**CHAPTER TWO**

**LITERATURE REVIEW**

**2.1 Brief Overview of Memo**

The word ‘memo’ is from the Latin word *memorandum.* Itis a note, document or other format of communication that helps the memory by recording events or observations on a topic such as may be used in a business office. The plural form of the Latin noun *memorandum* so derived is properly *memoranda*, but if the word is deemed to have become a word of the English language, the plural is *memorandums*, abbreviated to ‘memos’, may be used (Webopedia, 2013). A memorandum can have only a certain number of formats; it may have a format specific to an office or institution. In law specifically, a memorandum is a record of the terms of a transaction or contract, such as a policy memo, memorandum of understanding, memorandum of agreement, or memorandum of association. (Ahola, 2003).

In this literature review, the word ‘memo’ will be used interchangeably as the word ‘document’ or ‘office document’; this is because a memo is just like any other office document in any business organization like Ajayi Crowther University. Alternative formats in general business term include memos, briefing notes, reports, letters, binders, etc. They could be one page long or many. They may be considered as grey literature. If the user is a cabinet minister or a senior executive, the format might be rigidly defined and limited to one or two pages. If the user is a colleague, the format is usually much more flexible. At its most basic level, a memorandum can be a handwritten note to one's supervisor or director. In business, a memo is typically used by firms for internal communication, as opposed to letters which are typically for external communication. (Blake and Bly, 2003). Hence, we can consider memoranda as an internal communication method through which any complaint, issues, opinions, views, reminders and suggestions are put forward to the authorized level.

**2.2 Policy Briefing Notes**

A specific and most commonly used type of memorandum is the policy briefing note (alternatively referred to in various business jurisdictions and governing traditions as policy issues paper, policy memoranda, or cabinet submission amongst other terms), a document for transmitting policy analysis into the decision making sphere. Typically, a briefing note may be denoted as either “for information” or “for decision”.

The origins of the term “briefing” lie in legal “briefs” and the derivative “military briefings”. (Simpson and Weiner, 1989). The primary purpose of a briefing note “for decision” is to support decision making – to “help (or sometimes influence) a decision-maker to make a better decision in a particular problem situation than he might otherwise have made without the analysis”. (Quade, 2005). Other purposes that the briefing note can serve include: conveying information; informing decisions, making a request, providing a response to a question, making a suggestion, presenting an informal report, proposing a solution to a problem, or documenting a reference for future use.

As the communication mechanism of the policy analysis process, the briefing note should provide a coherent synopsis of a policy problem, identify different policy options for addressing the problem, articulate opposing perspectives and advocate a recommended option. The typical structure for a briefing note includes: a description of the proposed policy; relevant background information; a discussion of key considerations (including implementation concerns, financial considerations, stakeholder impacts, and possible unanticipated consequences), a summary of arguments for and against the policy and a recommended decision. Policy documents that start with a proposal and assemble an argument that position are more accurately referred to as a “white paper”. A government “green paper” which raises a policy option and is meant to open a dialogue on the proposal is more similar in tone to a briefing note than is a “white paper”.

There is no universal standard for a memo, but it is generally understood to be a concise, coherent summary of a public policy problem with a clearly articulated logic for following a recommended course of action. ”Next to a political nose, and a logical brain, the most important skill of the good treasury (person) resides in (their) fine drafting hand. The concise, coherent and penetrating note is the final expression of all other talents. (Heclo and Vaidya, 1974). In many Westminster / Whitehall governance settings, policy analysts are expected to analyze the issue and write the briefing note from a neutral public service perspective. However, the briefing note “for decision” must contain a recommendation, acknowledging that “to say anything of importance in public policy requires value judgments, which must be explained and justified. (Majone, 1989).

