specialist (hereafter referred to as the consultant) to undertake the following tasks:

1. Familiarize him or herself with the report on the prior electronic archives report and recommendations by Jonas Mutwaza

2. Using the Mutwaza report as a starting point, develop a plan to implement electronic archiving

3. Analyze critically the current project state (DocuSite Analysis)

4. Review the actual storage methods

5. Evaluate the actual storage software (Filemaker Pro 5) interfaces to incorporate the paper-based data stream into the current archiving process chain

6. Evaluate the IT system storage capacities (Network, Hard drives, etc.)

7. Recommend improvements by developing an appropriate processing schema

8. Make recommendations for further Software and Hardware procurements to complete and achieve the project goals

9. Evaluate documentation center staff skills with respect to electronic archiving

10. Develop a project plan including the complete layout of work to be done, manpower needs, and a timetable for completion

11. Conduct a three-day training on electronic archiving for selected staff

12. Evaluate electronic archiving needs of the Rwanda Parliament Women Forum

13. Do a full-day “hands on” demonstration and practice in the steps in electronic archiving, using the equipment on site and including opportunities for staff to practice the skills and begin the actual work

14. Evaluate and make recommendations as to how electronically archived documents can be integrated on the parliamentary web site

15. Prepare a final report with recommendations.

6.3 Timing and Level of Effort

The Level of Effort (LOE) will be 30 days for the consultant. The consultant will begin work approximately March 2, 2004 and complete the assignment, including all deliverables, by may 15, 2004.

6.3.1 Deliverables

The Consultant will deliver:

A three-day training for 10 staff of Parliament and one day of “hands on” electronic
archiving

A final report on the consultancy in English that includes:

a) a comprehensive Site Analysis including an overview of the actual situation (highlighting strengths, weaknesses, and needs)

b) recommendations for a system for cataloging which is compatible with what is being used now for all documents (both electronic and paper)
c) recommendations for procurement of software and hardware components, if needed
d) a summary of the training, including an analysis of participant evaluation forms
e) an electronic archiving implementation plan, including manpower needs and timetable
f) attachments, including the Scope of Work and training schedule and curriculum.

The final report will be presented in both hard copy and in electronic form, incorporating all sections, including attachments, in a single Word document. The first page will be on project letterhead following a format available from ARD staff.

6.4 Logistical Support

The consultant will work closely with the documentation center staff at the Parliament, most especially with the division for archives. It is expected that the consultant will be primarily based at the Parliament. The consultant will provide his/her own computer and be responsible for typing any documents and reports

Logistical support, as needed, will be provided by ARD project assistant Antoinette Habinshuti, Program Officer Ben Ntaganira, and intern Pasteur Kalisa. The latter will work closely with the consultant to assist with coordinating activities at the Parliament.

The Parliament will provide use of its facilities as workspace and the active participation of its staff.

6.5 Qualifications of Consultant

The ideal consultant selected for this project will have the following qualifications:

(1) advanced academic degree in computer science
(2) experience in Rwanda
(3) prior experience with consulting assignments for USAID or other international
organizations on democracy and governance-related issues

(4) fluency in Kinyarwanda, English, and French
(5) extensive experience in electronic archiving
(6) familiar with legislatures and the Rwanda Parliament
(7) an independent and objective perspective of the subject matter
(8) ability to work well with people
(9) strong skills in systems analysis
(10) ability to develop practical, workable solutions consistent with the reality of the existing situation

6.6 Proposed Consultant

The proposed consultant for this activity is Mr. Anselme Bappock. Mr. Bappock is a German citizen originally from Cameroon. Mr. Bappock earned a Master in Science degree at the University of Applied Sciences in Cologne, Germany. He worked for several German firms on a variety of computer projects, including system administration of a Novell LAN, web design and programming, and electronic archiving. He is currently a visiting professor in computer applications at the National University of Rwanda and at KIST. Mr. Bappock recently conducted an electronic archives consultancy for the Rwanda Ministry of Justice. He resides in Kigali with his Rwandan wife and three children. He speaks English, French, and German.

7 APPENDIX B: SUMMARY OF THE TRAINING ON ELECTRONIC ARCHIVING.

7.1 Analysis of participants evaluation form

The participants evaluation form was based on three major issues namely the presentation of the subject, the organization of the seminary and the general appraisal of the seminary.

7.2 Appraisal scale

The appraisal scale ranges from 1 to 5 corresponding to poor, and very good respectively.

