CHAPTER ONE

INTRODUCTION AND PROBLEM STATEMENT

Introduction

South African politics have in the last quarter of the twentieth century presented a baffling array of complex transitional political dynamics. These multifaceted political issues include, among other things, the role of technology, which is seen as a benefit factor that is presented against the risk and dangers of those who uphold and cherish advances in technology. This confrontation poses very difficult choices for society and government when it comes to making policy decisions, particularly decisions that are technology related. Some of the most challenging issues result because of the ability of technological advancements and deployment to outpace the capacity of the institutions to determine the extent of the impact that technology has on democratic society. In many cases the rate of technological advance has far outstripped the capabilities to assess and evaluate implications and those of institutional monitoring and control.

Technology is regarded as the sum total of human tools and methods, devised by human beings to control the environment for societal net benefit. It is regarded as a systematic application of knowledge to resources in order to produce goods and services (Stilwell: 1994), because it is fundamentally instrumental and is itself morally neutral, usable for both good and ill. There are, of course, dangers of abuse and misuse of technology and the tendency to technologically divide society, but these appear to be problems not of technology but sometimes of policy implementations and of its human users, which needs to be addressed appropriately in general. And, besides abuse, misuse and policy implementation, there is a genuine problem of technology itself: the unintended and undesired consequences attending its proper use. There is temptation to question whether the problems of technology can be dealt with, on the one hand, by technology assessment and careful regulation - to handle side

effects and misuse, and, on the other hand, by goodwill, compassion, and the love of humanity – to prevent abuse. This combination will enable us to solve the problems technology creates, without sacrificing its delightful fruits. (Kass, 1993.)

The development, advances and use of technologies are a driving force in socio-economic prosperity and national security. Maintaining the strength and competitiveness of technological enterprise is vital.

In the current climate of intensifying global competition, technological advancement, and political uncertainties, there is a need for identifying critical technological approaches as the concentration of effort becomes even greater. (National Critical Technologies Report, 1995.)

South Africa undertook transformation to assume the strength and competitiveness of technology approach to intensify global competition and further address political imperatives for a democratic society. The 1994 elections ushered in a new democracy in South Africa, with the ANC-led government winning the elections on the basis of a vision of "A Better Life for All". This vision was highly structured in the Reconstruction and Development Programme (RDP). This programme served as the guideline for the technology policy, which in 1996 was published as a White Paper on Science and Technology. The policy is built upon the twin concepts of innovation and national system of innovation. This developmental approach and application of technology contained in the policy are central to the growth and development strategy of the government as it seeks to address the needs of a vision of a better life for all.

To achieve this vision there is a need to make provision for basic needs such as housing, education, safety, security, job creation, environment, and international trade, and to remain globally competitive, thus ensuring that a favourable socio-economic climate exists that can attract investments in technology.

The level of investment in technologies also has an influence on its advancement, which can extend or hinder democracy's reach. For example, technology can make it easier for people to track legislation, express preferences, ensure accountability by officeholders, and rally support for a specific political cause of action. Technology holds out the promise of giving the masses a stake in the political process and drawing the disenchanted back from political cynicism. But for that to happen, technology will

have to be appealing and accessible. And policy-makers will have to make democratic participation as important a goal of technology policy as consumer convenience and economic growth. (Benton Foundation, 2000.)

Challenges abound for a democratic political system in ensuring that democracy functions properly and citizens have access to technology and information about it. Other information, e.g. on rights and obligations concerning health and education, are also important. The government must guarantee that the information is available and accessible. On the other hand, information technology gives the authorities a very powerful tool to strengthen the rule of law. New technology can and will affect democratic societies. Information technology does not, however, change the fundamental principles of law and ethics. (Magnusson, Olrich, Gudmundsson and Sigurdardttira: http://www.statskontoret.se/gol-democracy/iceland.htm.)

