

ACKNOWLEDGEMENT

**AN EVALUATION OF AND A MODEL FOR SOUTH AFRICAN
GOVERNMENT WEBSITES**

by

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Opinions expressed, conclusions reached and recommendations made in this thesis are entirely my own and do not necessarily reflect the views of GCIS.

Hilda Korsten
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To the memory of
Hilda Korsten

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To the memory of Tiekels and my mother

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ABSTRACT

Governments have a responsibility to make government information available easily, widely and equitably, increasingly also in electronic format. The South African government embarked on various initiatives with regard to the electronic dissemination of information, one of which is the development of government websites. The main objective of this research was to contribute towards improving the quality and usability of government websites to enhance the effectiveness of online information and service delivery by the South African government. To reach this broad objective, the research assessed the effectiveness and usability of the *SA Government Online* website and South African national government websites, with the aim of identifying issues that government will have to address to improve the effectiveness and usability of these websites, so to ensure that they contribute optimally to online information and service delivery.

The evaluation of *SA Government Online* was conducted during the period 14 August – 16 September 2000. The methodology used was selecting suitable assessment criteria against which the website could be measured, and thereafter using them to develop test instruments for data collection. The evaluation methods chosen were a heuristic evaluation by experts, a critical evaluation of the website by the author, user testing and an online survey. The findings indicated that the website generally fulfilled its purpose, but that it did not conform to various usability criteria and to expectations for government websites in each of the broad areas of usability criteria evaluated, i.e. content, information architecture, navigation, search and design.

A government website audit, which made use of a shortened version of the criteria used for the evaluation of *SA Government Online*, was conducted by means of the heuristic evaluation method during February/March 2001. The findings of this audit indicated that although South African government departments had embraced the Internet for information dissemination, government websites generally did not conform to many basic principles of good website design.

The research indicated that the challenge to improve South African government web publishing lies firstly in improving the quality and usability of individual government websites. Government websites should be improved to address the needs of a wider audience, to communicate government news, policies, projects, programmes and events, to provide online services and transactions, and to provide a tool for interaction between government and the citizen. They should convey a more consistent and unified message,

thematic feel and structure and government image and branding. In addition, the SA *Government Online* website should ensure a user-friendly entry point that promotes virtual access to all online government information clustered according to the needs of the audience, regardless of the institution. In order to improve government web publishing the South African government will have to develop an integrated approach to web development within the broader framework of its e-government initiatives and create an environment conducive to the development and implementation of professional, usable and effective websites. Coherence and unity between government websites could inter alia be achieved through a web guideline document that guides web developers in all aspects of web development, from the management of a website, through content development, planning and information architecture and navigation scheme, to the professional design of a website. A model for such a document is presented in this thesis.

Keywords: e-government; electronic government; online government; government websites; South African government websites; SA Government Online; usability; website guidelines; government website norms; government website standards; website evaluation.

2. FRAMEWORK FOR THE DEVELOPMENT AND EVALUATION OF GOVERNMENT WEBSITES

2.1. Government's responsibility towards information delivery

The responsibility of any government to provide citizens with information is a key element of its democratic mandate. In the context of the South African government, this responsibility is enshrined in the Constitution, which states that the government is committed to providing information to its citizens in a timely and accessible manner. This responsibility is also reflected in the government's policy on information delivery, which emphasizes the importance of providing citizens with the information they need to make informed decisions about their lives and the country. The government's responsibility towards information delivery is a key element of its democratic mandate and is a key element of its commitment to transparency and accountability. The government's responsibility towards information delivery is a key element of its democratic mandate and is a key element of its commitment to transparency and accountability.

CHAPTER 1

INTRODUCTION

1. PURPOSE OF THE RESEARCH PROJECT

The main purpose of the research reported on in this thesis is to contribute towards improving the quality and usability of South African government websites with the aim of enhancing the effectiveness of online information and service delivery by the South African government. To reach this broad objective the author assessed the effectiveness and usability of the *SA Government Online* website in detail, and South African national government websites in more general terms with the aim of identifying issues that the government will have to address to improve the effectiveness and usability of these websites, so to ensure improved user satisfaction and a growth in user numbers. A comprehensive discussion of the research objectives can be found in paragraph three of this chapter.

2. FRAMEWORK FOR THE DEVELOPMENT AND EVALUATION OF GOVERNMENT WEBSITES

To be able to assess South African government websites in a responsible way, it is important to have an understanding of the context against which the development and implementation of the websites took place.

2.1 Government's responsibility towards information delivery

It is the responsibility of any government to keep its citizens informed. Nilsen (1996:1999) refers to the Canadian Treasury Board Administrative Policy, Chapter 480, which states: "The responsibility to provide information is inseparable from the nature of representative governments" and: "It is the duty of any government to provide information to the public about its policies, programs and services that is accurate, complete, objective, timely, relevant and understandable; to take into account the concerns and views of the public in establishing priorities, developing policies and implementing programs; and to ensure that the government is visible, accessible and answerable to the public that it serves" (Nilsen, 1996).

The South African Government has committed itself to provide information to all sectors of the South African population. The right to information is guaranteed in the Constitution (South Africa, Parliament, 1996a), while one of the objectives of the Promotion of Access to Information Act (South Africa, Parliament, 2000:1) is to “actively promote a society in which the people of South Africa have effective access to information to enable them to more fully exercise and protect all of their rights”. In 1995, Thabo Mbeki (1995b), then deputy president, clearly stated the government’s commitment towards an informed population at the G7 meeting on the Information Society (Brussels, February, 1995) and thereafter in several speeches and media statements. Three important principles are emphasised by government, namely that government has an obligation to provide information to the people, not only to be informed, but also for the exercising of their rights and for the governing of their lives, that dialogue between government and its citizens is an important part of government communications, and that government should define mechanisms for the public’s access to information in the hand of the state.

