INFORMATION AS A RESOURCE
IN ACADEMIC INSTITUTIONS.

by

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DEDICATION

This work is dedicated to my grandmother KHUTSULO RAMADIMETJA and to my beloved mother MAHLODI "NHLODI" MOSEBJADI both died in the early years of my life before they could enjoy the fruit of their own creation. And to my wife Mapula and children, Maropeng, Shiko, Mahlodi, Mothepana, Arerataneng "Lesiba" and grandson Masega. Thank you for believing in your dad.
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"To be granted some kind of usable talent and be able to use it to the fullest extent of which you are capable - this, to me, is a kind of joy that is almost unequal."

Lawrence Welk

"Nothing stops the man who desires to achieve. Every obstacle is simply a course to develop his achievement muscle. It's a strengthening of his power of accomplishment."

Eric Butterworth
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ABSTRACT

The research study investigates the importance of information as a resource in academic institutions. The study serves to answer questions appertaining to management of information as a resource, such as, what is information resource management? How should information as a resource be managed in academic institutions? How should information be audited? Which stages should be followed in developing information policy? The interrelationships of information as a resource, information auditing and information policy as managerial components are discussed. Information audit and information policy become the major components of management of information as a resource. Information in various enterprises is becoming increasingly recognized as a resource. The study purports to indicate that information as a resource can be managed like other traditional resources such as labour, entrepreneurship, capital and natural resources to use it for competitive advantage. The aims of information audit and information policy are to serve as fundamental development of an information managerial strategy. The information audit enables the information service to pursue the most significant strategic marketing of its information resources. The necessary breadth of information auditing techniques, such as Burk and Horton's "Infomap" are required to fulfill a wide variety of objectives. They analyze the effective methodology for auditing information resource controls and help to identify relevant and accurate information resources for the purpose of learning, teaching and research. The purpose of developing information policy is prompted by the objective of which the information enterprise would successfully like to achieve. It is more appropriate to develop a set of information policies, each of which is concerned with a specific area of operation or focussed on other topics of interest and informational value within the academic institution. At the ultimate end the University of the North is singled out as a model for the development of information policy.
CHAPTER 1: INTRODUCTION

1. THE RESEARCH PROBLEM

1.1. BACKGROUND KNOWLEDGE

Academic institutions as enterprises work according to provided guidelines, principles, rules and regulations for better governance in terms of administration and attainment of academic excellence. Such academic institutions can be measured by the production of academic results of high quality and the type of student produced with regard to the knowledge and success acquired. These guidelines, principles, rules and regulations can be transformed into policies to which members of an institution can adhere to in order to achieve the academic institution’s objectives of better administration, learning, teaching and research.

A policy in a way has a legal connotation and should serve as a source of reference. Any deviation from prescribed policies appertaining either to administrative or academic functions and activities of an academic institution may lead to maladministration and mismanagement of information respectively. Rules and regulations are as important much as the information leading to the rules and regulations. As a result there is a need for a corporate information policy for the entire academic institution focusing on the information-based administration and academic activities of the institution.

An information policy should be formulated in view of the following: the information concerning management of academic information resources, education and research of students and staff. To the foregoing can be added: general academic institution communication, security, confidentiality and the right of privacy of information, protection of intellectual property, computer regulations and crime, information services and archives, administration and student affairs (Burger 1993: 87). The formulation of information policies facilitates the handling of information. There are dangers of not adhering to information policies or of being without information policy at all. The dangers are innumerable depending on the value the academic institution may attach to the acquisition, processing, storage, access and dissemination of information.
1.2. **PROBLEM STATEMENT**

The problem statement is better understood if reduced to questions to be addressed. The questions that shall be addressed in this study are the following:

- Why is information a resource?
- How should information as a resource be managed in academic institutions?
- What will academic institutions benefit from information auditing?
- Which stages should be followed in developing an information policy?
- Why should academic institutions have a corporate information policy?

The academic institution should embark on intensive strategic planning to control their resources of all kinds including human and information resources. Information is an important asset for any type of planning. Therefore it is to be hoped that the academic institutions will ultimately come up with corporate information policies. In this respect the University of the North shall be given a special focus.

1.3. **AN EXPOSITION OF THE RELEVANCE OF THE RESEARCH PROBLEM**

The present society is faced with too many changes in all aspects of life. The changes are mainly socio-economic, socio-political, cultural, religious and educational. The reverberation of technological changes are also felt within the entire society and in academic institutions in particular.

South Africa with the growing population and increasing elitism is in dire need of information resources and information policies to control access of information to ensure a better life for all people. Long strides are taken in the formulation of policies and management of information in government and business enterprises. It is therefore relevant that a research of this nature be undertaken to investigate how academic institutions can achieve their missions by proper management of information as a resource, and formulating information policies to control and direct it.
Burger (1993: 4) states that: "The tools for controlling information flows are information policies."

1.4. **DELIMITATION OF THE STUDY**

Information management and information policies are quite a wide field of study which cannot exhaustively be dealt with in this study.

The study will be confined to three areas of information management, that is, information resources, information auditing, and formulation of information policies. The purpose will be to define information as a resource and how it can be effectively and efficiently used for the competitive advantage of academic institutions.

Good management of information will include information auditing to evaluate costs, access and use, and accuracy of information. A brief account of developing information policy will help to answer questions such as who should participate in the formulation of the policy and how the policy should look like. By way of exemplifying this study an on information policy for the information centre at the University of the North will be formulated.

1.5. **DEFINITION OF THE CONCEPTS**

Only three basic operational concepts; information resource management, information audit and information policy will be defined. Information management will also imply management of information as a resource. Other concepts will be defined when necessity demands it as they emerge in this research work.

1.5.1 **Information Resource Management (IRM)**

Information resource management is one of the concepts which attracts the attention of various researchers. It is a newly formulated concept.

Savic (1992: 127-128) gives three definitions by three different authors:
Horton in Savic (1992: 127-128), one of the leading experts in the area of information resource management, begins his process of defining information resource management by viewing an information resource management system as "a framework within which to accomplish the management of data resources in an orderly and systematic fashion." According to him, a "resource management system includes all methods and procedures for collecting and processing information on a particular source (i.e. men, money, machines, or what is germane to our subject here, information itself) and formatting that data in a manner which is useful for management."

Another aspect in the definition of information resource management is emphasized by Adams in Savic (1992: 127 - 128). Her view is that "Information Resources Management is a top management function to develop a set of policies, programs and procedures to efficiently and effectively plan, management and control information requirements and supporting information handling resources."

Taking into consideration, management, resources, system, support, servicing and information itself, Schneyman in Savic (1992: 127-128) defines information resource management as the management (planning, organization, operations and control) of the resources (human and physical) concerned with the system support (development, enhancement and maintenance) and the servicing (processing, transformation, distribution, storage and retrieval) of information (data, text, voice, image) for an enterprise.

The deduction one makes from the above definitions is that the term "information resource management" is a multidisciplinary concept covering a wider spectrum of information resources including the procedures and techniques for the orderly handling of information resources in various formats. Consequently, information resource management can be defined as a management function in high demand requiring efficiency and effectiveness offered by men, money and machines in the planning, controlling, processing, storing, disseminating of information and integrating the traditional management functions, procedures and resource management principles for the achievement of organizational activities.
1.5.2. Information audit

Burk & Horton (1988 : 4) defines information audit as that which "will illuminate problems and opportunities related to your current information management practices and policies. It will indicate relative strengths and weaknesses with respect to information quality, accessibility, performance, use and effectiveness; highlight real dollar costs and waste and reveal inadequate accounting and budgeting practices."

Robertson & Davis (1988 : 5, 159, 161) quote three different definitions designed by three different organizations: The AAA Committee on Basic Auditing Concepts prepared the most comprehensive definition of auditing. "Auditing is a systematic process of objectively obtaining and evaluating evidence regarding assertions about economic actions and events to ascertain the degree of correspondence between the assertions and established criteria and communicating the results to interested users."

The Institute of Internal Auditors (IIA) defined internal auditing and stated its objectives as follows: "Internal auditing is an independent appraisal function established within an organization to examine and evaluate its activities as a service to the organization. The objective of the internal auditing is to assist members of the organization in effective discharge of their obligations. To this end, internal auditing furnishes them with analyses, appraisals, recommendations, council and information concerning the activities reviewed."

The U.S. General Accounting Office (GAO) defines and describes expanded scope of auditing as follows: "The term "audit" is used to describe not only work done by accountants and auditors in examining financial statements but also work done in receiving (a) compliance with applicable laws and regulations, (b) economy and efficiency of operations, and (c) effectiveness in achieving program results."

The three definitions quoted by Robertson and Davis (1988 : 5, 159, 161) are broad and general enough to encompass too many aspects not dealing with finance per se as auditing is commonly associated with audit of finance. In this context the term "audit or auditing" is qualified by the term "information" hence information audit.
Information audit will therefore be defined as an information resources management appraisal tool whereby an auditor independently and objectively examines and evaluates information activities as a service to the enterprise, and establishing if they are of required standard to the enterprise with regard to the quality and cost effectiveness.

1.5.3. **Information policy**

Orna (1993 : 196) defines information policy as a policy based on corporate objectives and priorities, which defines:

- the objectives of information use in relation to corporate objectives;
- the organization's resources of information and its resources for managing it;
- the people who manage information and their responsibilities;
- systems and technology for managing information to meet objectives of information use;
- criteria for assessing the costs and benefits of information;
- criteria for monitoring and evaluating information activities.

Mchombu and Miti (1992 : 141) quote Rath and Clement who put it that: "increasingly information is viewed as a powerful resource, and as a commodity to be collected, protected, manipulated, and traded. Information policy (can be) regarded as a societal and institutional decisions concerning the allocation of resources to the acquisition, processing, distribution and use of information."

Burger (1993 : 64) defines information policy in a way of answering the question, "What is information policy intended for?" He says: "In solving problems, information policy establishes the parameters within which information is controlled (created, synthesized, analyzed, stored, disseminated, retrieved and used.)."

In view of many definitions given, information policy can further be defined as a commodity in high demand within the enterprise’s environment having an impact on the management of information by controlling the information flow, information
resources and information systems with regard to acquisition, storage, access, retrieval and dissemination of information.

1.6 STRUCTURE OF THE STUDY

In chapter 2 the concept information management is explained and focused. Secondly, a brief account of information as a resource like other traditional resources is provided as characterised by its similarities and dissimilarities. Information as an economic resource is indicated as on the same level as other resources such as land, labour, capital and entrepreneurship.

Chapter 3 sets out the guidelines of identifying information resources in an enterprise by auditing based on the key issues of information management. Various techniques are employed for information audit, but infomapping is indicated as the most appropriate in this study.

Chapter 4 addresses the need for developing information policies and its importance within the context of academic institutions. Current realities in South African academic institutions are that developing information policies has, to a certain extent, been neglected. The appropriate management of information with regard to control, direct and dissemination of information it is argued can successfully be achieved by implementation of information policies.

Chapter 5 provides a functional and empirical background of what is taking place at the University of the North as far as information management and development of information policies are concerned as an examplar to the study. It sets the focus on the absence of information policies and the reliance of the University of the North on the information service for provision and management of information.
Chapter 6 summarizes the research study and sets out the conclusions drawn from the research study, and offers some recommendations for future research.
CHAPTER 2: MANAGEMENT OF INFORMATION RESOURCES

2.1 INTRODUCTION

This chapter focuses on the management of information as a resource in academic institutions. Information as an economic resource should be on the same level as traditional resources such as land, labour, capital and entrepreneurship. Academic institutions should come to realize that besides striving to be quality institutions of higher learning, they require information to efficiently and effectively achieve their mission of learning, teaching and research. It is only then that they shall be recognised world-wide as being the centres of relevant theory and practice of people-centred development. The significance of information as a resource has been discussed at length by various information theorists.