People have benefited enormously from invention, discovery and technical advances, ranging from electricity to vaccines, from advances in food production to information technology designed to advance democracy. Considering the beneficial effects of technology on the nation's quality of life and general prosperity, government has a vested interest in maintaining a strong infrastructure for innovation and research, a responsibility it shares with other stakeholders such as business and labour and the education, industry and non-governmental sectors. Traditionally governments have focused on ensuring that the basic needs of citizens are met, involving for example housing, education, product standards, safety, security, infrastructure, environment and international trade, and on ensuring that a favourable climate exists to attract investments in technology and innovation. Economic growth, job creation and sustaining the quality of life and the environment require continued public and private investments in technology. The high level of technological change in the global village demands short-term policies of government to reflect the changing nature, skill requirements and location of jobs, in response to the introduction of new technologies. Longer-term organisational and institutional changes are also required for the society to experience the full benefit of such technologies. Such policies and actions need to take into account the impact of the digital divide in a society and the resistance to fear of technology, which is mostly due to the absence of a proper national technology culture.

There are claims that the South African society is divided by severe forms of inequality that coincide with racial differences and also by the notion of the digital divide, that is the technology and information gap between rich and poor, and between rural and urban communities. Van Dijk (in Hacker and Van Dijk 2000) questions whether the ideals of digital democracy transcend the purported inequality of information access attending socio-economic gaps. It would be unrealistic to expect that democracy by itself will lead to harmony in inter-group relations amidst inappropriate technological advancements. Democratisation under such conditions may even exacerbate the adversarial problems of societal integrations. Since knowledge is regarded as power, some groups in society may start thinking that by virtue of their having access to information through the use of technology they are more advantaged than another group who may not be privileged to have access to information technology. The compilation of firmly entrenched inequalities, which undermine the rational basis for democracy, gives rise to the antithesis of a full or complete democratisation. It is anticipated that if all political spheres, particular those characterised by the degree of inequality, are simultaneously and evenly subjected to a process of democratisation, society will gradually be transformed. Most theories of modernisation also assume that differentials will narrow, culminating in the democratic state characterised by harmony and political cohesion.

Problem statement

The problem the study investigates is the impact of technology on a democratic political system. Specifically the study seeks to determine:

1) The extent to which the government's technology policy has since its inception influenced the South African democracy. That is, has the policy succeeded in achieving the broad priority areas it covers regarding the promotion of competitiveness and creating employment, political participation, political stability and predictability?

2) To what extent, if any, has technology succeeded in enhancing the quality of life; developing human resources, and working towards environmental sustainability in South Africa?

3) What is South Africa's level of success in bridging the digital divide and the level of success in promoting a viable information society?

The significance of the study

The study is particularly significant for four reasons. Firstly, the study provides empirical evidence concerning the extent to which the 1996 South African Science and Technology Policy anticipates a future where all citizens will enjoy a sustainable quality of life, participate in the economy and share a democratic culture. Secondly, the study demonstrates the support for theories constructed along the modernisation process. Demonstrating support for such theories assists in the realisation that the world is changing so fast that democracy is endangered unless citizens are continuously involved in policy-making, and possible technology strategy intervention will be suggested. Thirdly, the study adds valuable data to the literature on the democratic politics of technology. In addition, the literature review allows comparisons to be made with earlier studies conducted on the democratisation process in South Africa. Lastly, the study tests the assumption that advances in technology enhance political stability in a democratic political system.

Purpose and objectives

The purpose of the study is to examine the South African technology policy, as well as the relationship between technology and democracy. The objectives are as follows:

➢ To analyse the proposition that technology influences stability and is regarded as one of the conditions for democracy in a political system.

➢ To investigate the proposition that a systematic application of knowledge to resources can provide a good tool for enhancing democracy in South Africa.

➢ To enquire whether technology can shape challenges to the political, social, military and economic environment of the political system.

➢ To test and analyse whether a thorough process of consultation can culminate in a well-functioning technology policy.

Rationale of the study

Since April 1974 the number of democracies in the world has multiplied dramatically. The number increased moderately in the late 1970s and early 1980s as several states experienced transitions from authoritarian, mostly military, rule to democratic rule. By the end of 1995 the pace of global democratic expansion accelerated markedly.

