Theoretical foundation for the formulation of a National Information Policy for South Africa

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List of abbreviations

ADF	African Development Forum
AIDS	Acquired Immunodeficiency Syndrome
AISI	African Information Society Initiative
ANC	African National Congress
BMR	Bureau of Market Research
CABECA	Capacity Building in Electronic Communications for Development in Africa
ComTask	Taskforce on Communication
EC	European Community
ECA	Economic Commission for Africa
FID	International Federation for Information and Documentation
GCIS	Government Communications and Information Service
GDP	Gross Domestic Product
GEAR	Growth, Employment and Redistribution program
GIE	Global Information Economy
GII	Global Information Infrastructure
GPI	General Information Programme
HDI	Human Development Index
HIV	Human Immunodeficiency Virus
HSRC	Human Sciences Research Council
IBM	International Business Machines
ICPC	Inter-departmental Co-ordinating and Planning Committee
ICT	Information Communications Technology
IDRC	Canadian International Development Research Centre
IITF	Information Infrastructure Taskforce
IKS	Indigenous Knowledge Systems
IPCU	Information Policy and Co-ordination Unit
IPR	Intellectual Property Rights
IRM	Information Resources Management
IS	Information Society
ISAD	Information Society and Development Conference
ISDN	Integrated Services Digital Network
IT	Information Technology
ITU	International Telecommunications Union
LDC	Less Developed Country
LIS	Library and Information Services
LIWO	Library and Information Workers Organisation
MAMPU	Malaysian Modernisation and Planning Unit
MSC	Multimedia Super Corridor
NACLI	National Advisory Council for Libraries and Information
NATIS	National Information Systems
NCLIS	National Commission on Libraries and Information Services
NECC	National Education Co-ordination Committee

NEPI	National Education Policy Investigation
NGO	Non-Government Organisation
NICI	National Information and Communication Infrastructure
NII	National Information Infrastructure
NIP	National Information Policy
NIS	National Information System
NITA	National Information Technology Agenda
NITC	National Information Technology Council
NITF	National Information Technology Forum
NREN	National Research and Education Network
NTF	National Telecommunications Forum
OAU	Organisation of African Unity
OECD	Organisation for Economic Co-operation and Development
PADIS	Pan African Development Information System
PGI	General Information Programme
PICTA	Partnership for Information and Communication Technologies in Africa
RDP	Reconstruction and Development Programme
SA	South Africa
SABINET	South African Bibliographic Information Network
SAC	Scientific Advisory Council
SADC	Southern African Development Community
SAILIS	South African Institute for Librarianship and Information Science
SAITIS	South African ICT Sector Development Framework
SALA	South African Library Association
SAPT	South African Posts and Telecommunications service
SATRA	South African Telecommunications Regulatory Authority
SITA	State Information Technology Agency
SLA	Special Libraries Association
Translis	Transforming Our Library and Information Services
TRIPS	Trade-Related Aspects of Intellectual Property Rights
UK	United Kingdom
UNDP	United Nations Development Programme
UNESCO	United Nations Educational Scientific and Cultural Organisation
UNISA	University of South Africa
UNISIST	Intergovernmental Programme for Co-operation in the Field of Scientific and Technological Information
USA	United States of America
USA	Universal Service Agency
VAN	Value Added Network
WTO	World Trade Organisation
WWW	World Wide Web

Samevatting/ Ekserp

Hierdie studie het ten doel om die belangrikheid en vereistes van 'n Nasionale Inligtingsbeleid vanaf 'n Inligtingkundige oogpunt te bespreek. Die studie is uit 'n holistiese oogpunt benader en probeer om alle faktore en verwante beleide wat invloed op 'n Nasionale Inligtingsbeleid uitoefen te bespreek. Die konsep "Inligting" word in Derde Wêreld lande vanuit 'n unieke sosiale, ekonomiese, politiese en kulturele agtergrond aangepak. Met dit in gedagte, word die formulering van 'n Nasionale Inligtingsbeleid hier as 'n proses om inligting as hulpbron te bestuur, benader. Die bestuur van inligting as 'n hulpbron is dus 'n baie belangrike funksie vir die owerhede. Die studie fokus op die volgende:

- Wat 'n Nasionale Inligtingsbeleid behels.
- Redes hoekom 'n Nasionale Inligtingsbeleid benodig word, die geskilpunte en beleidsbeginsels.
- Moontlike voorstelle en metodes om 'n Nasionale Inligtingsbeleid in Suid-Afrika te implementeer word ook bespreek.

Weerstand vanaf die Derde Wêreld teenoor buitelandse en westerse betrokkenheid word ondervind. Dit is dus belangrik dat oplossings vanuit die Derde Wêreld self kom. 'n Ideaal waarna gestreef word is dat die leiding ten opsigte van die formulering van 'n Nasionale Inligtingsbeleid vanuit Suid-Afrika sal kom vir toepassing in die res van Afrika. Voorstelle word dus gemaak vir die formulering van 'n Nasionale Inligtingsbeleid in Suid-Afrika binne die weier raamwerk van tradisionele inligtingverskaffing en inligtingdienslewering. Die tradisionele rol moet ook nuwe dienste, bekwaamhede, en die gebruik van nuwe inligtingsbronne en programme in ag neem. Die uiteindelike doel is dat Derde Wêreld lande self die waarde van inligting besef en hulle eie Nasionale Inligtingsbeleid formuleer. Sodoende word foute uit die verlede herstel, beter gebalanseerde dienste word verskaf en beter ko-ordinering vind plaas wat tot meer toegang tot inligting lei. Die gevolg is dat

profesioneel opgeleide mense inligting kan bestuur en gebruik om Afrika se sosio-ekonomiese probleme op te los.

Summary/ Abstract

This study endeavours to produce an understanding of the necessity for a National Information Policy from an Information Science point of view. The study was approached from a holistic point of view and thus tries to encompass all factors and related policies that would influence the formulation of a National Information Policy. The concept of information in developing countries operates within a broader social, economic, political and cultural background. The formulation of a National Information Policy should however conform to certain information management principles and is thus treated as a process for managing information, a vital function for any successful government. In the empirical research the theory is applied to describe the fundamentals of policies and their necessity. The study focuses on:

- Exploration of what a National Information Policy encompasses.
- Principles of information, issues and reasons making such a policy a necessity.
- Possible proposals, approaches, and means of implementing a National Information Policy for South Africa are discussed.

From a Third World perspective resistance may be detected towards external and foreign involvement or models. Greater care should thus be given to indigenous practices, but with the necessary guidance, so that a correct balance can be created. It is therefore essential that the seed be planted, guidance given and that the process be driven from within the country in order to be successful. The ideal would be if this guidance could come from an African country such as South Africa. A National Information Policy should be formulated within a broader framework of meeting the traditional information provision needs and services. The traditional role should however also be extended to make provision for new services, skills and the utilisation of new information sources and programmes. The ultimate goal is for Third World countries to realise the value of information and develop their own concept of a National Information Policy. This is done in order to address the disparities of the past, improve and develop balanced services,

create better co-ordination, facilitate access and have adequate and professionally trained human resources. This will lead to better management and use of information to ultimately solve Africa's socio-economic problems. Conclusions and recommendations are thus formulated to act as a guideline for the proposed formulation of such a policy for South Africa.

Chapter 1 The research problem

1.1. Background

The African continent falls within the so-called Third World where countries are classified as less developed in contrast to developed First World countries. Effectively this means that when one considers Africa, one does not think of it as an information rich continent. Instead one conjures up the imagery of poverty, drought, underdevelopment, malnutrition, civil war, general political instability, illiteracy, dependency on the West, little or no information technology and unreliable and inadequate telecommunications infrastructure and electricity supply. Africa can thus be described as an extreme case of information dependence. This is rooted in dependence acquired in the colonial period, and is characterised by inadequate data collection procedures, a poor statistical base and a general lack of information about itself. One of the consequences of this so-called African dilemma is a general lack of National Information Policies (NIP) in African countries. The result is that a discussion on Africa's information environment would centre on the setting up of guidelines for information flow, so as to smooth the information transfer process from outside into Africa. According to Sturges, Mchombu and Neill (1996:122) this emphasis on information being obtained from outside and then fed downwards to the citizen, pervaded the development strategies adopted in Africa in the past. The lack of a National Information Policy in turn leads to problems such as the duplication of material, difficult accessibility of information, inappropriate infrastructures being developed and a lack of co-ordination between various agencies. The result is that the information sector of a country receives inadequate resources from its government in order to perform its task adequately, thus adding to the lack of recognition of the role information can play in the development of that country.

It has been suggested that the failures of development programmes in Africa in the past have had a great deal to do with inadequate attention to the environment into which they

were introduced (Sturges, Mchombu and Neill, 1996:128). This stemmed from and was aggravated by a disregard of the information resources available on the continent. In other words, there is a lack of appreciation of the strength of the oral medium and the knowledge that exists within it. Even though there is a decline in its use, traditional channels are still in operation in rural communities. Indigenous African material does exist and is used, but the bulk of information falls into the category of so-called Grey Literature (reports, minutes of meetings, conference papers, theses etc.). Information institutions therefore need to practice sustainable resource management by re-arranging their priorities with the acquisition of local material, including grey literature and indigenous knowledge. Also, within the context of infrastructure, the development of standards and practices for the retention, preservation and retrieval of information of historical and research significance, regardless of its format is an issue (Stone, 1998).

Overall there is a slow growing awareness of information. This is the result of years of co-operation with, and assistance and encouragement from international organisations such as the United Nations Educational Scientific and Cultural Organisation (UNESCO) and the Canadian International Development Research Centre (IDRC). African countries are thus becoming increasingly aware of the fact that information is an indispensable factor in the development and rational use of their resources. There is a greater desire today, by civil society and the general populace, to participate in the governance of their countries. Obviously, effective participation in the process of decision-making by the community can only be accommodated and ensured through greater access to information. According to Abate (1988:97) many African information professionals and researchers have realised that the solution or the salvation of their country, depends on mutual collaboration, more serious consideration of the need for development information and policies and systems which can make that information more readily available. Resource sharing as one option would ensure the availability of national and international information at a fraction of the cost than if each country was to acquire it individually. The importance of involving international organisations is obvious. They have the financial resources to pilot and

support long-term projects and their prestige is capable of influencing the policies of governments more effectively than can be achieved by local agencies.

Worldwide the information industry is one of the fastest growing industries. The development of information systems and services needs to be planned as an integral part of a country's development plan. Its introduction therefore requires careful national planning to ensure that every sector of the economy benefits. Advances in information technology are both an opportunity and a threat to developing countries. The threat is two-fold: firstly rapid development of information technology in industrialised countries renders Less Developed Countries incapable of competing in the international market place, and secondly information technology is a force for major social change. Both these processes need to be monitored and regulated. Technology itself will set the direction of development and will depend on the presence of public policy, with input from all the stakeholders.

1.2. Statement of the problem

1.2.1 Problem statement

In view of the above situation information workers have a significant part to play in the recognition of the role information can play in the development of a country. Although some guidelines already exist, such as Montviloff (1990), situations and conditions differ greatly, even within individual African countries and communities. There is also the problem that the existing guidelines were formed from a First-world perspective and do not take local African conditions into account. Library and Information Services frameworks specifically for South Africa, such as the one by Cillié and Roos (1996), have been suggested in the past. The existing frameworks are however too narrow, and due to technological developments a broader frame of reference is required.

The central question to be posed in this dissertation is thus whether existing National Information Policy formulation guidelines are sufficient and relevant to enable a Third

World country such as South Africa to formulate and legislate a meaningful National Information Policy.

1.2.2. Motivation and context of the problem

Access to information is a form of empowerment. Through empowering people, information allows communities to monitor policy, lobby, learn, collaborate, campaign and react to draft legislation. Information transfer or dissemination must thus take place between the rest of the world, all the way down the hierarchical structure to the person on the lands in rural areas as well as the person on the street. Thus, the removal of obstacles to information flow is one important problem that needs to be ironed out, and a National Information Policy is necessary to ensure the rational and co-ordinated provision and use of information.

One of the consequences of the so-called African dilemma is a general lack of appreciation of the role of information and therefore National Information Policies are almost non-existent. This situation has severely deterred the use of information to solve Africa's socio-economic problems. Weak or non-existent information infrastructures have created an acute information shortage which chronic lack of funds and other important inputs have turned into a vicious circle that has played havoc with all aspects of development in African countries.

Efforts on the part of UNESCO and other donor agencies such as the IDRC to draw up National Information Policies have kept the issue alive and also resulted in some individual efforts. For countries of the United Nations, the initial focus was on the Intergovernmental Programme for Co-operation in the Field of Scientific and Technological Information (UNISIST). Other United Nations activities include the UNESCO concept of National Information Systems (NATIS) and the convergence of these activities and programmes in the General Information Programme (GPI) in the mid 1970's. So many previous attempts at writing information policies in South Africa over the past three decades have been

made, yet nothing substantial has yet been forthcoming. A National Information Policy must take the African context into consideration.

South Africa is seen as a leader within Africa, not only in terms of policies, but also in terms of its First World component with advanced technology and well developed networks according to African standards. South Africa has had a stable infrastructure the past few decades and should be an example not only in political transformation but also with the establishment of important policies that are practical and implementable and specifically suited to African conditions and situations. There is therefore a unique need in South Africa to build a framework that would not only address the Third World component of our society but the First World as well, it is therefore not advantageous to apply a policy that is intended to be universally valid. The purpose of the research is thus to develop a framework of National Information Policy guidelines suitable to especially South African conditions.

1.2.3. Objectives of the study

1. The first objective is to discuss the theory behind what is understood to be an information policy. An information policy shows the way in which information should be managed nationally within a country. The objective is thus to discuss the process that is used by information workers in order to develop a National Information Policy.

2. Case studies of varying formats will be undertaken to learn what has been done in the past with regards to National Information Policy development. By using the positive results of these policies and not making the same mistakes, a unique framework for South Africa can be formed.

3. Related policies overlapping and influencing a National Information Policy will be investigated, as they play an important role in making it clear what a National Information Policy is and where it fits in with regard to other policies.

4. A study will be made of the history of efforts at developing information policies in South Africa. This general background information is important. The main objective of the dissertation is to suggest specific policy guidelines for a National Information Policy in South Africa.

1.3. Demarcation and limitations of the study

Difficulty was experienced in obtaining up to date literature on the subject field due to the fact that in Less Developed Countries such information is seldom published. The bulk of the literature of direct relevance consists of unpublished draft proposals on policies, plans, recommendations and declarations emanating from conferences that concern individual countries or the region in general. Of considerable importance are the articles in periodicals and conference papers, which describe and evaluate existing information systems and infrastructures, or address important topical issues. The scarcity of information on National Information Policies in Africa could reflect a possible stagnation in the field, or be the result of inadequate indigenous information production. Both issues need to be addressed by a National Information Policy.

Information can be used in each and every sector essential for the social welfare of a country. The study focuses on the important role a National Information Policy plays in solving South Africa's social problems. "Information policy transcends any one discipline or profession; and it has political, economic, social, legal, and technological implications" (*National and International Information Policies*, 1991:39). Because of this it is difficult to identify a core literature. "Indeed, a serious problem that confronts information policy researchers is identifying the source material and writings about such policies in the literature" (*National and International Information Policies*, 1991:39). This study is therefore demarcated in terms of keeping to the principles of information management attributed to Information Science as a subject discipline.

Geographically the study specifically investigates the procedures of formulating a policy suitable for South Africa, a Less Developed Country (LDC). There are however, similarities within the countries of the Southern African Development Community (SADC), namely their geography, colonial background, illiteracy and lack of communications infrastructure just to name a few. By making minor adjustments to a South African National Information Policy other Southern African countries can apply the framework to draw up their own National Information Policy. Thus countries such as Angola, Zambia, Zimbabwe, Botswana and Mozambique may use the framework because they

- lack information itself;
- lack means of disseminating information;
- have communication problems;
- lack adequately trained personnel;
- lack infrastructure; and
- lack funds.

Although the study focuses on South Africa, a Less Developed Country, the literature studied includes publications on information policy as experienced in First World countries such as the United States of America (USA) and the United Kingdom (UK). This is so that other countries' perspectives may be gained. Due to constraints of space however only the Third World South East Asian State of Malaysia is presented as a case study.

1.4. Research methodology

An exploratory survey increases familiarity with the subject field and helps to clarify concepts. It is used to prioritise the research and is also used to gather information with practical applications (Powell, 1993). The specific type of exploratory research used in this dissertation is the literature survey, which is supportive of the research to follow.

The initial strategy collected as much data from wherever possible to assess the relative incidence, distribution and interrelations of the variables. The main literature study undertaken concentrated on retrieving specific information as highlighted by the points discussed in each chapter. Certain elements were identified under the relevant chapters and a "conclusion" was drawn up in terms of chapter six, which contains the resulting proposed guidelines for the development of a National Information Policy for South Africa. Traditional bibliographical database searches were undertaken which were later augmented and replaced by several successful Internet searches.

A holistic and natural approach to the resolution of the problem was taken. The theory was studied and supplemented by a case study of Malaysia, a Third World country. This was done because South Africa in its diversity has great differences between a first and Third World society and Malaysia finds itself on many levels in a similar situation. Attention was given to the subjective aspects of human experience and behaviour especially in terms of information seeking, gathering, use and dissemination within the development context.

Use was also made of certain ready processed statistical material by the Bureau for Market Research (BMR) of the University of South Africa (UNISA) on socio-political forecasts for South Africa. Initial insight into the role information plays for development, specifically within the South African context, was obtained through discussions with Mr Anderson (1997).

1.5. Necessity of this study for Information Science

Information in all its forms is an often unacknowledged and invisible prerequisite for the functioning of modern society. The intention is thus to prompt discussion and action in determining and solving the country's information policy priorities. A step in this process is to create a greater understanding of information as a resource, which is added to, exploited, traded and made available within and across national boundaries. This

necessitates the laying of guidelines and policies to form an important framework for the regions Southern African Development Community culture and information discussions. It is important to keep the issue current and this is done by further and new studies in order to improve the development of National Information Policies.

According to the Economic Commission for Africa (1999) the emergence and convergence of information and communication technologies remain at the centre of global, social and economic transformations. The information and communication technology field is made up of Internet service providers, telecommunications services and equipment, information technology equipment and services, media and broadcasting, libraries and documentation centres, commercial information providers, network-based information services and other information and communication activities. Information Science is a multidisciplinary subject and covers all of the above services, thus it is important that Information Science play a leading role in defining National Information Policies which are high on the agenda according to the Economic Commission for Africa (1999). Less Developed Countries are confronted with the challenge to be responsive and flexible to the convergence of these technologies. Thus this study is done within the context of a development perspective.

Initially the formulation of a National Information Policy was targeted at libraries and documentation centres. According to the Economic Commission for Africa (1999), even though early National Information Policies were broader in conceptualisation, evidence shows that they lacked comprehensiveness in terms of contents and coverage. With the emergence of the so-called Information Society (IS), a new dimension was brought to the subject in which information itself is the strategic resource. The increasing application of information technology in traditional information systems and institutions has led to a re-examination of the conventional information rules and policies. The elaboration of Information Technology Policy, an integral part of a National Information Policy, is a major determinant factor in setting up the underlying supporting infrastructure and enhancing the optimal use of the technology. The setting up of a National Information

Policy necessitates the need for a complete re-examination of traditional National Information and Information Technology Policies to account for the new emerging technologies and the need to formulate broad and coherent plans and strategies to advance the development of Third World countries.

A search was done on the Nexus database of current and completed research projects in South Africa, of the Human Science Research Council (HSRC). The search words used were "National Information Policy" and "Information Policy". The search results show that the most recent completed project was a report by Britz and Schoeman (1997) on a corporate information policy, which was completed in 1997. In 1996 Du Plessis completed a report on the interpretation and practical implementation of the right to information in South Africa. The above two studies focussed their attention respectably on a corporate policy and one aspect of a National Information Policy, the right to information. The most recent study in the field of National Information Policy was the National Education Policy Investigation (NEPI) on Library and Information services, completed in 1993. This research was aimed at the role library and information services play as part of the education policy, and was added on as an afterthought. A theoretical reflection on a National Policy for Scientific and Technical Information and the applicability thereof to the South African library and information sciences was completed in 1981, twenty years ago. Already a gap can be noticed, the studies that have taken place, except for the NEPI investigation, concentrated only on a single aspect of a National Information Policy. Studies have been done on National Information Policy covering North America, Europe and the Asia Pacific region. On a smaller scale, Alemna (1995), Boon (1991), Cillié and Roos (1996) and Mchombu and Miti (1992) have studied individual African countries. International efforts such as the African Information Society Initiative (AISI), Pan African Development Information System (PADIS) and UNESCO studies have also taken place.

Current research includes a study of Information Technology Policy, a policy which would influence a National Information Policy, and a current dissertation on a National Information Policy commenced in 1995, by an MBA student, thus one can assume it will

be from a business management point of view. It can thus be stated that a gap exists in research on a National Information Policy from the interdisciplinary subject field of Information Science, making this study all the more important. National Information Policy as a research subject is in itself also difficult because many of the issues are controversial and overlap with other related policies. This alone gives reason for the subject not to be tackled by many researchers, and thus the necessity of this study.

1.6. Clarification of concepts

1.6.1 Information

According to Chambers's Etymological English Dictionary (1957) the word to "inform" means to impart knowledge to, and "information" means intelligence given. To inform then is the process and the agent in that process is information. Information presents itself in terms of a life cycle where many elements play a role. This lifecycle concerns the collection, storage, retrieval and dissemination of information. The term also implies the problem areas of information, such as the information explosion, quality of information, language and the interdisciplinary nature thereof. The central problem regarding information is thus the effective flow, availability and use of information that is needed for effective human research, planning, education, innovation, management and ultimately community development. Characteristics that are typical of information and that make it difficult to be seen as a resource are:

- Information is found in several different forms.
- It is compressible.
- It can be used over and over again. It is extendible, and easily copied (example, photocopies)
- It can be transported.
- It can be shared, it can be passed on easily by personal communication.
- It is long lasting.
- It may substitute other resources.

(Poirier, 1990:266)

The nature of information is such that ownership rights have to be balanced with access rights, this depends on the situation, and has to do with the balance of management of information or the control thereof. The value of information lies in its economic and social benefits. Information is needed for competitive advantage and it is a key resource that people use when making choices in their daily activities. The value of information is not affected by the format it is in, however the format can greatly affect the accessibility of the information.

Several authors have attempted to "define" the term "information" by trying to capture one or more of its characteristics. A few notable interpretations are:

- Information is that which adds to our awareness or understanding of some topic, problem or event (Martin, 1995:1). It can thus be defined as a hierarchical stimulus or experience that is first described as data. When a person uses this data, it then becomes information which leads to knowledge and ultimately intelligence (Martin, 1995:9).
- De Lange, Boon and Britz (1993:3) cite the definition from Swanepoel and Boon where information is defined as any experience or contact that adds new meaning or somehow changes events, lives or experiences.
- Information is that which is used to reduce uncertainty to improve decision making in order to deliver a better service (Blom, 1990:139).
- Carpinter (1991:5) states that information is not a physical entity, but it may be found in physical media. It is the content of information goods (books, audio and visual broadcasts, databases, etc.) and communication. She further states that whether the contents of information goods is informative or not is determined by the subjective experience of the recipient, that is, whether it remains pure data or becomes information leading to knowledge.

Information is perceived as the written or spoken surrogate of knowledge and as the result of data processing, usually formal processing, it reduces uncertainty. Information is

commonly understood as problem-solving, and publicly available information of a general nature that is disseminated through news and advertisement media, or as classified government information that is restricted to a limited number of users.

For the purposes of this dissertation, aspects deemed important have been summarised to form the following description of information:
Information is not a physical entity, but it may be found in physical media, where it is perceived as the written or spoken surrogate of knowledge. The value of information lies in its economic and social benefits by reducing uncertainty in order to improve decision-making by adding to our awareness or understanding of some topic, problem or event. The value of information is not affected by the format it is in, however the format can greatly affect the accessibility of the information. Whether the content of information goods is informative or not is determined by the subjective experience of the recipient.

1.6.2 Policy

A policy can be formulated at the international, regional, national or institutional level. A policy is a set of principles, which guide a course of action for the achievement of a given goal (Montviloff, 1990: 7). According to Menou (1991:50) a policy consists of the following:

- An image of the desired state of affairs (goals).
- Specific means by which the realisation of the goals is to be brought about.
- The assignment of responsibilities for implementing the means.
- A set of rules or guidelines regulating the implementation of the means.

Public policy is a deliberate and binding action by responsible and authoritative organs of the state designed to influence the behaviour of society or substantial parts thereof. It is formulated to bring about a systematic way of solving fundamental national problems (Abate, 1988:72). Policies are embodied in the so-called policy instruments, e.g. constitution, laws, regulations, international treaties etc.

Policy is a statement of the norms in society, as perceived by the government of the day, and ideally, is a written form of authority that essentially takes over where humans are unable to provide for themselves that which is the government's prerogative according to Rabar (1995:6). Thus policies are declarations of intent by governments to undertake action in given sectors of an economy. They establish rules and regulations, as well as methodologies for action, and at the same time indicate the natural and other resources required for their execution (Kisiedu, 1988:3).

According to Mudenda (1997) a policy also provides a set of criteria for choosing among competing alternatives. A policy statement is backed by a policy instrument, which is made up of three components:

1) A legal device which gives a policy its normative force.
2) An organisational framework that ensures the implementation of a policy after it has been adopted.
3) An operational mechanism such as a government department which overseas the day-to-day implementation of a policy.

Thus a public policy can be defined as a written form of authority declaring a government's intent on action in a certain sector of the economy by means of stating goals, regulations and methodologies, with the assignment of responsibilities for the actions.

1.6.3 National Information Policy

According to Lundu (1995:52) an information policy must stem from what one conceptualises information to be, the problem herein lies with the deficiency of a precise definition of the term information. With the formulation of a National Information Policy, governments thus announce their perception of and commitment to development in this particular sector (Mohammed, 1991:132). According to Montviloff (1990:7) an information policy would provide guidance for the design of a strategy and programmes for the development and use of information resources, services and systems. A National

Information Policy, according to Lundu (1995:53) should be broad enough to address all issues. "A policy thus shows you what game is to be played and what are the rules of the game. It does not tell you how to play the game" (Menou, 1991:50).

Other definitions include:

- "Information policy is a set of interrelated principles, laws, guidelines, rules, regulations, procedures and judicial interpretation that guide the oversight and management of the information life-cycle: the production, collection, distribution/dissemination, retrieval and retirement of information. Information policy also embraces access to, and use of information." (*National and International Information Policies*, 1991:4).
- Rehman (1996:184), defines information policy as a "... group of policies concerning the collection, storage, retrieval and dissemination of information, including the use of information technologies and the provision of information services, in the furtherance of the collection, storage, retrieval and dissemination of information"

According to Rowlands (1996:15) a National Information Policy should be flexible, dynamic and responsive to changing circumstances, that both shapes and responds to events and thus can be regarded either as an independent or a dependent variable in scientific policy studies. Information policy consists of a hierarchy of three levels according to Rowlands (1996:15):

1) Infrastructural policies such as employment law and education policy, which provides a social and economic context for its activities.
2) Horizontal information policies with specific applications and impact across the whole of the information sector.
3) Vertical information policies, which have a specific application to a particular information sector.

In this dissertation the term National Information Policy is used to mean an integrated national policy, in contrast to sectoral plans and policies which are named according to the

sector or policy issues. Furthermore a National Information Policy should identify the requirements, make provision for necessary resources and promote the effective use of information for the betterment of society. Priority areas should be identified and be allocated adequate resources to ensure success. This process may lead to the sectoral development of information plans, which requires co-ordination to avoid duplication. The beneficiaries of a National Information Policy are those who will receive, be influenced by, and hopefully support the strategies and action plans that evolve from information policies. Information strategies and plans answer the question "how" and "what mechanisms" are required for implementation and are thus not to be confused with a National Information Policy.

A National Information Policy can thus be defined as a set of general guidelines providing a framework to assist those in authority to allocate resources for the planned and better co-ordinated development of information infrastructures. Thus the information resources, including the services and systems of a country, may be effectively capitalised on to play their role in the development of the country. This is achieved by providing the necessary information and means of access to, and use of information for improving the economic, social and educational well being of the country's population.