Information as a resource is of strategic importance to academic institutions. The strategic use of information resources is based on the concept of information as a resource, that is, management philosophy, and aims to establish a global view of an enterprise's business and information environment (Winkel & Pejova 1990 : 231). An information manager must educate management as to the value of managing information as a resource, and establish an information management policy function as the logical management of information resources (Synnott & Gruber 1981 : 76). To be successful, management of information resources must necessarily involve the staff side of management as well as technology management (Synnott & Gruber 1981 : 8).

In this context it suffices to say that information as a resource cannot be divorced from staff and technology whereby information management will imply human resources and information management technology. Vickers (1984 : 19) confirms that information management is all about people using techniques to manage information resources in various environments.
2.2. GENERAL PERSPECTIVE OF INFORMATION MANAGEMENT (IM) AND
INFORMATION RESOURCE MANAGEMENT (IRM)

In discussing this aspect, information management (IM) as a multidisciplinary concept shall
be briefly discussed as a framework to information resource management. We could speak
of information management in economics, business, education, finance, administration and
many more disciplines where information management is applied. But the crux of the matter
here is information resource management (IRM) that is, dealing with the management of
information as a resource. Information management (IM) and information resource
management are two concepts which are of vital importance in the management of
information. Information management and information resource management are not
synonymous. The distinction between the two is evidenced in their operational environment.

Information management is concerned with the function related to information ownership,
content, quality and appropriate usage. According to Orna (1992a : 4) the management of
information is concerned with:

- How the information is acquired, recorded and stored;
- How it flows through the enterprise, and between the enterprise and the
  outside world;
- How the enterprise uses it to meet its objectives;
- How the people handle it, apply their skills and co-operate with one another;
- How information technology is used to support these activities;
- Appropriate resources for the activities - human, financial and material;
- How those resources are deployed;
- How effectively all the information-related aspects within the enterprise
  contribute towards the objectives of the enterprise - the process which we
  would commonly call monitoring and evaluation.

All that is the scope of information management. Information resource management is the
management of the resources concerned with the support and the servicing of
information for an enterprise (Schneyman 1985 : 36)
Boon (1990 : 320) asserts that: "A distinction may be made between information management as a broader concept and information resource management (IRM), the management of information cycle, and the management of functions as narrower concepts that indicate particular forms of information management". According to Diebold (1985 : 40) information resource management means precisely what it says: managing information as a resource in much the same way that other corporate resources are managed. Successful information resource management involves three fundamental elements:

- The technology to acquire information;
- The enterprise’s policy concerning use of information;
- The structure within which the information needs and the information policy can be achieved.

Although the management of information as a resource differs from enterprise to enterprise, from industry to industry, and from one academic institution to another, three basic steps must be taken in order to develop a corporate information policy. First, a value must be placed on information in terms of the cost of acquisition and potential yield. Second, careful and accurate inventory of available information must be maintained and third, guidelines for the use of the available information must be established.

The importance of information management in enterprises as advocated by Taylor and Farrell (1992 : 319) is that: "There is a growing perception that information management identifies, coordinates and exploits information entities in an organization for the purpose of using the characteristics of that information to achieve greater value (of existing information resources) and to gain advantage over the competitors. This concept exists apart from technology, though this is often misunderstood, the use of information technology is nothing more than a sign of the time, as technology is not prerequisite for information management. In fact information management had been used in military, political and business tactics for millennia."
Viewed on a broader perspective information management can be used in operational or personal context. The operational context will mean the utilization of information at various working sections of the enterprise, meaning that information resources are managed for strategic corporate objectives.

In personal context information management is meant to benefit a person as an individual or as a group. The use of information management in personal context as seen by Boon (1990: 320) is that: "Information management used in personal context is to promote individual (or group) effectiveness by enhancing the capabilities of the individual (or group) to cope with the demands of its internal and external environment in dynamic as well as in stable conditions."

Academic institutions today use a great deal of information for learning, teaching and research. This information is also of significance in administrative decision-making. Academic institutions are sort of information-based institutions where almost their entire work requires utilization of information. This information can be extracted from various resources which are physical and non-physical in the form of books, research data, reports, tapes, messages, students' and staff meetings, conversations, proceedings of senate meetings, council meetings, seminars, speeches by visiting professors and many more resources of information.

By "information resource management" we refer to the activities that bring the right information, at the right time, to a decision-making or coordination task. The management of information resources can be seen as a life-cycle or value chain where accessing and acquiring the information, assuring the quality, timeliness, and relevance of information or otherwise, adding value to it, storing the information for future use, making it available or transferring it to others, and disposing of it form part of this value chain. The responsibility for any of these various information resource management activities, can be taken up by the user of information or can be delegated to some other organizational entity (Beath & Straub, 1991: 124).
In an enterprise the task of looking at information resource management responsibilities may be assigned to an individual or department. At departmental level information resource management includes those tasks carried out by functional departments for its members, using resources such as local area networks, a department-based technical services staff, or a department information service.

For a fully-fledged information-based institution an internal information centre would serve the purpose. The information centre can also network with the academic departments to facilitate communication and dissemination of information. Beath & Straub (1991:125) mention that: "Institutional information resource management includes information resource management tasks carried by one part of the firm in service to other parts of the organization".

2.3. OBJECTIVES OF INFORMATION MANAGEMENT

The main objective of information management is to satisfy the demand for information, and thus deliver value to the enterprise. The demand is expressed in the information requirements of users, and the information access and delivery services required by users. Value is delivered through:

- enabling the enterprise to make the right decisions;
- improving the effectiveness of processes and their outcomes;
- providing timely and focused performance information;
- improving the productivity and effectiveness of managers and staff.

Behind the main objective are further objectives relating to the quality, cost, accessibility, safety and stability of the information (Ward & Griffiths 1996:362)

2.4. INFORMATION AS A RESOURCE

Some authors advocate that information is a resource. They base their argument on the fact that it can be managed at corporate level like other resources. The use of the metaphor
"resource" when applied to information, implies that it can be managed at corporate level in the same sense as other resources like capital, labour and land; though the remit is management of knowledge rather than materials and the primary product is intelligence rather than goods. The resource does not have a sell-by date (though its value may vary over time) and neither is it used up when it is transmitted through the value-chain. Proper management of information resources (just-in-time intelligence) enhances both internal and external enterprise performance (Taylor and Farrell 1992: 321). Diebold in (Synnott & Gruber 1981: 4) also states the significance of corporate management as far as information resources are concerned: "Information which in essence is the analysis and synthesis of data will unquestionably be one of the most vital of corporate resources in the 1980s. It will be structured into models for planning and decision making. It will be incorporated into measurements of performance and profitability. It will be integrated into product design and marketing methods. In other words, information will be recognised and treated as an asset."

Information is in itself a resource, and should be recognized as such by all information-based institutions. When managed at corporate level it is more similar than dissimilar to other traditional information resources.

Effective information resource management means treating information like other corporate resources such as labour, capital, plant and other equipment and integrating technological capabilities with human resources. As advances in information technology bring the business community into a new era, the strategic management of information will be pivotal, and the enterprise will be affected at every level (Diebold 1985: 33). As a matter of fact training in computer literacy for a vastly different audience in the enterprise is imperative.

The information resources must be judiciously distributed and utilized to satisfy the enterprise's needs. Du Plessis (1987: 11) divides resources into four main categories:

- entrepreneurship;
- labour;
- capital;
- natural resources which are mostly obtainable from the land.
The relationship of the above resources is so great that they cannot be divorced from one another without negatively affecting the productivity of the enterprise. Academic institutions can be regarded as information-based enterprises also depended on entrepreneurship, labour, capital and natural resources for their survival.

2.4.1. *Entrepreneurship*

Entrepreneurship includes making strategies in order to enhance the production of the enterprise. Du Plessis (1987 : 11) states that: "Entrepreneurship refers to the endeavour of the entrepreneur to combine and coordinate other production factors, to discover new methods of providing existing products or services". The following characteristics by Voth and Myers (1993 : 18) of a successful entrepreneur reflect the significance of entrepreneurship as a valuable resource in an enterprise. An entrepreneur:

- Is self-confident and not easily defeated;
- Thrives when the going gets tough;
- Is a risk-taker;
- Welcomes responsibility and is willing to take decisions;
- Observes what other businesses do and feels he or she can do it better;
- Is patient enough to wait out the sometimes slow beginnings of an enterprise.

The initiative of an entrepreneur gives impetus to the production of goods and services to satisfy identified needs. It creates employment and puts the entire economic machine in motion (Du Plessis 1987 :12).

2.4.2. *Labour*

Labour as a resource, when associated with human effort can be viewed as a human capital consisting of knowledge, skills, abilities and other characteristics. Du Plessis (1987 : 12) explains that labour designates all human effort, physical and mental, which is expended in the production of goods and services. Compensation for labour is usually paid in wages and salaries, although fringe benefits are also important.
2.4.3. Capital
Capital is accordingly a complex category, not amenable to a simple definition. Not every sum of money is capital. There is a definite process which transforms money into capital (Bottomore 1983: 60). Du Plessis (1987: 12) defines capital in the economic context as tangible or concrete and durable production means, or physical resources. It includes the land, buildings, machinery, equipment and vehicles which are used by the entrepreneur to provide goods and services. Generally then capital can be seen as an asset which can generate an income stream for its owner.

2.4.4. Natural Resources
Natural resources refer to the means with which nature supplies mankind (Du Plessis 1987: 13). The enterprise’s existence and the achievement of its production requires access to land and some of the related resources of a traditional nature as already mentioned. The enterprise’s access to land help to address the conditions of having labour and subsistence to employees. The availability of an enterprise’s raw materials is dependent on land allocation. The distribution of natural resources such as minerals, water, soil types, native plants and animal life as well as the locations of population centres and industry, also affect the distribution of land use among agricultural and other human pursuits.

Figure 1 below as designed by Du Plessis (1987:12) serves the purpose of explaining the relationship between production factors above and productive input and output:

Figure 1. The relationship between production factors and productive input and output
2.5. SIMILARITIES OF INFORMATION WITH OTHER RESOURCES

Among the resource-related characteristics that information shares with the traditional resources, the following can be listed:

- Information is required at a cost measurable in monetary terms;
- Information processes have values, some quantifiable; some is treated as an asset in a financial accounting sense;
- Information "consumption" can be either expensed or capitalized;
- Cost accounting techniques can be applied to help control the costs of information;
- Information has identifiable and measurable characteristics;
- Information has a life-cycle: requirement definition, collection, transmission, processing, storage, dissemination, use and disposition;
- Information has the capacity to be processed and refined, whereby raw materials (e.g. databases) are transformed into finished products (e.g. published directories);
- Substitutes for specific information are available - some cheaper, some more expensive;
- Chances are available to management in making trade-offs between different grades, types, and prices for information (Burk & Horton 1988: 19).

The above characteristics of information as a resource appear to be a true reflection of other traditional resources. Information as a resource is similar to other traditional resources.