**2.3 Memo Document Management**

Traditional memo management in business settings was based on paper document management. The memos were grouped into groups or ordered name based and stored in binders. The binders were archived to trays. Documents were copied or borrowed from trays to personal use (Sutton, 1996). Distributions of all kinds of documents asides memos were handled in a paper form with help of post services and faxes. In past decades these traditional memo management practices have been fallen into poor condition and disrepute because of the volume of communication transactions generated in the course of business, the lack of definitive memo-centred process model and difficulty of storing electronic records in a system designed for paper just as we have in the case of Ajayi Crowther University. These factors have created needs to develop more efficient memo management methods and systems, which can rise to the challenges of these days. (Sutton, 1996).

**2.3.1 Memo Management’s Present State**

Nowadays it is easy to produce documents such as memos, companies have made huge investments in their information systems to make memo production more efficient. The tools, which have been used to create documents, are easy to use. Partly these easily used tools have increased document creation, which is mainly a good thing. It is better that the information is stored in some places in a form of outlined e-documents, than that there are no documents database at all (Anttila, 2001). Increased amount of office documents has anyhow created new problems to document management. An average office worker uses approximately 5 to 50 percent of his or her work time to document searching (Anttila, 2001). So simply by decreasing document-searching time, huge amount of company’s productive time would have been saved, hence enhancing overall productivity and revenue. But always it is not only a question of time saving, a company’s premier capital are employees and information produced by for them or information produced and sent to them as raw materials to work with. If the capital is only in the heads of the employees or in unorganized mass on papers in workstations and servers hard drives that are not properly organized and managed, the company’s operational preconditions are not in good shape.

When the amount of memos is increasing it is more probable that accidental mistakes like loss and misplacement (for printed memo formats) or overwriting and deletion (for electronic memo formats) of such documents will increase. When the organization grows, the same documents can be created in many times when employees cannot know that the document has been already created or finding of an already created document is more difficult than creation of a new one. In some cases disappearance of a document can be very expensive when the information of document cannot be reproduced or found from anywhere. Also the quality of products and services will suffer when the organization cannot give the right information to peoples who need it within the organization, within a reasonable time. Documents are changing all the time, so if the document revisions are not controlled properly, old information can be used in production and services. These factors can cause huge losses to business operations. (Ciborra, 1996)

**2.3.2 Importance of Proper Memo Management**

In general, document (such as memo) management is only a question of money from the company’s viewpoint. Advanced document management can provide cost savings to company and also increase earnings. The cost savings are usually achieved through decreased time used to prepare, print, sign, transfer, deliver, respond and even sort different memos, better exploitation of old information and elimination of earlier accidental mistakes. New earnings can result for example from better quality and faster work cycle, which are helping companies to compete more efficiently on the market. Also new costs will incur at least in the implementation stage of the document management system, maintenance of system will also need resources and cause some overhead costs, but in well-organized projects these costs are shortly cut by the cost savings from the traditional manual document management system (Anttila, 2001).

Nowadays it is very common in businesses that employees change companies in a short cycle. It is important for the companies that their work practices and systems are such as the documents prepared by employees, remain in use of the company even the employee changes the job. Also new employees should get initiated in company’s work practices quickly. In many cases the e-mail program has been used as personal memos repository and amazing amount of information and documents have been collected there. The E-mail program is no good place to storage information from the point of view of the company. When other persons need memos and or other documents, which have been stored in e-mail programs, searching is not efficient, because information is not commonly shared. If the e-mail user changes the employer, information stored in e-mail program can be lost especially if the user refuse to share the email login and password details. (Galbraith, 2004)

The following are the common Information (memo) / document management challenges faced by average businesses in these days of Information Technology proliferation (Honkanen, 2003):

1. Information (memo) content has been scattered to many PCs.
2. Management of different levels information among staff and personnel: personal, workgroup, department, faculty etc. as we have in the case of Ajayi Crowther University.
3. Operative systems are repositories, user interfaces are different.
4. Competitive situation demands effective information creation and management.
5. Real value of information has not been recognized.
6. Information content management costs are not recognized.