1.7. Chapters

As introduction to the rest of the dissertation, a brief outline of what each chapter discusses is provided.

Chapter two contains a study of the theory of a National Information Policy. This includes the motivation behind why a National Information Policy is needed, the philosophical approaches for tackling a policy, the principles of such a policy, and the issues that need to be addressed, including information related policies that overlap and may influence a National Information Policy.

Chapter three presents the theoretical basis for the development of a National Information Policy for South Africa by providing an overview of past proposals for the information policy process in South Africa. The various role players and steps in the formulation of a National Information Policy are discussed and then an own approach towards formulating and implementing a National Information Policy in South Africa is proposed.

A case study of Malaysia, a Less Developed Country of the Asia Pacific region that has implemented a National Information Policy, is provided in Chapter four. The objective is to demonstrate a model that South Africa can learn from and to prevent that the same mistakes are made.

In chapter five a critical evaluation of the evolution of the South African National Information Policy process from the Library and Information Services (LIS) and the information communications technology (ICT) viewpoint is given. South Africa is also placed within its past perspectives and present context.

Chapter six is the culmination of what is learnt throughout the previous chapters. Guiding principles for a National Information Policy in South Africa and what issues it should tackle are discussed followed by proposed policy guidelines presented in terms of a suggested policy development process.

The seventh and final chapter deals with any findings, recommendations and conclusions that are made.

1.8. Summary

This chapter gives an outline of what can be expected in the rest of the dissertation. Objectives of the study are discussed as well as motivation for the study. Important concepts as well as limitations and a demarcation of the study are also provided.

The next chapter reviews the theory of National Information Policies on which this dissertation is based. An outline of the motives for drawing up a National Information Policy is presented. It also provides a perspective on the principles and the need for information for the development of a country.

Chapter 2 Theory of National Information Policy

2.1. Introduction

A National Information Policy arranges matters such as the freedom of information and intellectual property protection, as well as enabling the flow of information between governments and the people in the community and vice versa. The best information services are of little value to persons unable to fulfill the basic needs of daily existence and who do not have the occasion to access information. In such a case the society could split into information haves and information have-nots, which must be spared at all costs. The successful implementation of a National Information Policy requires the existence or the establishment of effective national information infrastructures, adequate skilled human resources, supportive facilities, and appropriate financial provisions. Infrastructures and operational characteristics decide whether policies, however well formulated, are likely to succeed. However, before starting the policy development process the underlying theoretical issues need to be understood. This chapter thus provides the theoretical foundation for the rest of the dissertation. To begin with, the reasons why a country should embark on developing a National Information Policy are discussed, followed by the different philosophical approaches towards formulating a National Information Policy. The principles underlying as well as the pertinent issues to be covered by such a policy are also identified.

2.2. Reasons for a National Information Policy

2.2.1 Background

A National Information Policy is required to ensure the harmonious implementation and operation of information resources, services and systems. It also implies more effective participation in regional and international information systems and networks. Menou (1991:53) identifies fear as the major driving force behind information policies where a

National Information Policy is used to overcome the mistrust of information. More recently, it is believed that the development of the World Wide Web (WWW), as well as an increase in the number of computers both in the workplace and at home has meant that information now plays a more important role in our society and economy, while blurring the line of traditional information delivery services (*National Information Policies and Information Infrastructure in Canada*, 1995). Policies could also be the result of a need to regulate the competition between social or economic forces. A leading and powerful constituency, organisation or branch of industry can impose a policy generally when it has a *de facto* monopoly or overriding domination in the considered sector (for example Microsoft). They tend to establish particular concerns and benefits as the common law.

The specific reasons in the literature are identified, and it was found that the reasons could be grouped into six main categories or types of reasons for a National Information Policy, namely economic, governmental, cultural, educational, developmental and technological reasons. The literature consulted discussing policy issues includes, Boon (1992:3), Buchwald (1995:6), Cronin (1987:136), Datta and Balfour-Awuh (1988:209), Forje (1993:14), McClure (1996:214), Mchombu and Miti (1992:141), Onyango (1996:165), Roos (1998), Smith (1998:2), Srikantaiah and Dong (1997), Trauth (1986:42) and Zwangobani (1995). The discussion below reflects the six identified groups of reasons.

2.2.2 Economic reasons

Information is regarded as an important national resource that has value and provides employment. It is a commodity which is collected, interpreted, manipulated and traded with and should therefore be managed as such. Effective use of information can contribute to increased productivity, improved quality and accelerated innovation and product development.

Policies are needed to provide a balance between economic and social aims. A National Information Policy providing guidelines for the redistribution of information would help reduce the gap between the information rich and information poor.

The use of information is integral to the decision making process. Information is needed for finding out the areas which are economically stagnating, comparing and contrasting the performance of different sectors of the economy, and identifying the fields which are likely to yield the largest dividends at the fastest pace.

A National Information Policy defines public and private sector relationships and opens up the market for creation and strengthening of the private information sector, and lastly it redefines telecommunication policies to brake monopoly. Information is capable of building partnerships between the public sector, local communities, Non-Government Organisations (NGO) in the country and international organisations.

2.2.3 Governmental reasons

National Information Policies are necessary since it is the practice of governments to allocate resources on the basis of principles, guidelines and directions as set out in policies.

There is a need for centralised government information resources and knowledge of hardware and software to permit sharing of data over networks.

Policies improve institutional accountability by defining institutional responsibilities and spearheading change by creating supportive conditions for co-ordinated donor support.

It is believed that "participatory democracy" can only thrive on an informed citizenry. An informed citizenry or electorate requires proper and organised information to enable it to understand issues involved in national development.

Less Developed Countries need to initiate a constructive dialogue with the developed world about the Global Information Society, and must play an active role in shaping its norms, standards, policies and regulatory frameworks. A cohesive information policy

would thus strengthen a country's position when negotiating policies in the international arena.

A National Information Policy would convey a "sense of national purpose" that would integrate local, regional and national government information and maintain policy jurisdiction over government and relevant non-government information.

There is inadequate availability and use of information in public administration and economic planning, implementation and monitoring. A need to follow-up and monitor the structural adjustment and readjustment processes initiated is required.

Availability and information deployment as demonstrated by the media, and unrestricted public access to information affects the very manner in which an individual and society at large make political, economic and social choices, which has a positive impact on the development of democracy.

There is also a need for a policy to guarantee citizens full access to publicly funded information. African countries need to establish such policies to enable them to overcome fundamental information problems through adequate inputs of information, infrastructural and other relevant requirements that ensure improved performance.

2.2.4 Cultural reasons

Developing countries have a long tradition of oral culture, and thus a low literacy rate. Telecommunications still remains a major issue and appropriate technology infrastructure should be made available. Because of low literacy rates investment in the area of the Internet is not sufficient.

Most African countries are relatively new nation states and the countries have been confronted with the problems of meeting rising expectations engineered by the belief that political independence meant the end of their misery. Africa's problems have also been

blamed on corruption stemming from excessive state control and state monopolies, as well as poor management of government institutions and misguided economic practices.

Colonialism has created economic, political and linguistic barriers to national and inter-regional co-operation. Thus the ability of most decision-makers to assimilate and apply information lags behind the available opportunities.

Nations often begin to focus on information issues by organising and preserving the information closest to them, namely their own history and cultural heritage. This is usually done by means of library and archival policies.

2.2.5 Educational reasons

Education is the one activity in which the eminence and role of information is rarely questioned. Information is needed to serve the educational system of a country to assist with formal, informal, adult, continuing and specialised training. The education system produces awareness of the value of information and the capability to use information effectively. The effective use of information enhances knowledge and is the key to the development of human resources. Therefore, information delivery in the education and training arenas has become an imperative for success.

Telematic education with the use of television and Internet is another important reason for having a National Information Policy since it provides the guidelines for communicating over long distances with learners.

Libraries have generally been acknowledged as educational institutions and policies and frameworks thus developed lay the foundation for National Information Policies. Libraries are also involved in adult learning or lifelong learning.

Libraries should also be the focal point for information dissemination to the community, since they provide information for nation building, and a competitive economy.

Science and technology play a vital role in research and development in any society. There is a need to train information professionals to support information infrastructure and information management.

2.2.6 Developmental reasons

Both the understanding of African development problems and implementing solutions, require substantial amounts of information input. Information has some contribution to make at practically every stage of the development process. The main objective of a National Information Policy is to cost-effectively acquire and optimally use information to process it as an integral factor in all sectors of national development.

There is a positive relationship between information and development. When people become aware of the role information plays in society through education, they realise its positive influences by increased quality of life.

The information required is directly dependent on the needs people have, the level of information literacy as well as individual variables such as available time and accessibility to information. A developing community's information needs are on the lowest level. In other words they need basic survival information. Sectoral development strategies in areas of trade, industrialisation, transport and communications and natural resources exploitation require emphasis, however agriculture is the cornerstone of African economies therefore there is a need for agricultural information.

According to Boon (1991:9) the type of information does not determine the type of information infrastructure, but information infrastructures are dependent on the technological development level of that community.

2.2.7 Technological reasons

The pace of development of Information and Communications Technologies is a major reason for the fast rate at which change in the environment takes place. Information affects

the deployment, use and application of information technologies, and changes in technology not only change the policy but also the assumptions underlying the existing policy. As information policies can quickly become obsolete there is a need to continually review them.

It is also desirable to be able to measure how effective existing policies have been. So far measurement and assessment of information resources are inadequate. New standardised methods are required for information to be measured as an economic resource and for the proper understanding of information as a productive sector of the economy.

Technological infrastructure and policies are needed to perform information functions (collection, processing and dissemination). For example the Internet can be harnessed to attend to the problems of collecting, processing and delivering information. The Internet can also assist development as follows:

- Assessing the information capacity of the country and determining user needs, organising information, synthesising information and providing an open access to internal information as well as external information.
- Disseminating information to meet the needs of the private sector and public sector including the daily information needs to meet the needs of the general public.
- Assisting in the exchange of information at various levels.
- Lobbying for more government support and budget allocation.
- Mobilising support among the specialised ministries, universities and industries to produce information and manage information.
- By influencing policy makers and information purveyors to promote the use of the Internet for the country's development.

2.2.8 Summary

In general most draft National Information Policies mention co-ordination as a desired result of policy, in other words the proper management of information as a national resource. Information policies are also justified for the reasons of free flow of information,

international co-operation, and peace. It may also be seen as a "meta" policy in that it affects all other policy systems.

Finally, a national set of information policies is necessary since,

- It has a profound impact on the creation, production, collection, management, distribution, retrieval and access to both government and other information.
- Information is accessible to all therefore all should have fair and equitable access to the information. This means at all levels of government, including access to high-speed telecommunications networks such as government, and community information networks, providing non-commercial information and providing options for creating and sharing such information.
- Development of appropriate and complementary information policies.
- It governs or regulates how institutions, such as libraries manage, organise, retrieve and use information.
- It can create "advantages" and "disadvantages" for different types of individuals or commercial organisations in different settings.

Thus it can be stated that a National Information Policy is needed for strategic reasons to reach the aims of the country. It is also needed to support key functional decision making and problem solving in the country. This includes protecting privacy and confidentiality as well as copyright and trade secrets, yet allowing fair use of data for those that have the authority and restraint for that which may have a detrimental effect on the country. This may all be done through the technical and procedural enabler, telecommunications. According to *National Information Policies* (1989:5), "One of the two major causes of the generation of new information policies is the need to establish a reasonable and workable set of balances between gaining the maximum benefit from the rush of new information and telecommunication technologies and the avoidance of consequent disadvantaged groups of individuals, organisations or state interests. The other major cause is the changing role of the State and the extent of its involvement in or funding of certain activities"

Rapid advances in technology and telecommunications drive many of the issues. Policies are slow to catch up to these advances leaving individual rights unprotected, assurances of information dissemination unaddressed and documentation and preservation of the nation's history uncertain. Most of the issues discussed above can be effectively addressed by a National Information Policy. These reasons play a significant role and are intertwined with our everyday lives, so much so, that we are often unaware of them. Therefore naming them explicitly helps those in authority to see clearly the reasons for a National Information Policy, and what role it plays within the development of the country in all sectors of society.

2.3. Different philosophical approaches towards the formulation of a National Information Policy

2.3.1 Background

The understanding and formulation of a National Information Policy is normally based on a certain philosophy about how information policy development is approached by the national government. Various philosophical approaches towards the formulation of a policy may be followed, such as the "participant observation" approach suggested by Mncube (1996). Kajberg and Kristiansson (1996:7) briefly discuss seven approaches, but these are very vague and do not have a clear theoretical basis. Dedrick and Kraemer (1995:30) have suggested two approaches characterised by economic strategies, which are based on the nature and extent of government intervention. The distinction between these two main approaches is however not absolute, but rather a matter of degree. Thus a further eight scenarios of information policy development options dependent on the levels of involvement of public institutions in their roles as consultants, regulators and users, and how this is perceived and reacted to by the private sector as discussed by Angelides and Agius (2000) are adopted.

2.3.2 The Free-market approach

The government's role is limited mainly to regulating the private sector to achieve social goals such as pollution control or equal opportunity, and to providing public goods such as education and infrastructure (Dedrick and Kraemer, 1995:32). In the market directed model it is believed that market forces can better allocate resources than politicians or bureaucrats, and that the government should concentrate on ensuring the smooth operation of capital, labour and product markets. The market-directed strategy treats the market as an alternative allocation mechanism to political processes and is based on the idea that the operation of the free market will lead to optimal resource allocation and result in the most desirable economic outcomes. In this approach, government promotion of particular policies can be seen as an attempt to subvert the functioning of the market place, thus this approach is marked by the absence of a centralised co-ordinated strategy It is believed that market forces should determine where and how a policy is produced and used, and government should limit its role to the provision of public goods and extenuating market failures.

2.3.3 Government-regulated approach

A government-regulated or plan-directed strategy treats the market as a means to achieve government-determined ends. Thus the government-regulated approach is more amenable to government manipulation of market forces. Dedrick and Kraemer (1995:30) believe that the private sector tends to under-invest in high-cost, high-risk innovations and it is argued that government must act to support development, either through its own research or through subsidies to the private sector. Thus strong industry co-ordination and a plan-directed approach guide this view to policy development aimed primarily at economic and industrial development, with certain industries targeted for promotion. Plan directed strategies are based on the idea that the market is a tool for achieving economically and socially desirable objectives and that the government has a role in directing the market toward such objectives.

2.3.4 Eight derived approaches

As stated before, the distinction between a free-market approach and a government-regulated approach is not absolute, but rather a matter of degree. Thus depending on the levels of involvement of public institutions in their roles as consultants, regulators and users, and how this is perceived and reacted to by the private sector, Angelides and Agius (2000) identified the following eight scenarios,

1) "Dominance" (high consultation, high regulation and high use)
2) "Nanny" (high consultation, high regulation and low use)
3) "Laissez-faire" (high consultation, low regulation and high use)
4) "Host" (high consultation, low regulation and low use)
5) "Coercion" (low consultation, high regulation and high use)
6) "Laissez-passer" (low consultation, high regulation and low use)
7) "minimalism" (low consultation, low regulation and high use)
8) "Lacklustre" (low consultation, low regulation and low use)

Thus taking the first two approaches into consideration one of the above eight scenarios for public institution involvement in information policy development should be considered when developing a National Information Policy for a specific country. "Government is thus faced with walking the tightrope between intervention and abstention" Cronin (1987:136).

2.4. Principles of information policy

2.4.1 Background

For successful development to take place in a certain sector of the economy, principles are needed to form the foundation of a policy. Principles are statements of preferred direction or practice and they therefore guide decision-making activities such as policies and strategies. In the search for fundamental principles of information policy, the literature

presented various approaches towards the presentation of these principles. These approaches were divided into the following three types of principles, namely:

1) General information principles.
2) Specific policy principles.
3) Micro principles.

The underlying principles of a National Information Policy must stem from what one conceptualises information to be. Thus the broad general principles can be described as the fundamental principles of information itself, the basis of the policy. The specific principles are principles to be applied specifically for information policies. The micro principles are principles specifically for the so-called programme level where implementation takes place. They are principles which, are more specific and state precisely what needs to be done in order to follow through with the policy. In order to present fundamental or *maximus* principles, on which a National Information Policy can be based however, it is important to scrutinise each of these approaches. The resulting *maximus* principles are a summary of these principles which can be used to identify specific elements that are relevant for a specific National Information Policy. The discussion of principles below is thus divided into the three types of principles as outlined above.

2.4.2 General information principles

Information principles must be deduced from what one regards as information and its central problem areas. This in itself may be problematic, as there is no accepted definition of the term information. For the purposes of this discussion the clarification of the term "information" in chapter one, is used as a basis.

The following general principles of information, on which an information policy must be built, according to Marchand and Horton (1986:196), and Britz and Schoeman (1997) are:

- Information is an economic resource and is therefore not free.
- This also implies that there must be manager and user accountability for efficient and effective utilisation of information resources.

- Possession of collective information is not a right but a privilege, and a necessity for the enhancement of productivity in a country. It is therefore seen as custodial ownership and must be shared with one another.
- Confidentiality: people have a right to privacy for personal and private information. Thus measures must be taken to protect the deliberate disclosure or misuse of personal files and other private information.
- Security and confidentiality of strategic information (e.g. military and trade secrets) and centres of information must be employed to safeguard them.
- Certain categories of information are instrumental to the exercising of basic human rights - people (nationals) therefore have the right of access to this information.
- Information must be protected from malicious and unauthorised use and change.
- Creators of intellectual products have the right of ownership.

2.4.3 Specific information policy principles

The principles to be discussed here are specifically for information policies, be they national (government policies) or organisation policies. However the scope of information policies is ever broadening, especially in terms of the so-called Information Society, thus the other sectors with a direct influence on National Information Policy, such as information communication technologies, must also be considered. The following specific principles are thus identified from the literature.

- The central government should be run as a government enterprise or business. Therefore since information is an economic resource it needs to be managed as such and the following information management principles as discussed by De Bruin (1990:18) apply:
    - Integrated information sources form part of the basic foundation of democracy by integrating the support from the public and the private sectors. The first objective of information management is thus the integration of internal physical and intellectual information sources in order to make it effective and efficient so as to support the work of the organisation.

- Standards for information access and dissemination filter the knowledge base for relevancy and usability through compatibility of access, quality and accuracy. The second objective thus is to filter the external knowledge base to let only relevant and usable information through, on time and at the right place with the aim of supporting productivity.

The Special Libraries Association (SLA) of America, provides the following principles specifically for national and federal government information in the United States of America (USA), which can be compared to South Africa's national and provincial government (Bender, Kadec and Morton, 1991). National principles include:

- Information is a basic foundation of democracy and must be supported by all public and private sector organisations and individuals.
- The nation must develop and maintain a communications infrastructure that supports the free flow of information to all citizens.
- Standards for information access and dissemination are encouraged to ensure compatibility and access, quality and accuracy.

The principles suggested by the Special Libraries Association at federal government level are:

- Government information must be accessible to ensure accountability to its citizens.
- Government is responsible for providing its information, regardless of format to its citizens.
- Government information is the result of a participatory process and is a shared responsibility.
- Government has the responsibility to announce the existence and availability of its information and its new information systems and publications.
- Access to government information from a diversity of sources is essential.
- Government information must be of high quality and accurate.
- Government must ensure privacy of the personal information it collects.

- Access to government information may not be restricted by copyright or agency determinations.
- Monopolies of public information should be prohibited.
- Government information must be preserved for future generations.
- Information is a national resource to be developed, shared and protected.

Within the so-called Information Society, much importance is put into the role that communications technology plays, and the following three principles specifically in the field of information communications technology policy apply.

1. There is a link between investment in information communications technology and socio-economic development.
2. Information communications technology can play a catalysing role in the functioning of all economic and social sectors.
3. Cutting edge communications technologies is a precondition for competitiveness in the global economy.

2.4.4 Micro principles

The micro principles are principles specifically for the so-called grassroots level or for a specific programme. These principles are very specific and state precisely what needs to be done in order to follow through with the implementation of the policy and are best explained by means of an example.

Take for example the fact that establishing any new structures within communities, especially in South Africa, is a long and difficult process. The principles identified by Butcher (1998) on which new community structures in South Africa must be based, can thus only be applied in South Africa. These principles are:

- The establishment of any new structures must begin with a thorough needs or function analysis, which can identify other possible needs or functions for the structure in the community.

- This needs or function analysis must be accompanied by a flexible in-depth process analysis.
- All analyses will have to involve all of the relevant community players.
- Identifying the right people within the community with whom to negotiate is of critical importance.
- When planning new community structures a dynamic list of options should be available instead of "models".
- Strategies for social, economic, biophysical and technical sustainability of the community structure are paramount and will need to be developed from the outset.
- Success and sustainability of the initiative relies on identifying the correct location based on accessibility and convenience.
- Clear management responsibility and the development of thorough and effective administrative structures will be necessary.
- The infrastructure developed should be designed in a way that allows flexibility of options for its future use.
- The agency or agencies investigating the viability of establishing new community structures must be committed to delivery once engaged.

2.4.5 Compendium of information principles

The aim of the discussion is to present fundamental or a *maximus* of principles on which a National Information Policy can be based. In order to identify the *maximus* of principles, the principles as found in the literature are divided and presented above under the headings of general information principles, specific information policy principles and micro principles. Following now is a compendium of the pertinent principles grouped together under major issues necessary for a National Information Policy, from which the *maximus* of information principles will be deduced in the next section.

Information is an economic resource. This implies the following "sub principles".

- Information is a national resource. This means it is not free, it needs to be developed, shared and protected.

- Information must be managed just like other resources. This implies clear management responsibility and the development of thorough and effective administrative structures. This is not only necessary to ensure user accountability for the efficient and effective utilisation of information, but also the agency or agencies involved must be committed to delivery once engaged. This is achieved by the integration of internal physical and intellectual information sources, and by filtering the external knowledge base to let only relevant and usable information through on time and at the right place with the aim of supporting productivity.

Information infrastructure

- Information communications technologies play a catalysing role in the functioning of economic and social sectors, which is necessary for competitiveness in the global economy.
- The nation must develop and maintain a communications infrastructure that supports the free flow of information to all citizens. The infrastructure developed should be designed in a way that allows flexibility of options for its future use.

Rights of ownership

- Government information is the result of a participatory process. It is therefore seen as custodial ownership and must be shared. Therefore possession of such information is not a right but a privilege.
- Creators of intellectual products however have the right of ownership.

Privacy and confidentiality

- People have a right to privacy for personal and private information. Measures must thus be taken to protect the deliberate disclosure or misuse of personal files and other private information. Government must also ensure the privacy of the personal information it collects.
- Sensitive strategic information such as military or trade secrets must be confidential and certain security measures must be applied. After a specific period of time this sensitive information must be "declassified" and become accessible.
- All information must be protected from malicious and unauthorised use and change.

Democratic responsibilities

- Information is a basic foundation of democracy and must be supported by all public and private sector organisations and individuals. Government has the responsibility however to announce the existence and availability of its information and its new information systems and publications.
- Certain information is instrumental to the exercising of basic human rights - people (nationals) therefore have the right of access to this information.
- In a democratic process:
    - The establishment of any new structures must begin with a thorough needs or function analysis, and must be accompanied by a flexible in-depth process analysis. All analyses will have to involve all of the relevant community players. Thus identifying the right people within the community with whom to negotiate is of critical importance.
    - A dynamic list of options should be available for strategies of social, economic, biophysical and technical sustainability of the community structure and these will need to be developed from the outset.

Access and dissemination

- Standards for information access and dissemination are encouraged to ensure compatibility, access, quality and accuracy.
- In order to ensure accountability to its citizens, access to government information is essential. Government is responsible for providing its information from a diversity of sources regardless of format.
- Government information must thus be of high quality and accurate. Access to government information may also not be restricted by copyright.
- Government information must be preserved for future generations, however success and sustainability of the initiative relies on identifying the correct location based on accessibility and convenience.

2.4.6 *Maximus* of National Information Policy principles

It was found that all the types of principles are based on the general principles of information itself. Based on the above discussion the following *maximus* of principles for developing a National Information Policy can now be defined.

1) **Information is an economic resource.** It is therefore not free and must be managed just like other resources, implying clear committed management responsibility and user accountability for the efficient and effective utilisation thereof in order to improve productivity.

2) **Globalisation of Information Communications Technologies**. Technology plays a catalysing role necessary for competitiveness in the global economy. This implies allocation of national resources for the development and maintenance of a flexible communications infrastructure that supports the free flow of information to all citizens.

3) **Rights of ownership**. Personal authors own their own works whereas government information is seen as custodial ownership.

4) **Privacy and confidentiality**. People have a right to privacy of personal and private information as well as corporate confidentiality and security of strategic information. This must be weighed up against the protection of information from malicious and unauthorised use and change.

5) **Information (access) is a basic foundation of democracy.** Information resources should be deployed to support democracy. Certain information is instrumental to the exercising of basic human rights therefore people should have the right of access to this information. Government is responsible for announcing the existence and availability of its information. Better access to government-related information as part of the constitutional requirements leads to better decision making through timeous

access to accurate information which in turn leads to improved efficiency, productivity and effectiveness.

6) **Standards for information access and dissemination are encouraged to ensure compatibility, access, quality and accuracy.** Government is responsible for providing accurate and quality information regardless of source and format. The government should establish a central repository where current, consistent and co-ordinated, core data and metadata would be available.

2.5. Issues that need to be addressed

2.5.1 Background

The information sector is undoubtedly the most rapidly growing domain of human endeavour. A major problem in the formulation of a National Information Policy is that there is a problem with the conventional interpretation or perception of the scope. The scope of a National Information Policy describes the range of issues that are to be included, which is determined by existing definitions of information. For example where there is awareness, information policies may focus on trade, international relations, national security and on export of technologies. Thus at the one end a National Information Policy would include the dissemination of numeric data, at the other end would be libel laws, policies on commercial advertising and freedom of speech. Public policies however tend to be defined by the problems and issues that the society faces at a particular point in time, thus historically, information policies tended to focus on specific issues on an *ad hoc* basis, resulting in the fragmentation of the policy-making process. The very problem of an information policy, according to Menou (1991:58), is precisely to make all the pieces of the mosaic fit together.

From the above discussion it can clearly be seen that there is a great deal of uncertainty in the National Information Policy field in terms of what the policy issues to be tackled by this policy are. The numerous examinations of policy issues undertaken by several authors

in the information policy field, (Bender, Kadec, and Morton, 1991:14; Boon, 1992:5; Carpinter, 1991:21; Cheveri and Trump, 1996:380; Cronin, 1987:133; Kisiedu, 1988:24; McClure, 1996:215; Mchombu and Miti, 1992:146, 161; Montviloff, 1990; Nusseir, 1996:67; Rehman, 1996:186-190; Rowlands, 1996; See, 1999; South Africa, 1991b:71; Stone, 1998:3; Wild and MnCube, 1996:187, and Zwangobani, 1988:158-159), reflect the need to delineate information policy issues in order for solutions to be found. The issues however are complex, inter-related and do not allow for easy analysis. Two proposed methods for analysing and categorising information issues were however found in the literature and will be briefly outlined under section 2.5.2 below.

To arrive at the suggested information policy issues for this study, the discussion below is structured into three parts. The first part enumerates the key information related issues as found in the literature (authors as above), in no particular priority or structure. In the second part the information-related policies that influence and overlap in some cases with a National Information Policy are discussed. Finally, the information related issues and policies are analysed and discussed according to a chosen method of analysis. The resultant structured discussion is thus an interpretation of the scope and pertinent issues, which a National Information Policy should address.

2.5.2 Two proposed methods for analysing and categorising issues

2.5.2.1 Moore (1996a)

An aim of a National Information Policy is to create or organise the new Information Society. In speaking of an Information Society we are implying that information is diffused throughout the social and economic system, and it is therefore very wide-ranging. An information policy framework is therefore considerable. Initially information policies were concerned with building technological infrastructures such as telecommunications networks, now the attention or focus is on policies that will stimulate supply and demand of information. The pressures for policy creation are no longer on the creation and use of network capacity but cover fair competition and adherence to principles of universal

service or open access. Policies are thus very wide-ranging and Moore (1996a) has therefore identified three levels on which policy must be contended with, namely:

1. The industrial level.
2. The organisational level.
3. The social level.

1) The **industrial level**. First, information needs to be supplied within the system, meaning that policies are concerned with the development of the information content industries which are concerned with the shape of development of the information services sector by creating and developing information products and bringing these to the market.
2) The **organisational level**. The next area that needs to be covered by information policies is the use of information by organisations. These policies influence the way that information is used within organisations, the intention being to encourage the use of information as a resource in order to improve productivity and organisational effectiveness.
3) The **social level**. The increasing complexity of the Information Society means that people need information to enable them to take advantage of the opportunities that are available. Policy issues are concerned with the ways in which information is used by people as part of their everyday lives. People need information in order to exercise their rights, they need information if they are to take control over their personal well being and Information Societies also offer increased opportunities for continuing education and for constructive leisure.