It only becomes different than dissimilar because of its nature of being intangible while other traditional resources are physically tangible. As far as the management is concerned they are the same.
2.6. DIFFERENCES OF INFORMATION AS A RESOURCE WITH OTHER RESOURCES

- Information is expandable —— information expands as it is used —— whole industries have grown up to exploit this characteristic of information: scientific resource, technology transfer, computer, software —— and agencies for publishing, advertising, public relations and government propaganda—— the facts are never all in ——

- Information is compressible. Paradoxically, this infinitely expandable resource can be concentrated, integrated, summarized, miniaturized, if you will —— for easier handling;

- Information is substitutable. It can replace capital, labour or physical materials;

- Information is transportable —— at the speed of light, and, perhaps, through telepathy, faster than that;

- Information is diffusive. It tends to leak —— and the more it leaks the more we have. Information is aggressive —— even imperialistic —— in staining to break out of the unnatural bonds of secrecy in which thing-minded people try to imprison it ——. The straightjackets of public secrecy, intellectual property rights and confidentiality of all kinds fit very loosely on this restless resource;

- Information is sharable —— information by nature cannot give rise to exchange transactions, only to sharing transactions. Things are exchanged: if I give you a flower or sell you my automobile, you have it and I don't. But if I sell you an idea, we both have it —— (Burk & Horton 1988 : 20).

In conclusion to this aspect information should be regarded as equal to traditional resources such as land, labour, capital and entrepreneurship. Kubick (1985 : 10) mentions that information resource management (IRM) is managing information and data like other corporate resources (personnel, cash, equipment, etc). It ensures that information is accurate and available throughout the enterprise.
Barclay & Oppenheim (1994 :32) assert that, instead of looking at information as an overhead expense, information resource management looks at it in the following ways bearing some characteristics of other resources:

- it has to be seen as something of fundamental value, like money, capital goods, labour and raw materials;
- it is something with measurable characteristics, such as methods of collection, uses, and life-cycle pattern;
- it is something that can be capitalized or expensed and cost accounting techniques can be used to control it;
- it is an input which can be transformed into useful output(s) that is (are) beneficial to achieving organizational goals and objectives.

2.7. MANAGING INFORMATION RESOURCES

The development of the concept information as a resource is fairly recent. The main reason for its speedy development in the field of information resource management is that it is prompted by current events in information production and use. Savic (1992 : 129) discovered that: "Analysis suggests that there are at least three events which, when combined together, triggered the inception of information resource management. These main events are:

- information explosion
- proliferation of paper
- extensive use of information handling technologies."

The term information explosion or information pollution simply means over production of information through books, journals, newspapers, research reports, proceedings and correspondence, as well as radio, telephone, television, computers, computer networks, online services, CD-ROMs, satellites and many more. All these contribute to the flood of information which warrants efficient and effective information resource management. Such management can only be achieved by utilization of modern information technologies.
Technologically, as Cronin and Davenport describe in Taylor & Farrel (1992 : 319), "Information Management relies on codified knowledge (symbols, patterns, algorithms to produce formal representation of information entities which allow the automation of transaction processing, decision making, and information retrieval. An information management will not only use appropriate modelling techniques (attributes flows and relationships), but will explode information to satiate organizational objectives by directing information resources towards achievements of results".

A distinction should be drawn between the management of information technology and information technology management. The management of information technology refers to the task or responsibility of each manager, irrespective of his function or hierarchical level in an enterprise; while information technology management would refer to purposeful management to utilise and apply the available information within the enterprise to the optimum so as to achieve the objectives of the enterprise (Cronje, 1987 : 68).

Management of information technology is basically information exchange linked to computing and telecommunications devices. The combination of computer technology and telecommunications links is a necessary prerequisite for an advanced information society. Originally telecommunications involved the transmission of information whilst computers were dedicated to processing of information. Now, data communication systems linked to computers have made it possible to any location instantaneously (Rowley, 1988 : 53).

2.7.1. Impact of Information Technology

The computer is not only an information machine but also a communication device. The two terms information and communication are often blurred when they are tossed about loosely, but it is important to make the distinction if one is to look at what may happen in the coming years. When information is available in machine-readable form it can be both processed and communicated. Processing permits meaningful manipulation of the contents of the electronic traffic, thus enhancing its value.
Communication from an engineering point of view means simply moving electronic traffic from one place to another (Branscomb, 1979: 143). Computing and communication services are integrated for the sake of delivery services. The computing, consulting and support services would include administrative computing (budgeting accountancy and requisition, student records, registration, research database and personnel), main frame computer support, computer programming support and computer laboratories (development expansion and monitoring).

Communication services would comprise production of visuals, signs and displays, printing facilitation and distribution, and photography. Both communication and computing components would also involve maintenance capabilities, networking, equipment loan (large equipment facilitation, communication and computer training and support on campus and district centres). A computer in itself is not information technology but a sophisticated tool which facilitates the effective acquisition, processing, storage, and transmission of data and information in an academic institution, the information centre is the major information asset wherein the above functions take place.

Communication networks allow scientists to communicate quickly and informally and they encourage one of the underlying principles of scientific discovery, the free flow of information. Although technology is moving toward increased connectivity and user transparency, there are still many impediments to effective network use (Rath and Clement 1988: 38). The proper functioning of this communications network should be guided by the policy. The local or national access to resources outside one’s own machine is permitted by computer-linking networks. The access resources could be computing power, software or memory resources, scientific instrumentation, communication with other outside information services, or simply access to help local users. The interaction of information services through networking is facilitated by electronic mail (e-mail) and text file exchanges.

2.7.2. Acquisition of information resources

Selective acquisition of materials is one of the critical operations performed by an information centre. No information centre acquires everything published. In fact, in most
cases an information centre will acquire only a very small fraction of the output of the publishing industry. It is very important therefore, that each information centre should allocate its limited resources in such a way as to acquire those materials that have the greatest possibility of satisfying the needs of the users of that academic institution (King et al, 1981 : 10). Where in the past, an academic information centre used to be the heart of the university for funding purposes, it now finds itself in competition with other campus units for scarce resources.

Where the institution fails to purchase all the information resources required due to financial constraints, cooperative developments are negotiated. The general idea is that information-based institutions would prefer to be as self-sufficient as possible. This can be achieved by being less dependent on traditional methods of information resources acquisition and resort to electronic or online resources. This will signify advances towards paperless information centres and information-based institutions.

The growing area of electronic or online resources that now must be provided will soon represent a larger, if not the largest, proportion of the total funds allocated for information resources.

Telecommunication links are used to order new materials through information vendors or publishers. Electronic mail systems are widely used to speed orders to vendors. Sometimes the vendors are able to supply the matching cataloguing records with the books. The recommendation cards for ordering are received from the academic departments and information specialists. By dialing into large serial vendor databases of journals holding information, one is able to determine which issues are available.

2.7.3. Telecommunications

Telecommunication technology is of much avail to enhance information sharing among information-based institutions. These institutions are, usually, connected through telecommunication networks. The extent to which telecommunication can be used to convey data timeously, efficiently and effectively cannot be overemphasized.
Learn (1987 : 21) asserts that telecommunication: "should be viewed as an information delivery system that makes information available quickly, easily and economically (and between) a wide variety of users, through an array of access mechanisms including computers, storage devices, intelligent workstations."

The vehicles of information technology to transfer information are as follows:
- Telephone,
- E-Mail,
- Fax,
- Radio,
- Television and
- Lazer electronics.

The development of information technology, as far as information transfer is concerned, has advanced to a stage where the use of traditional means of transmitting information is considerably reduced. The problem of worrying about the distance from place to place, country to country and continent to continent, measured in terms of thousands and thousands of kilometres or miles, to timeously transmitting information, is a thing of the past.

Information systems combining computer power with communication offer a variety of services that stand alone and which information systems alone cannot provide. One category of such systems is person-to-person communication systems that transmit messages, store them in a computer-controlled storage medium, and offer random access to any message from a list of messages arranged and displayed by sender name or some other indexing arrangement. Such electronic message systems can transmit messages through the telephone network or a broad-band network such as a satellite communication system (Dunn 1984 : 7).

2.8. MANAGEMENT OF INFORMATION RESOURCES IN ACADEMIC INSTITUTIONS

Information centres are providers of documented information in book form, and much of an information specialist's time and talent is spent selecting, managing, and applying the
means through which information is handled and transferred efficiently and effectively. Information centres have traditionally been among the foremost repositories and disseminators of information.

The information centre is but one of the academic institutions' sources of information dealing with the printed record, for example books and journals. There is quite an enormous amount of unrecorded information which also need to be managed.

Oral information in the form of graduation ceremonies and rectors' addresses, speeches by lecturers and visiting professors may likely be forgotten if not managed in one way or another. In academic institutions it is not only the information centre which provides information to the academic institution staff, but all the different departments of academic institutions do. One would like to think of the management of information centre at different departments of academic institutions, who and how information resources should be managed, for example:

- administration services;
- record management department, e.g. archives;
- academic departments, e.g. faculties;
- research institutions;
- oral information department;
- students representative offices.

With the advanced information technology, available integrated academic information management systems should be adopted whereby senior management, employees and students could have access to information. For instance the administrative section of the institution will provide administrative information services to its personnel while academic departments will provide academic information services to their staff and student clientele in the form of teaching, research and learning. The onus will lie with individual departments what mechanism could be applied to manage and distribute its information efficiently and effectively.
With the advanced information technology, senior management and information professionals (for example information manager) will face a number of difficult but unavoidable questions (Diebold 1985 : 29). Together they will have to consider:

- Whether a single information resource department should be developed;
- How control over office activities should be shared between user departments and management information systems;
- To what extent selection and installation of office equipment should be centralized;
- In what ways non-numeric data, such as texts on image, can be merged with traditional data files;
- How the planned public communications network will be integrated into the already existing corporate base consisting of office automation and management information systems.

The employees must learn to manage and distribute information to the benefit of the different academic institution departments. This can be achieved only if information as a resource together with other information resources are integrated and considered to be interesting and important to integrated information services departments.

Activities in the offices and lecture halls will encompass not only word processing but image transmission, data storage, telecommunications and even single data processing. Meanwhile communications will be bringing the various parts together (Diebold 1985 : 28). Offices and lecture halls could be turned into paperless environments. The application of information technology such as computers and databases will then appropriately substitute the traditional methods of acquisition, storage, access and dissemination of information timeously and efficiently in the information centre. It could then be decided whether all academic institutions information centres should have a central corporate information database or each individual department to manage its departmental information services. To achieve this, information users, for example students, academic staff and administrators should be
knowledgeable with the use of information technology systems to effectively use the many information management activities at the academic institutions. Excellent communication should then be guaranteed.

2.9. SUMMARY

Information is an economic resource on the same level as traditional resources such as land, labour, capital and enterpreneurship. Presently we are in the information era where the computer has become the most important and recognised technological tool for the management of information resources. Through modern information technologies, information is acquired, processed, retrieved, and accessed by electronic means. The utilization of telecommunication networks enable information-base institutions far apart, nationally, and internationally, to share information speedily and timeously.

The next chapter focuses on the information audit. The aim of an information audit is to establish or improve effective information resource management in an enterprise. This information audit can serve as the basis for formulating an information policy in an enterprise.
CHAPTER 3: INFORMATION AUDIT

3.1. INTRODUCTION

The purpose of this chapter is to discuss the importance of information auditing. Lubbe and Boon (1992: 214) assert that an information audit can serve as a basis for the development of an information management plan. An information audit can also serve as the basis for the formulation of an information policy.