7.2.1 Appraisal chart

Presentation													**Average**
clarity	4	4	4	5	4	4	4		5	3	4	4	4	**4**
Usefulness	5	3	4		5	4	5	5	5		5	4	4	**4**
Presentator's knowledge	5	4	4	4	5	4	4	5	5	4	5	4		**4**
Organization														
Session's durations	3	2	2	2	3	3	3	3	5	2	3	3	3	**3**
Time assigned to the questions and discussions	4	2	3		3	4	4	4	5	3	2	4	4	**4**
Documentation	5	1	3	5	4	4	4	4	5	2	2	4	4	**4**
appraisal of the trainings venue	4	1	3	2		2			1	2	1	4		**2**
General appraisal of the seminary														
Global usefulness	4	3	3	4	4	5	4	5	5	3	3	3	4	**4**
choice of the topic	5	5	4		4	4	4	5	5	4	4	4	4	**4**

7.3 Comments and suggestions

7.3.1 Comments

- It is a good idea to organize such training sessions away from the parliament to avoid all major disturbances.
- Perfect organization but the seminary was too short.

- The training was very useful and will contribute to the consciousness of every individual in terms of electronic archiving. Every one should be aware of his responsibility in the success of the system.
- The seminary hall was too small for the number of participants
- The trainer presents himself very well.

7.3.2 Suggestions

- The training was very interesting but more time is needed for the seminary at least one week.
- Change the seminary venue(e.g. KIBUYE)
- The training should be continued because such training sessions require continuity.
- It would be necessary for decision-makers to attend such seminaries as well.
- It would be necessary to awaken the responsibility of everyone

7.4 RAPPORT SUR LA FORMATION DU STAFF DE LA CHAMBRE DES DEPUTES SUR LA GESTION ELECTRONIQUE DES DOCUMENTS

Après avoir fait l'identification , l'inventaire , le classement, le tri, l' élaboration du cadre de classement , la codification et méthodes de conservation des documents administratifs par le consultants MUTWAZA Jonas et après avoir fait une formation de deux jours aux staffs de la chambre des Députés , le consultant a donné son rapport au projet ARD et les responsables de ce dernier en a donné aux responsables de la chambre des Députés pour que ces dernières puissent le lire . Après la lecture de ce rapport, une nouvelle demande est née comme quoi la pratique n' a pas été faite comme prévue car les gens de la bibliothèque ne pouvaient pas scanner les documents existants à leur disposition faute de manque de connaissance sur l'utilisation du scanner que le projet ARD leur avait acheté avec tout l 'équipement de l'archivage électronique.

C' est après avoir vu que la demande des gens de la bibliothèque est fondée que le projet ARD a engagé un nouveau consultant Mr Anselme Bappock qui a formé le staff sur la gestion électronique des documents de la bibliothèque et des autres bureaux de la chambre, voir même ceux du forum des femmes parlementaires rwandais. La formation n' a pas été donnée non seulement à l' intention des gens de la bibliothèque , mais aussi à tous les staffs qui font les compte –rendus ainsi que les procès verbaux dans le but de leur permettre à maîtriser le processus de création , traitement et gestion des documents administratifs électroniquement avec l'utilisation de la nouvelle technologie

7.4.1 DEROULEMENT DE LA FORMATION

La formation s'est tenue dans les locaux du projet ARD en date du 20Avril jusqu' au 22 Avril et elle a duré trois jours dont deux jours pour la partie théorique et une journée pour la pratique. Les participants commençaient à 9h00 pour terminer à 16h00 et tous les participants étaient pris en charge pendant les trois jours de formation par le projet ARD.

7.4.2 LISTE DES PARTICIPANTS A LA FORMATION

1. BIDERI Justin
2. KAYIRANGWA Jacqueline
3. SEMANYENZI Claire
4. BWANAKWERI Baudouin
5. MUKASHEMA Dancilla
6. MUNEZA Anne-Marie
7. MUKARUSINE Josée
8. MUKANDASIRA Caritas

9. MUSABEYEZU Marie Rose
10. KANGABE Claudine
11. RUBINDO Alvera
12 RUSINGIZWA Moise
13. NZAMWITAKUZE Sandrine
14. SAFARI François.