Furthermore at each of the three levels Moore (1996a) has identified four elements that the policies need to deal with:

- **Information technology**. Appropriate technology must be available for the efficient functioning of the information industry. This also implies that organisations need access to the most up-to-date technology available. Access to

information on the social level by the public creates a need for technological solutions.

- **Information markets**. This concerns the exchange or commercial trading of information in conventional markets with the goal being to make these markets operate more effectively. On the social level issues concern the provision and exchange of information that is free at the point of use, this also raises issues of impartiality, objectivity and universal access.
- **Human resources**. This concerns the recruitment of suitably skilled and qualified people. Information organisations generate a demand for new types of skills and competencies, resulting in the need for training and re-training. At the social level people need to have a basic level of information-handling ability.
- **Legislation and regulation**. It is necessary to develop a legislative and regulatory framework that will enable an Information Society to function effectively. This may mean deregulation in order to open up markets or a pressing need for legislation such as to protect intellectual property.

According to Moore (1996a), by combining the levels and the elements it is possible to create a matrix which can be used to identify the need for, and the scope, of information policy, and it is also possible to specify the inter-relationships between the different policy issues.

THE INFORMATION POLICY MATRIX

	Industrial	Organisational	Social
Information technology			
Information markets			
Human resources			
Legislation and regulation			

Figure 2.1 Moore's (1996a) proposed information policy matrix

2.5.2.2 Rowlands (1998)

The second method of analysis, by Rowlands (1998: 232), presents the fragmented, overlapping and sometimes contradictory nature of information policy issues by means of a two-dimensional map. Rowlands (1998) identified 24 information policy concepts, which he related one to another on the two-dimensional map. The concepts were identified using a specialised encyclopaedia entry on information policy, and were then used as search terms in the Social Sciences Citation Index. Rowlands (1998:233) states that it is reasonable to suppose that concepts, which are closely related, will tend to occur together more frequently than concepts, which are not connected. From this analysis then it was possible to display these relationships on a two-dimensional map, and by using statistical techniques the concept terms were clustered into five smaller groupings of related concepts or sub-domains of the field of information policy.

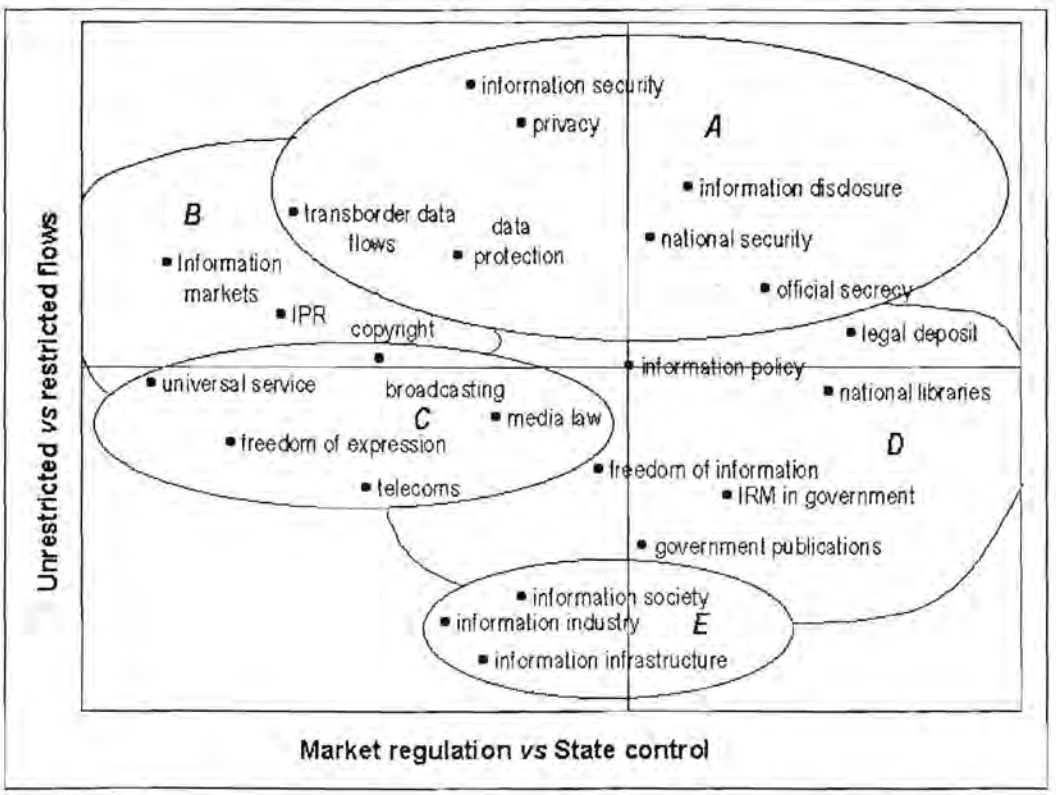

Figure 2.2 Rowlands' (1998) proposed concept map of the field of information policy

The five policy sub-domains identified from this map are:

A. **Information protectionism**. Regulations and mechanisms controlling information access and disclosure in the public sphere (for example official secrecy) and in information markets (for example data protection).

B. **Information markets**. Laws and regulations, which protect investment in the creation of information content (for example copyright) and enable market exchange to take place.

C. **Broadcasting and telecommunications**. Public policies, which regulate the mass media and communications, balancing commercial and citizen interests (for example universal access).

D. **Public access to official information**. Policies and regulations, which frame citizens' access to information held within government (for example freedom of information).

E. **Information Society and infrastructure**. Public policy measures to invest (or encourage private sector investment) in the information infrastructure, broadly defined.

Rowlands (1998:235) then shifts his attention from the composition of the clusters to the nature of the axes, which define the mapping space. The concepts lying to the right of the origin relate to the direct management of the State of its own internal information resources. From the top down, these responsibilities extend from the control of sensitive official information, through the effective storage and management of official information to the provision of infrastructures for its wider dissemination. Concepts on the left-hand side of the map seem to match the State's indirect role as a regulator of private sector activities. The State can be seen acting from top to bottom, first to constrict information flows, for example personal privacy, then creating the conditions within which market exchange can take place, and finally guaranteeing fundamental rights of freedom of expression and universal service. The spectrum of the map can thus be summarised as follows: the y dimension expresses the dimension between unrestricted, open and restricted or controlled information flows. The x dimension indicates the two distinct

information policy roles of the state as a regulator of information markets, and as a major gatherer and disseminator of information itself.

2.5.2.3 Choice of approach

When deciding which issues are to be addressed by a National Information Policy, Rowlands' (1998) model helps one to think first and foremost about the values, rather than the specific laws and regulations that underpin the conceptions of information policy. It illustrates how political values and ideologies are fundamental to the way that information policy problems are perceived, and how problems may be represented differently by various stakeholders. Thus the identification of concepts is subjective, and only concepts that occurred jointly in a database search were identified, in addition, the terms identified needed to be extended to include more contemporary terms. This approach may perhaps be better applied to create an overall picture of National Information Policy and its inter-related concepts, issues and policies.

In contrast Moore's (1996a) approach is more specific in terms of specifically identifying every possible issue and placing or categorising them in relation to one another on a matrix. Thus this approach is more structured, systematic, comprehensive and thorough, looking at all angles or levels and possible interactions. The information issues identified in part three of the discussion below are thus structured according to Moore's (1996a) model. Information policy, like all aspects of public policy is embedded in a political and social context, thus no researcher on the topic of information policy can be totally objective and free of assumptions, prejudices or vested interest. Issue identification and problem definition in information policy are therefore not value-free. The structured discussion of the scope and pertinent issues is thus an interpretation of what a National Information Policy should address. The issues identified are by no means the ultimate and final issues and serve only as a guideline for this study.

2.5.3 Information related issues that need to be addressed

The information-related issues as found in the information literature have been synthesised and are recounted here in no particular order. The key issues identified below were taken

from the following publications, Bender, Kadec and Morton (1991:14); Boon (1992:5); Carpinter (1991:21); Cheveri and Trump (1996:380); Cronin (1987:133); Kisiedu (1988:24); McClure (1996:215); Mchombu and Miti (1992:146, 161); Montviloff (1990); Nusseir (1996:67); Oppenheim, (1996:415-420); Rehman (1996:186-190); Rowlands (1996); See (1999); South Africa (1991b:71); Stone (1998); Wild and MnCube (1996:187), and Zwangobani (1988:158-159).

Governments are encouraged to develop direct citizen participation by using new technologies. The possibility of linking the population to communication networks for the purposes of electronic democracy is however both a threat and an opportunity. It involves the government's role regarding a legislative and regulatory framework which provides the "security" relevant to the needs of industry on, for example how to enforce laws. The law on liability for information provision and who owns government information also needs to be reassessed, with content regulation being self-regulatory.

The information market is global. There is a need to know how it works in order to create a balance between supply and demand economics. The services sector requires reliable and up-to-date marketing related information, such as trends in consumer demand and behaviour. Consumers on the other hand need information on available products.

International collaboration is essential to research and academic communities. A trade policy is therefore needed for transborder data flow and governments must work together to encourage equitable trading partnerships, external co-operation as well as regional and international exchange.

In the electronic age, the legal framework covering the protection of intellectual property rights must be extended to apply to all media and types of intellectual works, in other words all media must be treated the same. Copyright law needs to be reviewed to ensure that it is up to date, clear and unambiguous, takes due regard of international

developments, and balances the needs of creators, copyright owners and users of copyright material. Specific copyright issues include:

- Status of transmission through networks.
- Digital use of author's works.
- Clarify "fair dealing" in machine-readable data.

The development of electronic commerce creates cryptographic issues, since information in electronic transactions needs to be secured. Issues regarding security of cash transactions, authentication of the identities of those who receive and deliver messages and security of transmissions between different sites requires international agreement on standards and regulations. Increased information penetration also requires protection of personal data, privacy and security. Government must clarify its policy on the balance between crime prevention and detection and the needs of individuals and business to privacy of communication and of protection of their intellectual property.

Preservation, archives and records management requires standards for computer records. Consideration for archiving should be built into information systems design. There is also a need to rethink regulations governing the retention of archives and organisational records. Legal deposit of machine-readable materials also requires safeguards regarding the copying of such material. Additional problems include the issue of where the deposited material can be placed for inspection, and the problem of obsolete hardware and software.

Infrastructure issues include information, communication and service networks as well as the policies that govern them. Exploitation of infrastructure raises issues of electronic commerce, standards, privacy, provision of universal access, education and training, regulatory issues and encouraging technological developments. When developing national information services and systems, it must be ensured that they are user friendly, standardised and compatible to ensure that information is easily accessible and usable. Providing high-speed access to schools and colleges presents an opportunity for novel teaching and learning within schools and colleges.

A telecommunication policy must provide availability and affordability to basic data and information services. It is required for effective penetration of high quality telecommunication services, broadband and mobile telephony and also to deal with the issue of universal access. A broadcasting policy and licensing is also needed to ensure that objective information from independent sources is readily available.

For people to participate in democratic processes, legal rights to information (access) must be established. It is the public service providers' duty to develop a consistent approach about what information belongs in the public domain and by what means it should be delivered. According to Oppenheim (1996:415-420), a major principle of freedom of information must be that all information created by government shall have no copyright associated with it and anyone shall have the right to inspect at no charge and to copy such information. The maximum possible charge should be marginal to cover the cost of delivery.

Information can be best utilised as an economic resource to promote national competitiveness, technology and the general welfare of a country through co-ordination and organisation of meagre resources at all levels of operation. In addition for a National Information Policy to play a role in national development implies amongst other issues that:

- The development of national information resources and services as an integral part of the national development plans be promoted.
- The generation of information at the national level be strengthened.
- Information handling technologies should be modernised.

Culture is expressed, communicated and handed down through information. Information and the technology used to disseminate it worldwide has broken down differences and life-styles, fostered a global economy and led to the dissolution of cultural identity and governments.

Most people are under the misconstrued notion that information technology is an all-in-one solution, forgetting that it is merely an enabling tool. Thus substantive informational inputs, regular updates and appropriate maintenance of related software and hardware are neglected. Skills requirements are also changing constantly and there is a need to identify shortages of skills, which in turn requires appropriate curriculum development and retraining. Changes in the work environment implies that the following take place:

- A team approach to information resource management.
- Fostering a learning, teaching, management and service oriented work environment.
- Creating an open environment where all people can participate in consensus building.
- A rethinking of information services to include concepts of participatory management by the user community.
- A need for a shift in attitudes towards information.

To sum up, Montviloff's (1990) examples of main policy issues can serve as a summary of the issues identified above. These are issues dealing with,

- The role of information in national development.
- The development of national information resources.
- The development of national information services and systems.
- The organisation of information activities.
- Access to information.
- The development of information skilled human resources.
- The use of information.
- Participation in international information programmes and services.

2.5.4 Information related policies and other issues that influence and overlap with a National Information Policy

Existing constitutional acts, policies and legislation of various kinds relating in varying degrees to the provision of information prevail and cover some of the information-related issues. Interconnection and interoperability with other policy areas is one aim of a National Information Policy, thus the information-related policies must be considered. However it should also be noted that the emergence and convergence of information and communication technologies are at the centre of global social and economic transformations. Technological components, which used to be accounted as separate activities, have converged to characterise all aspects of information communication technologies. The new information communication technology sector is thus described as a gamut of industries and service activities, including Internet service provision, telecommunications equipment and services, information technology equipment and services, media and broadcasting, libraries and documentation centres, commercial information providers, network-based information services and other related information and communication activities.

The discussion of the information related policies is arranged according to those policies that have to do with the physical infrastructure necessary and includes areas as found in the information lifecycle (generation, distribution, dissemination, and storage), and the legal infrastructure concerned with information. Information legal infrastructure involves a framework of laws setting up policy infrastructures. The most well-known law is that regarding intellectual property rights. The foundation for succeeding in the Information Society is acquiring an education and the information skills to acquire further knowledge for purposes of living in the Information Society. The educational system can both facilitate and enhance appreciation of the value of information by providing incentives to use it, and is thus also briefly discussed.

2.5.4.1 Information infrastructure

1) Information technology policy

The concept of information is closely linked to communication since information can be regarded as facts or opinions about the world, which can be communicated to others. Information technology according to Muller (1995:459) is any technology, which is used to collect, store, and process or communicate information. In other words an Information Technology Policy is different from a National Information Policy in that it concentrates purely on the technical side or hardware that may be used by a National Information Policy for communication and distribution purposes.

2) Science and technology policy

The core of a Science and Technology Policy is discoveries and applications. The first hand generation, by means of research and development, of new data which is analysed and interpreted to become information, must be protected. According to Motala (1995:65) the objective of science and technology policies is to enhance the chronological capability so as to advance industrial technological development.

3) Telecommunications policy

The privatisation of telecommunications leads to de- or re-regulation. It has been found by *Information policy* (1997:3) that in too many countries, telecommunications policies are hindering the development of advanced digital networks. Barriers include high fees, limited bandwidth, unreliable service and trade barriers on imported information technology. This in turn influences the infrastructure required to disseminate information and make it accessible to all.

4) Transborder data flow

The linking of telecommunications and computing technologies permits the instantaneous transfer of enormous quantities of information across great distances. Transborder data flow involves the exchange of information across international borders. As information becomes an increasingly valuable resource and a significant commodity, access to it

becomes an issue of greater concern in both local and international contexts. Thus dissemination and access of information across borders is influential on a National Information Policy.

5) Standards

All competitive interactions between a company and the outside world affect the competitive edge of that company. For example the incompatibility of computers and/ or vendor protocols retards the growth of computer communication services. Another example is the computer hardware company International Business Machines (IBM) versus Apple McIntosh, each company has unique user protocols for its system. The solution lies in international standards organisations promoting the creation of standards in the marketplace, but the level of government involvement must also be kept in mind. There is a view that standardisation is seen as a technical rather than a policy-related process and thus National Information Policy documents seldom refer to it. In fact standards influence especially the access and distribution to infrastructures of information. The need for standardisation grows proportionally with the informatisation of society.

6) Mass communication

Media included here are radio, television, newspapers and advertising of any sort in various media. The important role to be played by media is to make information freely available to people at grass roots level. The relationship between the state and media is always delicate. Media should remain national without being a propaganda instrument, and it should obtain free access to a variety of sources. Censorship plays a role here as well as freedom of expression. It is a medium for advertising and education, however product advertising is almost entirely concerned with promoting images, which are only related to that product. Advertising with misinformation is propaganda. It is normally associated with politics but there are also many situations where a vested interest in one particular outcome means that the even-handedness of the work can be questioned. The full range of possibilities is not revealed and the complete evidence for and against is not given a fair hearing.

2.5.4.2 Information legal infrastructure

1) Intellectual property

Intellectual property refers to the products of people's thoughts. These have value, as property, to the people or organisations that produced them. Economic returns are often attached to it, therefore its use and accessibility are traded in and controlled. The right to control may be bought or sold or inherited or rented out just as for any other form of property. Information is not tied to a physical carrier, it can be moved around at will and made into as many copies as required, all without changing or affecting the original. Strictly speaking it is exploitation rights, not information that is valuable. Thus intellectual property rights protect information that is generated. Protection of intellectual property is a concern that is not confined to the private sector, there are times when the state may consider it desirable to resist access to information that has commercial application and has been produced by publicly funded organisations.

The two chief types of intellectual property rights policies are:

a) **Copyright.** Copyright promotes access to information by supporting its profitable production and distribution, and by balancing the property rights of the copyright holder with the public's interest in access to information. It is an important incentive for production of information goods. The property is in the idea expressed in a certain way. The author's first right is the right to protect the use of the author's own creation. The second is a right of protection for investment into converting the author's output into a saleable product. Property also relates to design of something useful that will be either mass-produced or at least produced in multiple copies. Examples are the carvings of Chippendale. These intellectual rights cover the shape, decoration and appearance of objects, as these are not dictated by function.

b) **Patents.** According to Carpinter (1991:29) patents exist as a result of government policy directed at encouraging research and development, innovation and invention. Patents confer on the inventor of original information with a commercial application, a property right to that specific application for a period of time. Information is not protected from dissemination but rather from application and it is made publicly

available as part of patent requirements, thus promoting access. The central part of a patent system is a bargain between an individual inventor and the state. The inventor has to make a new and useful invention, he/she is then allowed to develop and market the product within the protection of a limited time monopoly to make, use or sell it. In return, the inventor has to deposit in a public place a description of the invention in such detail that experts in that particular field could reproduce the process or product.

2) Legal legislation

The seven main types of legal legislation are discussed.

a) **Breach of confidence**. The success of many activities depends on access to relevant, timely and reliable information. Publishing a research paper or attendance at a conference or trade fair are particularly good ways of exchanging information. However any contacts between a company and outsiders may reveal commercial secrets and have therefore to be vetted. This relates to the accessibility of information, especially that of a confidential nature. What is considered here is characterised by the relationships between parties, which primarily determine access and use of information. Its value is signalled by being disclosed to only a few people and in confidence.

b) **Industrial espionage**. This is breach of confidence without the confidential relationship. There is no relationship between the "owner" and the "taker". The law operates only where theft, misrepresentation, intimidation or the like can be shown.

c) **Legal liability**. Suppliers of information may be held legally liable for accuracy of information supplied and accuracy for searches and the competence of advice given. Carpinter (1991:48) states that if a person or organisation can be held liable for the quality of the goods or services they supply, there is an incentive for them to ensure that their product meets a reasonable standard. This in turn gives consumers confidence to make decisions based on that information.

d) **Freedom of information**. Freedom of information pertains to activities of companies or public sector bodies, and is a right of access to stored information. It usually refers

to public sector authorities, such as specific laws dealing with local council meetings and environmental pollution records.

e) **Privacy**. Privacy is a matter of protecting individual information held in personal files, such as personnel and medical reports and records. The private and public sectors gather all kinds of information about individuals in order to plan services and to operate and deliver them effectively. Stemming from this is a contrary need for privacy, for checks on accuracy and for some control over who has access to the information. A general right to privacy is a counterpart and balance to a general right to information. New technology poses a threat to the security of commercially sensitive information, thus privacy regulation concerns all the ways in which investigation can be intrusive as well as the holding and disclosure of data.

f) **Data protection**. Data protection is concerned mainly with personal data on computers. It allows files on individuals to be located, inspected and changed if necessary. It also prescribes that "members" should not send data to "non-members" which do not have equivalent levels of protection. Data protection can also be regarded as a human right similar to but separate from privacy.

g) **Secrecy**. There is usually quite strong secrecy legislation concerning both national security and technical information. Countries are particularly concerned about terrorism, drug smuggling, general crime and immigration.

3) National Library Acts

Libraries are seen as gateways to information serving mainly as places of access. The objectives of national library acts are to contribute to socio-economic, cultural, educational, scientific and innovative development by collecting, recording, preserving and making available the national documentary heritage and promoting an awareness and appreciation thereof by fostering information literacy. This vision has been broadened to include not only the documentary heritage, but all media such as film and electronic storage media. Libraries are thus seen as information centres for national development, as communication structures to prevent social isolation by establishing open national information networks, which will enable people to take advantage of the benefits of the

Information Society. They also play a role as partners in the process of standardisation. The challenge of national libraries is to respond to the rapid changes taking place in the environment in such a way that they will be visibly relevant to what is happening in it.

2.5.4.3 Education and level of information education

People need to be equipped to deal with information. Individuals may become vulnerable to manipulation or confused by the vast amount of information surrounding them if they do not have information skills. They will thus need to be literate and numerate, have the capacity to search for information to meet their needs, have critical thinking ability to filter the information found, have the ability to evaluate the relevance and reliability of information, to organise the information once they have it, and to be able to present it comprehensibly by means of oral and written communication. The formal education system can be a primary provider of these skills, but is not the only means of providing information education to people. Implementing life long learning programmes enabling employees to upgrade their skills is an economic investment, which will not only benefit employers, but will contribute to the collective well-being of the country. Specialist information workers such as Librarians may also educate people in information skills, and libraries themselves may be seen as communication and education structures and should therefore play an active role.

2.5.5 The main policy issues that need to be addressed by a National Information Policy

A National Information Policy should essentially cover the issues of the information life cycle. Taking the above discussions on information-related issues and information-related policies into consideration, what follows below is an own interpretation of issues that a National Information Policy should address. The identified issues have been analysed and structured according to Moore's (1996a) matrix, as discussed in 2.5.2.

Table 2.1 Policy issues that need to be addressed by a National Information Policy

THE INFORMATION POLICY MATRIX			
	Industrial	**Organisational**	**Social**
Information technology	Systems must be user friendly, standardised and compatible to ensure that information is easily accessible and usable. Data and information must be transformed into usable knowledge, which must be user friendly and relevant to its target population. Information must be provided in a timely fashion Utilise latest and appropriate technology to facilitate the processing, manipulation, storing and retrieval of information. Develop a system for information processing collaboration and inter-linking between NIP information resources and institutions.	Governments stimulate the development of local value-added information services. [1] Infrastructure issues include information, communication and service networks as well as the policies that govern them. Aspects of information infrastructure provision include basic telecommunications infrastructure and telematics services, management structures and regulatory frameworks. Information Technology as the panacea of information and knowledge gaps and problems.[2] Most people are under the misconstrued notion that IT is an all-in-one solution, forgetting that it is merely an enabling tool.	Domestic exploitation of the economic opportunities of the information infrastructure. [3]

THE INFORMATION POLICY MATRIX

	Industrial	Organisational	Social
Information markets	The information services sector requires reliable and up-to-date market information on trends in consumer demand and behaviour. In order to provide information at the point of use and make use of conventional market mechanisms, the way the information market works must be understood.	Organisations require market information about export opportunities to justify large investment costs, and potential for expansion and where and why products fail. The effect of changes in social habits and consumption patterns have affected and been affected by the information market. Develop simpler products with easier training for new users. Policies to expand markets in order to reduce costs of information products. The market for information is global, with markets in the East growing rapidly. Efficient use of information in business and commercial sectors can lead to increased productivity. Information can extend market penetration, lead to new products and add higher value to products and services. Also leads to the development of systems and procedures, e.g. to make it easy to buy information from networks. Which government publications should continue to be issued in hardcopy, and which in soft copy in the context of their timeliness, time-sensitive nature and their archival value, influence the information market. The issue of authentic and legal versions of government documents in electronic formats. Establish a basic level of information resources to which the individual has a "guaranteed" right.	Consumers need information about services that are on offer, including new local providers being established, evaluations and consumer tests to exercise choice in an informed way. Some social information can be provided through conventional markets using the price system to achieve balance between supply and demand.

THE INFORMATION POLICY MATRIX			
	Industrial	**Organisational**	**Social**
Human resources	Shortages of skills holds up the development of new products, therefore changing skills requirements must be monitored to identify shortages of skills in areas and communicate this to education and training facilities. This influences the National employment policy. Need for policies to support appropriate curriculum development.	Without appropriately educated and trained staff there will be loss of quality. Consider the role and skill requirements of intermediaries and information brokers, in terms of educational requirements. Speed of change requires need for constant retraining. Technology offers the potential for developing new forms of work. Organisations need to consider the implications for skill requirements, and the impact on personal and community relations. In the work environment, there is a need for people who can process large amounts of information, adding value by synthesising and simplifying it. Changes in the work environment imply other changes such as different management strategies. There is need for a shift in attitudes towards information among the providers of goods and services.	To improve information handling skills as society becomes more information intensive, focus is placed on critical-thinking skills.[4] Education and training issues encompass the definition of approaches to education and training in a world where the impact of ICT's has altered many of the traditional signposts of the profession. There is a need for a workforce capable of adapting to the new generation of tools. Social problems need to be overcome so that people can help others to use information. Education at all levels needs to be improved and supplemented by work-related skills. Human resource programmes, especially education, training and research and development programmes, must be consistent with the current information environment.

THE INFORMATION POLICY MATRIX

	Industrial	Organisational	Social
Legislation and regulation	Industry depends on the security provided by the legislative and regulatory system. Legal issues concern policies on how to enforce laws, which in turn leads to questions of harmonising policies and practices internationally. Issue of centralised versus decentralised governance influences policy. Policy formulation must be directed at establishing ground rules for who, why, when and how of public and private sector involvement with information. Legislation must be under constant revision to accommodate changing requirements. A trade policy is needed for Transborder data flow to encourage equitable trading partnerships.[5] Governments are to work together to develop a set of integrated policies to ensure the creation of information and communication sectors in the nation for external co-operation as well as regional and international exchange. Ownership rights of information by government [6]regarding, science and technological information, and the issue of uncopyrightable information. In the electronic age, the legal framework covering the protection of intellectual property rights[7] must apply to all types of intellectual works. Liability for information provision. Who owns government information, government, taxpayers or the contractors who collect the information? Universal access depends on the effective penetration of high quality telecommunication services, broadband and mobile telephony. Users must be able to afford it and it must be in useable formats. Equality of access is the basic principle in a democratic society.[8] Technology provides attractive solutions to information problems, but unless there is availability and affordability to basic data and information services nation-wide, erosion of equitable access is inevitable.	Need for legislation regarding the security of electronic transactions as a consequence of changes in data protection and privacy laws, to prevent fraud and protect commercial value. Increased penetration of information reinforces the need to protect personal data and provide privacy and security[9]. Preservation archives and records management. In the desire to digitise information and offer it electronically, there is a lapse in policies and procedures on their preservation and conservation. Concerns are due to the creation of historical information in electronic format and that historical documents will be lost[10]. Co-ordination [11]and organisation issues are the most effective means of maximising meagre resources at all levels of operation. Information searches must be conducted to avoid duplication of effort. A multi-faceted approach to information gathering and dissemination must be utilised. On-going summative evaluation of information deliverables must be conducted. Strategies to enhance the concept of information sharing must be encouraged.	There is a need for independent media control and ownership to ensure that objective information from independent sources is readily available. This implies a broadcasting policy and licensing. Freedom to publish or disseminate information, which complies with accepted obscenity, public decency, race relation, slander laws or may seem subversive or offensive against public order. Each country should take stock of existing policies and assess the current situation *vis a vis* achievables, to ensure that there are policies to define the framework, agenda and strategy that the country wants and can adopt. It should not be acceptable for legislators to pass laws that are unintelligible. People cannot exercise their rights and claim entitlements without information. Nor can they participate fully in the democratic processes, therefore legal rights to information (access) must be established. It is the public service providers' duty to provide information.[12] Information issues become most closely associated with political and cultural traditions, e.g. a culture of freedom to information versus a culture of official secrecy. A more consistent approach must be developed about what information belongs in the public domain and by what means it should be delivered. Safeguards against controls on access to information should be built and maintained, this includes the issues of sensitive but unclassified information and of restrictions to access. Government should convene groups to create an information "bill of rights".