Working towards the realisation of these goals, a prominent requirement is improved dissemination of and accessibility to information and services emanating from government. One of the biggest challenges is to create information resources and delivery mechanisms that meet the information needs of all potential users. In South Africa this is an even greater challenge, because of the diversity of access levels in a heterogeneous society. To communicate effectively and to make government information and services accessible, government has to utilise every opportunity and all dissemination/delivery/communication media and technology as effectively and efficiently as possible.

2.2 Convergence of information and communication technologies

The past decade has seen a convergence of information and communication technologies (ICTs) and the digitisation of information. According to Fouché et al (1998), the value of ICTs in meeting basic needs in respect of education, health services, the right to access to information and participatory democracy, as well as the effective delivery of government services, presents unique opportunities. In view of this, they argue that progressive countries in the world are developing and implementing strategies to evolve their national communication infrastructure to serve the information and communication needs of their populations. In addition to infrastructure for connectivity, increasing attention is being given to the so-called ‘infostructure’, i.e. information content and information-based applications and services (Fouché et al, 1998).

The Internet has emerged as one of the newest ICTs and is possibly one of the best mechanisms to disseminate information electronically. The Internet has changed the way we are able to communicate. Features that make it a useful mechanism to disseminate government information are, among others, the following:

- Through the Internet, government bodies are able to provide a system of online access to government information and government services. According to Eschenfelder et al (1997:174), government websites are capable of providing fast, cost-effective access to an abundance of government information stored in various formats.
- One of the great values of the Internet is its immediacy. With the Internet, information can be provided as soon as it is produced.
- The technology also supports a model where access to government information can be increasingly decentralised. Sheehy (1997:125) and Greenfield (1995:85) believe that governments can take advantage of Internet technologies to deliver information directly to users. Sheehy states that the Internet provides an opportunity for government to deliver information directly to its citizens without the filter of traditional media or the delays associated with conventional publishing methods, while Greenfield (1995:85) argues that the Internet allows government to reach out directly to millions of citizens. It changes how the government distributes and market its services – going directly to the consumer via the “information superhighway” – and challenges the traditional value-adding role of the information industry as new technologies enable government agencies themselves to add value and to distribute information world-wide at low cost (Greenfield, 1995:85).
- The Internet provides interactive features that provide the opportunity to facilitate access to information between government and any client in a two-way process. People can know what government is doing and they themselves can contribute to the formulation of policy and participate actively in the process of governance. People can establish dialogue with government through which they can express their views, make complaints and ask for specific information. The government can also invite public discussion on particular issues, e.g. a newly issued discussion paper, and the relevant minister or government official can answer questions from the public. “It allows government officials to interact directly with their constituents through electronic mail and discussion forums” (Sheehy, 1997:125).

- The Internet can assist users by providing access to geographically scattered information resources. The Information Highway report (Canada, 1997) states that distance will no longer pose an obstacle to information access. Hernon (1998:441) reasons that the world wide web (WWW) combines in one delivery mode “the power to neutralise geography minimising the tyranny of distance; providing interactivity; drawing in information as well as sending it out; and hyperlink among collections, institutions, languages, and differing perspectives” (Hernon, 1998:441).
- The Internet can also make it easier for users to find disparate materials. Instead of searching shelves or catalogues for relevant information, the user can browse the Internet.
- The presentation of information on the Internet by means of the graphical environment of the WWW provides the user with simplified access to information sources, including non-text formats. According to Greenfield (1995:85), the web, which supports hypertext and multimedia interfaces, has permitted government departments to present information, publications and services in an attractive, economical, and far more effective way than ever before.
- According to Ratzan (1994:64), the Internet can be utilised as channel whereby libraries and information centres can keep their government information budgets both up to date and under control. “Government information can now be obtained using a ‘on-demand’ philosophy rather than be required for a ‘just-in-case’ contingency” (Ratzan, 1994:64).
- Electronic dissemination of information might be more cost effective than traditional methods. According to Amoako (1997:19), as well as the Africa on the Internet report (Africa Policy Information Center, 1996), the global movement to an information age and the world-wide technological innovations of recent years have led to rapidly falling cost for information and communication technologies. Once the infrastructure is in place, information can be relayed to communities relatively cheaply. “The fundamental difference between words and images on networks and paper is that – after the initial investment in a computer and the connection – the cost is dramatically less than moving paper around the world, or making a direct telephone connection through a fax” (Africa Policy Information Center, 1996). Sheehy (1997:126), however, argues that the actual value of the new technologies as a cost containment measure has yet to be proven. Many of these technologies may, at least initially, be more expensive although citizen access to information may be enhanced (Sheehy, 1997:126).

The new South African Government commenced with creating a legislative, regulatory, policy and institutional framework for the electronic dissemination of information after 1994. It also embarked on a number of initiatives to give effect to policies and legislation to this effect. One of these is that government departments and bodies started to make use of the Internet as a communication and information dissemination medium, and at the time this research was conducted, there were 36 national and provincial government websites. In addition, the Government Communication and Information System (GCIS) launched a 'single window' or portal website, *SA Government Online*, to contribute towards making information resources that are available in government easily accessible.

3. RESEARCH OBJECTIVES

3.1 Research problem

It is clear that the South African government, as other developed and developing countries alike, will have to ensure that there is a transition to quality web-based information dissemination to ensure fair and equitable access to information and services by citizens and other potential audiences.

The main purpose of the research reported on in this thesis is to contribute towards improving the quality and usability of South African government websites with the aim of enhancing the effectiveness of online information and service delivery by the South African government.