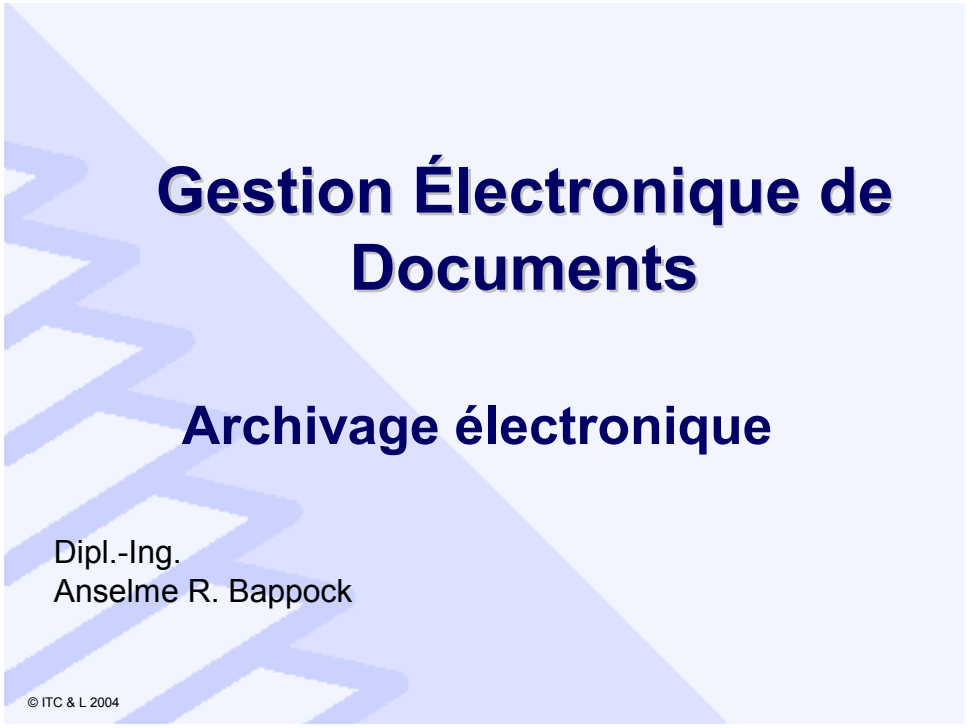
7.4.3 OBSERVATIONS

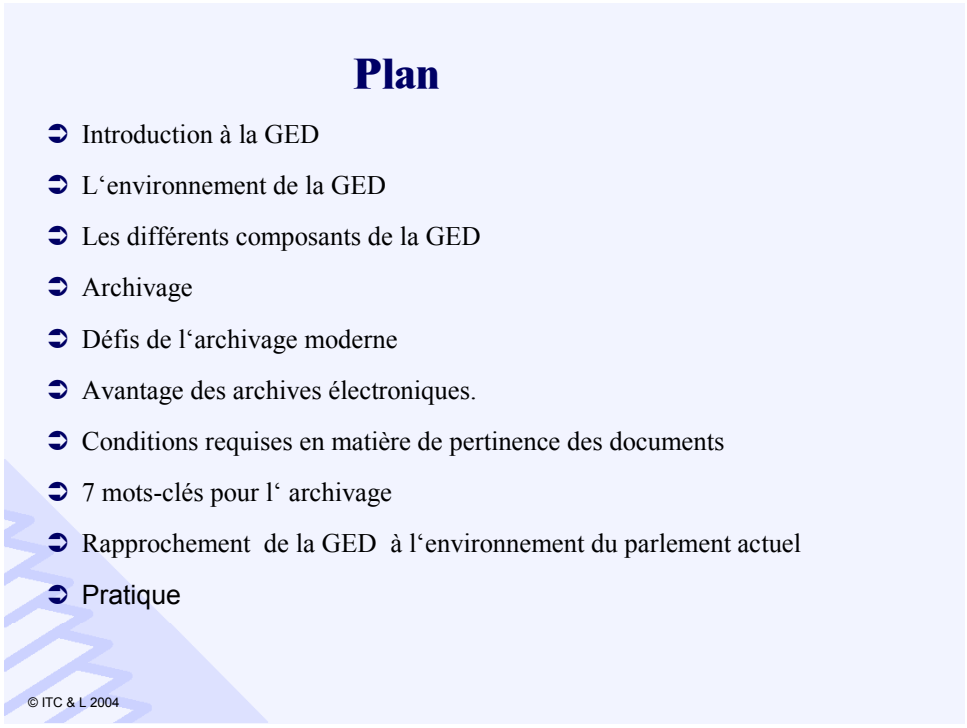
La formation s'est bien déroulée , les participants avaient soif à connaître la gestion électronique de leurs documents , en plus de ça ,ils étaient attirés et motivés par la compétence du consultant qui essaie de les mettre à l' aise pour qu'ils n'aient pas peur afin qu'ils puissent poser des questions et tout cela a abouti à un résultant car les participants qui sont venus le premier jour ne se sont jamais s'absentés pendant toute la formation et à la fin de la formation ,ils ont pris la parole et ont remercié le consultant de la formation de qualité qu'il leur a dotée.

Fait le12/05/04
KALISA Jean Pasteur

Stagiaire ARD

7.5 Training's Content





Introduction à la GED

•Qu'est ce que la GED ?

C'est un ensemble d'outils et de technologies qui permettent :

- **•de rationaliser le traitement des documents sous une forme dématérialisée ;**
- **•de fédérer l'ensemble de l'information produite ou reçue par une organisation ;**
- **• de réconcilier des documents avec d'autres ;**
- **•de sécuriser l'ensemble des données.**

•C'est un outils structurant !

Qu' est ce q'un document électronique ?

•Un document électronique est un ensemble cohérent d'objets numériques ou informatiques(textes, graphismes, vidéo, son) stockés sur des machines informatiques connectées ou stockés sur des supports informatiques de grande capacités et transportables.

•En devenant numérique ou virtuel, les documents incorporent de nouvelles fonctionnalités: expressions sonores ou visuelles, mais également de nouvelles façons de les manipuler ou de les lire.