Supplementary notes to some of the issues described in Table 2.1

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[1] Local value-added information services include information technology, libraries, documentation centres, information centres, archives, museums, publishing establishments, broadcasting services, national standards and statistical agencies and extension agencies.

[2] When regarding information technology as the panacea of information and knowledge gaps and problems, substantive informational inputs, regular updates and appropriate maintenance of related software and hardware are often neglected.

[3] This raises issues of electronic commerce, standards, privacy, provision for universal access, education and training, regulatory issues and encouraging technological developments.

[4] Critical-thinking skills such as the need to identify, select, acquire, analyse, synthesise, process and evaluate information and be able to do it more effectively. The result is a need for the substantial development of the basic education system.

[5] Transborder data flow raises further issues of:

- Loss of control of information.
- Dependency on technology and or information.
- Perceived impact of culture.

[6] Issues concerning the liability for Government information provision include:

- Access to government information and pricing thereof- it must be easy to pay for information.
- To what degree if at all should a government subsidise costs for providing access to government information?
- There are some types of information for which the government must assume sole responsibility because it is neutral, for example the national accounts.
- The law on legal liability for information services needs to be reassessed.
- Exploitation of public information assets by private sector.

[7] Intellectual property in the electronic age applies to all media, from printed publications to computer software and electronically distributed data and information. Further issues that will dominate policy-making regarding copyright include:

- The forms of information that copyright should properly protect.
- Whether and when new uses of copyright subject matter should come within copyright control.
- How the rights of copyright holders can and should be enforced in other countries.
- The rights creative individuals should have in an increasingly depersonalised environment.

[8] If technology remains outside the reach of minorities, it will create the potential for alienation and social division, leading to a gap between the information rich and

information poor, also the danger of an urban-rural divide is exacerbated. A commitment must be conveyed to the reduction or removal of economic, geographic, technological and other barriers, therefore:

- Public access arrangements, for example libraries, must be made.
- Access to information should be subsidised.
- Make universal provision, decide how it could be made and paid for.
- Information technology literacy and adequate information technology training and education are serious issues which must be addressed by governments.

[9] Privacy and security raises the question whether a personnel manager may be able to check whether someone has a criminal record or not.

[10] Concerns involving preservation, archives and records management of historical documents due to:

- The lack of standards for computer records. Consideration for archiving should be built into information systems design. The problem includes that IT storage formats are not standardised, and depend on the marketplace.
- The public should also have a right to ensure the accuracy of personal data held.
- Information on medical records is private.
- Legal deposit provisions have also to be considered and updated to include digital information.

[11] Co-ordination is an issue since services are usually spread amongst several authorities with little co-ordination and authorities tend to compete rather than co-operate with each other.

[12] Government should convene groups to create an information "bill of rights" to include and address:

- Diversity of sources.
- Constitutional rights.
- Individual privacy.
- National security concerns.
- Non-discrimination of users.
- Assurance of product quality, accuracy, completeness.

Moore (1996b) furthermore includes the following issues concerning cultural identity,

- Information is an important determinant of cultural identity. Culture is expressed, communicated and handed down through information.
- Information and the technology used to disseminate it worldwide has broken down the differences and life-styles, fostered a global economy and led to the dissolution of governments.
- Technology offers opportunity to give expression, and could provide a means of preserving and reinvigorating culture.

As these issues do not only apply to Europe, which is the context in which Moore (1996b) presents them, they have been included. For example within an African context the development and implementation of a National Information Policy is often justified on the grounds of the role it plays in national development. This can be interpreted as adding a cultural dimension to National Information Policy because in African Less Developed Countries issues often relate specifically to,

- The promotion of the development of national information resources and services as an integral part of the national development plan.
- The strengthening of the generation of information at national level.
- Advocating of the modernisation of information handling technologies.
- The establishment in each country of a national co-ordinating mechanism which will ensure effective co-ordination, implementation and operation of the policy.
- Establishment of appropriate legislators and their enforcement to facilitate access to information.
- Training and retraining of personnel for the efficient management of information resources.
- The promotion of effective use of information resources and services by the general public, policy makers, technology users and information professionals.
- Participation in relevant regional and international information systems.

2.6. Summary

Political, social and economic changes take place constantly on the world scene and influence the spread of information and information technology and nations' abilities to use them. Similarly the responsibility for addressing the issues rests with a wide range of different bodies. Information policies must thus address potential problems in the use of the electronic spectrum, competition in information products and services, and the impact of other countries' policies. Issues relating to copyright of software, liability in cases of false information in databases, regulation of the use of data transmission networks and standards and technical specifications for hardware and software compatibility are as important on the international scene as they are to the national debate.

This chapter has looked at the theory behind National Information Policy, examining the necessity of a National Information Policy from an economic, political, cultural, educational, developmental and technological viewpoint. The different philosophical approaches towards the formulation of National Information Policies were discussed. The principles on which a National Information Policy must rest were then identified and also discussed. The scope of a National Information Policy was considered by identifying the wide range of important policy issues and related policies. Many information-related policies influence the National Information Policy. Usually these policies are contradictory in nature, lack comprehensiveness and most important, there is usually a total absence of guiding policies in the critical areas of development. However, they may be seen to form an existing infrastructure, which should be considered.

In the next chapter the process by which a National Information Policy can be drawn up is examined, concluding with an own suggested methodology to be adopted before the traditional government policy formulation process is followed. The traditional government process involves the drawing up of draft discussion documents leading to a Green Paper and finally a White Paper which is laid before the parliament, prior to a formal policy being passed.

Chapter 3 The theoretical basis for the development of a National Information Policy for South Africa

3.1 Introduction

In the domain of science no constructive National Information Policy can be developed or implemented without a sound theoretical foundation. In the previous chapter a theoretical foundation for the study of National Information Policies was laid down. The chapter covered the reasons why a National Information Policy should be formulated and the philosophical approaches towards formulating a National Information Policy. Fundamental principles were identified and the issues that need to be addressed by a National Information Policy were listed. From the previous chapter it follows that information policy formulation considers information as a national resource that must be organised, managed and used effectively. Information serves as a tool for solving problems of a practical nature related to innovation and implementation of for example information technology or information intensive programmes. The development of an intelligence culture forms a corner stone in an information policy. The intention of this chapter is to study various methodological approaches used for developing a National Information Policy, focussing specifically on efforts made in South Africa. This discussion will lead to the identification of key role players in the process and ultimately propose an own approach towards the formulation of a National Information Policy in South Africa. It must be kept in mind that information is not an end in itself but a means to improve the capacity for participation in decision-making. There is also a need to ensure agreement about the real nature of the system under review, thus it is necessary to focus on the content- the information- rather than on the conduit- the technology- in the analysis and development of policy.

3.2 An overview of different proposals towards the formulation of a National Information Policy in South Africa

International Non-Government Organisations such as the IDRC and UNESCO have led the way in making proposals to be followed for the information policy formulation process. In the following pages an overview of three different proposals is given, namely the IDRC "*Africa Strategy*", UNESCO's handbook on the formulation of a National Information Policy, and because we are primarily concerned here with South Africa, the important progress made by the National Information Technology Forum. A background to each proposal is given, after which the main process or steps are discussed. Based on the short discussion, critical comments about each proposal are made.

3.2.1 Canadian International Development Research Centre (IDRC) proposal for an information policy.

3.2.1.1 Background

The IDRC has been supporting activities related to the provision of information services in developing countries by supporting local indigenous initiatives. The need for such a strategy became evident as the use of information to secure socio-economic development became apparent. Workshops were held where specific information needs of the continent were tabled. After intense discussions and deliberations, a strategy document on how Africa could strengthen its information programmes and services and the role that information can play in its further development was put together by the IDRC. According to Akhtar and Melesse (1994:315) the adoption of the strategy by the IDRC in 1988 was not a radical departure from its previous activities in Africa, but simply helped to focus on priority needs of the region. Meeting the needs of end-users and also those of researchers and policy makers was advocated. In particular there was a call for designing appropriate information services that would meet the needs of grass-roots users. Human resources development was also recognised as a vital tool for ensuring sustainability. The resulting document, entitled "*Sharing knowledge for development: IDRC's Information Strategy for Africa*" and known more commonly as the "*Africa Strategy*", articulated specific

objectives which would help direct assistance to information activities in Africa. According to Akhtar and Melesse (1994:315) the importance of indigenous knowledge to the development process was identified as a mechanism that would enable all Africans to come up with their own solutions to information and development problems.

3.2.1.2 The process

Lundu (1995:57) lists the salient aspects of this strategy as being:

1. The financial and human resources in Africa are limited and could most effectively be used with an explicit framework of objectives and programs consistent with Sub-Saharan Africa's own priorities and existing infrastructures.
2. The strategy provides the means for selection among projects and it supplies criteria against which existing and completed projects can be evaluated.
3. The diffusion of information on research and development linked to national and regional policies provides a better focus for the long term than uncoordinated sectoral concentrations.
4. Key among the spheres of action is capturing, repackaging and delivering information produced locally.
5. Suggestions are needed on how to use all types of media to disseminate information. Where possible support should be received on indigenous publishing, studies on the presentation and marketing of information for specific users and development of information systems that cater for local communities and government.
6. According to Lundu (1995:57) the major objectives of the strategy for Africa are:
   - To encourage sharing of information locally, nationally and regionally.
   - To support information systems that address local problems.
   - To promote standards and compatibility among national and regional information systems.
   - To improve the capacity among African nationals to plan and implement information and information policies.
   - To increase the use of local experts in information handling.

- To ensure the sustainability of information initiatives.
- To build human resources in information science, to promote participation by poor people.
- To improve access by local development researchers, decision-makers and practitioners to relevant information.

3.2.1.3 Evaluation

The IDRC process suggests that "ready made" frameworks and objectives be provided to countries. A clear advantage above other processes is that the capturing, repackaging and delivering of information produced locally, as well as developing systems that cater to local communities and government is emphasised. This strategy supports efforts being made by governments to identify their own needs and priorities. Another benefit of this approach is that the priority areas to be addressed by a policy are first identified and that the strategy provides for evaluation among existing and completed projects.

Although the strategy has several advantages, the disadvantage is that there is no logical sequence to follow in developing a policy. The essentials, such as objectives and focus on the strategy are provided. Even though the process takes local priorities into consideration, it is implied that African countries cannot draw up their own explicit framework of objectives and programmes and that this should be provided.

3.2.2 United Nations Educational, Scientific and Cultural Organisation (UNESCO) approach towards the formulation of a National Information Policy

3.2.2.1 Background

UNESCO has tried to provide an impetus for developing nations to address information policy issues. According to Rehman (1996:185) UNESCO published "*Guidelines on information policy: scope, formation and implementation*" by Wesley-Tanaskovic in 1985, which was replaced by Montviloff (1990) "*Handbook on the formation, approval, implementation and operation of a National Policy on Information*". This handbook in

turn has been revised according to Niegaard (1999). Consultation services have been provided and many seminars and symposia sponsored. The basic UNESCO proposals are for the creation of a national information co-ordinating organisation, whose function would be to initiate the formulation of a policy (Mchombu and Miti, 1992:142). The handbook provides a list of the main characteristics of a National Information Policy and proposes a methodology for its formulation, adoption, implementation and operation.

3.2.2.2 The process

Rehman (1996:190-191) summarises the process that is followed by UNESCO as follows: All stakeholders need to be engaged at all the stages. Surveys and needs analyses should precede other stages of policy formulation. Support of international agencies and consultants may be sought, but the co-operation of political leadership, legislators, and bureaucrats must be ensured. Seminars and symposia should be organised, with draft policies being widely disseminated to generate useful discussions. Organisational structures for the implementation of policies and commitment of resources should be provided in the policy framework. Human resources development should be targeted, and periodic feedback should also be incorporated.

According to Montviloff (1990) the policy process comprises three phases.

PHASE ONE Formulation of a National Information Policy

- Assessment of the national information environment by means of a survey or national information audit. This is to determine objectives, coverage and procedural aspects.
- Preparation of preliminary documentation for a national consultation and to ultimately consolidate the national case study on information resources and services.
- Organisation of a national consultation to discuss the policy issues as presented in the preliminary documentation.

PHASE TWO Official approval and adoption of a National Information Policy

- Preparation of the final version of the policy proposal.
- Submission of the final policy proposal to appropriate government authorities.
- Integration of the information policy into the development policy in order to achieve wider acceptance of the strategic significance of information.

PHASE THREE Implementation of a national policy on information.

- Establishment of a co-ordination mechanism where a variety of broadly dispersed information programmes and activities exist.
- Development of a plan of action which serves as a "backbone" along which the various information programmes and projects are arranged.
- Provision of financial resources for the implementation of the national information programmes.
- Operation and evaluation of information policy. The policy-making process is continuous and can never be considered finished.

Horton (2000) provides an executive summary of the revision of Montviloff's 1990 edition of "*A handbook on the formulation, approval, implementation and operation of National Information Policies*". Unfortunately a copy of this handbook was not available for scrutiny. According to Horton (2000) this is a practical tool for policy level officials on the ideas of the information superhighway, cyberspace and the Information Society.

3.2.2.3 Evaluation

UNESCO has experience in developing these types of policies by having applied and financed them in numerous countries. An advantage of this approach is that the same guidelines can be applied while reviewing the information policies of different countries. The handbook promotes the formulation of a national policy on information and its implementation, rather than just the organisation of information resources and services. The proposed methodology leads to a systematic planning and implementation of an information policy and leaves room for various alternatives to respond to unforeseen constraints (Montviloff, 1990:18). The methodology also takes into account the fact that a variety of information policies or policies which are closely related, already exist in most countries.

On the other hand although UNESCO provides step-by-step prescriptions it leaves no room for local initiatives. According to Montviloff (1990:19) the methodology provides a

basis for reflection and a general agenda for the preparation of a national policy on information to guide the development and management of information resources and services. A selected list of UNESCO guidelines for data collection is provided, however, all these guidelines originate from the 1970's and 1980's. Technology changes constantly and therefore it is not only the policy itself that needs updating but the process as well. Montviloff's handbook has been revised, with the new edition focusing on cyberspace and the information superhighway. According to Niegaard (1999) the new edition of Montviloff's handbook does not include the general public as a target group, but focuses on information with regard to scientific or industrial use. In addition Niegaard (1999) feels that the new edition does not cope with current developments in the field of libraries, specifically with regards to the information technology available to libraries, and the important role library infrastructures can play in development.

Montviloff's (1990) handbook addresses itself to information specialists, but more particularly to professionals involved with the development process. Africa is in a unique situation regarding social and economic development. It is thus with difficulty that the UNESCO process is applied to African countries. Foreign experts are expected to play a role in the policy formulation process, however their transitory nature makes them suitable only at the advisory and training level. These specialists from "outside" the country should train local human resources. A shortcoming is that they are involved in a situation that they might not understand due to the language and culture being totally different.

3.2.3 National Information Technology Forum (NITF) document "*Towards an Information Society policy for South Africa*" (1997, draft 5)

3.2.3.1 Background

This process proposal from the National Information Technology Forum of South Africa suggests that the policy process should be accountable, inclusive, transparent, broad-based and that it should take place within the developing world context. Furthermore there should be consultation and the policy must be grounded in current South African

information technology and societal realities. The formulation process must also take cognisance of international and global trends.

The National Information Technology Forum (1997:3) issued a document, "*Towards an Information Society policy for SA*" which states that the Information Society process is of overriding national importance, and spreads across the full range of government and departments and societal sectors. It is for this reason that the National Information Technology Forum suggested that the political ownership of and responsibility for the process should rest with the office of the Deputy State President.

3.2.3.2 The process

The National Information Technology Forum proposes that the process should be directed and managed by an "Information Society Policy Taskforce", which would produce interim findings and make specific recommendations for action prior to tabling a final report. The following content framework is proposed:

1. Introduction: the Information Society today within the international context and international policy initiatives.
2. The Information Society in South Africa, which includes a national audit of information technology.
3. Objectives and principles should be in harmony with national objectives.
4. Developing an international approach, placing South Africa within the developing world context and governed by its need to ensure equitable integration of its needs and goals within the international information order.
5. Any Information Society depends upon the extent of its technological resource base and its information architecture.
6. Information and communications technology must find its justification in the economic and social benefits of the country.
7. Ultimately it is human factors that determine the success of an information economy, therefore education, training and human resources form a crucial basis for the Information Society.

8. South Africa should strive towards Information Society policies that promote social equity.
9. For South Africa to be able to meet its own needs, it must have the capacity to promote innovation, research and development and develop indigenous solutions.
10. Government has to play a major role in creating an appropriate environment for the growth of the information industry and its beneficial use by the whole society. This includes the establishment of an appropriate policy framework and the provision of necessary incentives.

3.2.3.3 Evaluation

The advantages are that the proposed process has to be accountable, inclusive, transparent, broad-based and that it will take place within the developing world context. Furthermore there should be consultation and the policy is to be based on current South African technology and societal realities. It is essential to take human factors such as education and training into consideration. The National Information Technology Forum proposal suggests a task force to develop and implement a National Information Policy. This task force would have representatives of all sectors. An advantage of this process is that it takes place within the realities and context of a developing world and also takes cognisance of international global trends.

A disadvantage is that the proposed national audit focuses primarily on technology. Other factors such as current infrastructures, as in libraries and community centres, are not taken into consideration and neither is human expertise. This approach also relies too much on government in order to create an appropriate environment. The private sector should also be involved, especially in providing funds and co-operation in providing the necessary information for a national information audit and determining needs and goals.

3.2.4 Summary

In the preceding pages an overview is given of three major proposals towards the formulation of National Information Policies. Each proposal suggests its own method for achieving a National Information Policy. The IDRC's "*Africa Strategy*" comes from a

- Regulatory agencies.
- Non-government organisations, for example UNESCO and the IDRC, and civil society.
- Research and development organisations such as tertiary institutions
- Organised labour and information professionals.
- Information technology providers.
- Publishers.
- Distributors of information.
- End-users.

The United Nations Economic and Social Council (1993:15-18) in their "*Strategic Agenda for Development Management in Africa in the 1990's*" divide the stakeholders or actors in the management of development projects in Africa into two types, national actors and external actors.

1) National actors

The challenge for actors at the national level is to ensure that the framework in which development is going to take place becomes hospitable for private and public initiatives. Government, business, people, their organisations and Non-Government Organisations and institutions of higher learning and training and research centres do this, and each has a role to play.

A) Government reassesses the existing legislation, policies and regulations so that they become more supportive, but also protect the public from being exploited. It encourages a political climate in which public debate about the policy is encouraged so as to broaden the involvement of other stakeholders in the policy making process. It maintains political stability and initiates steps to make governance more transparent and accountable. It provides a favourable macro-economic environment. It also ensures better and more effective use of public resources by, for example, developing and strengthening national capital markets in order to enhance the capacity for domestic funding.

B) Business facilitates the access of entrepreneurs to markets and credit facilities. It encourages the development and use of local technology and resources. Ethical practices and social responsibility are developed and maintain to ensure that its public image is one of concern with development. Business forges partnerships with institutions and universities to promote applied research and training. It also encourages and secures reinvestment of profits locally so as to build up confidence and attract foreign investments.

C) People, their organisations and Non-Government Organisations must be ready to seize initiatives and exploit new opportunities. They must foster partnerships with government and business, form and strengthen institutions of civil society that play the role of watchdog on public institutions, and mobilise local resources through self-help activities that match outside contributions. Grassroots opinion must be educated to benefit from entrepreneurial schemes, and viable and effective networks and communication structures to exchange information, and disseminate innovations must be established.

D) Institutions of higher learning and training and research centres must enhance the interface with government with a view to further the contribution of national experts. Curricula must be revised to reflect current African realities and provide students with knowledge that is relevant to dealing with present and future problems. The necessary steps must be taken in consultation with government and other relevant actors to retain faculty and providing them with incentives to be more productive in both teaching and research. Institutions of higher learning and training should initiate and participate in the development and promotion of indigenous technology. Networking with managers, researchers, administrators and scientists in government, business and other sectors, with a view to knowledge transfer for application in the world of business. Intra-African co-operation among centres of higher learning must also be promoted.

2) External actors

External actors include governments, business, multilateral agencies and Non-Government Organisations. Their role includes providing African countries with substantial external support to supplement their efforts for some time to come. An acknowledged problem of the past must also be rectified. This is that the manner in which assistance has generally been given has often been "donor-driven" and designed to execute specific projects and programmes according to donor specifications rather than to build and sustain local capacity.

The key responsibilities of especially external donor agencies are to:

- Provide support and substantial external resources.
- Co-ordinate funding and assistance targeted to priority areas, this must promote capacity building and self-reliance.
- Provide the means for more effective use of external assistance.
- Provide assistance in support of better governance through accountability. Donor agencies should also be ready to accept responsibility for any failure of their advice.
- Assist programmes that stem and reverse the brain drain from Africa.
- International Non-Government Organisations should promote the need for adequate support.

Although each individual country must develop policies and capacities that are relevant to its own challenges and opportunities, regional and sub-regional actors have an important role to play as catalysts of new ideas and advocates on behalf of Africa in the international arena. Primarily it is necessary as far as possible to involve those who are directly concerned with any given policy, whose livelihoods are likely to be affected and at the same time whose knowledge of the system has an important informative role to play. The right to know is not adequate unless it is accompanied by reforms that allow for the right to participate in decision-making processes.

3.3.2 The different steps in the formulation of an information policy

The processes discussed in 3.2 make no reference to consultation with the people it will influence and therefore lacks human interaction. Information policy as a discipline is about the inter-relatedness of the micro and macro perspectives and the interaction between the cultural, organisational and technical aspects. Many approaches to information policy making have been one-sided in that they have mainly adhered to the purely technological aspect. Technology does not exist in a vacuum, but must be viewed as an interaction between cultural, organisational and technical aspects. Each of the discussed processes lacks one part or another, and it is for this reason that an own approach towards the formulation of a National Information Policy for South Africa is suggested. It is based on a thorough theoretical underpinning of information policy theory with a logical step-by-step approach.

The National Information Policy formulation process suggested is primarily from an Information Science perspective, but more specifically from the perspective of information for development. In other words it is aimed at uplifting all sectors of a country and thus forms a wide base. Ready-made frameworks such as those provided by the IDRC and UNESCO were found to be too broad. As stated earlier, a National Information Policy should be adapted for a specific country, with the methodology being suited to that country's circumstances as well as leaving room for local initiatives. Thus the following guideline with three steps for formulating a National Information Policy is introduced.

Step 1. Objectives and policy goals

The country's information situation is first assessed, that is, past policy initiatives, the present situation regarding technology and other resources, human resources and the way in which information moves through its lifecycle from generation to storage are reviewed. Once the documentation and feedback from the national consultation has been examined, objectives and policy goals can be laid down, within the framework of the country's development objectives.

Step 2. Policy formulation and implementation

The factual information such as statistics, finance and human resources collected in the previous step are analysed and used. Systems for the capturing, repackaging and delivery of information produced locally will be designed. Thus the formulation stage translates the goals and objectives set into feasible plans, programmes and projects.

Step 3. Evaluation and policy review

The policy making process is continuous and can never be considered finished, thus the operation of the policy is evaluated and revisions made on a regular basis. The policy process should make provision for the review of existing and newly created institutions, technological developments, changes in and new influencing policies and services, with the intention of revising, endorsing or expanding them.

3.3.3 Summary

The most important role players are the government, providing incentive schemes and policy frameworks, business and Non-Government Organisations providing the all-important funds, international knowledge and resources. Institutions of higher learning provide added expertise of local conditions and new research and innovations. Non-Government Organisations, information professionals and experts from institutions of higher learning do the initial analysis of the country's situation. Government, business and Non-Government Organisations should make the necessary information freely available for this process as well as provide the infrastructure and human resources of statisticians and analysts for the examination of collected information. All role players then state their objectives and goals, in other words what they expect to get out of the process. An overall objective of the National Information Policy is the social upliftment and development of people on grassroots level, therefore they are probably the most important role players. According to Stanat (1995:2) information professionals must then determine what kinds of information are required. Information professionals and experts then synthesise these overall goals and objectives into specific goals and objectives of an information policy plan.

3.4 An own approach towards the formulation and implementation of a National Information Policy

3.4.1 Information gathering and the three levels of analysis

3.4.1.1 Information gathering

As introduction to the policy development process, the Information Society within national and international policy initiatives must be studied. It is necessary for policy makers to have a sound theoretical foundation and understanding of the subject area in order to develop the best policy possible. This is followed by an intense information gathering process within the country itself, known as an information audit. It is carried out in order to gather facts such as the country's development objectives and priorities and the government structures within which will be worked. The country's structure also determines the information flow. We need to know the country's "culture", not only how the country is governed but also the way in which it is done. Projections of the future conditions must also be made. The information to be retrieved by the audit thus involves the collection of background information about past development projects in the local area. A look must be taken at which government and Non-Government Organisation projects have been successful or have failed in specific areas. The content and relevance of generated information must also be reviewed.

A proper assessment of the information process in any given social framework should start with a close look at information generation. It is important to know its coverage and the timeliness and timing of information generation in terms of the right information being produced at the right time. The importance of accuracy also needs emphasis. What types of information are required must also be established, that is, the end user's needs and priority areas. The best possible source of that information for the least amount of money and the quickest turn-around time must then be found. External, internal, manual as well as automated sources, services and systems must be reviewed in order to assess that which

is of special national interest and priority. The way in which information flows must be looked into. A review of existing information services and infrastructures, including the extent to which such services are in a position to meet identified information needs, and the available financial and human resources, must be undertaken. Finally preliminary documentation of the findings must be drawn up for analysis and a national consultation process.

3.4.1.2 Three levels of analysis

In chapter two Moore's (1996a) analytical matrix was used to identify information policy issues. When analysing the problem the prime object is to assess the needs of the users, then assess the extent to which existing information is being utilised. Secondly an assessment of the information generated by government and private sector and the sources used must be identified. What is intended here is to form a theoretical framework for understanding the nature of the problem by analysing the information gleaned from the information audit in order to derive objectives and goals for the formulation and implementation of a National Information Policy.

Three levels of analysis based on Moore's (1996a) information policy matrix may be used. The three levels of information policy analysis are the industrial, organisational and social levels. The industrial policy level relates to the development of an information sector at a national scale. Thus the main concern is the development of the information industry as an industrial sector in its own right, which has, at the same time, an important facilitating role as a supplier of information to other industrial sectors. At the organisational level we are concerned with the ways in which organisations use information as a resource within organisations to increase productivity, efficiency and competitiveness. Finally at the social level we are concerned with information needs and information provision related to individuals and social groups. For example, questions of citizenship and participation are addressed.

The question as to who should do an information audit and analysis leaves us with two options. Outside consultants will ensure objectivity but will lack the insight or understanding of the operation of the government. The role played by consultants will be defined by the government itself on the basis of the knowledge that exists within the government and within the framework of its objectives. Alternatively an internal task force, which will have the necessary background knowledge but may lack objectivity, can be employed. To solve this dilemma a third option can be to combine the above two options by having internal staff as well as consultants working together, this ensures an understanding of the government processes and will increase objectivity. Thus objectives are set up within a framework to interpret everything we learn about the country, such as how it evaluates information, evaluates possible courses of action and decision-making.