To reach this primary objective, the research aims to

- determine what criteria are relevant for the evaluation of the *SA Government Online* website and to develop suitable evaluation instruments for the evaluation of the website
- use these criteria and instruments in assessing the effectiveness and usability of the *SA Government Online* website
- adapt the criteria to be usable for auditing of South African government websites in general, and using it to evaluate South African government websites
- develop a model for government-wide standards and guidelines for South African government web publishing
- make recommendations for the improvement of the *SA Government Online* website and other South African government websites, as well as for government web publishing as a whole.

The research methodology for the evaluation of *SA Government Online* is discussed in chapter two, and that for the government website audit in chapter nine.

3.2 Parameters in which the research project was conducted

3.2.1 Issues addressed during the evaluation process

As stated previously, a usability evaluation can take place any time within a developing cycle. For this project, live websites, i.e. publicly available versions of functioning websites, were evaluated.

The aim of the research was to evaluate the website for content issues as well as for usability. With regard to content, the objective was to assess government websites with regard to general content criteria, against criteria for the specific type of product being evaluated, namely South African government websites, and in the case of *South African Government Online*, also as a portal/gateway to other government information. With regard to usability, the objective was not to cover the full spectrum of website usability, but to get answers on whether users could find the information they required, which aspects of the interface worked well and which not, and what problems and difficulties users may have experienced with the interface. The concern was both initial usability for first-time users and efficiency and satisfaction for frequent users. It is worth noting that for the purpose of this study, usability was assessed with regard to site level usability (home page; information architecture; navigation; search; linking strategy; internally versus externally focused design; overall writing style; page templates, layout and site-wide design standards; graphical language and commonly used icons). Criteria that consider specific issues related to individual pages, as well as issues such as accessibility, downtime, downloading time of pages, coding problems and error messages were not considered. As the goal was to collect, assess and report insightful feedback on what worked well and what did not and because it had to be done in a relatively short period of time, mainly qualitative feedback was required from the evaluation process.

It is also worth noting that the aim was to identify content and usability shortcomings and concerns rather than areas that tested well, and to present potential solutions for the identified problems.

3.2.2 User population of the websites

While the author realises the importance of government's obligation to disseminate information to the broad spectrum of the South African population, the focus of this project was not to assess the websites from the perspective of potential future users (for example people with no Internet exposure, people from the rural areas, the broader population or illiterate South Africans).

The evaluation was thus done from the premise that the user population of the websites at the time of the evaluation consisted of people with at least some Internet exposure, including therefore mainly users from the following sectors: government/parastatal, educational institutions, students, library and information resource centres, the media (foreign and South African), non-government organisations (NGOs), the general public (literate), as well as international users.

4. STRUCTURE OF THE THESIS

The remainder of this chapter provides a brief theoretical overview, defining 'evaluation' and discussing the scope of usability. The need for government website assessment and the reasons why South African websites should be evaluated, are also discussed.

The first step of the research project was to develop an appropriate methodology that could be used for the evaluation of *SA Government Online*. Chapter two contains a discussion of the main steps that were followed to do this, namely the identification of assessment criteria to be used for the evaluation, the selection of suitable evaluation methods, and the development of test instruments for data collection. This chapter also provides an overview of literature used for this research.

Chapter three consists of a general discussion of the *SA Government Online* website, including a brief background on its development, a description of its aims and objectives and an overview of its main features.

In chapter four, general criteria, guidelines and principles selected for the evaluation of websites in general are discussed according to the main categories and sub-categories of the criteria list that was developed as part of the methodology presented in chapter two. Chapter five presents guidelines and principles related to the specific product being

evaluated, i.e. for government websites in general, and also more particularly for gateway sites and for South African government websites.

Chapter six presents detail findings for the evaluation of *SA Government Online* according to the respective evaluation methods that were applied. In chapter seven, the main findings are consolidated, while some recommendations to improve or redesign the site are put forward in chapter eight.

Chapter nine discusses a government-wide website audit that was conducted in 2001. The criteria used and methodologies followed are discussed briefly, while an overview is provided of the main findings regarding the quality and usability of South African government websites. This is followed in chapter ten by a model for standards and guidelines for South African government websites.

In conclusion, chapter eleven presents a summary of the research project and provides some suggestions with regard to future government website publishing in South Africa. An indication is given of future research that might be done in this field.

5. DEFINING EVALUATION AND USABILITY

5.1 What is evaluation?

Preece (1993:108) defines evaluation as follows: "Evaluation is concerned with gathering information about the usability or potential usability of a system in order either to improve features within an interface and its supporting material or to asses a complete interface. Without an evaluation process a product used by its users will be untried. It would reflect the intentions of the designers but there will be no study of the relationship between design and use" (Preece, 1993:108).

Preece (1993:108) presents two main objectives for an evaluation process, namely to determine the effectiveness or potential effectiveness of an interface in use, and to provide a means for suggesting improvements. According to Macleod (1994:3), evaluation may have various purposes, for example to shape design (or redesign) to meet user needs, to identify and diagnose problems, or to evaluate implementation (for comparison with other designs and systems and for acceptance testing). Gordon (2000) considers common motivators for usability evaluations to be "checking whether a user can collect specific information or perform certain tasks", such as completing a transaction from start to finish,

or as tool to resolve areas in which the clients and the developers have different approaches to treating a specific component, “for example whether a pull-down menu works better than radio buttons do” (Gordon, 2000).

Evaluation can occur at many different stages in the design and development cycle. Preece (1993:1) refers to formative and summative evaluation. The first takes place before implementation in order to influence the product that will be produced, while the second takes place after implementation with the aim of testing the proper functioning of the final system. Evaluation can therefore take place at specification, when a mock-up or prototype is available and after implementation. This is in accordance with Gordon’s (2000) view, who states that it is possible to test the site in about any form, the paper prototype, i.e. sketches or printouts of potential page layouts, “design comp”, which he defines as visual designs or mock-ups of proposed pages, the wire frame, which consists of early versions of a site with limited depth and functionality and that is useful for testing processes and site flow, a publicly available version of a functioning site.