The following have been recognized as memo management needs for a normal business organization (Honkanen, 2003):

1. Support for different way of use.
2. Data security.
3. Group work capability, information sharing.
4. Reusability.
5. Extending guidance to whole value chain exclusively within the organization, as we have in the case of Ajayi Crowther University, extending to all departments, faculties, and non-academic units of the university.
6. Business transaction notification to necessary quarter’s traceability.
7. Classification of current content and transfer to new system.
8. Information filtration and analysation.
9. Powerful search engine.
10. Uniform user interface.
11. Memo lifecycle traceability and proper archiving.

**2.4 Memo Management Methods**

Memos can be managed by many different methods, for example with or without separate application. Ways to handle office document management without any separate applications are for example usage of common document naming practices, documents property information, common folder structures and search methods. Another way is to use same document management application. Nowadays there are a wide variety of document management applications on the market. If the document management has decided to handle with ready-made application, there are many alternatives for finding the best solution for the company. (Honkanen, 2003)

**2.4.1 Memo Management without the Use of Dedicated Software**

Memo management without any separate application solution is usually hard to carry out in a proper way. Problems usually increase if the documents are edited and viewed in the same time ordered by many users. Individual business user can, however, improve document management with right practices (Anttila, 2001). Common naming practices for documents are one way to improve document management without any software solution. Earlier file names were usually 8+3 marks in Microsoft Dos Environment, UNIX has allowed longer names but it has not been so commonly used. Since Windows 95 operating system, it has been possible to use longer file names. Long file names can usually be 256 marks. This long name can include much information and number codes, but still finding of common naming practice can be difficult. Also if the file name is very long, some part of it can be lost when the document is sent through e-mail or wrote to CD-ROM disc (Anttila, 2001).

Documents can be managed also with property information, which has been attached to the document. Windows environment offers two ways to manage documents by using property information. These are application software’s own internal document property information and NT-file systems (NTFS) property information in Windows 2000 environment. Application specific property information works only with documents, which have been created with Microsoft office tools or a couple of other applications. This property information is related to application software and it isn’t dependent on the operating system. (Anttila, 2001).

Windows 2000 operating system offers possibility to attach property information to all files. Using this property information requires usage of NT-file system, but on the other hand used application software is not the limiting factor. The problem is that this property information doesn’t follow the document if it has been sent via e-mail or saved for example on a CD-ROM disc. Also if the document is transferred to other file system than NTFS, the information will be lost. (Anttila, 2001)

The simplest way to manage documents, without document management software, is to use folder structures for documents. The biggest problems with this solution are that one solution has to handle different kinds of needs like categorization of documents, document search, data recording, user right management, etc (Anttila, 2001). The document search in Windows environment has been handled by the help of Search tool. This provides an opportunity to search documents with filename, creation date, edit date, modified date, file type and file size. Besides these, documents can be searched with attached document property information, which has been mentioned earlier. Since Windows 2000 operating system it has been also possible to search documents with NT-file systems property information and also with containing text search. Microsoft office environment contains also its own search tool but compared to Windows 2000 operating systems search tool it doesn’t bring any new solutions (Anttila, 2001).

Revision control without document management software is difficult. Especially if several users maintain the same documents overlapping changes are possible. Document revision control by using only filenames is also difficult and the problem is how to know which document is the latest approved one. In practice this requires different directory trees for approved documents, old documents and for documents, which have been changed but not approved yet.

One of the positive developments to office document management methods without separate applications began with Windows 2003 Operating System (OS). Windows 2003 operating system provides part of the current Microsoft SharePoint Portals server services as a part of the operating system. Microsoft SharePoint Portals server offers Corporations or departments document management system in intranet including version management, search functions and document classification. Windows OS environment enables companies to develop their own practices for document management without investments in separate document management software tools. Windows SharePoint service contains big part of the document management systems basic functions, which are described in (Fujitsu, 2003). These functions are:

1. Content creation directly with office tools.
2. Better search functions.
3. Metadata attaching to documents.
4. Versioning.
5. Group work support.
6. Document accepting process.
7. Data security.
8. Archiving.
9. Search and indexing of many information sources.