3.4.2 Objectives and policy goals

Once the preliminary documentation and feedback from a national consultation has been done and the information analysed, objectives and policy goals are laid down. When the main objectives of the information policy are accepted and understood, they should become a formal part of the country's objectives, select areas for further development and draw in representatives of the people who are the most concerned with them. Inside knowledge of the country is the key to choosing both where to start and the subsequent sequence of projects.

An objective of a national information policy, for example, is to protect, develop, control, retrieve and make information available as a national resource, and to promote its use in all domains of society (Boon, 1984:16). Another goal may be to achieve optimal utilisation of the planning, decision-making and problem-solving resources, the information and professional knowledge generated and available in a country or abroad, in order to promote sustainable development.

3.4.3 Policy formulation and implementation

3.4.3.1 Policy formulation

Once all necessary information has been gathered and analysed, it is used in conjunction with the goals and objectives set in the previous step to develop a plan of action, or in other words a policy should be designed, according to the country's specific and unique structure and needs. Identifying training needs is also essential, as well as how it will be monitored and evaluated. It is important to agree on methods to make reliable monitoring easy and cost effective. This phase is the stage where information is circulated by information inter-mediation, where a working framework may be developed via meetings, discussion groups, seminars and conferences.

A policy is written on the presentation and marketing of information for specific users and the development of the information systems that cater for local communities and government. The policy itself is usually made up of statements on a number of policy positions and development guidelines given the status of law by means of legislative action. One aim of the policy is to ensure the unimpeded flow of information. A global vision provides the ideal to enable countries to co-operate in the global environment, but will have to allow for a national vision for each country to express the national needs, goals and cultures of each country in its particular situation. Systems for the capturing, repackaging and delivery of information produced locally must thus be designed. Information use and technology in relation to human resources as well as objectives must also be included. The final proposal, which is to be executed, is submitted to the appropriate government authorities from where it is integrated into the national development policy.

3.4.3.2 Policy implementation

The implementation stage of the policy process involves translating the policy objectives into more specific, problem oriented, policy statements with an indication of the nature of actions to be taken and the policy instruments to be applied. Information professionals and institutions are the major actors at this stage. External donors are also actors at the

implementation stage, as it requires considerable input of funds, equipment and qualified human resources.

The upheaval that implementing a coherent National Information Policy can cause must be considered at all levels of society and the economy. According to Hill (1993:189) it will require:

- Active networking, cutting across traditional administrative and organisational lines.
- Major reorganisation and reassignment of responsibilities at operating levels.
- More open and transparent decision-making in various private and public bodies.
- The development of adequate incentives to promote systems integration between the different actors.
- The multiplication of institutional "meeting points" where the various actors can confront their interests, and discover their common ground. At government level, this will be translated in terms of closer co-ordination between a number of different ministries and departments.

Once the policy has been designed, developed and approved, all shortcomings and faults eliminated and all stakeholders are satisfied with the end product, the policy will be put into actual working order. Implementing the project is also the best and virtually only way to see whether it is successful and that it meets all stakeholders' needs. Thus the formulation stage translates the goals and objectives set into feasible plans, programmes and projects.

3.4.4 Evaluation and policy review

Constant monitoring of any systems and functions will be needed to keep the policy in working order. As stated by Montviloff (1990) the policy making process is continuous and can never be considered finished, thus the operation of the policy is evaluated and revisions made on a regular basis. The policy process should make provision for the review of existing and newly created institutions, services, technology and the instruments of policy implementation, with the intention of revising, endorsing or expanding them.

Information audits are considered necessary to identify gaps as discussed above. The key actors here include government policy makers, special interest groups and information professionals.

3.5 Summary

The feasibility of a policy depends on various factors, such as the internal structure of the policy itself, and the field for which the policy is determined, the resources available and the priority given by the government to the implementation of the policy. Motivation for policy development and change comes from all sectors of society. Thus an overview of three different policy process proposals was given. These include the IDRC "*Africa Strategy*", UNESCO's handbook on the formulation of a National Information Policy by Montviloff (1990), and because we are primarily concerned here with South Africa, the important progress made by the National Information Technology Forum. Some authors, such as Sturges, Mchombu and Neill (1996:122), feel that there has been an emphasis on information being obtained from "outside" and then fed downwards to the citizen in African countries, and this has pervaded the development strategies adopted in the past. Each nation has its own peculiarities, and policy issues cannot be ascertained solely from the UNESCO Guidelines or other similar "how-to" types of manuals. An intensive engagement of everyone concerned is required. Resulting from these discussions then and keeping the theoretical basis laid down in chapter two in mind, a four-step process for the formulation of a National Information Policy in South Africa is suggested. This process includes an exploration of the three levels of analysis required in the examination of the information recovered by an information audit. Following this analysis, objectives and policy goals are set up. The actual formulation and implementation of the policy follow this. For the policy to be successful it must be evaluated against the original goals and objectives set and it must be reviewed and improved at regular intervals.

A problem facing many African countries is that although ministries do exist for planning, few of them actually facilitate the required policy analysis and planning support for which

they were established. When policies are formulated these ministries are often not involved, or are located elsewhere in government. According to Oosthuizen (1996:61), they thus lack clarity, are intrinsically flawed in terms of functions and structures and are ineffective. It is thus felt that the role of knowledge in the analysis, formulation, conduct and evaluation of policy needs is to be given greater focus, because in the final analysis it will be the politicians who will determine the end product. The perception by politicians of the role that information can play in the process of national development is thus more crucial than the perception of information professionals. A nation's information policy must acquire a broad view of that nation's history and traditions. In short, the context out of which specific policies arise must be known.

In the next chapter, a closer look will be taken at specific National Information Policy formulation efforts of Malaysia. The country's national priorities, developments and obstacles to development are discussed.

Chapter 4 Case Study: Formulating national information related policies in Malaysia

4.1. Introduction

The previous three chapters can be described as giving the necessary theoretical background to National Information Policy, with chapter three looking at three proposals for the formulation of a National Information Policy in South Africa. After considering these proposals, an own methodological approach towards the formulation and implementation of a National Information Policy was proposed. The proposed approach is worthless unless it is applied, however, before applying the proposed methodology (in Chapter five and six), this chapter will take a look at the efforts made by the Malaysian government to formulate various information-related policies. This case study has been included so as to use it as a type of benchmark or point of reference from which guidelines for South Africa may be set. Case studies are useful instruments from which mistakes can be learnt and thus avoided.

South Africa and Malaysia differ greatly from each other in most respects, but both countries are regarded as Less Developed Countries. In order to understand what is needed for a South African information policy another developing country's efforts at formulating a National Information Policy is considered. The reason for this is that the focus of information policies in Less Developed Countries often diverges from those held by developed high-income countries. High-income countries concentrate on the industrial and social levels of information policy, whereas developing countries are concerned with building infrastructures. Malaysia was chosen because it has made one of the most substantial efforts to systematically transform social patterns of communication and culture with new technologies, leading to national development. Malaysia is a pioneer in the Asian region in getting a National Library and Information Policy approved by the government. Malaysia subsequently implemented its *Vision 2020*, the government's ambitious plan to achieve "developed nation status" by the year 2020 (Jackson and

Mosco, 19?). As a result Malaysia is considered a successfully advancing developing country, and it was also chosen for its leadership role in the East in this respect. The discussion below is structured according to the country's national priorities, developments and obstacles to these developments. Conclusions and observations resulting from the discussion are then expressed.

4.2 Case Study: Malaysia's efforts at formulating national information related policies

4.2.1 National priorities

Developing information infrastructure policies, Malaysia adopted a free market, de-regulatory approach that relies on private sector capital triggered through deregulation (Moore, 1996b). Initially the priority of the Malaysian government was to provide and progressively improve library facilities and services in order to contribute effectively to national development by creating a reading and informed society. Malaysia is one of a few countries where an integrated National Policy for Library and Information Services has been formulated (Chaudhry, 1993:231). According to Rehman (1996:191) the National Library and Information Policy, contains broad principles, which provide general direction for the future course of events for library and information services. "It provides for a strategy for providing appropriate library and information services to serve parliament, government departments, research institutes, universities, colleges and schools, and the public at large, in such a manner that those desirous of using such facilities will have convenient access to them" (Chaudhry, 1993:231). The National Policy for Library and Information Services was formulated taking into consideration the infrastructure of library and information services, as well as the legislation enacted for the establishment of the National Library of Malaysia, the State Public Libraries and for the legal deposit of materials. The policy emphasises resource sharing. According to Chaudhry (1993:231) a close working relationship between the National Library and university libraries resulted in

proper formulation and effective implementation of the National Library and Information Policy.

The Seventh Malaysia Plan promotes a shift in the national development strategy, giving high priority to scientific research and technological innovation, and a shift from being input-driven towards productivity-driven (Jaafar, 1997 and Ahmad Din, 1999). The government is thus promoting innovation-orientated industries and services. Computer literacy, computer assisted teaching and learning programmes are being introduced and distance learning programmes are being expanded. The government has therefore emphasised research and development as well as accelerating the application of information technology, especially in the development of the Multimedia Super Corridor (MSC). In order to ensure that the growth of telecommunication services and that the use of technology supports national development in line with the national aspirations, a National Telecommunication Policy was formulated in 1995 (Jaafar, 1998).

4.2.2 Developments

In 1977 a preparatory Committee to Plan the National Information System was established. This committee set up working committees to study various aspects such as user needs and human resources (Mohammed, 1991:137). A more serious effort to formulate a National Information Policy began in 1982 when a grant was received from UNESCO to organise a seminar. A concept paper was presented at the congress of Southeast Asian Libraries in 1982, which was instrumental in having a recommendation approved (Rehman, 1996:191). A national seminar was organised in collaboration with major stakeholders in 1984. A high-level committee or Task Force, set up as a result of the seminar, completed the first draft of the national policy in 1987 and the government finally approved the National Library and Information Policy in 1989 (Mohammed, 1991:137). The impetus came from an UNESCO grant and the association of an UNESCO consultant at the initiative of the School of Library and Information Science of the Mara Institute of Technology.

Realising that information technology is becoming the key factor to achieve a competitive edge and to achieve the vision of becoming a developed nation, the National Information Technology Council (NITC) was established in 1994, and in 1995 a National Telecommunication Policy was formulated. This was to ensure that the development and utilisation of information technology be used as a strategic technology for national development and that the growth of telecommunication services and its use of technology support national development in line with the national aspirations (Jaafar, 1998). Malaysia's government has since taken numerous further initiatives to forge ahead towards realising this goal. The main agency driving automation of government services in Malaysia is the Malaysian Modernisation and Planning Unit (MAMPU). The Malaysian Modernisation and Planning Unit is responsible for planning administrative modernisation programmes and co-ordinating the planning process in human resources development. A National Equity Corporation was created to integrate and implement solutions to ensure continuity while developing new information technology and information systems.

Malaysia's *Vision 2020* programme is aimed at converting Malaysia into an information-rich society with a knowledge-economy that nurtures a culture of science and technology, thus allowing Malaysia to become a fully developed nation by the year 2020. The plan outlines the following nine strategic challenges facing the country according to Jackson and Masco (19?),

1) Establish a united Malaysian nation made up of one Malaysian race.
2) Create a psychologically liberated, secure and developed Malaysian society.
3) Foster and develop a mature democratic society.
4) Establish a fully moral and ethical society.
5) Establish a mature, liberal and tolerant society.
6) Establish a scientific and progressive society.
7) Establish a fully caring society.
8) Ensure an economically just society, in which there is a fair and equitable distribution of the nation's wealth.

9) Establish a prosperous society with an economy that is fully competitive, dynamic, robust and resilient.

Since 1997 Malaysia has embarked on its plan to be the technological hub of Asia by creating a "Multimedia Super Corridor". The Multimedia Super Corridor covers an area of 15km by 50km stretching from the Kuala Lampur International Airport to the new capital city of Malaysia, Putrajaya. Essentially this is a cybercity centre where electronic government, borderless marketing, smart schools and the like are situated. Concentrated in the capital region to begin with, it is envisaged that in its final stages the project will transform the entire country into a super corridor, wired to other "islands of excellence" throughout the world. The nature of the Multimedia Super Corridor also reflects strong privatisation and economic liberalisation programmes. The Multimedia and Communications Act was introduced on 1st April 1999 to provide for and to regulate the converging communications and multimedia industries, and for incidental matters (Ahmad Din, 1999). In addition the following Acts are also being introduced:

- Digital Signatures Act, to facilitate electronic commerce.
- Copyright Amendment Act, which strengthens intellectual property protection.
- Data Protection Act, governing the gathering and exchange of personal information.

Policies on paper-less administration and electronic government have also been introduced. According to *Gauteng "Intelligent province"* (1996:17) Malaysia fostered the use of a single infrastructure through the creation of a Public Services Network with the integration of distributed databases to stimulate information flow between all agencies. The National Information Technology Council has been set up under the auspices of the Malaysian Institute of Microelectronics. It acts as a think-tank and advisor to the government, and formulated the National Information Technology Agenda (NITA). The National Information Technology Agenda aims to ensure that all Malaysians have access to information and learning through "infostructure", and that information and knowledge applications will be the basis to further enhance quality of work and quality of life. The Ministry of Education has also developed strategies to introduce information technology

as an integral part of the education system, and by the year 2020 it is expected that everyone who goes through the school systems will be computer literate and be prepared for the technologically inclined job market.

4.2.3 Obstacles

Although the National Policy for Library and Information Services is an integrated policy, the document does not address issues like copyright, freedom of access, classified information, international dimensions of transborder data flow or data protection. However, according to *National and International Information Policies* (1991:123), Malaysia announced plans to join the Berne convention and amend its 1987 copyright law.

More recently, as new information technology-based products and services are being introduced, meeting the changing needs of information users, the following challenges need to be overcome:

- The need to develop expertise in information technology and specialist subjects to effectively and efficiently utilise as well as manage knowledge and information.
- Available information may be under-utilised because users may not be aware of it and because of an inadequacy in their familiarity with the use of information technology and information itself. Thus effective measures to promote and market information products and services must be instituted.
- Digital services should not be concentrated in the urban centres only but should also be extended to rural communities thus allowing equal access to information services.
- Information resources on the Internet are frequently updated and it is difficult to trace their historical development. This poses a challenge to preserve the intellectual contents of the Internet.
- Similarly, computer software and hardware have short lifecycles, thus continuous training and retraining and exposure to new information technology products is essential.

- In order to strengthen the National Information and Knowledge Infrastructure, there is a need within each institution for professional skills in the management of knowledge and information to support the creation, organisation, dissemination and utilisation of institutional knowledge resources.

With reference to the Multimedia Super Corridor, Jackson and Masco (19?) highlight the following general areas of criticism. It is feared that the concentrated and centralised technology zone, the Multimedia Super Corridor, would widen the already considerable gap between the capital region and rural areas in the rest of the country. It is also feared that there would be a growing division between information "haves" and "have-nots". This led to the questioning of whether the public resources invested in the Multimedia Super Corridor could not have been more equitably distributed in information technology promotion programmes at multiple levels and in various regions. Another criticism focused on the prominence of the private sector in setting the terms of the project.

4.3 Observations

From the case study of Malaysia, observations have been made, which have been arranged according to the discussions above. Mistakes or wrong decisions can now be identified from these observations and thus avoided when developing policy guidelines for South Africa.

4.3.1 National priorities

Malaysia regarded as a Third World Less Developed Country, put emphasis on the aspect of national development, especially developing infrastructures in order to provide information for the development of the nation. Initially this meant improving library facilities and services in order to communicate and disseminate development related information to the people. Malaysia also placed emphasis on human resource development, co-ordination, resource sharing and management of development projects as well as government information.

Malaysia's priorities then shifted heavily towards information technology. Malaysia's aim is to become the technological hub of Asia and a developed nation, and it has identified information technology as the means to reach this goal. Malaysia is an example of a Less Developed Country that has taken the opportunity to utilise technology in order to "leapfrog" into development. However, as stated earlier, Malaysia has made substantial efforts to transform its social patterns of communication and culture. Culture is what differentiates nations from each other, and the use of technology should not transform that which is unique to any culture. The gap between "haves" and "have-nots" and between rural and urban should also be considered.

4.3.2 Developments

The development of a National Information Policy in Less Developed Countries has been one of the major pre-occupations of the Economic Commission for Africa, IDRC and UNESCO, thus it is not surprising that Malaysia had the guidance and expertise of these and other multilateral and bilateral agencies. Malaysia began development efforts during the late 1970's and early 1980's with the UNESCO initiative for the development of a National Information System (NIS). The main emphasis of the UNESCO guidelines was for the creation of a national information co-ordinating organisation whose job would be to initiate the formulation of a policy, to prepare plans for the implementation and co-ordinate and monitor operational activities involved in the execution of the plans. Seminars were the chief driving force for the policy formulation process, other activities included workshops and debates and discussions.

During the 1990's Malaysia's strategies changed from a more library and information oriented perspective to a technology-oriented perspective. This was led by the enactment of a Telecommunications policy. Malaysia however went further with its *Vision 2020*, and in 1997 started implementing its plan of becoming a developed nation by 2020 by creating the Multimedia Super Corridor. Malaysia's National Information Technology Agenda's vision of having access for all to information and learning is not much different from that of the original aspirations of UNESCO's National Information System programme.

4.3.3 Obstacles

Typical obstacles are a lack of skilled human resources and the accompanying inadequacy of familiarity of the role that information can play in socio-economic development. Thus it is not only information workers, but also the "person on the street" that needs to be educated. Malaysia was also found to lack the expertise necessary in information technology to reach its goals and vision. Another obstacle is the impact of culture on fundamental information principles, such as freedom of information. This is illustrated by the fact that although the Malaysian government has promised freedom of the Internet and such like, information and media controls remain strong in Malaysia (Jackson and Masco, 19?).

4.3.4 Lessons to be learnt

The specific lessons to be learnt from the case study are now discussed. These lessons will assist in developing successful policy guidelines for South Africa.

1. When developing an information related policy, most countries concentrate on a single aspect, such as technology or library development, and have a single policy in mind. For example, Malaysia's National Library and Information Policy is confined in scope to library and information services. The National Library of Malaysia was entrusted with the responsibility of implementing the National Library and Information Policy, implying that no additional structure in the form of a national commission or additional funding was considered essential. The picture as a whole, involving all interested parties, should be looked at when formulating information policies.

2. In general Less Developed Countries usually follow the developments of developed countries, and often at the initiative of the developed countries. Malaysia had external expertise and donor organisations assisting their efforts at developing information policies. These include UNESCO's General Information Programme and efforts by the IDRC. At first UNESCO's National Information System process was emphasised, with Malaysia being one of the few countries assisted that actually adopted a policy,

even though its emphasis was very narrow. An advantage of this is that the Less Developed Countries can learn by example and not make the same mistakes. Current technological developments also allow for "leapfrog" strategies. Situations in countries are however not the same and this should be kept in mind.

3. Rural areas require more "development" in that these areas lack infrastructure. The people are unfamiliar with new technologies. Instead of being an asset it is not utilised as envisioned.

4. Issues such as the geo-political environment, the socio-economic conditions, technological state and legislative machinery are big obstacles for Less Developed Countries. Each country has its own socio-cultural system as part of the political mechanism, however international environments and circumstances of technology and political systems also influence information policy at the national level. Thus the strengthening of an information infrastructure is seen both as a necessity and an opportunity to accelerate development in all spheres of economic and social activity.

5. Development concerns and issues of policies show some similarities in most countries. The chief area of debate is what type of information is relevant to a specific country. In Less Developed Countries the concern is with the type of information that could benefit the least developed areas of a country. Thus the purpose of information and communication is conditioned by the needs of each activity, time and place, thus making it imperative to relate the definition of information to a particular society and community.

6. Formulation mechanisms fall short of integrating some considerations, and others tend to focus on a specific area or activity, thus the conventional approach to the formulation of National Information Policy in many countries has been marked by its lack of comprehensiveness in terms of contents and coverage. In general, only a few countries have made progress in laying the foundation for national information and

communication infrastructure and developing the strategy to move forward. This confirms the role that the numerous international organisations play in guiding national governments and providing support for the development of information policies in Less Developed Countries. The few advances that the information sector has made have come thanks to external support. Thus there is little chance of sustained growth should donor support cease, leading to stagnation and gradual collapse.

4.4 Summary

Two points that speak for themselves will be highlighted. The first is that the following success factors regarding the implementation of Malaysia's National Library and Information Policy have been identified:

- Strong support from all levels of government.
- Efficient project management.
- Support by proven technology.
- Phased implementation.

The second point gives evidence of the success or not of Malaysia's policies. This is shown in the global Information Society Index that came out at the eve of the new millennium. This index tracks data from 55 countries that collectively account for 97% of the global Gross Domestic Product (GDP) and 99% of information technology expenditures, Malaysia is placed 34th (See, 1999). New patterns of information seeking and information needs of the society are thus the result of information technology development, which in turn brings about changes to the society. Malaysia as an example, shows that there are many facets of what we call "information" that need to be considered, and that information is no longer exclusively the domain of library and information services.

Many Less Developed Countries have become independent only recently, that is, within the last 30-40 years. Typically they struggle with civil wars and are faced with poverty and

disease. The result is that scant attention is given to information related activities. The inefficiency, inconsistency and lack of coherence in the application of policy instruments can and do constitute a lack of policy. Specifically the elaboration of information technology policy, an integral part of National Information Policy, is a major determining factor in setting-up the underlying supporting infrastructure and enhancing the optimal use of the technology.

In contrast the great efforts and financial support by organisations such as UNESCO have been instrumental in creating the necessary awareness and identifying priorities and opportunities, and assessing current strategic information systems projects at national level. However, organisations such as UNESCO can go to great lengths in assisting countries by holding seminars and providing expertise to draw up an actual policy, but it still depends on the national government of a country to finally enact such a Bill and implement it.

In the next chapter a closer look will be taken at the main efforts surrounding the development of an information policy for South Africa.

Chapter 5 Critical analysis of the evolution of the main South African information related policy efforts

5.1. Introduction

In order to draw from the experience of other countries in the development of a National Information Policy for South Africa, a brief case study of Malaysia was undertaken and presented in the previous chapter. However, the primary concern in this dissertation is with South Africa, therefore a more comprehensive case study and thus this whole chapter is dedicated to the discussion of the main efforts that have been made to date within South Africa regarding the development of information-related policies. The discussion is divided into a "past" and "present" context of South African developments. "Past" context refers to the primary developments that took place prior to the 1994 general elections. An overview is also given of the telecommunications policy developments influencing the infrastructure necessary for a National Information Policy to function effectively. In contrast the "present" context refers to the current situation we find ourselves in, in the post 1994 election era. This takes the form of a discussion of the socio-economic conditions that South Africa finds itself in, in an attempt to set the context for the development of a National Information Policy in South Africa. These past and recent efforts are then critically analysed in order to present suggestions resulting from this study and critical analyses in the next chapter.

5.2. South Africa in past context: The main areas of development of information related policies

The discussion of the past context is limited to highlighting the historical development of mainly two separate, yet related, policy efforts. The first direction of development covers the efforts made to formulate a Library and Information Services policy, which will start the discussion. The second direction continues with the more technologically oriented

efforts by the National Information Technology Forum and the IDRC at formulating an Information Communication Technology Policy for an Information Society. An overview of the Telecommunications Policy developments is also given.

5.2.1. Library and Information Services (LIS) oriented developments

5.2.1.1 Developing library and information services- 1927 till 1988

Many attempts have been made over the years to formulate a Library and Information Services policy in South Africa. Following is a brief historical layout of what librarians and information workers have achieved so far in South Africa regarding a Library and Information Services policy.

In 1927 the president and secretary of the Carnegie Corporation visited South Africa as part of the Carnegie Corporation programme of funding educational and social work in the "British dominion" (Walker, 1993:60). One of the projects that were undertaken as a result of this was the improvement and extension of library services in South Africa. After their tour, a national conference was convened in Bloemfontein in 1928 at which 78 institutions were represented. The aim of the Carnegie Corporation conference was to survey the current library situation and this probably represents the first attempt made at formulating a Library and Information Services policy in South Africa. Among the recommendations made, were those that led to the founding of the South African Library Association (SALA), the establishment of the journal "*South African Libraries*", the development of professional training and eventually the structuring of the free provincial library services in the 1940's.

In April 1936 the Minister of the Interior of the Union of South Africa appointed an inter-departmental committee on the libraries of the Union of South Africa, whose terms of reference were to enquire into and report upon the general organisation of libraries in the Union. This report expressed frustration that so many issues, including that of a centrally organised free public library service, had not been undertaken despite the Carnegie

Corporation proposals. In 1944 however, the Corbett Commission reported that all four provinces had launched their free provincial public library services.

The 1959 annual South African Library Association conference resolved to take strong measures to promote closer co-operation among libraries in South Africa. An Action Committee was appointed to submit a report and recommendations. These were submitted to the South African Library Association conference in 1960. It resolved to request the Minister of Education, Arts, and Science to convene a National Conference of Library Authorities. The findings and recommendations were condensed into a draft document, "*Programme for future developments: introduction and proposals submitted by the SALA*", and this was distributed with the South African Library Association's newsletter of May 1962 for further consideration at a special conference of South African Library Association held in 1962. The resolutions of the national conference were in the form of a manifesto to all South African library authorities, for the planning of future library development in South Africa. The conference expressed an opinion that a central body should be established for bibliographic and information services.

The National Library Advisory Council was established in 1967 and in 1974 became the National Advisory Council for Libraries and Information (NACLI). The Council's chief reasoning for why a policy should be drawn up was to set clear policy guidelines so that funds would be allocated and spent accordingly. The National Advisory Council for Libraries and Information was dissolved in 1987 when government felt there was no longer a need for a national policy on libraries and information and that these should be market-driven (Walker, 1993:71).

In 1980 a restructured, mainly white professional institute, the South African Institute for Librarianship and Information Science (SAILIS) replaced the South African Library Association. A small committee was set up by the South African Institute for Librarianship and Information Science Council to develop a policy (Walker, 1993:72). According to Zaaiman and Roux (1989) a seminal paper entitled "*An active role for libraries in*

development" proposing a radical new service orientated library service was presented in 1986. The final report was published in 1988, and it focused almost entirely on the role of the public library in the development of South Africa. Its recommendations were thus aimed primarily at librarians.

5.2.1.2 National Education Policy Investigation (NEPI)

The National Education Co-ordination Committee (NECC) initiated the National Education Policy Investigation (NEPI), which took place between 1990 and 1992. A National Education Policy Investigation Library and Information Services Research Group was established to publish a separate report on library and information services. The Library and Information Research Group was formally constituted on a national level as a sub-group of Support Services. The opportunity was taken to grasp and survey the entire spectrum of library and information services based on the premise that a coherent library and information system is necessary for an effective educational system. Librarians were involved largely because of the initiative of the Natal-based group associated with the "alternative" Library and Information Workers Organisation (LIWO) which had been founded in 1990.

According to Nassimbeni (1994:149) the publication of the general findings intensified debate about the future of education. The report concluded that the library and information services sector in South Africa was fragmented and lacked co-ordination, in addition it also concluded that the State does not consider library and information services to be integral to education. The findings of the National Education Policy Investigation Report also indicated that some sectors were better served than others, but that efforts to bring about a more equitable system are limited by a lack of funds and a lack of policy. Library and information services continued to be aligned with the Department of Education and neither, the library and information services nor the Government had begun to explore the major economic value of information resources and their accessibility.

5.2.1.3 A "New South Africa"

After the work of the National Education Policy Investigation Library and Information Services had come to an end, the need still existed to continue library and information services research and to formulate a Library and Information Services Policy. The effect of the research undertaken by the National Education Policy Investigation was the launch in March 1993 of Translis (Transforming Our Library and Information Services). This was essentially a continuation of the National Education Policy Investigation work on a more wider and systematic basis incorporating more regions and regional representation. The mission of the Translis coalition was to develop a National Library and Information Service Policy programme, which would direct the process of participatory change and reconstruction of South Africa's libraries and information services, both at a regional and national level.

One of the proposals from the National Education Policy Investigation report was for a nationally structured library and information services system within the broader framework for education policy development. According to Walker (1994:120), this policy framework influenced the Centre for Education Policy Development to publish *"A Policy Framework for Education and Training"*. This was the draft policy framework released in 1994 for discussion by the African National Congress (ANC) to fall in with the Reconstruction and Development Programme (RDP). The African National Congress's vision regarding Library and Information Services, is that of "... a government which serves and values the freedom and democracy of its people, will treasure the empowering, liberating and educative role of ideas and information, and will commit itself to provide for the cultural, educational, economic and technological development of its people through a national LIS system" (African National Congress, 1994b:79). Thus the library and information services would be democratically developed and managed in co-operation and consultation with its users so that the collections and services are appropriate and relevant to the needs and diversity of the users.