Gordon (2000) notes an important distinction between usability evaluations and traditional marketing research: “A common misconception is that usability evaluations run the same way as marketing research groups. They don’t” (Gordon, 2000). According to him a notable difference is the sample size, which is much smaller, especially for discount usability evaluations. Market research focus groups often seek to collect perceptual information and establish statistically relevant trends – this cannot happen with usability evaluation that makes use of a sample size of five to six people (Gordon, 2000).

5.2 A brief discussion of the scope of usability

As the greater part of this study focuses on usability evaluation, it is worth defining it and briefly exploring its scope.

According to Macleod (1994:2), usability can be thought of as “quality of use, a quality of the interaction between the user and the system.” He also states: “Usability depends upon the characteristics of the user as well as the software” (Macleod, 1994:2). Arguing that a system can have excellent quality of use for some people and poor quality of use for others, he uses the example of a graphical user interface that may have simple, well-structured menus and which can be explored and used successfully by novices, but which can be frustrating for experienced, frequent users because it lacks keyboard short cuts. According to him usability also depends on the specific tasks users want to perform. In this

way he arrives at the conclusion of what usability is: “We should think of usability in terms of the quality of use of an interactive system by its (intended) users for achieving specific work goals and tasks in particular work environments” (Macleod, 1994:2).

Bevan et al (1991:20) present the position taken by the ESPRIT MUSiC project, namely that a definition of usability should encompass different views. They define usability thus as follows: “Usability is a function of the ease of use (including learnability when relevant) and the acceptability of the product and will determine the actual usage by a particular user for a particular task in a particular context” (Bevan et al, 1991:20). According to them usability lies in the interaction of the user with the product or system and can only be accurately measured by assessing user performance, satisfaction and acceptability. “A product is not in itself usable or unusable, but has attributes which will determine the usability for a particular user, task and environment” (Bevan et al, 1991:20).

According to Bevan (1995:1), the objective of designing and evaluating usability is to enable users to achieve goals and meet needs in a particular context of use. He refers to ISO 9241-11 that defines usability as “the extent to which a product can be used by specified users to achieve specified goals with effectiveness, efficiency and satisfaction in a specified context of use”.

According to Nielsen (1993:25), usability forms part of the wider concern of system acceptability, which is the question of whether the system is good enough to satisfy all the needs and requirements of the user and potential stakeholders. For him, usability is, together with utility, a category of practical acceptability of a system and is the question of how well users can use the functionality of the system. Usability thus applies to all aspects of a system with which a human might interact. Nielsen argues further that usability is not a one-dimensional aspect of a user interface, but has different attributes, including learnability, efficiency, memorability, errors and satisfaction. “Only by defining the abstract concept of ‘usability’ in terms of these more precise and measurable components can we arrive at an engineering discipline where usability is not just argued about but is systematically approached, improved, and evaluated” (Nielsen, 1993:26).

Macleod (1994:1) points to tangible benefits for improved usability of interactive systems – when using systems with good usability there are higher work productivity and efficiency, fewer user errors and users are more satisfied. There are also benefits for both users and producers in that less support and documentation is required. Serco (1999a) puts forward the following benefits of user centred design:

- Involvement of users results in improved user satisfaction.
- Making the product usable can put an organisation ahead of its competition.
- By taking a user-centred approach to developing a website, the organisation can be confident that the site focuses on the customer's needs and that it will therefore help the organisation to do business.
- Development cost can be reduced, especially by involving customers in the early stages of the product development lifecycle.
- User training and support costs can be reduced significantly.

6. THE NEED FOR GOVERNMENT WEBSITE ASSESSMENT

According to Eschenfelder et al (1997:174), the proliferation of government websites may outpace government information management policies and dissemination guidelines developed to address issues associated with the dissemination of printed publications. They argue that while many of the values reflected by these guidelines – that is, ensuring fair and equitable access to information by all citizens and protecting information that may be sensitive or violate individual privacy – are still appropriate, the specific policies may not be practical for governing electronic information dissemination via the web. Eschenfelder et al (1997:174) present three fundamental questions that arise from governments' rapid transition to web-based information dissemination:

- Are government websites being operated in a manner consistent with existing government information policies?
- Are new policies needed, or should government information policies be updated to more realistically reflect the capabilities of this medium? If so, in what areas are new or updated policies most urgently required?
- Are government bodies effectively employing the web as information dissemination channel?

Bertot et al (1997:373) reason that as government bodies continue to devote additional resources to the development and maintenance of web-based services, several critical questions face the providers of such services, for example what problems users encounter during their sessions on a website.

Hernon (1998:437) states that any government should have the purpose to improve the effectiveness of all government programmes and public accountability by promoting a new focus on results, service quality and customer satisfaction. Thus, relating it to information resource management and web publishing, it becomes essential to go beyond counts of

the number of hits that a website receives to information users, their information needs and expectations, information-seeking behaviour, and satisfaction with the services provided and information used. Hernon further reasons that websites should be evaluated to have performance measures to address customer expectations and satisfaction as typical performance measures fail to address customer satisfaction.

Hernon also argues that to build or have a website does not necessarily mean that you have an audience: "It takes more than a web server and a URL to get information out to the intended audience" (Hernon, 1998:440). In addition, Hernon (1998:441) argues that to make government more accessible to the governed, more efficient, and more responsible to the public's needs, it is necessary to conduct studies that produce metrics that can measure benefits resulting from Internet-based services. It is also necessary to encourage government-wide assessment of existing Internet services to determine the strengths and weaknesses of these services to be able to recommend specific improvements so that these services can better meet user needs (Hernon, 1998:441).