Ceci entraîne des nouvelles méthodes ou disciplines liées à leur gestion:

- **•Informatique documentaire**
- **•Publication assistée par ordinateur**
- **•Gestion électroniques de documents(GED)**
  - **•Ex. Archivage électronique**

Organisation

- Définition du périmètre fonctionnel
- Audit sur les processus en cours
- Interviews, association des acteurs
- Recensement des documents et des flux
- Identification des contraintes et des freins

Numérisation

- Le choix du scanner
  - Les critères principaux :
    - Format des documents
    - Problématique des volumes et des flux
    - Vitesse de numérisation
- La gestion des lots
  - La préparation des lots
  - Notion de face, de page, de document et de plus
  - Les séparateurs
    - Patch
    - Code à barres
    - Page blanche

Capture / Indexation

- **La capture des documents**
  - **Dépend du support d'origine, du format,**
  - **du volume et des contraintes de temps**
  - **Problèmes liés à la dématérialisation**
  - **Choix du format de conservation**
- **La capture des descripteurs et méta-données**
  - **Une étape très sensible car :**
    - ✓**c'est là que l'on trouve les vrais gains de productivité et les différences entre offres commerciales sont significatives**
    - ✓ **Une erreur à cette étape peut conduire à la perte difficilement remédiable d'un document**
- **A Chaque besoin son moteur:**
  - **Full-Text**
  - **Thésaurus(répertoire alphabétique des termes normalisés pour l'analyse et de classement des documents d'information**
  - **SGBD**

Stockage

- **Hiérarchisation du stockage des documents par le biais des technologies utilisées en fonction:**
  - **de la nature du document,**
  - **de la fréquence de consultation,**
  - **de la durée de rétention…**

Archivage

- **Pourquoi archiver ?**
  - **Raison patrimoniale**
  - **Raisons historique**
  - **Nécessité légale**
- **Implique plusieurs niveaux d'exigence**
- **Normes**

Recherche et consultation

- **Convivialité(facilité d'emploi et d'accès)**
- **Sécurité et confidentialité**
- **Traçabilité**
- **Interopérabilité et intégration**

Diffusion

- **Efficacité, réactivité**
- **Télétransmission de documents dématérialisés**
- **Accusé de réception et de lecture**
- **Supports autonomes de diffusion**

Archivage

Qu'est ce que l'archivage

- **Est le rassemblement et classement de l'ensemble de tout documents à des fins:**
  - **Patrimoniales**
  - **Historiques**
  - **Ou légales.**
- **Elle est une fonction tranverse permanente de toute activité organisée.**
- **Elle maîtrise le périmètre des informations reçues et émises sur la durée.**
- **Elle répond à la demande d'informations(procédures, démarches en cours ...)**

l'archivage électronique permet de gérer les informations sur des machines informatiques connectées ou de les stockés sur des supports informatiques de grande capacités et transportables.

Défis de l'archivage moderne

•L'apparition de l'ordinateur individuel dans l'entreprise a radicalement changé l'environnement de l'archivage.

•Jusqu'aux années 1990, la plupart des bureaux employaient encore un service de dactylographie ou de saisie sur traitement de texte, et conservaient leurs documents sur support papier dans des dossiers centralisés.

•Cependant, dès que l'informatique s'est généralisée la salle de classement centralisé a perdu toute utilité. Désormais, il appartient à chacun de créer, classer et gérer ses propres documents.

•Les entreprises et les administrations ont ainsi perdu le contrôle de ces documents.

Avantage des archives électroniques

•La mise en place et le suivi permanent d'un système d'archivage électronique présentent de nombreux avantages.

•Par comparaison avec leur équivalent papier, les archives électroniques offrent un accès beaucoup plus facile à leur contenu, permettent de partager plus efficacement les informations et contribuent davantage à faire circuler le savoir.

•Désormais, les archives ne sont plus le domaine réservé de quelques personnes ayant une connaissance approfondie du système de classement.

•Pour permettre à un individu d'accéder aux informations contenues dans des archives électroniques, il suffit de lui octroyer les droits appropriés.

•De plus, la forme électronique peut représenter des économies de coût non négligeables dans l'ensemble de la société.

•En effet, la gestion d'archives sur papier peut représenter un budget important que l'archivage électronique peut considérablement diminuer.

• Ainsi, une étude indique que, dans le monde de l'entreprise, une personne passe 5 à 15 % de son temps seulement à lire des informations, mais jusqu'à 50 % à les rechercher.

Conditions requises en matière de pertinence des documents

•Dans le domaine de la gestion des documents, la préservation du contenu, du contexte et de la structure des documents a toujours constitué une préoccupation majeure.

•Les critères servant à déterminer la pertinence des documents conservés doivent répondre aux besoins commerciaux et juridiques propres à chaque organisme ainsi qu'aux réglementations et impératifs externes.

•A chaque entreprise ou administration correspondent donc des critères bien particuliers.