In seminal formulation, Samuel Huntington termed this post-1974 period the "third wave" of global democratic expansion and its central importance is shown in the regional and international democratisation effects. Huntington defines a "wave of democratisation" simply as "a group of democratic transitions that occur within a specific period of time and that significantly outnumber transitions in the opposite direction during that period". (Diamond, 1999) The trend that began in Southern Europe in the mid-1970s spread to the military regimes of South America in the late 1970s and early 1980s and reached East, Southeast, and South Asia by the mid to late 1980s. The end of the 1980s saw a surge of transitions from communist authoritarian rule in Eastern Europe and the former Soviet Union and a trend towards democracy in Central America as well. The democratic trend spread to Africa in 1990, beginning in February of that year with the sovereign National Conference in Benin, the release of Nelson Mandela and the unbanning of the African National Congress. By 1998 there were more democratic political systems on the African continent.

In South Africa, the 1994 elections presented a new democracy, delivering not only a universal right to vote but also formal equality before the law, avenues for citizen's participation in governance, and statutory institutions bolstering democracy. The second democratic elections in 1999 took place amidst large-scale societal transformation and reform and presented opportunities to investigate the impact of technology on democracy in South Africa.

Democracy in South Africa has seen initiatives taken by government to review and reform its policies, including its technology approach. The 1996 government technology policy envisages a brighter future for all citizens. The policy has since its inception had some impact on the South African democracy, presenting various challenges in terms of the promotion of competitiveness and job creation and the

extent of success in enhancing the quality of life, human resources development, environmental sustainability, and narrowing of the digital divide. Any attempt to address these questions warrants an analysis of the impact of the technology policy on the South African democratic political system.

Within the ambit of the South African democratic political system, the technology approach justifies a policy analysis, which should be placed in the context of the rationalisation of the state and politics as a policy-making activity. The notion that the world is full of puzzles and problems, which could be solved rationally through the application of human reason and knowledge, forms the backbone of this study. Thus the approach in policy analysis in terms of the desire for knowledgeable governance, that is the acquisition of facts and knowledge about problems, is to formulate better solutions.

This technology approach is supported by Lasswell when he suggests that policy science settled on two main approaches which could be defined in terms of knowledge in the policy process and knowledge of the policy process. (Lasswell (1970) Policy analysis is concerned with knowledge of the policy process while the analysis of the policy is concerned with knowledge about the formulation and implementation of public policy.

David Easton (1953, 1959) established a policy approach that provided a model of the political "system" which influenced the way in which the study of policy (outputs) began to conceptualise the relationship between policy-making, policy outputs and its wider environment. His model views the policy process in terms of received inputs – in the form of flows from the environment, mediated through input channels (parties, media, interest groups) – and demands within the political system (with inputs), and the conversion of such inputs and demands into policy outputs and outcomes. (Parsons,1995)

Policy consists of "outputs" of the political process. It reflects the impact of government policy decisions on society, that is, its ability to make things better or to make things worse. A distinctive area of study in policy analysis was developed purposely to examine how the policy was initiated, formulated and implemented, and how the policy process could be improved. Policy analysis is not only concerned with

issues of efficiency and effectiveness, i.e. with the "how" of the policy-making. It also addresses the "what" of policy-making: the nature of government "outputs" and their "outcomes" for the larger society. At the heart of policy analysis is the normative question such as "what is government for" and what is the nature of the "good society". Any attempt to evaluate the performance of government or the political system must therefore consider some deepest political and ideological division in the discipline itself. (Heywood, 1997)

Policy analysis is set to be concerned with improving the methods by which problems are identified and defined, goals are specified, alternatives evaluated, options selected and performance measured. It thus focuses on what Bobrow and Dryzek (1987) term "knowledge based interventions in public policy making".

In analysing the impact of technology, as a systematic application of knowledge to resources, on democracy, the study does not only ask the question how plausible, feasible and viable is technology, but goes beyond this to translate technology in a way that will incorporate the complex realities of democracy. This poses a challenge to expand the theoretical boundaries within which the democracy has traditionally been shaped, a challenge that is intensified by the thematic nexus of technology, democracy and policy studies as a subfield of political science.

The technology policy culminates with the evaluation and review of policy, leading, in theory at least, to decisions being made about the maintenance, succession or termination of some policy aspects. This will complete the policy cycle in the sense that information acquired through evaluation can be fed back into the initiation and formulation stages. This process may show up new policy proposals and help to refine and improve existing policy. For the purpose of addressing substantive issues related to the appropriateness or effectiveness of technology approach in South Africa, evaluation might shed light on procedural issues, such as how the formulation stage is organised, who is consulted and when, and how implementation is controlled.