From these arguments it becomes evident that careful consideration should be given to the purpose, structure and operation of government websites. This will enable governments to have efficient websites that enable users to access government information in as many ways and as easily as possible. It is also important that government information policies be re-examined, particularly as they relate to information dissemination.

7. REASONS FOR EVALUATING SA GOVERNMENT ONLINE AND OTHER GOVERNMENT WEBSITES

Reasons why South African government websites needed to be evaluated and improved may be seen against the general issues raised in paragraph six. Reasons more specifically related to South African government websites are as follows:

- The official website of the South African government, *SA Government Online*, was launched on 28 January 1999. Although continuous improvements had been implemented since its launch, a comprehensive and thorough evaluation of the website was necessary to serve as framework for improving and redesigning it. As "a website is a dynamic construction that cannot be left alone" (Clausen, 1999:85) there is always room for improvement. Since the launch of the site in 1999, it had developed rapidly in terms of content and functionality. It became necessary to get objective input to

determine if, where and why people might have difficulty with the current site and if improvements and or changes would be necessary.

- Continuous scientific usability engineering practices were not followed during the development of government websites to determine if they would comply with usability criteria. Usability issues are increasingly significant and can be critical elements for the success of a product in a world marketplace where there are growing expectations of usability.
- To determine if the websites were meeting user needs – did the websites contain the information users needed, solve their problems and allow transactions they wanted? Clausen (1999:85) reasons that a regular and continuous user-orientated evaluation of a website must be done with special reference to the adjustment of the site to as many users as possible.
- The South African government did not have any direct policies in relation to web publishing at the time government websites were developed. Websites were thus developed without specific guidelines. However, even though formal policies in relation to web publishing did not exist at the time this research was conducted, the author believes that evaluation and improvement of government websites may contribute to an outcome where the websites conform to government communication strategies and the improvement of information dissemination.
- Websites should be improved in step with the development of information technology (IT) and with constant regard for users' IT resources (Clausen, 1999:85).

CHAPTER 2

METHODOLOGY FOR THE EVALUATION OF SA GOVERNMENT

ONLINE

1. INTRODUCTION

“Evaluation is concerned with gathering information about the usability (or potential usability) of a system in order to improve features within an interface and its supporting material or to assess a complete interface” (Preece, 1993:108). A sound methodological approach is therefore necessary to gather reliable and valid data that can be used for the evaluation and subsequent improvement of a website. The evaluator should ensure that the evaluation is based on criteria that are comprehensive enough to reach findings in line with the purpose and objectives of the specific evaluation project, and that these criteria are suitable for the particular website. Similarly, it is important to select a method or methods that are suitable to assess the specific website according to the objectives of the evaluation project. The end-result of the evaluation should be to address different parts of the usability engineering life cycle (Nielsen, 1993:223) and all aspects of the website and its interface that were identified or evaluation.

To collect relevant data concerning the interface of *SA Government Online* and users' attitudes towards it, an evaluation methodology was developed by following three main steps: the identification of applicable assessment criteria or guidelines to be used, the selection of evaluation methods, and the development of test instruments for data collection. Evaluation methods were selected to be relevant to the goals of the evaluation, namely to determine if the website complied to content requirements, and to collect feedback on whether users could find the information they required, which aspects of the interface were good and bad, where the major difficulties were, and how the design could be improved.

2. IDENTIFICATION OF EVALUATION CRITERIA

2.1 Introduction

The first step in the development of a methodology for the evaluation of *SA Government Online* was to identify applicable assessment criteria to be used for the different test instruments selected for data collection.

According to Nielsen (1993:91,92), different levels of guidelines can be used for (heuristic) evaluation, namely general guidelines applicable to all user interfaces, category-specific guidelines for the kind of system being developed, and product-specific guidelines for the individual product. In the development of criteria for the evaluation of *SA Government Online*, all three levels were considered.

According to Ciolek (1996), evaluative activities seem to form two main streams: (a) individual work on creation of checklists or “toolboxes” of criteria that enable web information resources to be assessed, and (b) commercial, long-term projects aimed at the periodical reviews and grading of large volumes of online material. In the first case, the emphasis is on finding how the overall quality of the networked resources can be meaningfully discerned, analysed and compared. In the second case, the emphasis is on a quick separation of potentially popular materials from the rest of the web so that a site “providing such rudimentary ‘filtering’ services can attract Internauts and draw them towards the site’s fee-based operations” (Ciolek, 1996). In developing assessment criteria, the first approach was adopted.

Identification of criteria for the evaluation of *SA Government Online* was done in the three phases that will be discussed in the following paragraphs.

2.2 Phase one: Identification of general and category-specific criteria

A wide range of sources representing the first approach was consulted, i.e. sources that attempt to specify and enumerate the essential ingredients or features of a good or quality website or sources that provide principles for user interface design. Among these were compiled lists, periodicals, journals and other sources dealing with websites, on-line rating services, and guidelines for the design and construction of high quality web pages. This process yielded a preliminary list of evaluation criteria and indicators. It should be noted

that these resources were consulted before the evaluation of the website and thus reflect dates prior to the evaluation.

2.3 Phase two: Consolidation

In the next phase the criteria and indicators were edited, synthesised and consolidated. The items were analysed to eliminate duplication and to clarify those with ambiguous meaning. Each existing list uses its own vocabulary and therefore an attempt was made to identify language for common criteria so that a diverse audience may understand it. Any item that was meaningless, which could not be operationally defined, or which did not seem relevant to the type of website being evaluated was eliminated. The relevant items were then grouped in five broad categories and 17 sub-categories to yield a standard criteria list against which all websites can be measured. Each sub-category presents a series of more detailed indicators that may assist in the evaluation process.