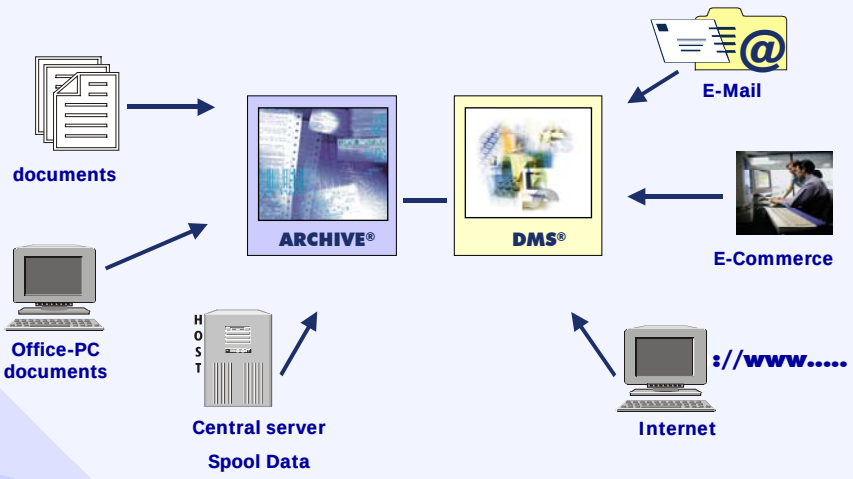
Conditions requises en matière de pertinence des documents

Pour déterminer l'approche technologique la plus adéquate, il est indispensable de réaliser une analyse des risques approfondie avec le plein concours du service juridique.

L'équipe d'évaluation doit être composée des membres suivants :

- Auditeurs et juristes : pour leur connaissance de la structure commerciale de l'entreprise, des procédures en vigueur et des principes et règles applicables aux documents ;
- Responsables de documentation et archivistes : pour leur connaissance des types de personnes autorisés à accéder aux documents, des motifs d'accès et de la durée d'accessibilité des documents ;
- Créateurs et utilisateurs des documents : pour leur connaissance de l'intérêt des documents et de leur valeur pratique.

Les différents types de documents



7 mots-clés pour l' archivage

- **Responsabilité**
- **Identification**
- **Pérennisation**
- **Mise à disposition**
- **Cadre réglementaire**
- **Environnement normatif**
- **Coût et enjeux**

Responsabilité

- **La collectivité est responsable des informations:**
  - **qu'elle émet,**
  - **qu'elle reçoit,**
  - **et qu'elle détient**
- **Traçabilité des données:**
  - **localisation,**
  - **date d'entrée, de mise à jour, de consultation, de sortie,**
  - **à quel document ou ensemble de données elles se rattachent**

Identification

- **Originalité des informations:**
  - **unicité,**
  - **redondance,**
  - **provenance**
- **Statut juridique:**
  - **Information institutionnelle,**
  - **Démarche administratives,**
  - **Téléprocédure, documentation**
- **Originalité du support:**
  - **Données numériques natives,**
  - **Document numérisé, imprimé, diffusé...**
- **Description:**
  - **Activité, contexte, acteurs, date.**

Pérennisation

- L'archivage électronique intégral, c'est:
  - Le stockage sur moyen ou long terme,
  - L'accès garanti(accès au contenu et à l'objet),
  - La gestion du cycle de vie et du sort final
- Pérennisation:
  - Des supports...,
  - Des formats
    - PDF
    - TIFF(CCITT G4 Binaire)
    - JPEG(Niveau de gris et couleur)

Mise à disposition

- Archiver n'a de raison d'être que pour communiquer
- Accès du citoyen aux données archivées
- Vecteur de communication pour la collectivité
- + Mise à disposition de la mémoire de la collectivité
  - Archives historiques numérisées,
  - État civil
  - Législation
  - Etc.

Cadre légal

Archives:

- **Tous les document/données produits par les collectivités publiques dans l'exercice de leur activité, papier ou électronique, doivent être conserver pour les besoins de gestion et de justification des droits des personnes**

Accès au citoyen:

- **Garantie de l'accès du citoyen à l'information dans leurs relation avec l'administration(dossiers, rapports, études compte rendus, procès-verbaux etc.)**

Informatique et liberté

- **Conserver durablement les données jusqu'au sort final des documents**

Écrit électronique:

- **Adaptation du droit de preuve aux technologie de l'information**

Environnement normatif

Intégrité du support:

- **Exprime la conception et exploitation de systèmes informatiques en vue d'assurer la conservation et l'intégrité des documents**

Organisation:

- **Donne les démarches globale de maîtrise de l'information interne et de l'archivage**

Structuration:

- **Norme d'échange et aussi d'archivage**

Coûts et enjeux

Selon une étude:

Stockage des données:

- **Engage environs 20% des coûts de l'archivage(sauvegarde et restitution, sécurité des systèmes)**

Identification:

- **40% (Definition des règles de gestion, metadonnés, risque de confusion, de perte ...)**

Gestion et maintenance:

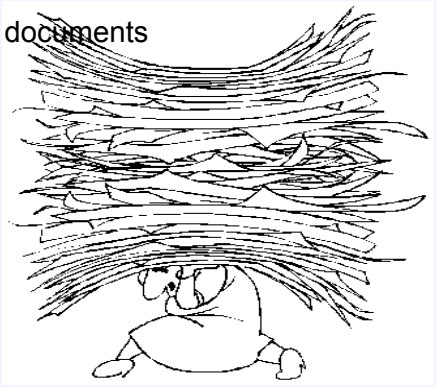
- **40% (contrôle, mise à jour, application des règles de gestion du cycle de vie des informations)**

- **Enjeux sont:**
  - **Efficacité du système**
  - **Gains de temps**
  - **La fiabilité**

Rapprochement de la GED à l'environnement du parlement actuel

Problématique

- Large quantité de documents
- Etc.



Approche

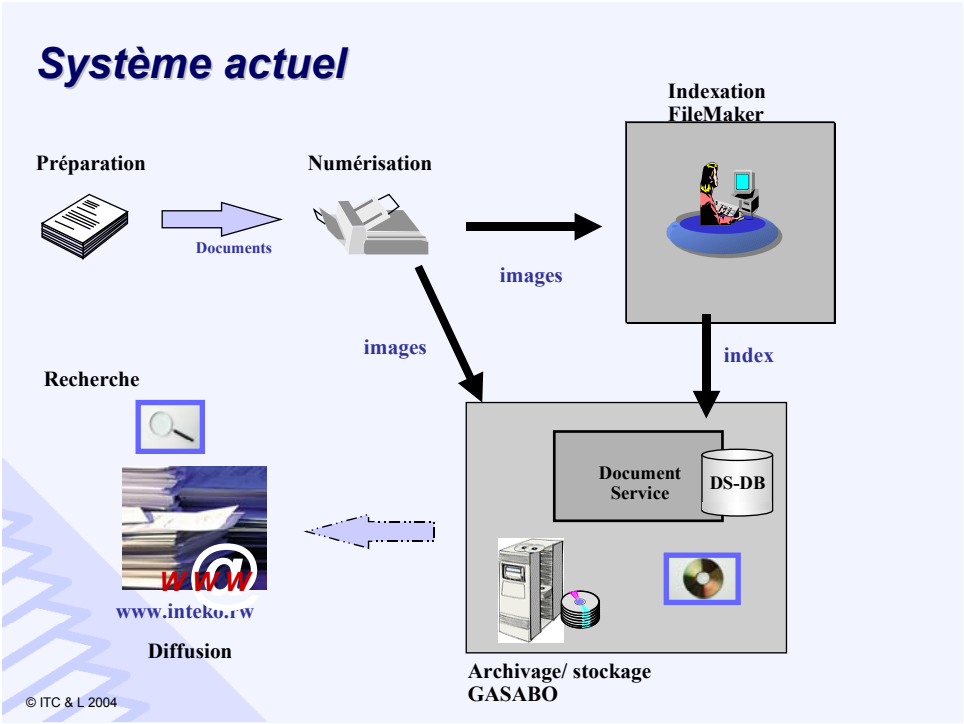
Traitement conventionnel de documents en papier

L' employé doit interrompre son travail pour la recherche

Les documents occupent un espace Considérable de bureaux

Recherche limité et exhaustive

Stockage manuel
Avec risque des doublons


Système actuel
Indexation
FileMaker
Préparation
Numérisation
Documents
images
images
index
Recherche
Document
Service
DS-DB
www.inteko.rw
Diffusion
Archivage/ stockage
GASABO
© ITC & L 2004


Demo
Archivage
Pratique
Fin
© ITC & L 2004

8 APPENDIX C: SCANNER SPECIFICATIONS

We proposed four scanner options with a list of pro and contra arguments to help chose an adequate scanner.
The following tables show the proposed options:

Option 1 Fujitsu fi-5750C Flatbed Scanner (with ADF)

Key Specifications		Fujitsu fi-5750C Flatbed Scanner (with ADF)
Manufacturer		Fujitsu
Scanner	Type	Flatbed Scanner with ADF
	Technology	Dual charge coupled device (CCD) image sensor
	Optical Resolution	600 dpi
	Image Processing	Dither and error diffusion
	Max. Scan Area	12" x 18"
	Scanning Speed	Letter/Portrait Mode: 57 pages per minute(ppm) (Simplex), 114 images per minute(ipm) (Duplex) at 200 & 300 dpi Letter/Landscape Mode: 72 ppm (Simplex), 142 ipm (Duplex) at 200 & 300 dpi
	Grayscale Depth	10 bits (internal), 8 bits (output)
Paper Handling	Document Feeding Mode	Flatbed and automatic document feeder (ADF)
	ADF Capacity	200
	ADF Minimum	A8 - 2.1" x 2.9"
	ADF Maximum	A3 - 11.7" x 17"
	Flatbed maximum	12" x 18"
	Long Document Scanning	34"
Interface		Ultra SCSI (50m) Hi Speed USB 2.0 Third Party Slot
Scanner Memory		256MB
Software Driver Support		ISIS and TWAIN driver included (Win 98/2000/NT/XP)
Average Daily Duty Cycle		Up to 8,000 documents per day
Software Included		Adobe Acrobat 6.0 Standard, ScandAll 21
Power Requirements	Voltage	AC 100 to 240V, 50 / 60 Hz
	Consumption	Operating : 216W Sleep mode : Less than 12 W
Operating Conditions	Temperature	50° F - 113° F
	Humidity	20%-80% (non-condensing)
Dimensions (W x H x D)	Unit	27.2" x 13.5" x 19.7"
Weight	Unit	77.2 lbs
System Requirements	PC	Microsoft Windows 98, 2000, NT, XP