The idea that information is a resource which needs effective management has led to the development of interest in the use of an information audit (Ellis, Barker, Potter and Pridgeon, 1993: 134). A considerable number of business enterprises spend a great deal of time, money, and effort to practise and implement information auditing within their enterprises. This is an activity which can be applied in academic institutions as well. The audit can measure how effectively management can acquire, process, store and disseminate information and what information resources are available in all the departments of the enterprise. The main purpose is that information and information resources should be controlled. Different techniques are used to control information.

Information, though very important in enterprises, may be of little value or even unrecognised by many information users if not audited to explicitly show its importance and how it can be used to the benefit of the enterprise. It is through an information audit that the relevance of information resources can be identified. Underwood (1994: 60) mentioned that: "The main aims of information auditing are to establish what information resources are already available within the organization and what the needs for information might be".

Against the background that information is a major resource, the autonomy of academic institutions should also use information as an economic resource. These institutions cannot succeed in their mission of achieving academic excellence without using information resources. The academic institutions' information assets ought to be regarded as the ones that make the academic institutions innovative and competitive. This requires regular
information auditing to keep information resources consistent with the information requirements of the academic institutions.

The aim of an information audit is to establish or improve effective information management processes in an enterprise. An information audit is necessary to determine the value, functioning, evaluation and utility of information resources in an academic institution.

3.2. **THE OBJECTIVES OF AN INFORMATION AUDIT**

There are several techniques which have proved very useful for conducting information audits. According to Underwood (1994 : 60) the main objectives of information auditing are to establish:

- Information resources are already available within the enterprise;
- The information needs of the enterprise.
- The information the institution holds - the material on paper, or in machine readable form, or in the minds of its staff, that is capable of being turned into knowledge by people and applied in their work to help meet the enterprise's objectives;
- The resources the enterprise had for making information accessible to those who need to turn it into knowledge, those resources may be in the form of equipment, accommodation or people;
- How the enterprise uses information to further its purposes;
- Who manages the information resources, and who processes information;
- The technical means that are used to do things with information and how the management of the technology is related to the management of information resources;
- What the combined resources of information and the means of managing it cost the enterprise; what their value is; and how cost and value compare (Orna, 1990 : 45).
3.3. THE IMPORTANCE OF AN INFORMATION AUDIT

An information audit is an important management tool for today's business, serving much the same role as a financial audit. The audit answers the important questions about corporate information processes. The analysis of the findings by experienced professionals can lead to improved procedures and therefore greater business success (Bertolucci 1996:34).

Burk and Horton (1988: vii) assert that: "if a company or enterprise remains blithely unaware of the total breadth, depth and significance of its information resources, services and systems, it runs several risks". At one level the risk is waste and inefficiency. Consequently an information audit is done to obviate unnecessary risks, wastes and inefficiencies. An information audit determines the costs and value of information resources in an enterprise. Hence an information audit emerges to be of great importance to commercial and non-commercial enterprises alike. The purpose of information auditing should be to make information users aware of the importance of information and information resources, and also what types of information resources are available within the enterprise:

- An information resource may take many forms, the most familiar being information sources, information services and information systems;
- An information audit enables one to log the resources held by the enterprise, their location, use and responsibilities for maintenance. It is frequently the case that information is duplicated, held in varying formats, often mutually inconsistent and accurate.
- An information audit draws attention to such duplication and suggests ways in which the task of maintaining accurate and helpful information resources may be facilitated;
- An assessment of information needs complement the audit by identifying what information resources people within the enterprise need to carry out their jobs. (Underwood 1994: 61).

An information audit, undertaken preferably at corporate level, but applicable also to any significant accounting unit such as a specialist division, allows the resources devoted to
information to be mapped, analysed, costed and rationalized. The audit is specifically intended to further this process by:

- identifying resources, services and information flows;
- verifying the existence of appropriate services;
- rationalizing resources;
- controlling costs;
- improving the marketability of services by increased visibility;
- exploiting the resulting improvements (Dubois 1995: 21).

3.4. METHODOLOGY OF INFORMATION AUDITING

Different authors apply different methodologies to employ an information audit for the realization of the information management goals. The main aim is to control information as a resource.

3.4.1 Techniques of information audit

In order to solve the problems associated with the use of information in an enterprise, the information manager must adopt various strategies to identify the needs to be met. The strategies enable the information worker to identify existing information resources and to discover how they are being used and by whom. Consolidating the knowledge of such information resources in the form of an information map may encourage rationalization and the identification of suitable resources to fill gaps which have been detected (Underwood, 1994: 59).

The aim of an information audit is to identify information sources, systems, services and needs in an enterprise and to evaluate and identify the strengths and weaknesses of these. Different approaches to information audit adopt the following stages:

- Establish what the major goals of the enterprise operation are, and what kind of organizational constraints act upon the organizational information systems;
- Determine the needs of the users;
- Inventory the resources available;
- Build up a coherent picture of how the system functions from the information gathered in the first three stages.

The above can be achieved by applying the following processes:

- Gathering information;
- Systems analysis and representation;
- System evaluation;

3.4.2 Developing a control measurement

Control may be defined in many ways according to the purpose intended. The formal dictionary meaning of control is to regulate, operate, direct and verify (Cloud, 1990 : 14). The problem is to define exactly what information resource control means.

Information resource control is the qualitative method whereby the auditor develops some checklist of information resources he regards as of importance. He thereafter conducts interviews to establish whether the response from the interviewees comply with what he regards as important. At the end he writes a report about his findings.

The primary objective of any audit is to test the performance of some activity against an appropriate standard. This step determines what could be an effective standard by which information resource controls can be measured. Nevertheless no global standard exists for control audits. The five essential elements of information control are:

* Security: that which can do with the protection of data from destruction or unapproved tampering;
Privacy: that which can do with the prevention of unlawful or unapproved disclosure;

Integrity: that which has to do with managing the accuracy of data;

Availability: that which has to do with the accessibility of data when it is needed;

Recoverability: that which has to do with the ability to recreate, restore, or recover damaged or lost data (Cloud, 1990: 14).

3.4.3 Information mapping

Information mapping is a technique to assist the introduction of information in enterprises. Ellis et al., (1993: 149) quote Best (1985) as defining information mapping as an approach to information systems evaluation which is relatively new in the information world. It is an approach which explores information use and needs with a view of graphically representing part or parts of the information system under study. The expression ‘information mapping’ has evolved from a general area of information resource management which links managerial effectiveness with acquisition and use.

3.4.3.1 Objectives of information mapping

Information mapping is done for various reasons and objectives. While the main objective of information mapping is to discover all information resources within an enterprise, Horton (1988: 249-250); gives the reasons why information mapping should be conducted, and the objectives thereof. The information resources are mapped for the reasons and objectives that follow (Burk and Horton, 1988: 117):

- to illuminate where the enterprise’s information resources are in functional and organizational terms. Which divisions supply, which add value to, which manage, and which use what particular resource and why?
- to distinguish between critical information resources and those of marginal value. Not all information resources are valuable for strategic competitive
advantage. Some should, others could be, and still others should be dismantled and replaced or eliminated;
- to identify automation and interconnection opportunities;
- to cost out, and price out information investments within the enterprise;
- identification of criteria for recognising the specific information sources, services and systems that should be managed as organizational resources;
- identification of relative strengths and weaknesses in how the enterprise creates or acquires, handles, stores, uses and releases and disseminates its data and information;
- location of where in the organizational objective information costs are incurred and information values are realized;
- determination of the general nature and characteristics of the enterprise’s information resource entities;
- determination of where accountability lies for information quality, timeliness, costs, planning and budgeting, etc;
- assessment of how the existing information resources have to meet current and expected future information needs;
- assessment of the need for improved, upgraded or expanded information management policies for the enterprise;
- to identify where there is unnecessary duplication and overlap between and among existing information flows and holdings, recognising that not all duplication is necessarily "bad" and, indeed, some overlap may be inevitable and desirable.

Academic institutions and enterprises may not necessarily pursue the same objectives. The objectives will differ according to the vision and mission adopted by various enterprises.

3.4.3.2 Phases in information mapping

This technique claims to be a rigorous methodology which aims to manage information for maximum corporate gain. It is an approach to information systems evaluation which relies heavily on the concept of "cost justification", working on the premise that the value and
benefit derived from information should be equal, if not exceed their costs and expenses. "Infomapping" is a term which refers specifically to Burk's and Horton's technique rather than to the general concept of information mapping (Ellis, et al, 1993). Information auditing techniques such as Burk and Horton's "Infomap" offer a means of identifying tangible information resources in a commercial and non-commercial environment. Properly applied, they can assist the information manager to build an inventory and provide information resource types and to identify significant duplications, redundancies and omissions (Underwood, 1994: 59).

Burk and Horton's (1988: 39-179) methodology which consists of four phases is paraphrased by De Vaal and Du Toit (1995: 122-128) and will be discussed briefly in the phases that follow.

**Phase one: Compilation of preliminary inventory**

During this phase, all the information resources in the company are listed, but no strategic values are assigned to them. Phase one consists of seven steps:

- Secure the approval and support of top management;
- Determine the purpose of the audit and decide upon the frame of reference within which it will occur. In some enterprises an old information inventory may still exist, which can be used as a point of departure. Background information about the enterprise must be researched. If it is a big enterprise, you may decide only to conduct an audit in a specific department. It must also be determined whether there is a link between strategic planning of top management and the planning of information resources in the enterprise;
- Determine which type of information resources are available in the enterprise, and group these according to categories of information resources, services and systems;
- Design the forms which will be used for the recording of data;
- Conduct interviews with users, suppliers, operators and managers of information in the enterprise;
- Record the data gathered during the interviews on the forms, adding subjective comments;
- Analyse the data and make deductions.

**Phase two: Cost and value measurement**

During this phase, the costs attached to the information resources are determined and compared to the contribution made by the information resources to the achievement of enterprise aims. The cost and value of each information resource to the enterprise is thus measured. Unfortunately, Burk and Horton (1988) do not provide specific methods to measure these values. They only mention that financial sources must be consulted to identify a method suitable to the specific enterprise. In addition to what Burk and Horton wrote about cost and value measurement, some authors gave valuable contributions as well.

According to Orna (1990: 57) "This is a difficult but essential part of an information audit. The data about the enterprise's information resources and how it uses them are incomplete without a statement of what they cost on its current methods of costing, and an assessment of their present value of the enterprise in meeting its objectives. Apart from being a necessary part of the baseline information, this aspect of the audit is essential if the findings and the recommendations arising from them are to carry conviction with the decision-makers to whom it is addressed." By treating auditing as a means of producing an information signal the costs of information are made explicit. These costs can be compared to the value of information to determine the optimal amount of resources to allocate for information acquisition. The optimal auditing solution can then be compared to non-auditing and incentive compatible solutions (Yandell 1988: 49).

**Phase three: Analysis of the inventory, costs and values**

During this phase, the information inventory compiled in phase one is analysed and compared to the cost and value of each information resource (as determined in phase 2).
Thereupon, a matrix of information users, suppliers, operators, and managers is constructed. A diagram of the spectrum of information resources in the enterprise is also compiled.

**Phase four: Summary and identification of strong and weak points**

The nature, functions, management, cost and value of potential information resources are determined during this phase. Information resources which can make a positive contribution to the achievement of the enterprise’s aims are also identified. These information resources should thus be managed strategically to ensure their optimal input into task performance in the enterprise.