The criteria list includes general evaluation criteria that address substance, usability, and appearance of websites. They take into account and provide latitude in interpreting subjective elements, while maintaining a consistent standard against which all websites can be measured and which may have universal applicability for government websites. Because the sources that were studied provide criteria from the perspective of the utilisation of websites as well as the designing thereof, the criteria can be used to assist users to evaluate the quality of information on existing websites, as well as for standards to guide the design of websites. It is worth noting that this set of criteria does not necessarily cover the full spectrum of website design, but does include those which address the research problem. A detailed discussion and consolidated list of the evaluation criteria is found in chapter four.

2.4 Phase three: Identification and consolidation of category and product-specific criteria

The third phase entailed the identification of guidelines specific to the product being evaluated, i.e. the *SA Government Online* website as a government website and as a gateway/portal to other South African government websites.

Few sources provide specific criteria or guidelines for the development or evaluation of government websites, and specific guidelines or policies for the development of South African government websites did not exist at the time of this research. It was therefore

decided to provide a set of particular requirements or guidelines to be used in conjunction with the general criteria.

To determine criteria and guidelines for South African government websites some government policy documents were studied to determine the South African government's requirements and specifications for electronic information dissemination (related to web publishing) and web publishing in particular. A literature study was also conducted to identify general criteria and guidelines for government websites. Sources that discuss, describe or assess specific government websites were utilised for this study. Deductions about aspects that distinguish between good and bad sites were then made.

Guidelines selected from these sources understandably did not yield comprehensive information on usability issues, but mainly addressed content issues. They enabled and strengthened the objective and thorough evaluation of breadth and depth of information, and also contributed to determine the applicability of a website for its intended target audience.

A discussion of these guidelines can be found in chapter five.

2.5 Methodological problems experienced during criteria selection

The following methodological limitations, some of which are described in the sources consulted, were taken into account during the criteria selection:

- The weakness of guidelines is that they often generalise across a wide range of characteristics of users, tasks and environments, and it is very difficult to "rigorously specify the limits of the context in which a guideline is applicable" (Bevan et al, 1991:3). According to Ciolek (1996), concepts such as 'ease of access', 'user-friendliness', 'crisp layout' or 'detailed metadata' seem to be applied in a very general fashion, as if all documents and all resources were written in the same natural language, had the same complexity, same structure, and served the same purpose. "Can one really use the same vague, impressionistic concept to compare a single document with a collection of research papers, and finally, with a large-scale electronic archive?" (Ciolek, 1996).
- The operational meaning of criteria is ambiguous: "Does the notion of 'workability' refer to the same phenomenon identified as 'ease of finding, ease of access, good formatting and presentation' or that referred to as the 'stability of information' and 'ease of use'.

Also, how does one go about measuring the breadth, depth or thoroughness of information?" (Ciolek, 1996).

- Criteria are grouped in different ways, using own classification systems or groupings thereof.
- There are different types of websites, each with its own purpose and intended audience. When an informational website or government website is evaluated different criteria will be applied than for an entertainment website; when an information gateway is evaluated specific criteria which do not apply to a website carrying its own information content will be considered.

2.6 Operationalisation of criteria

The steps described in this section provided a complete set of evaluation criteria, which were then used in the data gathering methods selected for this research and for a critical evaluation of the website.

3. SELECTION OF EVALUATION METHODS

The process to decide on an appropriate methodology included a literature study of Nielsen (various sources), Preece (1993), Macleod (1994), Clausen (1999), Bevan et al (1991) and Gordon (2000). From these sources, the author concluded that the application of a single method to the exclusion of others would not provide complete answers to the research problem, as important aspects might be missed.

Clausen (1999:83) recommends applying more than one method. According to him at least three groups of methods are used for the design and construction of high quality websites, namely automatic procedures, exclusively quantitative methods and qualitative/heuristics methods. These methods may also be used for the evaluation of the quality of design and the construction of web pages.

This approach is supported by Nielsen (1993:223) who states that "there are many projects that would benefit from employing more than the minimum amount of discount usability methods" and "(usability methods) are intended to supplement each other, since they address different parts of the usability engineering life cycle, and since their advantages

and disadvantages can partly make up for each other. It is therefore recommended not to rely on a single usability method to the exclusion of others” (Nielsen, 1993:223).

It was therefore decided that the research problem would be addressed by applying multiple methods supplementing each other.

4.1.1 Introduction

Other factors that influenced the choice of evaluation methods included:

Nielsen (1993:224) states that the choice of method may be dependent on the number of users available for usability activities” (Nielsen, 1993:225).

- The number of users who were available for the evaluation – according to Nielsen “the choice of method may be dependent on the number of users available for usability activities” (Nielsen, 1993:225).
- The purpose of the evaluation and external limitations imposed on the evaluation process. The main goal was to collect, assess and report insightful feedback on what worked well and what did not in a relatively short period of time and to collect qualitative feedback. Therefore, discount usability methods, which allow for the gathering of feedback from small-sized samples, were included in the methodology. This was supplemented with a quantitative feedback method to collect feedback on respondents’ expectations and perceptions about the site.
- The stage in the development process and the time and resources available (Bevan et al, 1991:2).

The evaluation of the *SA Government Online* website was thus done by applying the following evaluation methods:

- heuristic evaluation, including evaluation of the site by experts, and a critical evaluation of the website by the author against the set criteria
- user testing
- survey by means of an online questionnaire.

user

4.1.5 Evaluation guide

A semi-structured evaluation guide, including broad usability principles, was developed and provided online. It was based on the criteria list referred to in paragraph two and further refined the broad usability criteria, each with a few indicators to define it. These 11 criteria were used to such a guide as “predefined categories” where “examples are given a list of

4. DEVELOPMENT OF TEST INSTRUMENTS

4.1 Heuristic evaluation – expert opinion

4.1.1 Introduction

Nielsen (1993:155; 1994a) uses the term 'heuristic evaluation', which he defines as "a systematic inspection of a user interface design for usability" with the goal to "find the usability problems in a user interface design so that they can be attended to as part of an iterative design process." According to him heuristic evaluation involves having a small set of evaluators examine the interface and judge its compliance with recognised usability principles, or the 'heuristics'.