Windows SharePoint service enables also common workspace or network worktable creation and management. This allows sharing of the information content for example between the workgroup. Many different kind functions, services and information can be imported to this same web browser based user interface. Instead of disc sharing, e-mails and intranet can be talked as common workspace or network worktable (Fujitsu, 2003). Fujitsu Invanian also provides their Network worktable solution, which is more like ASP service.

**2.4.2 Memo Management Using Dedicated Applications**

Electronic memo management systems as all information systems have developed rapidly with development of computer science. More efficient computers give more possibilities to develop effective electronic solution for organizational needs. Lifelines of these days are effective solutions for business related handling. Rapid business development and stiff competitions forces companies to keep their systems on time; lagging behind from development can be fatal.

Nowadays there are a wide variety of different document management applications on the market. Many system providers have published their own document management systems. These systems differ from each other’s mostly for their planned main usage; others are more concentrated on the product lifecycle management, the others on engineering information management and others on office document management. Still the main functions and the architecture of the systems are usually very similar (Frappaolo, 2005).

**2.4.2.1 Common Architecture of Office Document Management System**

Office document management systems have usually certain common architecture, which consist of different layers. These layers handle different tasks and functions of the system and together the layers provide needed functionalities. These layers are Conceptual layer, Logical layer and Physical layer.

**2.4.2.1.1 Conceptual layer**

The conceptual layer of most document management systems consists of document repositories for specific document groups. These can be for example memo records. Next levels are specific file rooms (primary categories). Each file room has Cabinets for secondary groupings of files. Tertiary groupings in structure are drawers, which can be products of a product line. Inside the drawers are folders, which can hold documents, or other folders for more precise categories. Folders can be technical data, layout data, process data flow sheets etc. Under folders are the actual documents.

**2.4.2.1.2 Logical Layer**

The logical layer of common office document management system is also based on the model of records but it is process oriented, not document-oriented. The logical layer is based on the functions that concern the document objects (memos in this case) and the users. The logical model, consists of seven process managers for document management system (Sutton, 1996). System components take care of the different functions of the document management system. These components are separate and they handle separately their own functions.

**2.4.2.1.3 Physical Layer**

The physical approach is based on the implementation configuration of the hardware, software and network in the enterprise. The model can be based on different solutions, is based on client/server operating model (Sutton, 1996). The client server model consists of different servers for documents. For example different production sites can have their own document servers. This makes document handling faster, because documents, which are mostly used in some production sites, are closer to it. Servers are synchronized in defined periods. The user interface can be workstation client or web browser.

**2.4.2.2 Common Memo Management System Functions**

Document management systems usually include selection of common functions. These functions can be divided into system basic- and support functions. The names of the functions can differ depending on the system provider, but the functionalities are usually almost the same. Office document management software usually has almost the same basic functions irrespective of the industry the organization belongs to (Makkonen, 2011).

**2.4.2.2.1 System Basic Functions**

These basic functions are needed for all kinds of office document management systems even these are planned to use for management of different kinds of documents, based on the specific need of the organization. Common basic functions are listed below (Tushman and Nadler, 2007).