**3.5 SUMMARY**

This chapter discusses techniques and approaches to information auditing. The techniques of information auditing, including information mapping, take as their foundation the existence of a stable information structure: some perceptible and persistent arrangement of information which can be revealed through enquiry and which is a shared view (Underwood 1994: 64). The techniques and methods of information auditing can be applied in any type of enterprise, also in academic institutions.

The next chapter will focus on developing an information policy for academic institutions. Information auditing is an prerequisite for developing a successful information policy for an enterprise.
CHAPTER 4: DEVELOPING AN INFORMATION POLICY

4.1. INTRODUCTION

The preceding chapter paid attention to an information audit as a tool to identify information resources in an enterprise. The focal point was based on the methodology of information auditing, that is, information mapping, in preparation to develop an information policy. This chapter focuses on the reasons and the need for developing an information policy. This will include the objectives, functions, elements of information policies together with advantages of having and disadvantages of being without an information policy.

National information policies are broad and complex. They are mostly concerned with control and transmission of information on national and international levels. Information policies for business enterprises are aimed at improving the effective use of information as a resource.

The academic information centre plays an important role in information management at academic institutions. The information centre should remain a depository of information resources and information services. There are information service regulations, procedures and principles to guide the user how to acquire information, but the presence of a formulated corporate information policy to control and direct information access (printed and non-printed) can serve as an asset rather than a liability to an institution. The acquisition, processing, storing, access and dissemination of information should be done in accordance with the corporate information policy which all information users can operate (Burger 1993: 4). Information generated by an academic institution should be made public to the campus community and the community outside the campus except where there is a provision for legislation prohibiting it to do that. The information should remain the property of the institution.

The information policy for an academic institution will cover all other units which fall under the jurisdiction of the academic institution council, for example, faculties, departments, schools, centres, administration councils, information centre and archives.
4.2. WHY AN INFORMATION POLICY?

In developing a policy one would determine the pros and cons of formulating such a policy.

Orna (1990: 19) is of the opinion that the information policy could be of great help to control and direct information in respect of:

- Where information is used by people with limited understanding;
- Irrelevant selection of information resources;
- Misuse of information may lead to misinformation, i.e. unrelated information to the institution's mission objective;
- Lack of policy about the use of information may lead to information anarchy;
- Application of irrelevantly audited information may produce very little or not expected good results at all.

In an academic institution, the information policy should formulate principle on how to provide computing facilities to students and staff for the activities supporting the academic institution mission. The purpose of the policy should be to protect the integrity of the academic institution information resources and the users thereof against unauthorized or improper use of those resources.

Orna (1990: 19) regards an information policy as a dynamic tool which can be used:

- To relate everything that is done with information to the institution's resource's overall objectives;
- To enable effective decisions on resource allocation;
- To provide objective criteria for assessing the results of information-based activities;
- To give feedback to the process of developing the corporate policies of the enterprise;
- To promote interaction, communication and mutual support between all parts of the enterprise and its customers or public.

The development of an information policy follows certain stages.
4.3. STAGES OF DEVELOPING AN INFORMATION POLICY

Information policies are designed to meet the information needs and regulate the information in an enterprise activities. They may regulate the ability and freedom to acquire, and keep information, and to use and transmit it. They may define responsibilities of the various parties for the proper stewardship of the information they hold (Hill 1995: 279-280).

Burger (1993: 9-15) and Jansson (1994: 10) discuss developing an information policy under the following stages:

- **Problem defining task.** The policy makers analyze how to present a policy. This initial stage will include establishing objectives of information policy, analyzing the information needs and studying the organizational structure.

- **Proposal-making task.** Up to this stage the thinking is in general terms about the formation of policy. It involves identifying policy options, comparing information needs, resources, merits and deciding how the system should develop. The sum-total of these is a proposal.

- **Do an information audit.**

- **Policy implementation.** Once a policy is agreed upon it must obtain top management consensus before it should be implemented.

Orna (1993: 200) identifies the following steps in formulating an information policy:

- **Getting support from key opinion leaders who have a good understanding of information and some self-interest in being associated with a move of this kind.**

- **Educating them into advocates who will identify themselves with the policy, and will be ready to take risks in promoting it.**

- **Getting consensus among them about the major information issues in relation to key business issues.**

- **Carefully choose a team for policy development, with clear links with lines,**
and adequate resources (especially time) for development and implementation of the information policy.

The policy objectives as postulated by Orna (1990 : 73-74) will be to ensure that:

- The right information is acquired from outside and generated from inside to meet what the enterprise needs to do with information;
- Information is exploited fully, to meet all current needs, and to help the enterprise develop to meet changes in its strategies or in the environment;
- The enterprise gets, on time, and in the right format, the right information to the people who need to use it;
- The people who process information understand the needs of the people who use it;
- Everybody who processes and uses information has the opportunity for learning the appropriate knowledge and skills, for co-operating with one another in applying them to their work, and for developing new ways of using or processing information to help the enterprise achieve its objectives;
- The technology in use is constantly reviewed to evaluate its appropriateness to the overall objectives and the information objectives of the enterprise, and decisions on new technology are taken with regard to the enterprise’s information policy, and to the total socio-technical environment;
- Appropriate organizational forms and human resources are provided for managing and developing the information function and applying the information policy;
- Relevant monitoring criteria are developed for evaluating the results of implementing the information policy, and means ensured for feedback and implementing the results.

4.4. INFORMATION POLICY OBJECTIVES

The information policy objectives will be in relation to the vision and mission of the academic institution concerned. The information policy aims to ensure that the academic
institution's information environment promotes effective teaching, learning, research, administration and service, and that the academic institution can provide information to develop a mutually beneficial relationship with the community, industry and government. The policy provides for a campus information environment which supports access to and distribution of administrative information and scholarly information. The policy should encourage the development of a sense of community by providing multiple channels of access of information and a variety of ways for members of the academic institution to provide feedback to service providers (University of Canberra: Information policy, May 1995: unpublished).

The basic objectives of an information policy should be to ensure that:

- the right information is acquired;
- that the current needs are met;
- that information is disseminated timeously to the relevant users who need it;
- that the needs of potential users be known;
- whereas technology for information is used it should be up to date;
- the policy should be meant for the potential users working in the institution;
- the processors of information should have the opportunity to learn the necessary knowledge and skills. (Orna 1990: 74)

Should the objectives be achieved the policy then becomes functional.

When an information policy is formulated, it is firstly important to determine how the information resources contribute to the realization of strategic aims. This can be done by doing an information audit. On formulating an information policy, the following questions can be asked:

- What is the vision and mission of the enterprise?
- What functional strategies will contribute to mission accomplishment?
- How can information management contribute to the attainment of the functional and eventually strategic goals?

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Is information on par with other enterprise resources such as capital, natural resources, labour and enterpreneurship?

- What are the information requirements of the enterprise and how does planning for these information requirements relate to strategic planning?

4.5. THE FUNCTIONS OF A CORPORATE INFORMATION POLICY

The functions of a corporate information policy are evidenced in its characteristics, aims and benefits. According to Diebold (1985: 47-48) the functions of a corporate information policy are the following:

A corporate information policy attempts to shape a unified outlook for dealing with the acquisition, standardization, classification, inventory, dissemination, and use of information. A corporate information policy encourages the flow of information between departments or other organizational units; the distribution of information among different levels of the corporate hierarchy, the sharing of information to achieve synchronized action.

The establishment of a corporate information policy discourages costly pitfalls of information mismanagement by laying guidelines for sharing and distributing information; resolving questions about proprietary rights; handling problems of security and disclosure; and balancing the optimization of single unit performance against the needs of the corporation as a whole.

When successful, a corporate information policy can help orchestrate the users and uses of information of every kind into a workable system to aid management in targeting and fulfilling corporate goals.

According to Orna (1992 b: 107) an information policy is founded in the primary objectives of an enterprise. It defines the:

- objectives of information utilization in relation to corporate objectives;
- enterprise’s resources of information and its resources to managing information;
- people who manage information and their responsibilities.
- systems and technology for managing information which would meet the objectives of information utilization;
- criteria used by the enterprise for assessing the costs and benefits of information, and
- criteria used by the enterprise for monitoring and evaluating its information activities.

The information policy formulated with due consideration to the mission of the enterprise and implemented according to the desired plan, can be of great advantage to the enterprise.

4.6. THE ADVANTAGES OF HAVING AN INFORMATION POLICY

An information policy establishes the rules within which all information users in enterprises operate successfully.

The information policy provides the basis for objective decision making on resources for information activities, and on the management of information, because it is integrated within a framework of corporate objectives and priorities. So, any proposed development in the management of information can be considered in relation to how it will contribute to the overall objectives and priorities of the enterprise.

An information policy allows for continuity in development; it reduces the danger of information initiatives being cut short and the resources invested wasted. The fact that the policy embodies criteria for assessing the contribution that information makes to fulfilling the objectives of the enterprise means that it is possible to judge the real gains and losses that would follow from a proposed change in resources. Because an information policy is developed by bringing together distributed knowledge of all information resources and activities in the enterprise, it is capable of promoting co-operation and openness rather
that hostility or concealment among those who are responsible for different aspects of information management.

An information policy enhances the free flow of information in an enterprise. It makes rules for sound decisions about investments in information technology, because it allows the technology options to be evaluated in relation to the enterprise's key objectives, and to its human resources.

Finally, the constant monitoring involved in applying an information policy means that the enterprise is capable of changing in response to changes in the internal and external environment, so that it continues to create information activities and information products that meet the information needs of the enterprise (Orna, 1990: 21).

Information policies have several advantages:

- They become available to all employees in the same form.
- They can be referred to so that anyone who wishes can check the policy.
- Misunderstandings can be referred to a particular set of words.
- They indicate a basic honestly and integrity of the enterprise's intentions to manage information as an economic resource.
- They can more readily be disseminated to all who are affected.
- They can be taught to new employees more easily.
- The process of writing forces managers to think more sharply about the policy, thus helping achieve further clarity.

4.7. AREAS TO BE ADDRESSED BY INFORMATION POLICIES

Lytle in De Bruin (1989: 151) indentify the following areas which should be addressed by information policy:

- Purchasing, creation, ownership, availability, integrity and security of data (information).
- Information processing equipment - (including the purchasing, maintenance, use, replacement, and standards for technical integration).
- Information systems and services (including the design, development, implementation and, management) and
- Roles of management, technical personnel and users.

According to Diebold (in De Bruin, 1989 : 151) an information policy should address the following dimensions:

- strategic;
- functional;
- privacy and confidentiality; and
- technical.

The strategic dimension is concerned with the use of information in order to achieve its corporate objectives. The functional dimension is concerned with the use of information for problem solving and decision making.

The privacy and confidentiality dimension is concerned with the protection of information as a personal and corporate resource. The technical dimension is concerned with the management of information technology in an enterprise.

4.8. INFORMATION FLOW

The information flow within an enterprise warrants the presence of an information policy to guide and control the information. The information flow is dependent on the availability of information resources and information needs, that is, the flow of information will be from where it originates to where it is needed by information users. Orna (1993 :198) says that: "if information is the food of knowledge, then communication is the circulation that takes the information to the places where it is needed to feed knowledge. So organizations can and do starve in the midst of plenty if they have information that could be concerted to useful knowledge, but fail to get it to people who need it."
An information policy should not only guide and control, but also ensure that information is communicated freely. Katz and Kahn in Valentine (1981: 2) stated that: "The glorification of a full and free information flow is a healthy step forward in intraorganizational problems as well as in the relations of an organization to the longer social system". Orna (1990: 48) asserts that "another important feature of information that we become aware of as we investigate what people do with it, is that it flows (it also sometimes goes straight down the drain, or gets dammed up in stagnant pools, or runs somewhere underground never to emerge again!)." According to her enterprises are able to generate information which they process and transmit to outside enterprises as an output. They also receive information through telecommunication networks from outside as an input to control their activities. Such an exchange of information between enterprises enables one to analyze one's own enterprise. One would be in a state to clearly understand what information is generated in the enterprise, by who, who uses that generated information and how it is used. By way of analysis one is able to know who has authoritative information on given subjects, who can be expected to be more knowledgeable in a subject and who is not. In doing so the gaps in information provision are revealed.