Fujitsu **fi-5750C**

Features:

- Unique, 200-page automatic document feeder (ADF) swivels to accommodate different users and installations
- Scans up to 57 ppm/114 ipm in color and monochrome at 300 dpi
- Ultrasonic double feed detection
- Dual Ultra SCSI and USB 2.0 interfaces integrate easily into most environments
- Onboard JPEG compression
- Page-end detection
- White and black selectable background
- Page counter
- Long document scanning
- Manual feed mode

Additional components required

Connectivity:

1. Ultra SCSI Cable at least 2 m long
2. SCSI Adapter for the Scan-PC

Software:

1. **VRS(virtualRescan) for image enhancement capabilities**

Note that this scanner belongs to the “mid/low” volume scanner categories

Option 2 Bell & Howell 2020D Flatbed Scanner

Key Specifications		Bell & Howell 2020D Flatbed Scanner
Manufacturer		Bell and Howell
Scanner	Type	Flatbed scanner - desktopFlatbed and ADF (automatic document feeder) Duplexing
	Resolution	400 dpi (Optical)
	Max. Scan Area	11.7 x 18.7 in
	Scanning Speed	65 ppm landscape; 57 ppm Portrait
	Color Depth	8-Bit Grayscale
	Compliant Standards	TWAIN
Connectivity	Connections	1 x video
Paper Handling	Document Feeding Mode	Manual Load, Autoload
	ADF Capacity	150 pages
	Document Size	A3 11.7" × 18.7" (Max) 2.7 " × 4.7" (Min)
	Document Weight	11 lb. - 34 lb. bond
Software		Drivers & Utilities
Reliability	Daily Duty Cycle	3,000 sheets
Power Requirements	Voltage Required	AC 120 V –220V (60 Hz)
Miscellaneous	Included Accessories	Automatic document feeder
Dimensions (W x H x D)	Unit	18.5" x 11.2" x 26.8"
Weight	Unit	59.5 lbs.
System Requirements	PC	Microsoft Windows 95, 98, Microsoft Windows NT 4.0 or later
Includes		2000D-FB Flatbed Scanner Drivers on CD-ROM

The VRS software must be included as well as the SCSI cable and adapter as mentioned in option 1 above!

Bell & Howell 2020D

Option 3 Canon DR-4580U

Key Specifications		Canon DR-4580U
Manufacturer		Canon
Scanner	Type	Flatbed Scanner with Automatic Document Feeder
	Technology	ISIS, TWAIN
	Scanning Element	CCD (Front), CIS (Back)
	Light Source	Green Cathode Tube (Front), Green/Red LED (Back)
	Resolution	Optical: 400 dpi Hardware: 600 dpi
	Max. Scan Area	11" x 17"
	Scanning Speed	92 IPM (Duplex) 56 PPM (Simplex)
	Grayscale Depth	8-bit
Connectivity		SCSI-2
External I/O Ports		SCSI-2 (x 1)
Paper Handling	Document Feeding Mode	Automatic Feed Manual Load
	ADF Capacity	200 Sheets
	Document Size	4.2" x 5.8" (ADF Minimum) 12" x 17" (ADF Max) 11.7" x 17.0" (Flatbed)
	Document Thickness	0.06mm - 0.15mm (Automatic) 0.050mm - 0.15mm (Manual)
Power Requirements	Voltage	AC 120V, 60Hz
	Consumption	135 W (Max)
Operating Conditions	Temperature	59° - 86° F
	Humidity	30% - 80%
Dimensions (W x H x D)	Unit	18.3" x 28.8" x 12.9"
	As Shipped	26.3" x 34.5" x 17"
Weight	Unit	68.2 lbs.
System Requirements	PC	All Windows OS
Includes in the Box		Canon DR-4580U Flatbed Scanner, SCSI Cable, Power Cord, Software CD-Rom, Manual, Warranty Card

For this option the SCSI adapter should be included!