However, Lor (1994:134) states that the Reconstruction and Development Programme had little real interest in or an understanding of libraries and the role they play in national reconstruction and development and in informing the public. This was reflected at the time in the new proposed Freedom of Information Bill and the Taskforce on Communication (ComTask), established in December 1995 by the then deputy state president at the time, Thabo Mbeki. Essentially, "the ComTask report on government communications, was responsible for defining government policy on communicating to the public and for recommending a new mass media policy" (Langa, 1996: 139). According to van Wyk (1995:11) the proposed Open Democracy Bill would permit the public to view proceedings of important government bodies, protect privacy and protect officials who expose lawbreaking and serious maladministration or corruption by the government. The Open Democracy or otherwise known as the Freedom of Information Act would make access to official information a right, as it is entrenched in the 1996 constitution.

Still, the necessity for a Library and Information Services Policy was recognised in the Draft White Paper on Arts, Culture and Heritage as Cillié and Roos (1996:13) discuss. An Inter-ministerial Working Group on the Library and Information Services Function (national level) was set up to advise the Minister of Arts, Culture, Science and Technology and the Minister of Education on mechanisms to ensure good governance of the library and information services system. According to Cillié and Roos (1996:14) the aim was to facilitate maximum availability and use of information to advance the Reconstruction and Development Programme. At this stage it was realised that a Library and Information Services Policy should not be approached in isolation from the general National Information Society Policy and the important role of library and information services in the broader Information Society Policy should be stressed. The working group consequently recommended that an Inter-departmental Co-ordinating and Planning Committee (ICPC) should address library and information issues, until a national advisory council for library and information services had been established.

As part of a larger process, the IDRC's Information Policy Working Committee sent a Preparatory Mission, known as the "*National Information Management Project: South Africa*", to define a framework for a National Information Policy for South Africa. The original plan was for a full-scale mission to follow-up on the technical dimensions, however according to Akhtar, Melody and Naidoo (1994), because of the rapid pace at which political developments were taking place in South Africa, it was decided not to send a full-scale mission. The May 1994 preparatory mission report made several proposals, including that an Information Policy and Co-ordination Unit (IPCU) should be created as a means to address the information flow within government and between government and the society. By November that year a National Information Project had been established under the Reconstruction and Development Programme office, while the other recommendations remained to be implemented (Akhtar, Melody and Naidoo 1994).

5.2.2 Information communication technology oriented developments

5.2.2.1 Background

During the fifties the local electronics industry was promoted by the establishment of overseas scientific liaison offices to meet the continued flow of information into South Africa. During the early seventies the Computer Society of South Africa requested a human resources survey of "information workers". The investigation, covering a wide spectrum of information policy issues, was conducted by the Scientific Advisory Council (SAC), a subsidiary of the Human Sciences Research Council. According to van Houten (1984:12) the investigation by the Scientific Advisory Council recommended that the government create a National Information Advisory Council dealing with information policy issues in a wide context and with membership from library, computing and telecommunications professions.

5.2.2.2 Developments

A number of programmes and partnership mechanisms have been instituted by development agencies at international and regional levels with the aim of creating an enabling environment in which people and institutions in Less developed Countries can

effectively exploit knowledge for development. Thus most of the initiatives discussed here came from outside of South Africa.

Most countries have come to recognise that information infrastructures are not limited by national boundaries and that international co-operation is necessary. One of the first international initiatives for co-operation was the 1995 G7 Ministerial Conference on the Information Society in Brussels. The principles adopted at this conference primarily reflect the industrialised countries' concerns. South Africa's then Deputy President, Thabo Mbeki challenged the G7 and the European Commission to organise a follow-up conference bringing together representatives of the developing world, the G7 and the European Community (EC). The resulting significant international event that highlighted the challenges to the Less Developed Countries in the global Information Society was the Information Society and Development (ISAD) conference held in Johannesburg in 1996.

The objective of the conference was to launch a dialogue between countries with differing social, economic and cultural patterns to pursue policies, which aim at facilitating the integration of Less Developed Countries in the global Information Society. Thus this conference was held in Africa in order to discuss how a democratic Information Society could be built in Less Developed Countries in accordance with their specific needs. South Africa tabled a draft set of developing world Information Society principles, with the emphasis on redress and adapting the Information Society idea to South Africa's and Africa's needs. Although this was still in the context of the Reconstruction and Development Programme, which is now no longer actively promoted, this could have served as a starting point for a national Information Society policy process.

A national initiative to bring together stakeholders was by this time in an advanced stage, and led to the launch of the National Information Technology Forum. It was formed with the key to mobilising the various sectors committed to developing and advocating clear policy positions and policy options to participate in the process of creating an information community and to ensure input into the formulation of a National Information Policy

framework. It was to ensure that the potential of the global Information Society be used to promote universal access to information for all citizens and to eliminate disparities between urban and rural town and township communities as regards the use of information and communication technologies. The National Information Technology Forum organised a conference on "*Information society and government initiatives in economic development*", whose objective was to assess the current strengths, weaknesses and opportunities of information technology in government and its wider impact on the information community.

According to the Economic Commission for Africa (1999), the process of conceptualising an African information infrastructure was begun in April 1995 at the African Regional Symposium on Telematics for Development organised by the Economic Commission for Africa, UNESCO, IDRC and the International Telecommunication Union (ITU). In May 1995 at the Economic Commission for Africa's twenty-first meeting, Resolution 795(XXX) entitled "*Building Africa's Information Highway*" was adopted. This led to the appointment of a High-level Working Group on Information and Communications Technologies in Africa to draft an action plan to utilise information and communication technologies for socio-economic development in Africa. The resulting action plan the, *African Information Society Initiative* (AISI), was launched in 1996 at the Information Society and Development conference. The action plan is implemented at national level, starting with the development of National Information and Communication Infrastructure plans (NICI) in each country. The initiative also calls for bilateral and regional mechanisms to stimulate co-operation between African countries.

The Economic Commission for Africa has taken the lead in co-ordinating with other related regional initiatives such as the Organisation of African Unity[1] (OAU) and the Southern Africa Development Community (SADC). According to van Audenhove (1998) a few weeks after the adoption of the African Information Society Initiative framework the International Telecommunications Union adopted its "*African Green Paper*" at the Africa

[1] The OAU was disbanded in 2001, and replaced by the African Union.

Regional Telecom Development Conference in Abidjan. This Green Paper focuses on the development of policies concerning network and physical infrastructure development necessary for a future Information Society. Its balanced view of the problems and prospects for telecommunication development points out the enormous infrastructural, economical and political problems hampering the development of Africa's telecommunication sector. The Green Paper stresses the necessity for an independent national regulatory authority, however, most developing countries lack the institutional development programmes to fund and train regulators and promote partnerships among regulators and experts.

A forum for the exchange of information and ideas and the generation of collaborative projects supported by a series of databases and a discussion list, *Partnership for Information and Communication Technologies in Africa* (PICTA), was formed in 1997. The interests of the particular donor agencies who support the implementation of the African Information Society Initiative projects through the Partnership for Information and Communication Technologies in Africa are also accommodated. Furthermore, in order to increase the utilisation of the network of national and institutional participating centres and increase the delivery speed of requests and responses, the Pan African Documentation and Information System, initiated a project with IDRC assistance, entitled *Capacity Building in Electronic Communications for Development in Africa* (CABECA). The projects' objective is to develop supportive infrastructure necessary for sustainable computer-based networking in Africa (Faye, 1995:16).

Other partnerships and initiatives of interest include:

- The African Connection. This is a political initiative led from within the continent by African Ministers of communication. It involves agreements in principle concerning infrastructure projects and serves to strengthen Africa's voice in regional and international dealing with telecommunications issues.
- The African Development Forum (ADF). It aims to reinforce African capacity to define and implement Information Society programmes and African leadership to

shape the multifold donor and private sector interest in the potential of information communication technologies in the region. It is intended to identify progress towards African Information Society Initiative goals and concrete projects. It also has a successful discussion list managed from within the Economic Commission for Africa.

- The Global Knowledge Partnership. This partnership emerged from co-operation among the organisations involved in the Global Knowledge 97 Conference held in Toronto, and is based on sharing information, experience and resources to promote access and use of information.
- The Global Information Infrastructure Commission. This forum is intended to enable African business leaders in the information communication technology sector, policy makers, academics and other decision-makers to share their perspectives on the need to expand the information infrastructure.

5.2.3 Telecommunications Policy and related developments

5.2.3.1 Background

According to Butcher (1998), the two areas relevant to information policy development in South Africa which have received the most attention so far are telecommunications and broadcasting. The two concepts, "infra" structure and an "info" structure, could serve to explain and better understand the different focus of telecommunications policy development and how that relates to this discussion. According to the Draft Report of the Inter-ministerial Working Group on the Library and Information Services Function (National Level) as presented to the Minister of Arts, Culture, Science and Technology and the Minister of Education on 14 June 1996 (South Africa, 1996b), "infrastructure" refers to the backbone information and communications networks, including telecommunications networks, broadcasting, satellite, and other wired and wireless options, which serve as conduits for all electronic communications. The latter- the "info" structure- refers to the "higher order" delivery systems of the information infrastructure, including programmes and software, the information content, the methods for producing that content, as well as services and applications. From previous discussions it can be seen that information sharing and access is a key issue in all sectors. Central to this is not only

effective library "info" structure development, but also electronic access to information, provided by various computerised information networks ("infra" structure). The effective implementation of information projects thus depends on the expansion of the telecommunications network- both in terms of geographical and population coverage, as well as modern data and information service capabilities. A brief overview of South Africa's telecommunications industry will now be given.

5.2.3.2 Developments

South Africa's telecommunications history is deeply intertwined with the local political position throughout South African history. The original South African Posts and Telecommunications (SAPT) service was a classic post, telephone and telegraph monopoly known as a "state business enterprise". This telecommunications structure changed in 1991 when posts and telecommunications were separated, and the government began moving toward a policy of privatising its key parastatals. South Africa's new telecommunications entity, Telkom SA, became a formally registered company with the state as the sole shareholder in 1991. In the early 1990's it was not clear who set policy for the sector since it answered in effect to two ministers. The "policy" portfolio, was held by the Minister of Transport and Communications, and because the state is its sole shareholder, the "shareholder" portfolio was held by the Minister of Mineral and Energy Affairs and Public Enterprises. The politics of transition to democracy complicated South Africa's telecommunications picture. In the area of broadcasting however, an Independent Broadcasting Authority was created in August 1991 (Horwitz, 19?). During 1992 the Department of Posts and Telecommunications contracted the international accounting firm, Coopers and Lybrand[1], to conduct an independent study of the South African telecommunications sector. This was to provide an independent expert analysis of South Africa's telecommunications to guide the writing of new legislation. The results of the study known as, the Coopers and Lybrand Report, was a comprehensive study addressing issues pertaining to regulatory authority and the structure of the telecommunications sector. Given that none of the political parties had the wherewithal or capacity to generate

[1] This firm is now known as Price Waterhouse and Coopers.

its own study, the Coopers and Lybrand Report essentially became a baseline from which to assess South Africa's policies and the debates about them. In 1993 the government went ahead and began to formulate policy without first establishing a legal framework for the sector and its regulation, and without engaging in an effective consultative process. It tabled a new bill before Parliament to amend the Post and Telecommunications Act.

With a new government to be popularly elected in 1994, Telkom faced a difficult future with new equity-based demands imposed on it to expand the basic telephone network to populations historically denied access, on the one hand, and on the other hand, businesses wanted enhanced and value-added services. Telkom consequently allowed companies to register a Value Added Network (VAN) services company. Consequent to the 1994 elections three events began to move telecommunications policy:

- The establishment of a National Telecommunications Forum (NTF) finally engaged government, business, labour and civic organisations in a consultative process.
- The Reconstruction and Development Programme set goals for telecommunications development.
- The new minister for Posts, Telecommunications and Broadcasting put in motion a Green Paper/ White Paper process to develop telecommunications policy. The resulting Green Paper was published in 1995 and the White Paper in 1996.

According to the White Paper on Telecommunications (South Africa, 1996c) the state's vision for telecommunications is one that balances the provision of basic universal service to disadvantaged rural and urban communities with the delivery of high-level services capable of meeting the needs of a growing South African economy. Having to fund its Reconstruction and Development Programme obligations, Telkom opened up the process to a much bigger affair and unveiled a broad expansion plan which it called "*Vision 2000*". The telecommunications reform process was however thrown into uncertainty with the cabinet reshuffle in 1996 and the dismantlement of the Reconstruction and Development Programme to line ministries. However the legislation issued in 1996 suggested that

reform would continue in the spirit of the National Telecommunications Forum and the White Paper.

A Telecommunications Act was enacted in 1996, establishing the South African Telecommunications Regulatory Authority (SATRA) that will regulate this sector. The constitution of South Africa enshrines the Bill of Rights, which states access to information and freedom of expression as fundamental rights, these were also targets in the Reconstruction and Development Programme. It could then be argued that access to telecommunications services is a basic right to all citizens to communicate, which is essential for full participation in the community and as a basic element of the right to freedom of expression (South Africa, 1998c). Thus because South Africa is in a phase of transition, there is a pressing need for a transparent and accountable mechanism to ensure that universal service is delivered to all South Africans. While the issue of "universal service" is a global concern, the Universal Service Agency (USA) established by the Telecommunications Act in 1996 and officially launched in May 1997, is a response to the particular South African social, economic and political environment. The objective of the Universal Service Agency is to promote universal access to telecommunications for all in South Africa. According to the Universal Service Agency homepage (www.usa.org.za) telecommunications play a major role in wider development. Access to telecommunications has shown to have an impact on economic and social development in many countries, including Malaysia. The Agency works with the South African Telecommunications Regulatory Authority, Telkom, other operators and with community and development organisations on key issues which will determine the rate at which imbalances in the provision of telecommunications services are redressed in the South African society (Mkhize, 19?). According to Mkhize (19?) there are broadly two schools of thought defining universal service, an access based definition and a full service delivery definition. The distinction between the two definitions is whether each household or citizen should have access to a telephone service or a telephone service should actually be delivered to each household or citizen. Universal service refers to all households in a country having a telephone, so that all individuals can make a telephone call from home.

Universal access refers to all individuals having reasonable access to a telephone that they can use. This could either be at home, at a business or some public facility. The purpose of universal service is to ensure that the part of the population, which would not receive essential telecommunications service under normal market conditions, has access to those services.

Universal service and universal access measure different things, and require different policy measures to promote. The longer-term goal would be to provide telecommunications service to all households in South Africa, but realistically this will not happen for many years. Universal access is a realisable goal within a few years, and will be achieved through projects such as the establishment of telecentres. The IDRC is running the Acacia programme supporting telecentres in Uganda, Senegal and Mozambique as well as South Africa. Other initiatives include phoneshops and schoolnet. The International Telecommunications Union stresses the role of multi-purpose community centres.

5.3 South Africa in present context

This discussion describes the present situation in which South Africa finds itself. First, a picture of South Africa's socio-political circumstances is painted in order to provide a background to the discussion of the second and third sections. The second section provides an overview of the information resources presently available, while the third and last section discusses international and Third World information trends that would influence present information policies.

5.3.1. South Africa's socio-political circumstances

5.3.1.1 South Africa in political context

One of the major challenges facing the present South African government is the achievement of a balance between maintaining stable economic growth and redressing the inequalities of the past. For example, the post-apartheid government was left with a

modern telecommunications infrastructure, but one that was highly skewed in favour of white and urban regions.

Initially in 1994 when the new African National Congress government came into power a "*Democratic Information Programme*" was envisaged. The Reconstruction and Development Programme envisioned "Open debate and transparency in government and society are crucial elements of reconstruction and development. This requires an information policy, which guarantees active exchange of information and opinion among all members of society. Without the free flow of accurate and comprehensive information, the Reconstruction and Development Programme will lack the mass input necessary for its success" (African National Congress, 1994a:133). According to Harfoush and Wild (1994:3) any proposal for an information policy in South Africa at that time had to be directed at ensuring to serve two broad communities. The first, being government, where the main requirements were the implementation, monitoring and evaluation of Reconstruction and Development Programme programmes and facilitating transparency. The second being local communities, it should enable the development process to be driven by the needs of the community. A few years on, the emphasis of the policy must be for it to respond to the constitutional requirement of access to information as part of the rights of individuals. It must address the means by which citizens can be made aware of their new rights and remould government habits that favour secrecy over openness. It must also help reinforce the image of government as a partner of its citizens. In summary practitioners have to satisfy the information requirements of a very heterogeneous society, composed of many cultural, language and ethnic groups.

Information may be used to call for a national appeal in order to build a national unity, or national belongingness. The broad philosophical outlook guiding South African public life is that despite the various and distinct cultures and other differences that make up the society, the South African nation is united in its diversity. Therefore at present, at the turn of the century, South Africa's political leaders share the vision that information communication technologies can help to overcome some of the legacies of the past.

Especially in the area of services, information communication technologies are identified as both facilitators in the restructuring of sectors and as a means to deliver services. However, the extension of services is dependent on the extension of the necessary infrastructure, since infrastructure is instrumental in the provision of content and services.

5.3.1.2 Socio-economic conditions in South Africa

Economic and socio-political conditions are changing constantly, but the socio-economic conditions found in South Africa currently, according to Arnold (2000:73-74), are:

- Efforts are being made to address the imbalances of the past where there are pockets of wealth while the majority has minimal access to basic social and economic services.
- South Africa is a developing country with a Third World economy.
- An important trend is that many more Africans will urbanise rapidly in the next decade, which means that urban areas will be faced with growing and younger African populations, with major implications for infrastructure and service delivery.
- The majority of the population is poorly educated.
- South Africa has a high unemployment rate.
- The threat of AIDS is of big concern, implying overloaded health services as a large section of the economically active population is infected with the disease, and thus affecting the future available skilled work force.

There are many analysts and marketing bureau's providing up to date analyses and predictions of conditions in South Africa. One such bureau is the Bureau of Market Research (BMR) of the University of South Africa (UNISA), which publishes regular research reports. According to one such report (van Aardt, van Tonder and Sadie, 1999), specific factors that influence socio-economic conditions in South Africa include:

- weather (floods or drought);
- oil price;
- consumer and business confidence;
- instability in neighbouring countries;
- resultant agricultural year;

- the demand for commodities and fixed investment in certain industries such as the motor industry;
- underlying consumer inflationary pressure;
- the Rand;
- limited wage increases;
- fewer working days lost due to strike action and excess production capacity; as well as
- the launching of economic stimulus packages by government.

According to Lucas (2001) economic and socio-political expectations for 2001 includes an economic growth rate of 3,0%. A comparison between predictions for 2000 and 2001 reveals declining business confidence in South Africa. Lucas (2001) identifies the following positive and negative economic and socio-political scenarios for this year:

- The trade agreement with the European Union will impact positively on the South African economy.
- The proposed relaxation of labour laws will improve job creation in South Africa.
- The Competition Act continues to hamper the establishment of large institutions in South Africa, which will be globally competitive.
- Racial polarisation in South Africa impacts negatively on investment.
- Political and economic instability in other countries in Africa is a major deterrent to investment in South Africa.
- Low economic literacy hampers effective economic policy debate and formulation in South Africa.
- The emigration of well-educated and skilled people seriously hampers business in South Africa.

South Africa is a Less Developed Country, yet economic indicators reveal a shift in its economy (Arnold, 2000:72). This is reflected in the swing in the composition of the Gross Domestic Product away from the goods-producing sectors to the service producing sectors. The status accorded to a country by the World Bank on the basis of its Gross Domestic Product per capita is however not always a true reflection of the socio-

economic status of the country's population. The United Nations Development Programme (UNDP) publishes an annual Human Development Index (HDI) for certain countries, including South Africa. The Human Development Index is an alternative method of measuring the relative socio-economic development of a country by measuring life expectancy, educational attainment and income. The index is useful since it gives some indication of the development priorities, which should be attached to the provinces with below-average indices. South Africa, ranks 94th in the world with a Human Development Index of 0.677. Compared with the world's major regions, South Africa's Human Development Index is more than 40% higher than the average Sub-Saharan African country and compares favourably with the average for all Less Developed Countries. South Africa thus belongs in the medium range of the Human Development Index scale of human development (Ligthelm, Martins and van Wyk, 2000).

5.3.2 South Africa's information resources

The following discussion provides a very brief overview of the situation within South Africa and is not at all comprehensive. The facts and figures below are relevant to show the information trends within South Africa regarding information technology, and were taken from a draft proposal entitled "*Towards an Information Society Policy for South Africa*" (National Information Technology Forum, 1997:7-9).

The government has a number of networks, but they are poorly linked with one another and spread unevenly between departments, and between rural and urban areas. Although Government and financial institutions still have a high investment in networks, there are in excess of a million personal computers in the country, which is comparable with developed nations. Virtually all packaged computer software and hardware in South Africa is imported, but 60% of personal computers are now assembled in South Africa. The growth rate in sales of packaged software is about three times the general economic growth. Considerable inequalities in access to the public telephone network are present even

though the tele-density of 9,5 per hundred[1] is relatively high compared to the developing world and services such as Integrated Services Digital Network (ISDN) are available South Africa is also unusual in its growth of mobile telephony, and in its rapid take-on of the Internet. South Africa spends about 1% of its Gross Domestic Product on information technology, this is much less than countries of the Organisation for Economic Co-operation and Development (OECD) which spend around 2,5-3%. Compared with developed countries, South Africa has only about a tenth of the scientists and engineers in research and development, and research and development in information technology accounts for only 4-6% of overall expenditure. As a Less Developed Country, South Africa is unique in the sophistication of its information technology support, and there is a well-developed professional service sector. The retailing and wholesaling markets comprise about 70% of the market. This is very good. However, the manufacturing sector and public sector lag severely behind in its use of information technology. Training and education are important, and very few primary schools have adequate computing equipment, while secondary schools are progressively installing computer labs. At tertiary level, historically white universities have computing resources comparable with the developed world whereas historically black universities do not have facilities. About 3-4 million or 7.5-8% of the population might be able to tackle basic computer applications on their own, this is very low compared with the developed world.

The discussion of information resources often overlooks the important information infrastructure and services provided by libraries. They do not enjoy high priority, especially with allocation of funds, because the returns on investment or result are not sufficiently visible. Unfortunately there is thus little awareness of the contribution of libraries in disseminating information to grassroots communities. However, libraries form an important part of the country's information resources and are therefore included.

[1] According to the Discussion paper on Definition of universal service and universal access in telecommunication in SA (1998c) the tele-density increased to 10, 05.

As with other services and infrastructure library and information services in South Africa are characterised by inequitable access as may be deduced from official census statistics published in 1989, when South Africa had approximately 583 public libraries. Following the geographical distribution of these libraries, it clearly shows that more libraries were found in areas of higher population density. The South African Institute for Race Relations also surveyed the provision of library services in 1991/92 and found it to be inadequate at the time. A more thorough overview of the state of library and information services in South Africa can be found in Annexure A of the "*Draft report of the Interministerial Working Group on the Library and Information Services Function (National Level), as presented to the Minister of Arts, Culture, Science and Technology and the Minister of Education on 14 June 1996*" (South Africa, 1996b:17). South Africa has a significant library infrastructure comprising over 1500 public and community libraries and several thousand school libraries or resource centres (South Africa, 1997).

Another point of oversight, which is only very recently being identified, is the so-called Indigenous Knowledge Systems. The present status of Indigenous Knowledge Systems is that these forms of knowledge have hitherto been suppressed. Indigenous Knowledge Systems refer to the complex set of knowledge and technologies existing and developed around specific conditions of populations and communities indigenous to a particular geographic area. It is transmitted orally through stories, legends, traditional songs, etc, practically through observing the tasks being performed by others and by practical involvement, and through the use of symbols and rituals. Most of the transfer is expressed in taboos, rituals, customs, laws etc. and passed on from generation to generation by word of mouth (World Conservation Union, 2001).

5.3.3. Information trends

Trends show the general course of direction and tendencies towards specific actions. Since we live in a global world, these trends or tendencies influence courses of action and place pressure on individual countries. In order for South Africa to compete in the global economy, it should take heed of international trends, but South Africa is a Less Developed

Country and therefore Third World trends are also important. An equilibrium must thus be found between what is happening internationally and on the African continent. South Africa's position on this equilibrium must then be found.

5.3.3.1. International trends in the mid-1990s

According to the South African Information Technology Industry Strategy (2000) framework, several key trends in the global information communication technology environment, capture the essence of the transformation information communication technology has made and is making around the world. Increased use of technology by businesses and individuals is driving many of these trends.

- The Internet as the backbone of a knowledge-based economy and Information Society. The improvements in computing power have allowed for increased computing storage and capacity and paved the way for the development of a knowledge-based economy and Information Society. The Internet and the World Wide Web have assisted in this growth and have become the platform for new applications.

- The growth in infrastructure, content and applications will drive even more explosive growth. Increased bandwidth and improved connectivity make new and improved applications possible, which in turn stimulate the need for even more bandwidth and better connectivity, as well as content. The continual evolution in the technologies, and growing demand for wire-line and wireless technologies and services, support this trend.

- Globalisation and deregulation. The globalisation trend has transformed the workforce and shifted business investment to information communications technology applications and infrastructure. Globalisation has led to the creation of vertically integrated organisations with distribution networks worldwide. The most significant policy change has been the liberalisation of the telecommunications market. Sixty-nine countries, including South Africa, signed the World Trade Organisation basic

telecommunications agreement to open up the world's telecommunications market to competition.

- The information communication technology evolution has changed the nature and level of interaction between citizens and community development organisations, government and public institutions. Equitable and affordable access to information communication technologies has the capability of empowering citizens to share ideas about solving common problems and allow them to form new relationships for idea generation, artistic expression and enterprise development. It can also be used to improve the effectiveness of government programs and service delivery.

- A major trend of concern is the emergence of what is known as the Global Information Economy (GIE). According to *Mission imperfect* (1998?: 11) the technologies of global communication and information processing have produced the phenomenon of the global village. The result is that business models in the private and public sectors are evolving and today's world economy is becoming more competitive, more global, and increasingly dominated by information and communications technology. This results in a transformation of the telecommunications service industry as the volume of Internet traffic exceeds the volume of voice traffic. Service providers are trying to provide customers with multiple integrated services over a single connection. Pervasive use of computer technologies has increased demand for new products and applications and increased the demand for lower prices, ease of access and improved functioning and portability.

- Science and technology in the fields of public health and medicine are largely responsible for another major trend in international relations, the global population "explosion" since 1950. More troubling is the expectation that 95% of this growth will occur in the poor and underdeveloped economies of the South. According to *Mission imperfect* (1998?:12) the consequences of runaway population growth are economic

decline, environmental degradation, the spread of diseases, and both legal and illegal migration.

- The major international relations problem of the Post Cold War world according to *Mission imperfect* (1998?: 13) is the steadily growing North-South divide, where the poverty of the South contrasts with the prosperity of the North. Life expectancy in poor countries of the South is around 40 years and declining, where as in the rich countries of the North it is fast approaching 80 years. In 1991 23% of the world's population enjoyed 85% of its income, whereas 77% of humanity struggled to exist on only 15% of global income (*Mission imperfect*, 1998?:13).

The following international trends can be identified from the discussion:

- Information overload. The increasing number of media, their radius of action and their diversification of contents are said to confront the public with an overload of information, implying they do not know how to handle or what to do with it.
- Alienation and resistance. The worldwide trend resulting in information overload leads to a decrease in the individuals will or capacity to absorb all this information. There is a shift to the "me-thinking" syndrome, which explains the emergence of smaller-scale media to satisfy the more localised and interpersonal needs of the smaller community and subculture. Deregulation and privatisation of the media according to Overton (1987:42) is therefore a worldwide trend.
- The information paradox. The development of information technology leads simultaneously and paradoxically to a greater need for communication on a human level.
- Information elite. According to Overton (1987:45) basic information which is of vital importance to society, is already so specialised that it can only be generated, used and communicated within the "info-elite".