The South African government is concerned about improving the wellbeing of society. Such concerns inversely question the certainty of whether technology can support democratisation. In view of these concerns and technology-related problems, the scope for assessment, monitoring and evaluation of technology impact has grown

enormously in response to the demand for democratisation and the increasing complexities and challenges of providing goods and services to meet the basic need.

Democracy is predicated by political stability and equality in the distribution of socio-economic needs. Advance towards stability and equality will improve the inputs (demand and supports) where the creation of (technology) capabilities by the systematic application of knowledge to resources produces equitable distribution of goods and services within a democratic political system.

If severe forms of political instability and inequality divide South African society, it would be unrealistic to expect that advancements in technology will by themselves sustain democracy. Democracy under such conditions may even exacerbate the adversarial problems of technology in society. The collection of firmly entrenched instability and inequalities, which undermine the rational basis for democracy, gives rise to the premise of an undemocratic political system. It is probable that if all spheres of the environment in a political system, and in particular those characterised by advances in technology, are simultaneously and evenly subjected to demand and support, the outputs will have an impact on a democracy. Differentials will narrow, culminating in the egalitarian state characterised by prosperity and democratic rule.

The question on the social and economic preconditions for a democratic South African society also refers to conditions for stability. Lou (1983) has indicated that "equality means stability; inequality, movement". The implication is that an advance towards social economic equality will improve the stability of democracy. The improvement would be the outcome of a process of development. It could also result from a radical redistribution of income, wealth and economic opportunities. (Haasbroek, 1994)

The study presents a policy analysis of technology by evaluating its impact on South Africa as a democratic political system. It will argue that the South African technology policy as an aspect of politics is directly related to the character of democracy and therefore its performance can only be evaluated in the light of its impact according to what actually happens for good or ill. The study will begin with some contextual conditions that strongly argue for increased attention to the linkage

between technology and democracy. It then briefly explores the meaning, characteristics, and necessary condition of democracy, and next posits some hypothetical linkages between democracy and technology content or design. Most of the work will develop these pathways or linkages as a subject matter for political science.

As a subject matter for political scientists, the role of technology has evoked renewed interest in the wellbeing and vitality of the democratic political system. It is generally agreed that a political system benefits from having a stable democratic rule. Whether or not the South African technology policy has abated or changed the wellbeing of society, there is an apprehension as to whether technology policies can stimulate, diminish, or change the nature of democracy. It concerns the need for strategies in order to bridge the technology divide, requirements for technological advancement, unsatisfactory technological enterprise, and lack of clear channels through which technology can promote social and economic progress in a democratic political system. And lastly, the problems of technology concern not only problems of ends and means but rather the control of unintended consequences, as well as the basic moral and political question.

These issues mar South African democracy, despite several years of seemingly aggressive governmental policies to alleviate them. Rather than disappearing as issues, such technological problems permeate the debates on such diverse subjects as defence, health and welfare, and social and economic aspects. The persistence of these technological problems represents not only a policy failure, but also a misrepresentation of democratic rule. Governance structures have altered dramatically with information and communication technologies. Programmes in which the government plays a critical role have replaced governmental agencies in areas as widely divergent as telecommunications, postal services, broadcasting, health services and provision of water and environmental aspects. Political science principles of governmental accountability through elected leaders may operate poorly where lines of democratic control and accountability are different and less direct. The accumulation of both theory and empirical research linking public policy and institutions with democracy provides a particularly favourable context for further work in this policy area.

The relationship of technology to democracy in the South African democratic political system is an unfinished and open-ended political phenomenon. As John Dryzek (1996) has argued, democratic governance is largely striving to expand the franchise, scope, and authenticity of democracy. Franchise refers to the number of active participants in any political setting, scope concerns the domains of life under public control, and authenticity is the degree to which democratic control is substantive, informed, and competently engaged. None of these ought to take place at the expense of the other. Expanded franchise, for example, must not lead to superficial deliberation that impairs authenticity. Of course, there are many forces apart from policy that affect democratic rule, such as interest groups, political parties, leadership, and the press. However, since the important work of Lowi (1964) and Wilson (1979), which connected the content of policy with patterns of politics, substantial literature has developed that traces the consequences of public policies, including technology, to politics and to democracy.