Option 4 **Kodak Digital Science 3520DP Sheetfed Scanner**

Certifications Certifications	Taiwan CNS 13438 Class A EN60950
Document Handling	350 Sheet Output Tray
Document Handling	250 Sheet Feeder
Formats/Standards	CCITT Group III/IV Compression CCITT Group III/IV Uncompressed
Manufacturer	Kodak
Maximum Scan Size	26 x 12 in
Misc Features	Optional Color Drop Out Document Imprinting Adaptive Threshold Processor Auto Deskew ,Auto Crop
Power Required	Universal 120/220 VAC 50/60 Hz
Resolutions	300 dpi 200 dpi
Scan Speed	85 PPM (Duplex)
Software Included	TWAIN/ISIS Driver
Technology	Grayscale
Technology	CCD Charge Coupled Device
Type Device	Scanner
Type Interface(s)	SCSI DB50

Kodak Digital Science 3520DP

This is a list of scanners. We will recommend the Fujitsu fi-5750C scanner.

You are however free to choose any of the above listed scanner depending on the budget and preferences. Please note that these are all mid or low volume scanners, sufficient for the handling of the actual workload.

8.1 Pro and Cons of the scanner options

8.1.1 Fujitsu

Pro

- This scanner has the highest daily duty volume of 8000 sheets/day
- Ultrasonic double feed detection
- An internal memory which will be asset in terms of processing speed.
- Onboard JPEG compression
- The greatest grayscale depth 10 bits
- Allows long document scanning
- Flexible automatic document feeder(ADF) which swivels to accommodate different users and installations
- Highest Optical resolution of 600 dots per inch(dpi)
- Largest document size scale (from A8 to A3 formats on ADF)
- Largest max. Scan Area 12
- Power supply AC 100V-220V
- Included Acrobat software best fits the current project
- Requires less integration time in the current project
- Excellent customer care center in case of problems with the Hardware
- Supports color scanning
- Supports third party connectivity slots, USB and SCSI
- Compliant standards ISIS/TWAIN

Cons

- Most expensive among the three choices
- Requires the purchase of an additional SCSI-Cable and Adapter
- Single image sensor technology(CCD)

8.1.2 Canon

Pro

- The cheapest option
- Two different image sensor technologies(CCD and CIS)
- Allows long document scanning
- Second largest document size scale
- Second largest max. Scan Area 12
- SCSI-Cable Included
- Has two different light sources
- Compliant standards ISIS/TWAIN

Cons

- Very poor customer care service (per Hotline)
- Requires the purchase of an additional Adapter
- Power supply AC 120V

- Grayscale depth 8 bits
- Low daily duty 4000 sheets/day
- Supports only SCSI connectivity slots
- Slowest scanner among the three

8.1.3 Bell & Howell

Pro

- Image enhancement capabilities in combination with Kofax VRS
- Power supply AC 120V-220V
- Image quality control

Cons

- This scanner has the smallest daily duty volume of 3000 sheets/day
- Smallest ADF capacity 150 sheets
- Video connectivity
- Single compliant standard TWAIN
- Can only achieve optimum results in combination with KOFAX® soft- and hardware which is expensive

Remarks:
Even though the FI-5750C is the most expensive of the three above mentioned scanners, it is still my favorite for the following reasons:

- It best fits the actual project context
- Easy to use
- Fujitsu offers a good customer service
- The highest daily duty

Based on these recommendations, ARD supplied the Fujitsu scanner which is currently installed at the parliament.

9 APPENDIX D: FILE NAMING CONVENTION

Categorie	sous-categorie	Classement	Commentaire
Lois	Langue	**LVK01001.pdf**	Première loi votée version kinyarwanda du mois de janvier de
Projet de lois	Langue	**PL04001.pdf**	Prémier projet de loi de l'année 2004
Compte-rendus	Numéro	**CR200203.pdf**	Compte-rendu numéro 20 de février 2003
Procès-verbaux	Numéro	**PV04001.pdf**	Prémier procès-verbal de l'année 2004
Conférence des présidents	Type	**CPRAP01.pdf**	Prémier rapport de la conférence des président de l'année correspondante
Contrôle du Gouvernemen	Mois	**RG020401.pdf**	Prémier Rapport du contrôle gouvernemental de février 2004
Propositions	Année	**PR94001.pdf**	Première proposition de loi de l'année 1994
Rapport de commission	Commission		
AD-Hoc	AD	**RCAD0401.pdf**	Prémier rapport de la commission ad-hoc de 2004
Affaires étrangères	AF	**RCAF0401.pdf**	Prémier rapport de la commission des Affaires étrangères de 2004
Budget	BU	**RCBU0401.pdf**	Prémier rapport de la commission du Budget de 2004
Droits de l'homme	DR	**RCDR0401.pdf**	.
Economique	EC	**RCEC0401.pdf**	.
Politique	PO	**RCPO0401.pdf**	.
Scientifique	SC	**RCSC0401.pdf**	.
Sécurité	SE	**RCSE0401.pdf**	.
Affaires Sociale	SO	**RCSO0401.pdf**	.
Suivi et Évaluation	SU	**RCSU0401.pdf**	.
Agriculture	AG	**RCAG0401.pdf**	.