1. Document saving and deleting: The application software must be able to save memos and allow the sender to be able to edit and delete a memo when necessary.
2. Document archiving: Usually document management system automatically handles the document archiving. When a document is fed into the system, it automatically gets the archiving number.
3. Information searches: When a document is saved in the system, also documents property information (documents metadata) is fed into the system. Documents can be searched with this property information. Content searches of the documents can be also allowed.
4. User rights management: Different user access rights to documents can be defined with the system. User rights can be usually defined in many different ways, for example to user or user group specific, document or document group specific etc. Also the rights to use different functions of the system can be limited. These rights can be defined also crosswise.
5. Virtual folders: With virtual folders physically one classification level can be shown in many folders inside the system. The same documents can be for example in a projects folder and in a folder defined by the document type. When documents can be in different folders depending on the context, the document searching is easier.
6. Version management: Documents are changing all the time when corrections and changes in documents are made. When the document or the property information of the document has been changed, the document management system automatically creates a new version of the document. This version can be a sub version or the actual version depending on if it is approved or not.
7. Change management: Document changes are hard to manage without any system. If a document is changed at the same time ordered by different users, information can be lost. To avoid this document management systems provide check-out, check-in functions. When document is checked out for editing by the user, other users cannot do changes in it. This lock is released when a new version of the document has been checked into the system.

**2.4.2.2.2 Support functions**

Besides basic functions, office document management software usually contain at least some or all of (though not limited to) the following support functions. Common support functions are for example (Ngwenyama, 2007):

1. **Viewing**: Document management systems usually provide separate viewing tools for quick viewing of the document in question. This is usually carried out with a separate viewing program which provides document viewing without application program which has been used for document creation. The user does not have to upload the document into the application program for viewing, which accelerates the viewing process and allows the user to view also documents, which are created with the application programs which are not installed in the user’s workstation. Viewing functionality is usually a web based application feature, which comprises only the viewing function. Also some other support functions, mentioned later, can be handled via viewing program.
2. **Printing**: Document printing is usually handled with the application program which has been used when creating the document. Also separate printing programs can be used for document printing. In this case the user does not need all application programs which has been used for document creation. Printing can be also included in the viewing program.
3. **Relations**: Relations, in document management sense, mean document relations between other documents. The relations are usually carried out with the database relations which facilitate the relation management. This enables, depending on the relation type, for example changes in some documents, can be automatically handled in all linked documents (Anttila 2001, 206).
4. **Comparison**: The comparison function enables to compare two related documents against each other. For example, the changes between the different versions can be tracked with comparison function.
5. **Red-lining**: Red-lining means document inspectors correction markings on the document. These markings are made with a simple drawing program over the document and saved as a separate document. This function can also be one of the document viewing programs functions.
6. **Document Numbering:** Document numbering means that documents can be numbered with defined numbering rules, automatically. Numbering can be handled with running number or based on defined numbering system or mixture of these. (Ahola 2003, 14)
7. **Application Integration:** Document management systems can also contain application integration modules, which include ready-made integration schemes for some common document creation applications. The module can also include libraries, which help building an application integration with other applications.
8. **Work Flow Management:**  When a document is handled in the company, many people can participate in its creation, inspection, approval, publication and distribution processes. This is called a work flow. DMS can provide the work flow management tool which enables that the document proceeds forward in the defined chain after each task automatically. This procedure accelerates the document handling process (Venna 2002).

**2.4.3 User Interfaces**

Memo management user interface is an important part of the system. The user interface has to be easy to use from the user’s point of view; also the administration point of view has to be considered. Installing and updating the user interface must not be too hard and complicated a task. System users have different kinds of workstations with different capacities and with different operating systems. The user interface has to be comparable with different types of workstations. Most common user interface for document management applications is workstations client software. Nowadays also web-browser based user interfaces are becoming more common. Other possible user interfaces are; direct interface to application program and windows explorer based use. (Anttila, 2001)

**2.4.3.1 Workstation Client Software**

Workstation client software is the most traditional user interface for Document management software. The client software has to be installed in all workstations, which complicates software updating and installation process. On the other hand, the workstation client software usually offers more comprehensive, stable and faster functions than other solutions. The client enables for example offline usage of the system, which is a desired function nowadays when the employees travel much with their portable computers (Tero, 2010).