4.8.1. The right of access to information

Information is a resource needed by the employees of academic institutions. Information is needed by academic staff to stay knowledgeable in the areas of expertise, and to perform administrative functions. Students also need information for learning to be professionals and professionals returning to the university need information to update their knowledge. It is also needed by the administrators to make resource allocation decisions, and by administrative staff and support services staff to perform their duties, and by students to further their studies. Information is also needed by the management of the university to remain responsive to its environment and to provide information about the university to the community and to the government. Therefore, access to information is a basic need and a precondition to professional and personal development within the university (University of Canberra, May 1995).
Understandably, anyone who misuses information in one way or another will be in defiance of the information policy prescribed by the university, and such a person will be liable to action being undertaken against him/her by the university under its rules or appropriate information policy. Most enterprises have high level information policies that address how and what information is to be handed by the enterprise (Olson 1994: 160). Academic institutions using information as an important part of democracy are expected to allow the free use of information within the institutions. Nevertheless there should be consideration on the confidential aspect of certain information produced mainly by strategic sectors of the academic institution (Goedegebeure et al 1991: 200).

Academic institutions following the approach taken by private enterprises may identify sensitive information, such as personnel confidential information, and so on, each with its own implications of who may access information and under what conditions (Olson 1994: 162). The onus will lie with the top management of the academic institutions, who should also be the formulators of the information policy. They are to draw lines of demarcation between transparency, secrecy, freedom of speech, confidentiality and privacy concerning access to information in a particular academic institution without practising censorship.

The academic institutions are committed to the principle of fair and reasonable access to information in order to empower members of the academic institution community to fulfil their responsibilities. The aim should be to provide fair and reasonable access to information by owning and making accessible on the campus the information essential to teaching, learning and research and administration by encouraging use of the network to satisfy other information needs.

The academic institution community, students in particular, is compelled to have information in order to study. Failure to have access to information would, in itself, result in exclusion from courses of study. This information should be provided without charging students (University of Canberra, May 1995).
4.8.2. On Privacy

The information policy should be there to clarify and direct the information users on what information should be kept for personal use. Some people feel uneasy about the amount and correctness of information held about themselves in computer storage, and about the number of people who can get it via proliferating networks. Protection of personal information is therefore a matter of concern for most people. A privacy protection policy ensures people’s confidence in what information the academic institution will make available, and that it only collects information for specific reasons associated with specific institution programs or laws; and further that people can correct any inaccurate information (Van Dyk 1994). Dunn (1984 : 16) advocates that "many of the most significant information policy issues arise in connection with databases that contain information on specific individuals. The principal danger in this area involve misuse of data on an individual either not authorized to have access to the data or that may have a right of access to the data or that may have right of access for one purpose but uses the data for another purpose."

4.8.3. Information Security

Information that has strategic value for an enterprise is subject to corporate policies and practices for ensuring safekeeping and preservation (Burk and Horton 1988 : 3). Valuable information should be protected at all cost from misuse, accidental and unnecessary destruction, and corruption or loss. People and enterprises value information and they would not value it to be exposed to risks. Devargas (1993 : 5) defines information security as "the protection of information assets from accidental or malicious unauthorized disclosure, modification, or destruction, or the inability to process that information." The basic premise of the definition can be explained in terms of confidentiality, integrity and availability. Confidentiality, or more strictly speaking, a loss of it, defines the need for restricting information, or access to information and systems resources from unauthorized users. Integrity determines how systems resources should behave and also ensure that information has not been altered or damaged by an unauthorized source. Availability means that a resource is accessible to a user whenever it is required (Devargas 1993 : 5). Information security should be an element of the information policy.
Access to confidential information should strictly be limited and tightly controlled. Virginia College Council, U.S.A. (VCC Policy Manual, March 31, 1995) advances the following objectives of information security.

- Ensure the processing of information in a secure environment;
- Guarantee that the cost of security is commensurate with the value of information to both the information owner and a potential intruder;
- Guard against the unauthorized modification, destruction or disclosure of information, whether accidental or intentional;
- Establish safeguards to guarantee the integrity and accuracy of vital information;
- Provide the ability for the colleges and the system office to effectively recover from unplanned business interruptions or disasters; and
- Teach employees local security policies and train them to support the policies.

Security on computer systems and networks should be taken extremely seriously. The purpose of having this policy in place is to enable employees to, in almost every eventuality, restore and carry on with the business activities. It is important that security within information technology is acknowledged and awareness gained that risks are inherent within computer networks (Vince 1996: 112). Clear policies are needed for data management, with responsibility for ownership, access, security and so on, and procedures for distributing data, based on integrity and consistency rules associated with the data (Ward and Griffiths 1996: 503).

Information technology security sets put to prevent unlawful or accidental destruction. Contamination of data and disclosure of protected information are prevented by providing technical mechanisms that implement management control procedures. The control procedures guard against over access and operational rights. In order for the information centre to operate successfully within the framework of information policies and security objectives, it should be supplemented by other procedures covering staff training, administration of user rights, data protection and audit (Ward and Griffiths 1996: 511-512).
There are several control purposes of information policy, for example, the privacy of individuals and enterprises using the Global Information Infrastructure should be protected. The security and reliability of the networks, as well as the information that passes through them should be preserved, and the intellectual property rights of those who created the information should be protected. Policies should be written to assist with solving specific problems to prevent errors from recurring (Riggs 1996: 232).

4.9. INFORMATION POLICY EVALUATION

Evaluation has long been recognised as an integral part of policy development and implementation. Weiss in Gardner (1992: 73) defined the purpose of evaluation as a measure of the effects of a policy against the goals it set to accomplish as a means of contributing to subsequent decision making about the policy and improving future policies. In other words evaluation compares policy outcomes against policy goals with a view to improving the policy and its delivery. According to Putt and Springer (1989: 48) evaluation is a principal feedback stage of the policy process. Policy evaluation provides information which lets stakeholders know what happened following the initiation of a policy, provides a description of implementation activities. At a greater level of complexity evaluation is intended to identify the degree to which a policy has succeeded in achieving its intended objectives. Evaluation can provide insight into reasons why policies have succeeded or failed and can suggest courses of action for improving the attainment of policy objectives. It is understandable that information policy implementation should be followed by information policy evaluation. Implementation means that which has been decided upon is to be put into practice while evaluation means to ascertain whether what has been implemented is working according to the desired plan. The outcomes of the implementation need to be examined or else it will not be possible to establish whether the necessary improvements should be made.

Evaluation does serve as a key factor to the improvement of the outcomes of the implementation stage. Glaser, Albelson and Garrison in Putt and Springer (1989: 48-49) state that the specific evaluation of policy serves various purposes such as determining the overall work and value of the policy in achieving intended purposes.
It is through the results obtained from the evaluation that the decision makers, policy makers and many more people can decide whether to cancel, continue or modify the policy. Jansson (1994: 70) asserts that when assessing implemented policies, practitioners often obtain data about the implemented policy’s performance. Assessing policies can present daunting methodological and interpretative problems, but information help revise policies or various details of their implementation to enhance their effectiveness.

4.10. SUMMARY

An attempt has been made in this chapter to describe the development of information policies in academic institutions. It has been indicated that policies and information policies in particular can or do play a very significant role in all enterprises. Enterprises should adhere to their policies or else they may encounter problems which include among others, mismanagement of information. Policies are developed and laid down in order to institutionalise potential conflict situations, that is, to provide guidelines, codes and rules whereby differences may be resolved in an orderly and accepted manner. Policies and procedures must be written down and made known to the people affected by them. Of the greatest significance is that an information policy determines the kind of information collected, created, organized, stored, accessed, disseminated and retained in an enterprise. Considering the potential importance of information policies in the context of academic institutions and the paucity of research undertaken in this line, an information policy can serve as a useful tool to information practitioners, administrators, academic institutions and information professionals. In the succeeding chapter the information management situation at the University of the North will be discussed, with specific reference to the management of information by the academic information centre.
CHAPTER 5

DEVELOPING AN INFORMATION POLICY FOR THE INFORMATION CENTRE OF THE UNIVERSITY OF THE NORTH

5.1. INTRODUCTION

In the previous chapter developing an information policy has been discussed as the major component of information management. The primary objective of this chapter is to survey and assess the information management situation at the University of the North which does not have a recognised corporate information policy by which the information centre as an information resource should shoulder the greater responsibility of managing information. Certain suggestions are brought forward which proffer how such a situation could be improved by recognising information as a resource, and developing an information policy for the information centre.

The University of the North information centre is but one of the academic institution's sources of information dealing with printed records. There is an enormous amount of unrecorded information which needs to be properly managed. Oral information such as speeches by visiting professors, public speakers and politicians may likely be forgotten if not managed in one way or another.

There are different components of information management at the University of the North, for example:

- information centre, e.g. library;
- record management department, e.g. archives;
- academic departments;
- research institutions;
- administration service;
- oral information department (which is still at the initial stage);
- Student Representative Council office.
Academic institutions are information enterprises. The recognition of information as an economic resource and the development of a corporate information policy can enhance the achievement of the major aims of teaching, learning and research. The University of the North has embarked on an intensive strategic planning project which, among other things, could serve as a valuable contribution to information management.

5.2. THE MISSION AND VISION OF THE UNIVERSITY OF THE NORTH

A vision is a broad overview of something in imagination. It is a dream which can be changed into a reality by somebody with a mission. A mission is a specific task with which a person or group is charged. The mission statement is a declaration of an enterprise’s reason for being. It answers the pivotal question: "What is our business?"

5.2.1. Mission Statement

The Makgoebaskloof Summit held in August 1994 organised by the Broad Transformation Committee (BTC), yielded the following proposed mission statement for the University of the North: The University of the North strives to be an innovative, responsive and relevant institution which is dedicated to excellence in teaching, learning and research in order to serve the changing society (University of the North Board Transformation Committee August 1994: 122).

5.2.2. The Vision:

The University of the North is to be a quality institution of higher learning and critical reflection which is innovative and responsive to change, and which is rooted in the issues of the society in which it is located, and is a centre for relevant theory and practice of people-centred development (University of the North Board Transformation Committee, August 1994: 122, unpublished).
5.3. UNIVERSITY OF THE NORTH INFORMATION CENTRE AS THE MAJOR INFORMATION COMPONENT

The information centre is the major information asset of the academic institution. Its collection consists of external information services in printed and electronic format. In view of its services to the intellectual fraternity it is firmly committed to intellectual freedom. The intellectual freedom manual (1996: 283) asserts that: "the library of course accepts an equally strong obligation to be certain that neither its formal policies nor the conscious or unconscious bases of this staff violate the intellectual freedom of its constituencies. Regrettable these appears to good reason to believe that in academic libraries, as in others, the greatest damagers to intellectual freedom are more often internal than external. Even if the parent institution is not wholly committed to intellectual freedom, the library should still attempt to practice intellectual freedom principles to the extent that it can."