There are pathways through which technology policy content may influence the character of democracy. There are critical conditions for democracy: there needs to be open field for public discourse in which all relevant points of view regarding technology are expressed; citizens ought to view their role as citizens as important, as involving obligations as well as rights, and they need to be convinced that government has the interest and capacity to solve technology problems; society needs to be supportive of technology policies and be positively involved in formulating shared goals; and there must be means to hold government accountable for its actions. These important conditions for democracy are directly related to consequences flowing from policy designs, namely: the framing of issues; how targets are constructed; the structure of implementation and delivery systems; and transparency of governmental actions and citizens' access to information. These issues reflect how policy affects the framing of problems and their discourse.

Definition of terms

- Science – improvement of natural knowledge. It is both a method by which knowledge is gained and the knowledge that results from that process: the constellation of facts, theories, and methods collected in current text (Kuhn, 1970).

- Technology – the systematic application of knowledge to resources to produce goods and services (Stilwell, 1994), or putting knowledge into practice, to alter and control the material conditions of life, or to "create a reality according to design" (Grove, 1980).

- Technology management – the management process by which organisations identify access and use available international technology to achieve ongoing competitive advantage, profit growth and shareholder value through optimum customer and community benefits.

- Technology strategy – is concerned with exploiting, developing and maintaining the sum total of the organisation's knowledge and competencies.

- Political system - a network of relationships through which government generates "outputs" (policies) in response to "inputs" (demand and support) from the general public.

- Democratisation - the advance of liberal-democratic reform, implying, in particular, the granting of basic freedoms and the widening of popular participation and electoral choice.

- Functionalism – approaches to the state focus on the role or purpose of the state institution. Its central function being invariably seen as the maintenance of social order and the delivery of social stability.

- Modernisation - refers to the contrast and transition between a 'traditional' society organized by hierarchical division by class or caste and the type of 'modern' society that is based on trade and industry, organized by function, such that the major functions are performed by modular social systems that include the political system, the public service, the armed forces, the legal system, the economy, religion, education, the health service, the mass media, etc

- Public policy – an action which employs governmental authority to commit resources in support of a preferred value.

- Policy analysis – concerned with improving the methods by which problems are identified and defined, goals are specified, alternatives evaluated, options selected and performance measured.

- Socio-economic public policy - a look at how public policy is the outcome of economic and social factors, which have a major influence on the making of policy and upon its outcome.

- Productivity – the term productivity generally refers to the ratio of output units per input unit. It assumes that there is a process which transforms units of input into units of output.

Delimitations of the study

The study will be confined to available primary information sources, i.e. already existing textual information, such as annual reports, mission statements, memoranda, official documents – including white papers, green papers and press reports, as well as secondary information sources drawn from the library, press reports, discussion papers, comments, debate, and information obtained from the Internet.

Limitations of the study

The study will be limited due to the fact that literature review can, according to Mouton (2001), at best only summarise and organise the existing scholarship. Even a critical review of the literature cannot produce new or validate existing, empirical insight, it can only lead to theoretical insight. Further limitation will be that the study is restricted to South Africa, and within the context of a new democracy, advances in technology and the dynamics of transitional democratic politics progress rapidly. Caution will be taken against generalisation.

Overview of the research programe

As has been stated already, tehnology is ubiquitous within South Africa's democratic political system. It has both benefits and disadvantages and also poses a difficult choice for society and government as regards policy approach. The social dichotomy of this nature raises the need for further inquiry as to the reasoning and application to technology as the systematic application of knowledge to resources in addressing

democratic imperatives. The second chapter is the review of literature; it discusses and reviews the literature relevant to this topic. Chapter 3 sets out the research design. It provides the key concepts used in the study. It also discusses the methodological premises, justification for the hypothesis, data analysis and interpretation, and the shortcomings. Chapter 4 looks at the role of technology in the development of the modernisation process. Chapter 5 discusses information technology as an imperative for securing democracy. Chapter 6 focuses on South Africa within the context of a democratic political system. Chapter 7 focuses on the national democratic politics of technology, and, lastly, Chapter 8 will present the conclusions and recommendations about the hypotheses and the research problem, and the implication of the policy and practice for both public and private sector analysts and managers. It will discuss the limitations of the research and identify areas for further research.