**2.4.3.2** **Web Browser User Interface**

One of the biggest advantages of the web browser user interface is that workstation doesn’t need any other software than Internet browser installed. Also software development is easier because there is no need to build different software versions for different operating systems. On the other hand web browser user interfaces functions are generally little more limited and in many cases functions can be little slower and awkward to use than in client software solutions ()

**2.4.3.3 Application Software Interface**

For memo producing officers, the most desired user interface is usually the direct link from application software to document management system. This solution enables that the work with document management system differs as little as possible from the work without system. Documents should be saved directly in the document management system and usage of it is a part of daily work. The limiting factor is that this kind of interfaces is heavy to maintain, the readymade links to all application programs cannot be found and updates of the application program require also updating of the interface.

**2.4.3.4 Windows Explorer User Interface**

Linking the office document Management System with Windows Explorer tool is a good solution in many cases. Even this requires the installation of separate software in every workstation; the solution seems to be the same windows explorer in the user’s point of view. The user doesn’t need to learn the usage of new software. When the management system is visible all the time in the resource management tool, it is easy to get documents from there and at the same time it guides document savings in the right place. (Affecto, 2013).

**2.5 Review of Related Works**

Aton management software has been developed by Modultek Oy in Finland. Software prime range of use is customer specific solutions or products lifecycle management in manufacturing industry, software companies and service providing companies. Software is compatible with Windows NT 4.0, Windows 2000, Sun Solaris, HP-Ux and IBM AIX server operating systems and Windows 98, Windows NT 4.0, Windows 2000, Sun Solaris, HP-Ux and IBM AIX workstation operating systems. Available user interfaces are Web browser, java UI, SolidWorks UI, AutoCad UI (Anttila, 2001).

Microsoft SharePoint Portal ServerSoftware has been developed by Microsoft. Software’s prime range of use is Corporations or departments document management in intranet including version management, search functions and document classification. Software is compatible with Windows 2000 server + service pack 1 server operating systems and Windows 98, Windows 2000, Windows ME and Windows NT 4.0 workstation operating systems. Available user interfaces are Web browser (Internet explorer 4.0 or newer, Nav 4 and Windows explorer (Anttila, 2001).

DMS document manager was developed by RAVALIK OY. T. Software’s prime range of use is electronic document management (CAD-, Microsoft Office-, Text-, Tiff-, Jpeg-, etc formats). Software is compatible with Windows NT, Unix and Linux server operating systems and Windows 98, NTV4, Windows 2000, Linux and AIX workstation operating systems. Available user interfaces are Web browser and Windows client (Anttila, 2001).

One Application Service Provider, who provides document management software services over Internet, is Elisa. The name of the Elisa’s DM software solution is Kronodoc, which is based on Kronodoc -product. Kronodoc has been developed for distributed organizations document and project management. Kronodoc enables the centralization of the whole organizations document management. It is based on a hierarchical tree structure, which is shown to users. It also enables usage of parallel structures. All systems definitions, actions and functions can be managed by means of Internet user interface (Elisa 2003). Kronodoc’s basic functionalities are among others; document lifecycle, document stage, and document type management. The basic functions of Kronodoc are similar to common basic functions of document management systems.

All documents have their own identification data form, which can be enlarged if necessary, so the user can attach attributes to documents, which vary depending on the document type. These attributes can be for example timetables. The documents can be also revised, copied and linked (Elisa 2003). Search functions and systems user right management are similar to those in other common DMS’. The users can also order information about the changes in some documents. The system development and customization of the basic version can be done with ready-made support functions. Elisa Internet takes care of service updates, technique of service and servers Internet connections. Help desk services are available for the customers in Internet. Service is placed to Elisa Internet server and the data communications are protected with Secure Sockets Layer (SSL) secure format. The customer is responsible for the content of the service, usage, user management and costs of all parties managed by customer (Elisa 2003). Kronodoc can be used also for project management needs. So the line between the document hotel services, introduced in the next chapter, and the ASP document management software services is vacillating.