An academic information centre needs to have a written collection development policy. This policy should be drafted by the information specialists, preferably in cooperation with faculty library committees if such a group exists, and ratified by the appropriate administrative body of the institution.

Academic institutions are still of the opinion that each information centre must be encouraged to assume full responsibility for its own collection and to develop a detailed collection development policy document, covering the breadth and depth of collection of each subject area. Such policy documents should ideally promote the use of a standard library classification scheme. This will significantly facilitate co-operation in collection building and evaluation, especially for research materials, and the elimination of unplanned duplication at a national level (National Commission of Higher Education 1996: 367). The information centre have an important role to play in the information management of the university.

The strategic planning document of the University of the North information centre has also a mission and vision compliant with the University's mission and vision.
5.3.1. The Information centre Vision Statement

The University of the North Library envisages a professional dynamic and efficient information centre, supported by adequate human, physical and economic resources, for the development of highly informed user community, utilizing advanced information technology in pursuit of learning, teaching and academic excellence of national and international standard.

5.3.2. The Information centre Mission Statement

To provide effective and dynamic information service to its users by timeously and efficiently acquiring, processing and disseminating information by appropriate and optimal utilization of human and technological resources in order to facilitate academic excellence in teaching, learning and research and community development. (Library Strategic Human Resources Planning (LSHRP) Mission: unpublished).

5.4. THE ROLE OF THE INFORMATION CENTRE IN A UNIVERSITY

The role of the information centre is defined within the context and framework of the university’s basic aims and objectives. It is not just a storehouse of books but an information service and therefore a dynamic instrument of education within the university’s complex network of inter-related subsystems. The information centre is a support unit providing for the academic information needs and wants of the university public. The information centre occupies a central position in the university’s academic activities. It is the heart and the hub of learning and research at the university, and from this it follows that if information services are of high quality then the university is in a better position to function more effectively and efficiently as a productive institution of higher learning and research.

As an essential part of the university’s educational functions the information centre works in close conjunction with academic departments (Inter University Library Committee (Inter University Library Committee: unpublished)).
Information technology is applied at academic institutions in three distinct areas, namely, administration, teaching and research. For teaching and research the University of the North is highly dependent on the information centre.

5.5. MANAGEMENT OF INFORMATION AND THE IMPACT OF INFORMATION TECHNOLOGY IN THE UNIVERSITY OF THE NORTH INFORMATION CENTRE

By way of introduction a conceptual framework will be provided through which we can view the management of information technology, information resources and communication within University of the North information centre. The conceptional framework will also be used to view how the information centre uses telecommunication networks and investigate ways of expanding a high-speed network which connects other information centre and information institutions linked to the same electronic systems, for example URICA and UNIX. Academic information centre in general must still purchase, process and lend out books and journals, but they must also acquire and access information in electronic format.

They must do all these things efficiently in addition to providing access to the universe of information not within their walls. Technology is making the resources within the information centre available beyond its walls, and the resources beyond its walls within the information centre. The way the information centre manages these accomplishments is, in a great part, related to an increasing use of telecommunication networks. Automation and networking (computerization) at the University of the North information centre started in 1982. It developed from section to section such as acquisition, cataloguing, public reader services, that is, subject reference and circulation department and interlibrary loan department.

The information centre is about to be fully computerised. It should be realised that the University of the North information centre has gradually moved from conventional techniques of handling information to the electronic means. Information technology in various sections of the information centre is managed as shall be indicated in the following sections.
5.5.1. **Automation Strategy**

The purpose of the automation strategy is to help towards better service and greater cost-effectiveness, and to supporting the full exploitation of information and human resources in an integrated way (Orna 1990: 156). Computing and communication services are integrated for the sake of delivering services. This aspect of automation has been dealt with fully in section 2.7.1.

5.5.2. **Transmission of information**

Rapid development of new technologies for producing and transmitting information has foregrounded communication as a privileged topic of enquiry. Computers are used to acquire, store and transmit information from place to place, near and far, through telecommunications.

5.6. **INFORMATION AUDIT AT THE UNIVERSITY OF THE NORTH**

As discussed in Chapter three, an information audit can serve as a basis for the development of an information policy. It is recommended that an information audit should be conducted at the University of the North to determine the value, functioning, evaluation and utility of information sources, services and systems in the information centre. An information audit should also determine how the different information resources support the objectives of the information centre as a whole as well as those of the different departments. Information management at the University of the North should make available (proactively and reactively and in time) information resources for the purposes of study, teaching and research. To achieve this it is necessary to formulate an information policy for the information centre as well as an overarching information policy for the university.
5.7. DEVELOPING AN INFORMATION POLICY FOR AN INFORMATION CENTRE

5.7.1. BACKGROUND

The University of the North information centre began providing information services to 23 staff members and initial enrolment of 87 students in 1960. Twenty-five years later in 1995 the student population had increased to 13639 and in 1997 this figure had reduced to 10859. At present, eight academic faculties (Agriculture, Arts, Education, Health Sciences, Law, Management Sciences, Mathematics, and Natural Sciences and Theology and Religious Studies) and 72 departments are highly depended on the information centre (University of the North Library Report 1997/98: unpublished).

An information policy should be formulated to gain credibility with top management of the academic institution. Committees should be established with appropriate representation from faculties, departments and student organizations to respond to broad information issues. These committees should report to the top executive management of the institution and seek inputs from a wide range of other policy forums which have staff and student representation in order to develop policies to ensure that appropriate needs are accommodated (University of Canberra: Information Policy, May 1995 : 3). The policy should state the academic institution's response to those who do not comply with the endorsed formulated policies. An announcement should be made to the entire academic institution community in the form of circulars stating explicitly which measures could be taken against those who do not adhere to the information policy's objectives and mission.

The University of the North is at the advantage of having well qualified professional manpower consisting of academic staff and administrative staff. The information policy thus formulated has to address quite a number of issues such as major information sources, information service areas, creation and provision of information, the quality of information provided, and how it is organized, transmitted, stored and made readily accessible to the users of information.
The Information Policy Formulation Committee has to focus on the following terms of reference as prescribed by Vince (1996: 111):

It should define the scope to be covered, re-examine the existing procedures; principles and regulations and incorporate them into new corporate policies. Where the existing procedures, principles and regulations conflict with the new corporate policies the necessary changes should be implemented. The committee should also define the most important information operational areas of the institution.

The committee should to be held responsible for all matters affecting the control of information at the academic institution and its functions should be extended to address all aspects of information technology management, ensures that information requirements are taken into consideration during policy decisions, define the roles and status of the information manager and further the interests of the information management function.

5.7.2. INFORMATION POLICY COVERAGE

The various issues to be covered by information policies are categorised under the following four headings, namely, human resources, information service areas, information topics of interest value and information technology. Figure 2 illustrate the key issues in the development of the Univesity of the North information centre policy. The key issues are discussed under no restricted sequential order of priority.

5.7.2.1. Human Resources

Human resources are the main vehicle in the creation and provision of information centres. In order for the University of the North to offer adequate information centre, the information centre should create healthy working conditions in order to provide a quality service. The present information specialists have been proved to be insufficient (see the existing University of the North information centre organogram in Figure 3 compared with the proposed information centre staff organogram summarized diagramatically in Figure 4).
Management Information System

Figure 2 shows the key in the development of Information Centre Policy

Key Issues in the Development of Information Centre Policy

- Financial strategies
- Information technology
- Communication
- Computer
- Information management
- User education/Information retrieval service
- Market
- Government
- Influence of external forces

- Human resources
- Staff development
- Planning
- Satisfaction
- Utilization
- Training
- Design
- Security
- Privacy
- Equity
- Confidentiality
- Availability
- Integrity
- Accuracy
- Creation
- Topics of interest/value

MIS

Information Centre

Acquisition

Figure 2
UNIVERSITY OF THE NORTH PROPOSED INFORMATION CENTRE
ORGANOGRAM

Figure 4

UNIVERSITY LIBRARIAN
One(1) Post

DEPUTY UNIV. LIBRARIAN
Four(4) Posts

ASSISTANT DEP. LIBRARIAN
Four(4) Posts

SENIOR LIBRARIANS
Ten(10) Posts

LIBRARIANS
Fourteen(14) Posts

ASSOCIATE LIBRARIANS
Thirty-two (32) Posts

LIBRARY ADMIN. OFFICERS
Twelve (12) Posts

LIBRARY ADMIN. ASSISTANTS
Fourty(40) Posts

SHELVISTS
Eleven (11) Posts

MAILROOM PERSON
One(1)
If the information centre could be provided with a sufficient number of staff like it is indicated on the proposed information centre organogram the information services at the University of the North could be offered effectively and efficiently.

5.7.2.2. **Information service areas**

Information service areas are acquisition, cataloguing, reference services, reader services which include reserve and interlibrary loans and photocopy services.

5.7.2.2.1. **Acquisition of information sources and budget control**

The acquisition section of the information service has been given the responsibility of ordering the information sources. The ordering of information sources is determined by the budget allocated to the information centre. An information policy is required for proper management of finances. This section contributes to the information centre in the purchase of information sources.

The building of the information centre collection is primarily dependent on government funding and donors of book materials. Although the information centre is dependent on external sources such as the government in its funding, there is no prescribed information policy by the government on how the information centre should purchase, collect and manage its information sources. However, the government would like to be informed how funds allocated to the information centre are utilized. Occasional auditing for purchased books and periodicals by external auditors serves the purpose.

5.7.2.2.2. **Photocopying Service**

This service area attempts to solve the problem of limited information sources. The policy reminds users that photocopying of copy righted information or parts thereof, is a contravention of the Copyright Act, Act 98 of 1978. No person is allowed to copy the whole information source. Photocopy users are therefore requested to refrain from photocopying
the whole information source or a substantial part thereof if prior written permission from the publisher has not been obtained.

5.7.2.2.3. **Access: Cataloguing**

At this information service area information sources received are processed in order to facilitate storage, easy access, and maximal retrieval. For many years until 1982 the information centre was organizing information sources and storing them in a traditional fashion. The cataloguing methods have shifted from conventional to modern technological methods of computerization. This is done with the aim to:

- deal with large amounts of uncatalogued items;
- centralize record processing, using a sign record covering all copies of any work, wherever held;
- standardize on a core record using essentially the same data as the acquisition record, with basic enhancements (Orna 1990: 145).

5.7.2.2.4. **Reader Services**

The purpose of reader services is to effectively and efficiently make information sources available to the users in support of learning, teaching, research and community development. Generally, reader services, as it consists of reserve, circulation and interlending sections help users to locate information from within the information centre and from other information centre. It makes sure that information is timeously provided to the users, accurately and in correct form.

An information policy could help to regulate borrowing of information sources, deciding on information service opening hours and the restriction of specific information sources to staff, researchers and post-graduate students only.
5.7.2.2.5. **Reference Services**

The subject reference area aims to proactively facilitate and provide maximum access of information by offering efficient and specialized reference services to staff, students, researchers and the community, to adequately fulfil information needs for teaching, learning, research and community development. By introduction of bibliographic instruction programmes it contributes towards information literacy by improving the overall service as well as the relationship between users and staff members, and benefits the users by enabling them to utilize the information tools in searching for information. Control measures are generally taken by keeping record of how many students and staff attended the bibliographic instruction programmes on a daily basis.