5.3.3.2. Third World information trends

Keeping Africa's colonial history in mind, Neelameghan (1995:21) identified development trends in Third World countries as:

- Change in the orientation of planning, from a growth-oriented paradigm to one of growth with equity.
- Change in the structure of planning from that of a centralised approach to a decentralised approach.
- A need for disagregated data and information for planning at different levels, and analysing and processing the data with speed and accuracy.

5.3.4 Contextual challenges

Having considered South Africa's present socio-political situation, available information resources and information trends or tendencies, various challenges associated with the situation in which the country finds itself in become apparent. Within an African context, South Africa is faced with challenges typical of Less Developed Countries, such as widespread poverty, lack of basic social and economic infrastructure, underdeveloped education and human resource development systems, technological dependence, economic crisis, subsistence economies and a different culture. Thus South Africa is an African Less Developed Country facing typical developing problems and challenges over and above its own challenges. The review below on contextual challenges first notes typically African problems and then more specifically South Africa challenges.

5.3.4.1 Typical African challenges

With the focus on Africa, the obstacles identified and discussed below are a summary of those found in the literature, chiefly from Rehman (1996:190) and Onyango, (1996:170-171).

- The greatest obstacle facing African countries is the lack of financial resources. Most African nations are classified as developing and are poor, facing extreme information impoverishment among especially the rural population.

- African nations have highly control-oriented public policies in the political domain. If African administrators do not appreciate the role that information could play in solving the region's economic and social development problems, this in turn could lead to insufficient allocation of available financial and material resources, which goes towards meeting basic needs such as food, shelter and health.
- Ineffective information infrastructures with inadequate physical facilities result in a lack of access to existing information resources, especially indigenous information. This situation is worsened by overwhelming hurdles preventing the implementation of networked systems, especially due to the lack of minimal infrastructural support.
- African nations typically experience low literacy rates, poor reading habits, and the impulse to use information is under-emphasised. This places demand constraint on African publishing houses related to financial sustainability.
- Limited education and training opportunities in African countries result in shortages of qualified personnel in the area of information, leading to the absence of physical and human resources and weak professional associations and leadership. The training available is usually oriented towards traditional library services and institutions with no retraining facilities for professionals or non-professionals.
- According to Jacob and Rings (1986:129) one of the aspects of cultural differences, leaving African nations with a dilemma, is language and how it affects information availability and use. It forms a vicious circle. The best publications are the most cited articles; the most cited publications are articles that are the most read. English is the most common language in the scientific community, so to be cited it is better to publish in English and publications in English are probably the best ones and will receive top priority in selection.
- African nations have an inadequate technological capacity, with limited general knowledge and information about the production of indigenous technologies. Inadequate sectoral linkages lead to a lack of integration and lack of technological information. This, in turn leads to excessive dependence on foreign technology where aid tied to technology is a major contributor to failed technology transfers. A plan that is successful in one area cannot be carried over directly to another because of socio-

economic differences, resulting in a lack of coincidence between capability and resources. The incorrect identification and selection of the correct technology is however often blamed on the absence of National Technology Policies.

- Technology costs are high due to lack of information on alternative sources of technology. A consideration is that the more complex the technology is, the less likely it is to succeed. Often what is called for in Less Developed Countries is to equip or imitate the facilities similar to those found in the more developed countries.
- A new problem being experienced is with the convergence of information and communication technologies. The formulation and implementation of new policies is starting to cut across existing policy domains such as technology policy, industrial and trade policy, telecommunication policy, media policy and educational policy. A National Information Policy will thus have to encompass and co-ordinate a broad body of different and formerly separated policy areas and frameworks, and most importantly integrate this policy with broader macro-economic and development policies.

The basic problem is that the resources do not exist or cannot be allocated and the overall expansion does not relate to alternative strategies connected with expected societal benefits in a dynamic perspective.

5.3.4.2 South African challenges

Roos (1998) perceives that some constraints in South Africa relate to the current inadequate national information infrastructure, funding and the need for an implementation strategy. South Africa's present information context may be summarised in the form of a number of challenges facing the country. In light of the political changes within the country, the general feeling is that the time for growth and development is now particularly possible.

The following challenges thus face the South African government when formulating a National Information Policy:

- Information gaps resulting from the fragmented approach of previous governments in terms of geography and population.
- Infrastructure gaps in terms of electricity and telecommunications services not being available in many rural areas and to large segments of the population.
- There is a lack of co-ordination and the sharing of information among different levels of government. This requires agreement on procedures, concepts, standards and formats.
- Provincial structures, responsibilities and facilities for statistics and computing. The definition of responsibilities for statistics and computing within the structure of provinces, and the ownership and control of central government facilities within the regions requires attention in order to avoid duplication of basic data collection and administrative systems. This is complicated by the lack of an overall policy for government information.
- There appears to be a lack of an information culture. There is thus little culture in government favouring the use of information in decision-making, the sharing of information or access to information by the public (Harfoush and Wild, 1994:2). Changes in information culture will also be necessary among the general population if development is to become a community driven process.
- Due to short-term pressures the government has not yet developed an information policy and lacks mechanisms to assess information technology proposals in the context of overall government objectives in general.
- The status of Indigenous Knowledge Systems needs to be evaluated. Recognition of and an understanding are required of Indigenous Knowledge Systems and their role in community life. There is a need to explore the potential contribution of these systems to local development, and also how to manage Indigenous Knowledge Systems at national level. The question of intellectual property rights, and the definition of a mechanism to protect the information in both the specialised traditional knowledge, which usually comes from specific individuals, and the community knowledge needs to be addressed.

- The supply and potential shortage of skills and the need for information communication technology workers within the information communication technology sector, and the "brain drain", are three of the human resource issues being faced by South Africa. Another challenge is the potential impact that HIV/AIDS will have on the future workforce.
- The spirit of dialogue and consensus building has brought together stakeholders from all sectors of society to consider a wide range of issues. South Africa's electronics and technology sector is better developed than most countries facing similar developing problems and experience in such technologies can find application in a development context. According to Harfoush and Wild (1994:13) the capacity for managing large-scale complex projects of the kind that will be required to implement an information management system exists in the parastatal and private sectors.

5.4 Critical evaluation of South Africa's efforts

In order to learn from the above attempts, a critical analysis and interpretation of the efforts made at implementing information-related policies in South Africa, is now presented. The discussion is structured into two parts, according to the past efforts made and the present developments.

5.4.1. Past

Looking at South Africa's initial main areas of development, an evolution in policy priorities can be followed, which reflect the political aims of the government at the time. The highlights of the efforts made at developing a Library and Information Services policy thus imitate this pattern. From 1927 at the Carnegie Corporation proposals, the constantly recurring factor underlying developments, was that of library co-operation and a centrally organised national library system in order to improve and extend library services. Throughout the next few decades, more or less till the end of the 1960's, the priorities lay with the general organisation of libraries on a national level in order to accomplish closer

co-operation among libraries. As from the 1970's the priority for formulating a policy was to set clear policy guidelines, sothat funds would be allocated and spent accordingly.

The pattern of priorities didn't only follow internal political priorities but were also influenced by trends, changes and pressures in the international arena. The social development of South Africa was always an underlying reason for developing library and information services. Due to international attention however, the focus changed in the late 1980's early 1990's from the social upliftment of traditional white communities to the development of all South Africans. If South Africa wanted to play a continued role within the international arena, then access to information was needed and thus the National Libraries Act was amended in 1991 (South Africa, 1991a). This brought about the first slight change of emphasis from collecting, recording and preserving, to facilitating access to the world's information resources, and to rid libraries of their traditional role of keeping printed matter only. From 1993 onwards coalitions and in 1996 an Inter-ministerial Working Group on the Library and Information Services Function was instituted to develop a National Library and Information Service Policy programme. This programme would direct the process of participatory change and reconstruction of South Africa's libraries and information services both at a regional and national level. The priority was thus to bring the advantages of the Information Society to all communities of South Africa in order to promote social development and economic growth through facilitating maximum availability and use of all relevant information sources.

Through access to the world's information resources, technological developments brought about the next shift in emphasis. There has since been a shift away from the traditional national library policies towards the role of information communication technology in developing Less Developed Countries, especially in Africa. Priorities of information communication technology projects are policy reform, infrastructure and applications. The Information Society and Development Conference in 1996 for example, was an important role player, even though it was still in the context of the Reconstruction and Development

Programme, which is now contained in the Growth, Employment and Redistribution (GEAR) program.

International donor agencies and information programmes have had an important role to play, especially in developing countries. The most well known agencies are the IDRC and UNESCO. Problems experienced with international projects such as the African Information Society Initiative, is that they do not take into account the enormous economic, infrastructural, political and social constraints hampering development of information technology in Africa. Often the institutional environment needed to implement the policy is also lacking. The African Information Society Initiative framework itself can however be seen as a guiding framework on which to base other information and communication activities in Africa. In the highly fragmented field of donor support, probably its most valuable aspect is that it constitutes a co-ordinating framework among donor and executing agencies.

5.4.2. Present

The controversial term "Information Society" itself suggests change. This will be in all sectors of society, from technology, economy, occupation, and culture to the organisation of space and time. The prospects for development through investment in and use of information communication technologies are presumed to be tremendous, and this assumption is clearly portrayed in the suggested African Information Society Initiative framework.

The convergence of telecommunications, computers, information production and broadcasting is largely determined by how societies are structured (South Africa, 1998c). As the information revolution has increasing impact around the globe, the issues of who has access to these technologies is of great importance. South Africa has also been one of the leading nations calling for these technologies to be used for economic and social development. According to South Africa (1998c), the International Telecommunication Union's, World Telecommunications Development Report of 1998 suggests that

developing countries should focus on universal access rather than universal service of telecommunications. Thus the Telecommunications Act (103 of 1996) makes providing access to telecommunications to all a key priority of the sector. This commitment is demonstrated by one of the fastest telecommunications rollout programmes in the world, *Vision 2000*, according to Nassimbeni (1998:155). It was envisaged that over the next five years 2,8 million new lines, including 120 000 pay-phones would be installed in Townships and villages to bring telephone penetration in economically qualified households in all provinces to more than 50%.

Most initiatives are still in their infancy, which means they focus on broad policy frameworks and plans. Many projects have also set unrealistically ambitious objectives, which are reflected in the budget available to reach these objectives. An obstacle resulting from this is that most projects still rely on funding from agencies or earmarked finances, resulting in very fragile medium- to long-term financial sustainability for the projects. South Africa lacks certain skills thus many projects have international links, resulting in many projects experiencing the paradox of trying to create international or national solutions for local problems. The projects are often also strongly dependent on the enthusiasm and energies of committed individuals. The problems experienced by trying to adopt foreign solutions in South Africa lie in the fact that they are founded on Western countries' modernisation theory. This theory is based on the assumptions that:

- Information technology is neutral and easily transferable.
- Information as such is neutral.
- Having access to information by means of information technology is sufficient to accelerate development.
- Information will be relatively cheap or for free in the Information Society.

In reality, technology can be seen as the product of a specific people and the transfer of technology into other societies may not yield the positive results it had in its society of conception. Technology can show considerable gains however if it is adopted and enhanced by the implementing nation, yet this is where the problem lies in Africa. Most

African countries lack the basic capacity to adopt, to innovate and to adapt information communication technologies to their own environment, needs and priorities. Many problems of development are also structural problems of distribution and power, thus the assumption that access to information is sufficient is not enough. Furthermore information is not neutral but contextual and the content provided by the international information infrastructure is also of Western origin. There is also the misconception putting information on a par with knowledge. According to van Audenhove (1998) what is needed is an assessment of what information, within which institutional context, leads to knowledge in the function of development, how to produce and structure this information and how to finance it. The assumption that information will be very cheap or available for free is also inaccurate in that a growing commercialisation of information can be noticed that in fact may have the opposite effect, by creating increased inaccessibility of certain information.

To speed up developments African governments often make use of the "leapfrog" strategy to gain access into the Information Society. The leapfrog theory should not be taken to mean that people can bypass the so-called traditional literacies of reading, writing and numeracy, and launch into computer literacy, nor that information technology will meet all their informational and reading needs. The "leapfrog" strategy will only be effective if it is accompanied by the transfer (and use) of "soft technologies" such as training, institutional capacity and infrastructure support. In this respect the role of library and information services should not be diminished. Often libraries, schools and churches already have useful information stores and play important roles in the community that should become the base for more formalised information systems. Thus South Africa must develop an approach to global information based on its realities as a developing country and governed by its need to ensure its requirements and goals within the international information order.

South Africa has already held various discussions and done some planning and drawing up of frameworks and National Information Policy principles. Workshops have been held as well as conferences. Yet there is to date no formal policy document nor is there a broad

strategic policy plan to arrive at the vision of an Information Society. A phenomenon, which has become ripe in South Africa, is that many initiatives are weighed down by excessive discussion, this prevents meaningful action and wastes resources. An example of the resulting lack of action can be seen in the fact that South Africa had the opportunity to harness the Information Society and Development conference to serve as a springboard to initiate its own policy developing process, yet this did not happen.

At this stage it seems that the Department of Communication has taken the lead on the issues of an Information Society. In order to be able to deliver services, governmental structures and institutions have to be reformed. To this end the government adopted a national "*Information and Communication Technology Strategy*" in March 1998. The Department of Communication became responsible for the co-ordination of the *Information and Communication Technology Strategy*, and subsequently released a position paper entitled "*South Africa's National Information Communications Superhighway*". In conjunction with the Department of Trade and Industry, the Department of Communication was also involved with a project to develop the South African Information Technology Industry Strategy (South African Information Technology Industry Strategy, 2000). This document sets out an Information and Communications Technology Sector Development Framework for South Africa acknowledging that there is no single information technology industry but a range of industries that are commonly referred to as the Information Communication Technology Sector. The frameworks' strategies address the key issues to help the country become more proactive in its approach to the information age and is designed to assist South Africa to achieve its economic, social upliftment, empowerment and overall prosperity goals. The two main thrusts of the framework in order to achieve its goals are:

1) The development of the Information Communication Technology Sector.
2) Exploiting the capabilities of information communication technology in developing other sectors of the economy (which in turn will also drive the demand for information communication technology within South Africa).

Two planned initiatives of importance from this strategy are a review of policies affecting the Information Communication Technology Sector and participation in planning a national information infrastructure initiative.

The e-commerce debate (This can be followed at www.ecomm-dbate.co.za) currently in progress is surrounded by a lack of certainty on the provision of e-commerce services. The Internet and the provision of e-commerce are seen as being of particular importance for South Africa because they provide the means to either strongly stimulate economic growth through creative use, or to exacerbate the growing rich-poor divide that exists both nationally and globally. Issues raised by e-commerce include:

- Creation of a National Certification Authority.
- Legislation on the authenticity of digital signatures.
- Security.
- Privacy.
- Digital signatures.
- Certification by certification authorities (ca).
- Interpretation of legislation affecting digital signatures and electronic data.
- Contracts on the Internet.
- Delictual liability.
- Jurisdiction.
- Enforcement.

Another issue of e-commerce involves difficulties in taxing electronic data. A moratorium was declared by the World Trade Organisation until such time as a solution to the problem has been decided. A recent paper published by the Alliance for Global Business proposes that this moratorium preventing imposition of customs duties on electronic transmissions should be made permanent. Intellectual Property is a universal concept, and the future development of e-commerce rests heavily on two major intellectual property rights (IPR) issues, namely, the protection of copyrights and related rights and the protection and equitable allocation of trademarks and domain names (South Africa, 2001b).

The Department of Communication presented its "*info.com 2025 The dawning of a new information age for Africa*" at the 1998 International Telecommunications Union Africa Telecom conference. Its vision is based on what the South African government wants to achieve by the year 2025, namely growth, job creation, universal service, education, democracy and globalisation.

5.5. Summary

From the discussions in this chapter it can be seen that South Africa has over the years developed a comprehensive vision on the Information Society. This vision is based on a belief in the possibilities of information communication technologies for development and social change. The two most important sectors concerned with the information policy process, which can be described as "higher order" delivery systems of information infrastructure, have made their own development attempts. This focus has changed recently as a result of the concerns of national and global information infrastructures providing easier access to information. The impact of the new technologies on the information and communication fields is perhaps due to the critical role that the private sector is beginning to play, and that the importance of National Information Policy has become apparent in this sector. Close co-operation between Less Developed Countries and developed countries to minimise the negative effects of globalisation, to close gaps between developed and Less Developed Countries and to engender an international information community is thus necessary.

Any good policy process must start with a study of the country's past attempts at formulating related policies. It is therefore also necessary to know what the present situation is, as well as the existing resources and known trends. This chapter thus gave an overview of information related policy developments in the past as well as the present in order to give a critical evaluation of these developments. South Africa's vision may be ambitious but according to van Audenhove (1998) its implementation will ultimately

depend on the extension of infrastructure to under serviced areas. The time has come to publicise its necessity and to draw up a final presentation for parliament. Thus the above evaluations will be used and applied in the next chapter where some guidelines are proposed for a National Information Policy in South Africa.

Chapter 6 Proposed guidelines for a National Information Policy in South Africa

6.1 Introduction

This chapter is essentially a culmination of what has been learnt so far in all the previous chapters, and applied to South Africa. As part of the policy-making process, all past policies and efforts need to be debated and contextualised. Chapter five can be seen to provide a historical overview and current contextual perspective in preparation for this chapter. A critical analysis of the evolution of the main South African information related policy efforts was done. This may be used as background information to place the proposals below into perspective. The following discussion is divided into two parts. The first is structured roughly according to the theoretical basis provided in chapter two, while the second is structured according to the proposed approach towards formulating a National Information Policy as discussed in chapter three.

6.2 National Information Policy for South Africa

6.2.1 Why South Africa needs a policy

The aim of a National Information Policy is to produce an agenda for action focussing on necessary preconditions, skills needed, support needed and legislative and regulatory changes. South Africa finds itself in a unique position in the world, geographically, politically and strategically. Probably the most universally important reason for a National Information Policy is because of the rapidly changing ways in which information is produced, packaged, marketed and distributed. These changes have an enormous impact on various aspects of South Africa's economy and society. A National Information Policy is therefore needed to cope with the following major challenges:

- The external pressures put onto South Africa by international governments.
- An internal challenge of societal and economic renewal.

- Pressures for change emanating from the new information technologies themselves.
- The external challenge of the open global economy

The most important reasons why any country needs a National Information Policy were laid out in chapter 2.2. In addition to these, specific reasons for South Africa are listed under the same headings as in chapter 2.2.

6.2.1.1 Economic reasons

A National Information Policy provides the framework within which priorities can be established to govern the allocation of resources among different groups of users and sectors. A National Information Policy is also necessary to transform the government into the desired vision of an efficient and responsive instrument of delivery and empowerment.

6.2.1.2 Governmental reasons

The National Information Policy should stipulate guidelines for overcoming problems which may arise because of the country's geographical and political situation. Information is the life-blood of participative democracy and transparent administration. According to Smith (1998) in a democratic society information is essential to the growth of that society, free public access to information is a basic right, and information is a national resource to be developed, shared and protected.

South Africa's new constitution entrenches the right to privacy in terms of communication infringement, and each citizen has the freedom of expression. Everyone has the right of access to any information held by the state and any information that is held by another person that is required for the exercise or protection of any rights. National legislation must be enacted to give effect to this right and may provide for reasonable measures to alleviate the administrative and financial burden of the state.

6.2.1.3 Cultural reasons

The South African society is very complex in that there are First and Third World components, which are both dependent on information. A National Information Policy is

thus required so that all sectors of the information community in South Africa can develop in a co-ordinated, planned and optimal manner.

6.2.1.4 Educational reasons

Investing in people as the productive and creative core of the economy is one of the six pillars of the government's growth and development strategy. For this to happen, information literacy is a skill that needs to be acquired.

6.2.1.5 Developmental reasons

A wealth of information is said to speed up the tempo of development if critical activities such as decision-making, planning and management are based on sound information (van Audenhove, 1999 and Economic Commission for Africa, 1996). South Africa's most well documented development priorities are summarised in the Reconstruction and Development Programme's Working Group on the Importance of National Information Policy. These include, meeting basic needs, developing our human resources, the economy, democratising the state and society and implementing the Reconstruction and Development Programme (Miller, 1996:207). To achieve this, information is needed for successful implementation.

6.2.1.6 Technological reasons

The potential of advanced information technology must be harnessed in the service of South Africa's people to support education, the provision of household services, and social development. The establishment of a relevant policy will ensure that South Africa becomes and remains an information/ knowledge rich country.

In general the very fact that decision making and planning necessitates information of all kinds makes it imperative that a comprehensive basic policy statement be adopted. Inadequacies in the current legislative and regulatory frameworks necessitate the creation of a policy which will not only be adaptable to change, but which should be an active agent to facilitate change itself. In fact, change is inevitable and should be welcomed.

6.2.2 Proposed philosophical approach

As stated before, the formulation of a National Information Policy is based on a certain philosophy about how policy development is approached by the national government. Past policy developments in South Africa can be said to have been highly government-regulated with a plan-directed approach aimed primarily at economic and industrial development. Industries related to government for promotion as a means to achieve government-determined ends were targeted. In choosing a "new" philosophical approach for South Africa, the opposite "extreme" of a free-market approach should not be chosen simply because of the past failings of the government-regulated approach. A balance needs to be found between the two extremes, this is where Angelides and Agius's (2000) eight scenarios of distinguishing the amount of government "interference" or not, come in handy. These eight scenarios were discussed in chapter 2.3.4.

As a result of the recent liberalisation of many telecommunications markets in the world, scenarios one, two, five and six are unlikely to prevail for much longer according to Angelides and Agius (2000:63). They should therefore not be regarded as long term solutions. Taking all of the above and South Africa's past into consideration it is proposed that South Africa should consider either option three or four which involve high consultation. The reasons for this is that South Africa is based on a democratic society where transparency is important and therefore the process of consultation is of fundamental importance because it ensures that the production of government policy has occurred with the participation of citizens, stakeholders and interested parties. It also ensures that the policy enjoys the widest possible support and acceptance by the people and stakeholders. More specifically option three with high use is preferred. A government making high use of policies provides credibility and more confidence.

6.2.3 Principles underlying a South African National Information Policy

According to the literature, authors such as Wild (1996:155) and Roos (1998) have identified broad information policy principles with specific reference to South Africa.

Considering these, and having noted the information policy principles as discussed in chapter 2.4, the following auxiliary principles for use in the information policy formulation process in South Africa are derived.

Information is an economic resource

- The policy should be realistic and affordable in terms of the South African economy and should therefore form part of a consolidated government financing mechanism that ensures all major initiatives are prioritised, approved and funded in a co-ordinated manner.
- Co-ordination of services and integration of products must be promoted.
- Efficiency, productivity and effectiveness in the workplace should be improved.
- Better decision making takes place through timeous access to accurate information.

Information infrastructure

- The policy must be supported by a cost effective infrastructure in terms of the South African economy.
- Availability of information technology to allow for access to as well as to share and communicate with others.
- Common concepts, standards, procedures and formats must be negotiated.
- Design of open and modular systems should be supported.

Rights of ownership

- The policy must encourage the use of local and indigenous knowledge, expertise and technology.

Privacy and confidentiality

- The central government service should be run as a government enterprise by means of open practices to provide the best services to government itself and to all its citizens.

Democratic responsibilities

- The information resources of the country should be deployed to support democracy.
- The government should establish a forum for focussing government service and management concerns in respect of delivery of quality services to the citizens.
- The government should foster a work environment that promotes co-ordination of services, integration of products and recognises the value of and supports ongoing consultation with and education and training for employees, managers and citizens.
- It should address the needs of disadvantaged communities and encourage use of local knowledge, expertise and technology.

Access and dissemination

- The government must support the constitutional requirements for access to government-related information.
- The government should establish a central repository where current, consistent and co-ordinated core data and metadata would be available for access and dissemination.

6.2.4 Policy issues in South Africa

Every country has its own socio-cultural system as part of the political mechanism, however, international environments and circumstances of technology and political systems influence information policy at the national level. The chief area of debate is what type of information is relevant to a specific country. However the purpose of information and communication is conditioned by the needs of each, thus making it imperative to relate the definition of information to a particular society and community. In developing countries, such as South Africa, the concern is often with the type of information that could benefit the least developed areas of a country. Thus over and above the information-related issues discussed in chapter 2.5, additional policy issues pertaining to South Africa are noted below.

- The focus and priorities of a South African National Information Policy must find a balance between the first world components industrial and social levels of information

policy, and the Third World components concerns with national development and building infrastructures in order to provide information. Priorities need to be identified that address short, medium and long term goals of implementing and maintaining a National Information Policy.

- Typically issues concerning the information communication technology sector would include increasing the information communication technology sector's capacity, providing a sustaining environment for sector growth and increased global competitiveness. In turn this raises issues for innovation. For innovation to take place a culture of innovation must be established, information and communication technology research and development must be stimulated, information and communication technology transfer must be facilitated and intellectual property must be protected.

- The issue of technology creates two areas of concern. The first being a lack of skilled human resources and the accompanying inadequacy of familiarity of the role that information can play in socio-economic development is found. This creates the need to develop expertise in information technology and specialist subjects, to effectively and efficiently utilise computer software and hardware. In order to provide the professional human resources to facilitate the development of services, appropriate education must be provided at tertiary institutions. Human resources development issues thus include developing the future skills base, solving employment/ workforce issues, and countering the brain drain. The second area of concern is the fact that computer software and hardware have short lifecycles, thus continuous training and retraining and exposure to new information technology products are essential. This implies that tertiary institutions must also provide for continuing education.

- Available information may be under-utilised because users may not be adequately aware of and familiar with the use of information technology and information itself. Thus effective measures such as user education programmes to promote and market

information products and services must be instituted to encourage an information conscious society and a reading habit. Addressing issues such as local market development, applications development, information infrastructure development, and achieving ubiquity may increase information communication technology usage.

- The benefits of co-ordination and the sharing of resources can be maximised by fully exploiting technological management aids. The management of projects as well as government information is an important professional skill in the management of knowledge and information to support the creation, organisation, dissemination and utilisation of institutional knowledge resources.

- Services should not be concentrated in the urban centres only but should also be extended to rural communities thus allowing equal access to information services.

- Factors such as the geo-political environment, the socio-economic conditions, technological state and legislative machinery are major obstacles in Less Developed Countries. For example an issue of prominence currently in South Africa is the privatisation of state assets.

- When formulating information policies in the past, a single aspect with a single policy in mind, such as technology or library development was concentrated on. For a successful modern policy, the picture as a whole, involving all interested parties should be looked at.

- In order to provide services appropriate sources of information produced within the country as well as abroad must be acquired and described in accordance with national standards. In addition, participation in regional information programmes as well as international programmes and the Internet will be advantageous to the country.

- The issue of access to government information is one of significance in South Africa in the context of transparency of government, open democracy and efforts to improve government communication.

- Culture is what differentiates nations from each other. The use of technology and the prescription of policies by international organisations such as the Economic Commission for Africa, IDRC and UNESCO should not transform that which is unique to any culture. The authority must recognise cultural plurality as an asset in the society to foster unity and strength and harmony in diversity. Specific issues relating to a multicultural society identified by Yaacob and Seman, (19?) include the following:
    - Publishers involved in the publication of information in all languages and in all formats have the responsibility to ensure proper bibliographic control. Proper documentation of the resources of different ethnic cultures according to stipulated national standards should be done with the objective of facilitating an integrated national database so that the materials could be well recorded and disseminated and used effectively.
    - Reading on cultural diversity should be promoted.
    - Government should set up special funding such as subsidies and tax exemptions to assist small publishers in producing materials in local languages.
    - Qualified professional staff with appropriate knowledge in local languages and background should be produced. For example library schools should be sensitive to intercultural awareness and design courses related to cultural diversity and their information needs and services.

In conclusion, the general scope of a National Information Policy covers the acquisition, organisation, management and dissemination of information, which may be in any type of format, e.g. printed, graphic, audio, electronic or other media. As a result of national differences in laws, public policy and social and cultural values, important international issues that must be covered include intellectual property, commerce, security, privacy and censorship. There are many issues which need to be addressed by a National Information

Policy. Which issues South Africa chooses to address will depend not only on the global issues but also on the choices it makes in response to its very particular development situation.