Preece describes expert opinion as a diagnostic model lying between the theoretical approach taken in analytic evaluation and more empirical methods such as observational and experimental evaluation. She defines 'experts' as "people experienced in interface design or human factors or both" (Preece, 1993:111). The first part of the heuristic evaluation was the evaluation of the website by four 'expert' evaluators during the period 23 August to 8 September 2000.

4.1.2 Selecting evaluators

Four evaluators were chosen by using the following principles provided by Preece (1993:111) as guidelines:

- To ensure an impartial opinion the experts should not have been involved in the development of the system under evaluation.
- The experts should have suitable experience.
- The tasks undertaken by the experts should be representative of those intended for real users.

4.1.3 Evaluation guide

A semi-structured evaluation guide, including broad usability principles, was compiled and provided online. It was based on the criteria list referred to in paragraph two and included the five broad usability criteria, each with a few indicators to define it. Preece (1993:112) refers to such a guide as "predefined categorisation" where "experts are given a list of

problem categories". This approach is consistent with Nielsen's (1993:19) view. For discount usability testing, he advocates cutting the collection of usability guidelines to a small set of broader heuristics or basic usability principles. The evaluation guide also provided information on the aim of the evaluation, the aim of *SA Government Online* and instructions on how to perform the evaluation. The intention with choosing this form of reporting was to provide a platform that invited spontaneous comments and suggestions from the evaluators. The evaluation guide is attached as Annexure A.

4.1.4 Implementation

The evaluation was conducted during the period 23 August to 8 September 2000. The evaluators were asked to use the website for approximately three to four hours. They were provided with an online evaluation guide and asked to evaluate the website according to the usability principles as presented in the guide. They were also asked to consider any additional usability principles that came to mind and to describe potential problems they envisaged inexperienced and less experienced users might encounter while using the website.

4.1.5 Limitations and advantages of this method

According to Preece (1993:112), it is important to be aware of the following potential drawbacks of expert evaluation:

- Experts are often renowned for their strong views and preferences, in other words, biases.
- It is often difficult to find a person experienced in both a particular type of application and human computer interaction (HCI) research.
- Expert evaluation cannot capture the variety of real users' behaviour, whereas novice users can do unexpected things.
- Good role-playing requires an extraordinary amount of information about the knowledge level of the users, their typical tasks and their responses to problems.

However, this evaluation method was chosen because it would provide qualitative answers about the interface and would give a high potential return. "Even by using a small number of experts, they can usually identify a whole range of potential problems for users during a single session with an interface" (Preece, 1993:111). Additionally, expert evaluation is usually less costly than methods that involve user testing, and experts often suggest solutions to the problems that they identify (Preece, 1993:112).

4.2 Heuristic evaluation – critical evaluation of the website

The second part of the heuristic evaluation was a critical evaluation of the website by the author. The list of criteria and indicators was used for this method, and the content and features of the website were compared against the criteria with the aim to determine to what extent the website complied with them. The evaluation was conducted in the period 23 August to 8 September 2000.

4.3 User testing

4.3.1 Introduction

According to Preece (1993:112) expert evaluation cannot capture the variety of real users' behaviour, while Nielsen (1999h) states that there is only one good method to gather usability data, and that is to observe real users as they use the site to accomplish real tasks. Furthermore, according to Nielsen (1993:165), "user testing with real users is the most fundamental usability method and is in some sense irreplaceable, since it provides direct information about how people use computers and what their exact problems are with the concrete interface being tested" (Nielsen, 1993:165). Heuristic evaluation was thus complemented with the application of user tests.

This research made use of the discount usability engineering approach as described by Preece (1993), Nielsen (1993, 1994a) and Gordon (2000). This type of user test is done by involving real users, giving them typical work tasks and combining it with a verbal protocol where they are asked to think out loud while they perform the tasks. A verbal protocol is used to obtain a wide range of information, for example the user's planning for the particular task, what he/she is doing with the interface and why he/she is doing it, and to recall commands and arguments by the user during the test (Preece, 1993:114). This insight into a user's thought process might help pinpoint concrete interface elements that could cause misunderstandings.

The intention with user testing was to do a formative evaluation of the user interface in order to improve it. It therefore aimed to determine which aspects of the interface were good and which were bad and how the design could be improved (in contrast to summative evaluation which aims at assessing the overall quality of an interface). It is also worth noting that, because the intention was to collect qualitative feedback and not quantitative,

the objective was to do a task-based analysis, collecting feedback on how users tackled the tasks given, on where the major difficulties lay and on what could be done to improve the website (in contrast to a performance-based analysis which seeks to obtain clearly defined performance measures from the data collected).

4.3.2 Selection of respondents

With the discount usability engineering approach, a small number of respondents are tested. According to Nielsen, it is possible to apply the “thinking aloud” method effectively to evaluate user interfaces with a minimum of training and that “even fairly methodologically primitive experiments will succeed in finding many usability problems” (Nielsen, 1993:18). According to the Nielsen-Landauer cost-benefit model (Nielsen, 1994a), the maximum benefit-cost ratio is achieved when using between three and five users. Nielsen (1998a) states that a usability test with five users will typically uncover 80% of the site-level usability problems.