5.7.2.2.6. **Africana* Information Service**

This information service area houses special information service material on or about Africa. The collection is regarded as special because it includes old, rare, unique and valuable information sources. The loaning of these special information sources follow specified policies such as:

- The information collection being specifically for research purposes should be administered as a closed stack system;
- Users do not have free access to the stacks, all requests and enquiries should be directed to the information desk;
- Information sources may be used for two hours at a time but may be used for further two hours provided that they are not in demand;
- All information sources are used within the information centre;

* A term applied to specialized materials to the study of African affairs and culture. The materials may be books, pictures, printed matter, objects of art and furniture pertaining to Africa and South Africa, particularly Southern Africa. At the University of the North information centre, the collection is regarded as special because it involves old, rare, unique and valuable works. They are termed 'national treasures' preserved for future generations.
Members of staff who might need to take information sources out of the information centre for the purpose of making photocopies must return them within two hours unless proper arrangement for more than two hours has been made.

5.7.2.2.7. Community Information Services

Besides existing information services, the University of the North information centre should seriously consider offering information services to the outside communities, for example students and staff from other universities, students and staff of senior colleges and high schools. An information policy should address this challenge. The community could have access to the information centre but not borrowing privileges. Members of the general public can benefit from information services by applying for community membership to obtain borrowing privileges.

5.7.2.3. Information Topics of Interest Value

An information policy should also focus an information per se: its quality and the way it should be safeguarded against misuse.

5.7.2.3.1. Creation of Information

The information created by members of staff such as memos, announcements, circulars and agendas for meetings are to be approved by the University Librarian or the Director where applicable. They should be created according to a specific standard.

5.7.2.3.2. Accuracy of Information

By cataloguing and classification of information sources, information sources are accurately organized according to their subject content to facilitate the location of information sources by the users.

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In this context accuracy has nothing to do with the contents of the texts, but rather the location of information sources at the right place for the user’s convenience.

5.7.2.3.3. **Integrity of Information**

Internal information sources must be checked for correctness before it could be made available to the users or be nationally or internationally transmitted. This will apply mostly to information transmitted through electronic means of telecommunication such as fax, e-mail and teleconferencing.

5.7.2.3.4. **Confidentiality of Information**

An information policy should stipulate whether financial information could be exposed to any body else without maintaining confidentiality. Unauthorized individuals should be guarded against using confidential financial information. Financial information should be regarded as corporate information and should not be made public to the general academic institution community until it has been proved to be a correct statement of the financial position by the information centre financial committee. In the case of an information centre having centralized its financial information into an integrated database, the academic institution staff could access and use financial information in working documents, and be required to obtain authorization from an information centre data custodian. Access will be provided by personnel responsible for the database. An information centre committee could advise the information centre data custodian of the names of staff who should be authorised to access financial information in working documents.

5.7.2.3.5. **Equity of Access to Information**

The information centre policy should emphasize the following principles as far as access to information is concerned:

- Commitment to the principle of fair and reasonable access to the information in order to empower all members of the academic institution to fulfil their
- Aiming to provide fair and reasonable information by owning and making accessible on the campus the information essential to teaching, learning research and administration and by encouraging use of the network to satisfy other information needs.

Information should be provided free of charge to students and staff. Supplying information for profit making should be avoided. However, in case students and staff have access to the network a charge could be set for the costs of the information provided across the network by the suppliers of electronic information documents and databases. But if information is compulsory to undertaking a course, in so far as failure to have access to the information would of itself result in exclusion from the course or failure in the examination, then the information should be provided without charge to students. The information centre is determined to provide fair and reasonable access to information and it should not be obliged to purchase study material for students. Students should be encouraged to purchase textbooks and other equipments to facilitate their own access to information.

5.7.2.3.6. **Privacy and Security**

In order to prevent and control theft and mishandling of certain information materials regarded as special materials, the information centre should formulate a policy that such materials should be kept private and secure. Privacy should not be interpreted as a negation to democratic transparency and free access to information, but as a manner of exercising responsibility to one's work and loyalty to one's authorities. Such privacy and security is indicated by restricting the special information collection to lawful purposes by fair means. For example, special collection includes valuable information material out of print and other material regarded to be of significant value. They are general reference materials like dictionaries, directories and Africana material, for example material of research importance on Africana, University of the North theses and dissertations, and South African universities' inaugural addresses, and South African government documents.
Information technologies are great facilitators, allowing the scientific community to collect, manipulate, and disseminate information more rapidly than previously imagined (Rath and Clement 1988: 47). Information technology has come to play a significant role in information centre. Automation has facilitated information service operations and functions such as information searching, acquisition, cataloguing and circulation of information. It helps to speed-up resource sharing by networking with other institutions and electronic document delivery. The information services are expanded by having an access to the CD-ROMS and OPAC through the network. Information technology hardware and software such as personal computers, file servers, printers, scanners, CD-ROM servers, and, Netscape, Wordperfect and Microsoft are available to the University of the North information centre. The budget is decided by the Information Technology Workgroup which also determines the specifications each section should follow in purchasing other specific equipment (hardware). Sections control their hardware, that is, how to use it and for what purpose.

In addition to rapid growth of the technology, an information policy must also cope with the mixed nature of the information environment which is of printed and electronic nature. The roles and functions of this environment should be clarified. In view of the above discussion about information service activities at various information service sections, it should be a matter of fact that the information services be executed according to definite policies.
5.8. AN INFORMATION POLICY FOR THE INFORMATION CENTRE OF THE UNIVERSITY OF THE NORTH

Information management at the University of the North should make available (proactively and reactively and in time) information for the purposes of study, teaching and research, as well as information for community service to users of the University. To achieve this it is necessary that all the information departments at the University should formulate an information policy. These policies should be combined in an overarching information policy for the University. For the purpose of this study an information policy will be formulated for the information centre of the University to illustrate how an information policy should look like.

Although information already plays a decisive role in the attainment of the goals of the University of the North, it should be recognized as a resource and the management thereof should be accepted as one of the objectives of the University. For this reason an organizational information policy should be formulated. Since an information policy gives direction to future decision making on information management, elements of an information policy for the University could be formulated as follows:

- The information policy should be in touch with the strategic planning and functioning of the University.
- Information should be regarded as a valuable and expensive resource.
- Information should actively be managed as is done with other resources at the University.
- Information is not free. It costs money to transmit the right information to the user of time.
- Limit information to those who need it.
- Information should contribute directly to management, study, teaching, research, administration, professional services and community service at the University.
Information personnel should be accountable for their information outputs and for the effective utilization, provision and management of information sources, services and systems entrusted to them.

- Constitute security, privacy and confidentiality policies in respect of personal and university-sensitive areas.

- Develop financial budgets and control systems to budget, control and account for the cost of information management.

5.8.1. INFORMATION CENTRE - POLICY STATEMENT

OBJECTIVE: The objective of information management at the information centre is to organize published and electronic information sources and information technology to meet the needs of the University of the North by means of the optimization of use, minimization of costs and the delegation of responsibilities.

POLICY: The purpose of the policy is to provide information for management/decision making, study, teaching and research at the University.

Top Management at the University has approved the Information Centre Policy.

It is the policy of the information centre to ensure that:

- Information sources (published as well as electronic) will be acquired.
- Information sources will be processed.
- Information will be transmitted to the users.
- Integrity of information will be maintained.
- Information will be protected against unauthorised access.
Integrated information management plans will be produced to support the policy. These may include improving physical facilities, marketing the information centre, evaluation of services provided and training of users.

University requirements for the availability of information sources, services and systems will be met.

The role and responsibility for managing the information centre will be performed by the University Librarian. The University Librarian has direct responsibility for maintaining the policy and providing advice and guidance on its implementation. All managers of the information service areas are directly responsible for implementing the policy within their business areas, and for adherence by their staff.

It is the responsibility of each employee to adhere to the policy.

Signed: ________________________________

Title: ____________________________ Date: ______________________________

5.9. SUMMARY

This chapter has reviewed the major issues that should be included in an information policy for the University of the North. An information policy was also formulated for the information centre at the University of the North. The information centre provides external information at the university. This policy could be integrated into a corporate information policy for the university as a whole.

In the next and final chapter of this study, final conclusions and recommendations are going to be made concerning the use of information as a resource in academic institutions.
CHAPTER 6: SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

6.1. SUMMARY

The primary objective of this research study was to determine whether information is a resource in South African academic institutions.

Chapter 2 attempts to indicate that information is a resource like other traditional resources, for example, capital, labour, natural resources and entrepreneurship. Similarities and dissimilarities of information as a resource compared with other resources are given and the activities of the management of external information resources such as acquisition, processing, storage and transmission of information are discussed. Information centres play a very important role in the management of external information resources in academic institutions. By automation and networking information centres are able to share and transmit information internally and externally, and nationally and internationally.

Chapter 3 attempts to outline the importance and functions of information auditing. The aim of an information audit is to identify the available information resources within an enterprise and to determine whether they are cost-effectively utilized. The main idea of an information audit is to control information resources. Various techniques are applied to successfully perform an information audit.

The most popular technique in this context is infomapping designed by Burk and Horton. An information audit is a prerequisite for developing an information policy.

Chapter 4 provides an explanation of how important it is for academic institutions to develop their own information policies. Various stages are listed which can be followed in developing an information policy. An information policy can be of great advantage to the academic enterprises in facilitating information flow and improving inter-departmental communications. It addresses information problems in the major service areas of the enterprise. It also guards against the malpractice of the free flow of information with regard
to right of access to information, on privacy, security and intellectual property rights. The policy thus formulated should be implemented and evaluated regularly.

Chapter 5 is a case study of the information management situation at the University of the North. This university do not have an information policy and the external published information sources are managed by the information centre. An example of how an information policy for an information centre should look like, is provided.

6.2. CONCLUSIONS

The following conclusions can be drawn:

- Information can be regarded as a resource in academic institutions, equal to traditional resources such as capital, natural resources, labour and entrepreneurship.
- An information audit is necessary to determine the value, costs and utility of information resources at academic institutions.
- An information policy determines the kind of information collected, created, organized, disseminated and retained in an enterprise.
- At the University of the North the inforamation centre is the major source in the provision of information at the University.
- All academic institutions in South Africa should formulate an information policy to give direction to future decision making on information management at the institution.

6.3. RECOMMENDATIONS

- Information should be recognized as a resource in academic institutions like other traditional resources, for example, labour, capital, natural resources and entrepreneurship. The use of information technology in academic institutions should be regarded as of greatest significance in making the management of information a success.
An information audit should be performed at the academic institutions to determine the value and utility of information resources at the university.

In formulating a general corporate information policy for an academic institution, all those who will be affected by such a policy should participate in the policy formulation.

6.4. **Recommendation for future research**

This study addressed information as a resource in academic institutions. However, the researcher sincerely hopes that these findings will provide impetus for additional research which is crucial if information management is to take centre stage at academic institutions. Future research can include:

- The tasks and responsibilities of the information manager at academic institutions.
- The management of electronic information resources (especially the Internet/www) at academic institutions.
- Determining the value of information at academic institutions.
- Integrated Academic Information Management Systems (IAIMS) at South African academic institutions.
- Information education in academic institutions.
- The impact of information technology on information services in academic institutions.
- The importance of information as a resource to facilitate learning, teaching and research.
- The management of information resources within university environment.
- Information resources for literacy at institutions of higher learning.
- Information resources provision in institutions of higher learning.
- Information network in academic institutions.
- The funding of information as a resource in academic institutions.
- Human resource training for information use in academic institutions.
- Integrated information database in academic institutions.
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