6.2.5 Related existing legislation in South Africa

South Africa has typical related policies covering issues such as copyright and libraries. Recent legislation in the field includes the revision in 1997 of the Legal Deposit of Publications Act no. 54 of 1982. The concept of legal deposit is currently being reviewed worldwide in order to allow for developments in information technology. Up until 1999 there were two national libraries in South Africa and a working group on the National Libraries came to the conclusion that there was a need for a single National Library in South Africa. The South African Library (Cape Town) and the State Library (Pretoria) of the National Libraries Act of 1985 (Act no. 56 of 1985) were thus amalgamated to form the National Library of South Africa by Act no. 92 of 1998 (South Africa, 1998b). The National Council for Library and Information Services Act established the Council in 2001 to advise the Minister of the Department of Arts, Culture, Science and Technology and the Minister of Education on matters relating to library and information services (South Africa, 2001a). The existence of legislation for library services does however not in itself guarantee the establishment and implementation of a National Information Policy. Currently parts of the information field are fragmented across different government departments. The Sub- Directorate of Meta-information is found within the Department of Arts, Culture Science and Technology, the Chief Directorate of Data Systems in the Commission for Administration/ Public Service, the Central Statistical Services, and Central Computer Services within the Department of Finance.

Probably the most significant legislation affecting the information technology sector is the Telecommunications Act of 1996 (discussed in chapter 5.2.3). The new Broadcasting Act (No.4 of 1999), the Independent Broadcasting Authority Act (1993) and the Telecommunications Act (1996) have been amended in the Independent Communications

Authority Act (No. 13 of 2000). This Act effectively dissolves the Independent Broadcasting Authority and the South African Telecommunications Regulatory Authority (SATRA) and replaces them with the Independent Communications Authority of South Africa. The recently introduced Competition Act (No. 89 of 1998) creates a new and more robust institution to deal with anti-competitive conduct. The Act deals explicitly with anti-competitive behaviour in terms of restrictive horizontal and vertical practices and the abuse of a dominant market position. However, the Act provides regulated conduct exemption for Telkom, and it is thus immune to Competition Commission review.

The Department of Communications Rationalisation Act (No. 10 of 1998) transformed the old Department of Communications into the Government Communications and Information Service (GCIS) which aims to deal with government communication strategy and corporate image. According to Arnold (2000:70) the Promotion of Access to Information Bill, formally known as the Open Democracy Bill, was passed by parliament in January 2000. This Act provides for the citizen's constitutional right of access to any information held by the State, or by any other person, that is required for the exercise or protection of any rights.

The State Information Technology Agency (SITA) Act was promulgated as Act no 88 of 1998 (South Africa, 1998a:2), and was created to assist in addressing the government's information communication technology problems. The purpose of the State Information Technology Agency is to provide information communication technology related services exclusively to the Public Service and ensure guaranteed performance levels. This agency is incorporated as a private company, with the State as sole shareholder of the company. Initially the agency will comprise the Central Computer Services, Infoplan, and the sub-component Information Systems within the Department of Safety and Security. The State Information Technology Agency's tasks include full or partial integration of various government department information technology divisions and information technology procurement for the State. Amid concerns of overlap with the State Information Technology Agency, another company, the information technology parastatal known as

"arivia.kom", was launched on 15 January 2001 (Makgale, 2001:1). This parastatal was formed by consolidating the information technology divisions of Ariel Technologies and Datavia, as well as the information technology division of Eskom. The key focus of this company however will be to deliver information technology infrastructure solutions, focused business solutions and to engage in e-commerce. Recommendations from the Public Service Information Technology Policy Framework, released in February 2001, for an electronic government must also be considered (South Africa, 2001b). Regarding e-commerce, there is a need to introduce a 'fast-track' legislative process to handle the current legislative framework to in turn handle the changes required to accommodate a competitive e-commerce environment at the speed that is required. The intellectual property rights concerns of e-commerce have been a primary focus of international deliberations in recent years. For example the World Trade Organisation negotiated an Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS), making intellectual property an integral part of the multilateral trading system since 1 January 1995. South Africa is a party to this agreement as well as the Berne Convention of 1886 and its revisions.

Other legislation that relates and influences a National Information Policy includes the National Strategic Intelligence Act and the Patents Act, both of which have been amended recently. Legislation regarding the promotion of research (for example the National Research Foundation Act No.23 1998) and National Heritage Resources (Act No. 25 1999) and even culture will also affect a National Information Policy.

6.3 Proposed Policy guidelines

In Chapter two the theoretical foundation was laid and from subsequent discussions an understanding of the information policy subject area has been reached, so that now the "best policy possible" may be developed. The proposed policy formulation approach as explained in Chapter 3.4 is followed and the discussion below thus follows the suggested structure.

6.3.1 Information gathering and analysis

Inside knowledge of the country is the key to choosing both where to start and the subsequent sequence of projects. Moreover, there are two "roads" to figuring out a solution. The slow, long-term development of a policy, or a fast "mopping up" operation. South Africa has so far chosen the long-term policy development road. In order to make this process successful and worthwhile an intensive review of the existing information services and infrastructures, including the extent to which such services are in a position to meet identified information needs, and the available financial and human resources, must be undertaken. This so-called information audit of the country's information resources needs to be undertaken so that we know where we stand, and for priority areas to be identified. Applying a philosophy of high consultation and use with low regulation implies that this information gathering process should be highly visible, transparent and encourage as much participation as possible.

The required information may be found in South Africa's most recent and specific prescription of development objectives and priorities of national goals in the country's macro-economic strategy known as the Growth, Employment and Redistribution Program (GEAR). According to this Program the present government's major mission is to improve the standard of living of all its citizens. The prevailing social policies can explain the policy maker's ideology and should therefore be kept in mind. An overview of past projects as background information is discussed in Chapter 3.2, whereas Chapter five provides the present South African context into which a policy should be brought. Chapter five also provides an introduction to the type of information required from this information gathering process. A review of existing information services and infrastructures was given in Chapter 5.3.2. Furthermore an important national study has been undertaken as part of the South African Information Communications Technology Sector Development Framework involving a survey of the information technology industry and related jobs and skills in South Africa. This study was limited to the information technology industry and should be broadened and supplemented to include other relevant aspects of a National Information Policy as already discussed (South Africa, 2000b).

It is recommended that a comprehensive structured information gathering process or audit be conducted by a taskforce constituting representatives from the State, private sector, academia and interested parties from civil society. Such an investigation can use the recently completed studies as mentioned above as their starting point. Once this information has been retrieved and organised it must be analysed. The suggested method of analysis is Moore's (1996a) analytical matrix. However, for the purposes of this study the information as presented throughout this dissertation and as explained above is applied.

6.3.2 Objectives and policy goals

On completion of the information gathering and analysis process, a vision, an aim, and objectives for a National Information Policy in South Africa can be formulated. To ensure the adoption of the National Information Policy, it has been recommended in the past that the policy form an integral part of the national development policy, plans and programmes and thus when identifying priorities, these should be kept in mind.

A suggested underlying vision is that all people have access to relevant information for development of themselves and the community. An example of the aim of a National Information Policy could thus be, to set out broad guidelines for the systematic and planned development of an information services infrastructure in keeping with the needs of all sections of the community whether urban or rural, in order to create an informed society capable of development.

It is proposed that a National Information Policy in South Africa should have the following objectives:

1) Facilitate the education and training of expert information technology skills by providing appropriate tertiary education. Provision for continuous training and retraining with exposure to new technology must also be made.

2) Create information awareness and user education programmes to increase familiarity and an understanding of the importance of information and its role in socio-economic development. Promote reading on cultural diversity.

3) In accordance with the aim of creating an informed society the policy should ensure the provision and progressive improvement of relevant facilities and services in order to contribute effectively to national development by the intellectual development of the people, their economic activities, their culture and recreational activities. This will be achieved through equal and open access to facilities such as libraries and archives, and community facilities and services.

4) Stimulate research and development to increase innovation in information technology for applications adapted to local development needs and circumstances. Create incentives to increase the capacity of the information sector of the economy and thus growth of the sector, while being globally competitive. Incentives to increase publication of local material should also be created.

5) Establish an integrated National Information System to co-ordinate and manage the information collecting and generating activities of both the public and private sector by linking them through a national network. Technical and organisational procedures and standards must be adhered to. The purpose of the system is to make appropriate, reliable and up to date information for decision-makers and researchers available.

6) Facilitate the publication of an up-to-date National Bibliography describing information sources produced within as well as outside the country in order to facilitate access and dissemination of information so that it can be used effectively. National standards should be adhered to and participation in regional and international information programmes encouraged.

6.3.3 Policy formulation and implementation

The policy formulation stage translates the goals and objectives set into feasible plans, programmes and projects. A policy is made up of statements of policy positions, which then become law through legislation, but this is only achieved through a long consultative process with all stakeholders. This dissertation by no means aims to formulate a National Information Policy and thus falls short in this aspect. The following discussion thus only suggests some aspects that should be noted.

Since information use for development is the desired outcome of the policy, information should drive the design of the systems and services and related training programmes. When formulating the policy:

- There should be high level co-ordination.
- Skills should be shared.
- The limitations of the user must be understood.
- Stick to simple solutions and training.
- Focus on the real priorities of the country.
- Explain the benefits of this policy at every opportunity.

It is good to address policy management issues before all policy-content issues have been settled. This is because policy management raises distinct problems of its own. To assure smooth implementation of the policy when it is finally developed, problems should be resolved before the policy has been developed. Improvements in policy management are likely to result in accelerated policy content development as well.

At this stage information is circulated by information inter-mediation, where a working framework is developed via meetings, discussion groups, seminars and conferences. All necessary information gathered and analysed previously is used in conjunction with the goals and objectives set, to formulate a unique policy with a unique plan. This strategic plan of action needs to take the following into consideration: infrastructure, development of information sources, common standards and procedures, co-ordination, development of

human resources, user awareness and improvement of information services. National Information Policy development must also include international implications as well as recommendations for international initiatives.

Formal policy development and formulation should now follow an inter-ministerial Green Paper process involving all stakeholders in identifying opportunities and issues with regard to the national vision. The policy is made up of statements of policy positions regarding national and international issues, but also includes proposals for systems for the capturing, repackaging and delivery of information produced locally. Use of information and technology in relation to human resources is also included. Following this an open participatory process will be needed to resolve outstanding issues which will then eventually result in a White Paper.

Implementing the project is the best and virtually only way to see whether it is successful and meets all stakeholders' needs. Implementation will thus require a high degree of collaboration between government, business, academia, labour, and civil society as well as substantial involvement at the community level. Before implementing the policy, it is suggested that the following "preconditions" defining the government's role, should be met:

- An informed citizenry is the cornerstone of democracy. Government should thus take a leadership role by finding ways to increase collaboration between the public and private sectors.
- Government must confirm the importance of considering information as a national resource.
- The National Information Policy must be aligned with the national goals and long-term objectives of the country by making it an integral part of the national development policy and national development plans and programmes.
- The National Information Policy must have accountability, inclusivity, consultation, transparency and work within the context of the developing world as well as the global context. When developing a South African information infrastructure in the context of

the global information community, the National Information Policy should aim to promote the development of an information infrastructure that will enable affordable universal service.

The new approach to government service delivery worldwide expects government to operate as a business, in terms of competitiveness, efficiency and effectiveness. Therefore fundamental changes to the way that government sees itself and does its business needs to be reflected in the new policy. The policy must be flexible and have an evolving framework that must consider both short-term and long-term objectives and also the constantly evolving social, economic, political and technological conditions. Thus the placement of a National Information Policy within the governmental structure needs to be well thought through. Two possibilities exist:

1. It answers directly to the office of the Sate President. The central government should put the overall National Information Policy in place and the physical projects should be carried out at local or even provincial level.
2. It may be placed in a specific Department or Ministry. If the government has a ministry of information, it may signify an interest in information, but there may be a particular bias whereby information is seen as a source of power. This affects the freedom of the mass media, secrecy and prevents the free flow of information. A general problem when the National Information Policy is set up in a specific Ministry is that each has its own subject field and specialises and focuses only on that subject. The perception of a National Information Policy will therefore be very narrow-minded and the needs and aspirations of that Department and its politicians will naturally influence it.

Although costs must be considered at all times, it is not financially advisable in the long run if the cheapest materials are used, unless they are of proper standard. Effective information and communication systems require reliable, low-cost and widespread technological resources such as computers, software and all the components of the telecommunications infrastructure for processing data and information. Existing infrastructure such as libraries and all types of community centres where people can find

information must be used, and may need to take additional projects into consideration especially in the short term (± two years) to reach the desired outcome.

6.3.4 Evaluation and policy review

The first evaluation takes place after implementation in order to ensure that the goals have been met. Constant policy review is essential to keep the project going effectively and efficiently. If overall evaluation and policy review takes place on a regular basis (for example, annually), it should have a positive influence on development. Goals and objectives set previously should be used as the benchmark against which evaluation should take place.

A mechanism for continuous development and policy review should be put into place by the policy. For example a National Information Board could be created. This Board should be set up with role players from central government, provincial government, other stakeholders for example the private sector (for example SABINET Online, Dimension Data, Telkom) information providers and producers and academics. Representatives of the broad-based community or consumer and the man in the street must also be included. Such a board's main task will be to draw up or keep up with developments by continual research on the national as well as the international scene, thus keeping the policy updated. It should also be entrusted with the task of developing information sources in co-operation with concerned national institutions. It should set up unified procedures and standards, provide access to timely information, networking related information sources and human resources development. These functions will lead to the promotion and development of the information sector within South Africa in order to achieve the goals of the National Information Policy. All monitoring of programmes that take place should answer to the board.

It should be kept in mind that information resources are in a constant state of flux and the search for timely answers requires a complex strategy. Therefore the policy must support

the integration of information vertically and horizontally within all tiers of government and between them. South Africa is a classical semi-peripheral state with a definitive First World and Third World situation with the poorer Third World component stating that they are being exploited by the First World component. The policy must thus be accessible to each and every South African citizen and must not create unnecessary information for dissemination if it won't be utilised.

6.4 Summary

Thus far it has been noted that a National Information Policy is essential for the steady growth and development of an emerging Third World country. South Africa is unique in that it comprises First and Third World components. If South Africa is successful in overcoming the problems posed it can become a leader in Africa in this field. The purpose of the National Information Policy however, is not to solve the socio-economic issues facing South Africa, but rather to provide the capability to support government initiatives in this regard.

This chapter has suggested the reasons why South Africa should invest in a National Information Policy and the philosophical approach that needs to be taken when developing it. Furthermore the principles underlying a National Information Policy in South Africa and the specific policy issues it should address have been discussed. This exercise culminated in proposed guidelines for developing a National Information Policy. In a further, more comprehensive study, such as for a PhD, actual policy positions and detailed content may be investigated. The next chapter thus completes this dissertation by expressing the conclusions that have been reached throughout this study.

Chapter 7 Conclusions

7.1 Introduction

Those countries that embarked on a National Information Policy formulation process around the 1970's or 1980's, were largely oriented towards library and documentation activities, which were the main flag bearers at that time as they were "historically" the major storehouses and suppliers of information. The increasing application of information technology has led to a complete re-examination of conventional information rules and policies. Consequently, National Information Policies have evolved to embrace the emerging capabilities of information technology to create, organise and disseminate data, information and knowledge unhindered by geographic location, and to mobilise resources to set up national information infrastructure. Information and communication technologies are no longer seen as a luxury from the developed countries, but rather as an absolute necessity for all, with global technological innovations presenting the opportunity for appropriate "leapfrog" strategies. However, being such an international concept, information is subjected to a variety of interpretations depending on factors affecting it in each country.

7.2 Review of the study

7.2.1 The problem

The problem posed in chapter one was whether existing National Information Policy formulation guidelines are sufficient and relevant to enable a Third World country such as South Africa to formulate and legislate a meaningful National Information Policy. It was subsequently found that the existing guidelines are outdated and not suitable for the unique conditions found within South Africa. Therefore the necessary guidelines to formulate a National Information Policy specifically applicable to South African conditions were developed from the theoretical foundation to the study of National Information Policies as discussed in chapter two.

Amongst the reasons for the necessity of a National Information Policy especially in Third World countries, it was found that it is generally accepted that a National Information Policy helps with the socio-economic development of a country. The mere presence of and access to information is however not sufficient and does not necessarily lead to economic development. What is needed are the necessary conditions fostering institutional and individual capability to adapt the use of information and information technology into useful knowledge in order to lead towards economic growth and development. The whole development process in Africa was originally conceived in ignorance, and the consequences of this have contributed to the failure of many policies and the disastrous implementation of many projects. The failures of development programmes in Africa have also had a great deal to do with inadequate attention to the environment into which they were introduced. This is not merely a failure of the planning approach, but it stemmed from and is contributed to by an almost wilful disregard of information resources available on the continent. There is much essential historical, environmental, spiritual, agricultural, scientific and medical knowledge in the corpus of African culture that for too long has been ignored. There is however not a total lack of information policies in South Africa. One or more policy instruments are in force for regulating information activities, for example, telecommunication, broadcasting and national library policies. Unfortunately each is recognised strictly on its own merits and not as complementary elements of the same parent activity. In other words there is a lack of co-ordination between sub-processes of the information process.

7.2.2 The goals and objectives

Chapter two presents an interpretation of the understanding of the theoretical background to studying a National Information Policy. This theoretical base was further expanded by an overview and critical analysis of past proposals for formulating a National Information Policy in South Africa, and by undertaking a case study of Malaysia, regarded as a Less Developed country. The purpose of the research was to develop a framework of National Information Policy guidelines suitable specifically for South Africa. Applying what was

gained from the theoretical investigations, the study produced guidelines for an own approach towards the formulation and implementation of a National Information Policy. South Africa was then placed within its present context. Further guidelines in the form of principles that should underpin a South African National Information Policy as well as issues that the National Information Policy would need to address were suggested.

7.2.3 Necessity of a National Information Policy

Information and knowledge are needed for academic pursuit, for decision making, for effective technology transfer, for social and cultural development as well as for entertainment. The development in information technology has forced and will continue to force governments all over the world to debate on the Information Society, its possibilities and problems and the way it is structured in each country in order to contribute both to national and to individual positive development. Globalisation is shaping the world community into a global village, and it exposes societies to the wealth and diverse global information resources created by various countries, therefore all nations need to deal with the Information Society.

An understanding of one's own culture as well as cultures of different countries can lead to better relationships among global communities. Hence, developing a national information infrastructure within a country is as vital as developing the nations' physical infrastructure for economic progress. Developing a strategy however, calls for innovative thinking to find ways and means of preventing social isolation among the information weak in all countries through, for example, improved educational efforts. Neither in human nor societal terms can any country afford not to deal with these matters and must sooner or later develop and support communication structures. It is therefore highly relevant for them to set up and adopt National Information Policies. Unfortunately there are certain fundamental inadequacies in the information structures of many Third World countries. Postal and telecommunications systems are often inadequate or don't function properly. Channels of information provision suffer from lack of funding, there is a

shortage of trained human resources and a lack of well stocked libraries. Rural illiteracy is also a major constraint as well as poor transport systems.

Upon reflection, the necessity of this study cannot be questioned. Information policies are concerned with modernising the telecommunications infrastructure, promoting industrial and commercial competitiveness, re-skilling the workforce, promoting social cohesion, extending democracy by making governments more open and accountable, and contributing to cultural development. The necessity of a National Information Policy, as is clearly seen, itself justifies the need to study the subject in order to gain an understanding of the role of a National Information Policy and to develop successful policies. There is in fact room for further investigation as studies specifically for Southern Africa were found to be lacking.

7.3 Insight gained

The following observations were made:

A) The major guiding objective for promulgating a National Information Policy is the promotion of information as a vehicle for technological advancement and economic growth. Development can only be achieved through maximum utilisation of resources and this in turn depends on the full use of national information. A National Information Policy that provides support for a National Information Strategy can lead to an expanding information economy. This would potentially stimulate socio-economic growth by supporting research, which can lead to innovation, the development of national expertise, the growth in indigenous knowledge, and expand the production of goods and services within the country.

B) A National Information Policy should identify or define the information problem areas and must commit the state to find ways and means of dealing with such problems. An important aspect of policy research is therefore to formulate the problem as clearly as

possible because policies have failed in the past as a result of a lack of effective problem formulation in the first place. The ability of governments to develop effective policies and plans thus depends on their capacity to interpret information relevant to the country's economic, social, cultural, and financial situation. A strong national infrastructure allows access to information from all of these sectors, and provides the basis for competent planning and decision-making. Such an infrastructure requires sound information policies to provide the framework for the development of information and communication systems and services to meet development needs.

C) Most initiatives are in the field of connectivity, technology transfer and training. Among the many initiatives however, a distinction needs to be made between programmes designed to foster information communications technology development and programs designed to serve specific goals. Unfortunately many Internet connection initiatives seem to be designed to merely strengthen and facilitate communication between donor agencies and their partners in the South. Although legitimate, such initiatives neither contribute to the overall development of information communications technology in Africa, nor to the development of an institutional framework needed to implement new policies. Furthermore, little attention is given to the development of information and content. Only a few initiatives contribute to the development of an institutional and research framework, putting Africa in a position to regulate, adapt and innovate information communications technology to its own needs and priorities for sustainable development. Where information communications technology connectivity exists, an imbalance in the content flowing over the information superhighway is found, and some (for example van Audenhove, 1998) feel that access to this content may have negative impacts on culture as well as development. The challenge for African countries is thus to produce the content that develops African cultures, diversity and strengths by exploiting the huge wealth found in terms of African dance, drama and culture.

D) Information providers have to bear in mind the fact that information has very little use unless it is communicated to the right user at the right time, and in the right way or format. Information is also transient of nature, therefore information that is not used becomes unproductive and it is important to get the most up to date information possible. Misunderstandings about national, regional and international issues crop up mostly due to the non-availability of relevant information. Information is vital for research and development and information that is meant for dissemination should not be withheld but should be made readily available. Initially, it may be both profitable and feasible to use simple and traditional methods to disseminate information in most rural areas. Thus even though non-literate and rural populations may not be able to make direct use of an African information infrastructure in the near future, the positive spin-offs to the country as a whole, will result in benefits for all sectors of society.

E) As a result of the economic value attached to information, institutions and government ministries are now concerned about who owns and controls the production, processing and distribution of this commodity. This may be a problem within the region since governments realise the kind of impact uncontrolled information flow may have on the people, especially where the democratic process and values are still under attack. A distinction has thus to be made between the management of information and its control. In African countries politicians wield enormous power in shaping the direction of public policies and determining how they are implemented. Therefore the policy research efforts are unlikely to have an impact unless political systems and practices are reformed. Information gives potential, but the ability to access and control that information is power. Thus we can say that knowledge is power, but power can be dangerous, unless it is managed successfully.

F) What is lacking in many Third World countries, such as Malaysia, is the availability of local information in digital format that can be accessible through the Internet. The development of a National Information Policy should stress the importance in the

systematic documentation of all information resources, preservation of, for example cultural heritage and the creation of databases that can be linked internationally.

G) From now on policy-makers, researchers and information professionals, will have to work together in order to encourage discussion at all levels about the right of access to information to ensure that development, democracy and security of the region remain on course. This means that international databases and subscriptions must be affordable to Third World countries. Obtaining information via bibliographies is troublesome therefore negotiations regarding the availability of full text databases are an important solution to the problem. Information as a force towards regional integration, indicates the way ahead. Cross-border information flow is a must in our search for effective regional co-operation and integration especially at grassroots level.

7.4 Conclusion

By examining the situation in detail it is clear that the information field is made up of a series of policies which in the past have added up to make an almost comprehensive policy. The hope is that this situation will advance to the more desirable state of a National Information Policy. The problem posed by the pervasive nature of information technology in modern societies has already led to a further broadening of the scope of information policies in the 1990's. Thus the library and information service industry continues to play a key role because all types of people need information in every aspect of the social and economic life, and libraries and information centres play an indispensable role in nation building.

The information revolution is changing the world very rapidly. However, the challenges facing developing countries are different in many respects from those facing developed countries. Developed countries face challenges of improving information infrastructures such as telecommunications. By contrast, in developing countries, the Information Society must serve national development needs and focus on the disadvantaged sectors and under-

developed areas. Thus for future national growth and development to take place in South Africa, " original indigenous information needs to be generated. Without this creative side within the nation, new enterprises and growth areas cannot come about" (Arnold, 2000:79). Herein also lies the key to the desired African renaissance, ". by reasserting the significance of the indigenous knowledge base and placing it in a social intelligence framework, the continent can set about taking control of its own destiny" (Sturges, Mchombu and Neill, 1996:144).

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Samevatting/ Ekserp

Hierdie studie het ten doel om die belangrikheid en vereistes van 'n Nasionale Inligtingsbeleid vanaf 'n Inligtingkundige oogpunt te bespreek. Die studie is uit 'n holistiese oogpunt benader en probeer om alle faktore en verwante beleide wat invloed op 'n Nasionale Inligtingsbeleid uitoefen te bespreek. Die konsep "Inligting" word in Derde Wêreld lande vanuit 'n unieke sosiale, ekonomiese, politiese en kulturele agtergrond aangepak. Met dit in gedagte, word die formulering van 'n Nasionale Inligtingsbeleid hier as 'n proses om inligting as hulpbron te bestuur, benader. Die bestuur van inligting as 'n hulpbron is dus 'n baie belangrike funksie vir die owerhede. Die studie fokus op die volgende:

- Wat 'n Nasionale Inligtingsbeleid behels.
- Redes hoekom 'n Nasionale Inligtingsbeleid benodig word, die geskilpunte en beleidsbeginsels.
- Moontlike voorstelle en metodes om 'n Nasionale Inligtingsbeleid in Suid-Afrika te implementeer word ook bespreek.

Weerstand vanaf die Derde Wêreld teenoor buitelandse en westerse betrokkenheid word ondervind. Dit is dus belangrik dat oplossings vanuit die Derde Wêreld self kom. 'n Ideaal waarna gestreef word is dat die leiding ten opsigte van die formulering van 'n Nasionale Inligtingsbeleid vanuit Suid-Afrika sal kom vir toepassing in die res van Afrika. Voorstelle word dus gemaak vir die formulering van 'n Nasionale Inligtingsbeleid in Suid-Afrika binne die weier raamwerk van tradisionele inligtingverskaffing en inligtingdienslewering. Die tradisionele rol moet ook nuwe dienste, bekwaamhede, en die gebruik van nuwe inligtingsbronne en programme in ag neem. Die uiteindelike doel is dat Derde Wêreld lande self die waarde van inligting besef en hulle eie Nasionale Inligtingsbeleid formuleer. Sodoende word foute uit die verlede herstel, beter gebalanseerde dienste word verskaf en beter ko-ordinering vind plaas wat tot meer toegang tot inligting lei. Die gevolg is dat

profesioneel opgeleide mense inligting kan bestuur en gebruik om Afrika se sosio-ekonomiese probleme op te los.

Summary/ Abstract

This study endeavours to produce an understanding of the necessity for a National Information Policy from an Information Science point of view. The study was approached from a holistic point of view and thus tries to encompass all factors and related policies that would influence the formulation of a National Information Policy. The concept of information in developing countries operates within a broader social, economic, political and cultural background. The formulation of a National Information Policy should however conform to certain information management principles and is thus treated as a process for managing information, a vital function for any successful government. In the empirical research the theory is applied to describe the fundamentals of policies and their necessity. The study focuses on:

- Exploration of what a National Information Policy encompasses.
- Principles of information, issues and reasons making such a policy a necessity.
- Possible proposals, approaches, and means of implementing a National Information Policy for South Africa are discussed.

From a Third World perspective resistance may be detected towards external and foreign involvement or models. Greater care should thus be given to indigenous practices, but with the necessary guidance, so that a correct balance can be created. It is therefore essential that the seed be planted, guidance given and that the process be driven from within the country in order to be successful. The ideal would be if this guidance could come from an African country such as South Africa. A National Information Policy should be formulated within a broader framework of meeting the traditional information provision needs and services. The traditional role should however also be extended to make provision for new services, skills and the utilisation of new information sources and programmes. The ultimate goal is for Third World countries to realise the value of information and develop their own concept of a National Information Policy. This is done in order to address the disparities of the past, improve and develop balanced services,

create better co-ordination, facilitate access and have adequate and professionally trained human resources. This will lead to better management and use of information to ultimately solve Africa's socio-economic problems. Conclusions and recommendations are thus formulated to act as a guideline for the proposed formulation of such a policy for South Africa.