It was therefore decided to involve five respondents in this test. Respondents were selected from different user populations to cover different categories of users. Care was taken to ensure that they were representative of the most common user populations, i.e. average users and not users from outlier groups (Nielsen, 1993:175). The respondents were selected to have various levels of Internet and *SA Government Online* experience, and to be from different age groups and different genders. This provided a mix of individuals with varied skills and experience.

Respondents were chosen from persons who were easily accessible, yet representative of actual users of the website. The first respondent was an information centre worker in the GCIS who had high Internet and *SA Government Online* exposure. The second respondent was a journalist who had average exposure to *SA Government Online* and the Internet. The third respondent had been in the employ of the GCIS for less than a month and although he had high Internet exposure, his exposure to *SA Government Online* was very limited. The fourth respondent, representing the international user, had average exposure to the Internet as well as of the website. The fifth respondent was a lecturer at a university, who had high exposure to the Internet but none to the *SA Government Online* website.

4.3.3 Compilation of work tasks

Work tasks for this test were chosen to be as representative as possible of the actual use of the website and to provide reasonable coverage of the most important parts of the user interface. The work tasks were based on the intended uses of the website, usage statistics and observation of how users actually used the website. Work tasks were put in writing to ensure that all respondents received the tasks described in the same way, and to allow them to refer to the task description during the test (see Annexure B).

4.3.4 Pilot testing

To ensure that respondents, evaluators and users interpreted the questions or tasks correctly the user guide was subjected to pilot testing before the actual evaluation was done. Two pilot subjects were used, one with high exposure to the Internet as well as to *SA Government Online*, the other with average experience of the Internet and no experience of the website. After the test, the pilot subjects were debriefed on the comprehensibility of the test tasks and then requested to complete the online questionnaire (see paragraph 4.4). Thereafter the tasks were revised to fix difficulties found during the pilot activity and to ensure that the test instrument was easy to understand and to apply. One question was removed, the sequence of the questions was changed and certain questions were rephrased to make them more understandable.

4.3.5 Implementation

The user tests took place during the period 14 to 21 August 2000. Tests were conducted individually for each respondent in his/her normal work environment. Each respondent was tested for approximately 60 to 90 minutes. The respondents were briefed about the procedure before the evaluation commenced. They were given an overview of what a usability evaluation is, how it works and what they could do to help the evaluator to get the best information. Respondents were asked to be honest in their responses, not to do things any differently than they would if they were at home or at work, and ensured that it was not they who were being evaluated, but the website.

During the test, respondents were asked to give their initial impression of the home page and then given the opportunity to explore the website freely. The directed tasks (of which the first was very simple) that required of them to find some specific information on the website were then given to respondents. Respondents were allowed to ask questions about

the tasks in order to minimise the risk of misinterpretation. During the test respondents were encouraged to verbalise their thoughts (what they were doing and why) while performing the tasks. The experimenter did not interfere with the respondents, but allowed each to discover solutions on his/her own. However, the procedure was kept flexible to allow deviations from the questionnaire when respondents' actions determined the necessity thereof. When respondents supplied useful information that had not been anticipated in the guide, the particular route was explored further, and when they encountered problems, they were asked what they thought were ways to fix them. Body language and facial expressions were observed and followed up with questions when necessary.

Contrary to the traditional thinking aloud method where the procedure is videotaped the experimenter took notes: "In discount usability engineering we don't aim at perfection; we just want to find most of the usability problems" (Nielsen, 1993:18). Problems the respondent experienced, suggestions on how to fix them and specific quotes from the respondents were documented.

After completion of the tasks, respondents were asked to complete the satisfaction questionnaire (paragraph 4.4) and then debriefed. During the debriefing they were asked for comments about the website and suggestions on how to improve it. The experimenter also used the debriefing session to ask respondents for further comments about events during the test that the experimenter could not understand.

4.3.6 Choice of experimenter

The user test was conducted by the author. The advantage of using someone involved in the design of the website as experimenter was that she had knowledge of the interface. This enabled her to understand what the respondents were doing and to make useful inferences about the participants' probable intentions at various stages. An additional advantage was that "the experience of seeing users struggle with the system always has a very powerful impact on the designers" (Nielsen, 1993:180). A disadvantage of this method, however, might be a possible lack of objectivity that may cause an experimenter to help users too much.

4.3.7 Limitations and advantages of this method

In general, one of the limitations of applying user tests is that in-depth analysis can be very time-consuming. Notes have to be transcribed and data categorised. In addition, Macleod (1994:9) states: "While observation can yield rich usability data, analysis solely in real time may lose valuable data." Another limitation may be that user testing is an obtrusive method. Users are aware that their performance is being monitored and this can alter their performance levels (Preece, 1993:113). An important factor in the use of this method is thus the trade-off between time spent and depth of analysis (Preece, 1993:114).

Other methodological pitfalls are the issues of reliability and validity. Reliability is whether one would get the same result if the test were to be repeated and is a problem because of individual differences between test respondents. "One often needs to make decisions on the basis of fairly unreliable data, and one should certainly do so since *some* data is better than *no* data" (Nielsen, 1993:166). Validity is whether the result actually reflects the usability issues one wants to test. A high level of validity requires methodological understanding of the test method as well as some common sense (Nielsen, 1993:169). Typical validity problems involve using the wrong users or giving them the wrong tasks or not including time constraints and social influences.

4.4.3 Pilot testing

In addition, thinking aloud may give a false impression of the cause of usability problems if too much weight is given to the user's own "theories" of what caused problems and what would help (Nielsen, 1993:195).

However, user-based evaluation can offer significant benefits in terms of the quality and validity of the usability data obtained (Macleod, 1994:9). It quickly highlights difficulties and provides qualitative data from a small number of users (Preece, 1993:119; Nielsen, 1993:195).

4.4 Online survey

4.4.1 Introduction

According to Macleod (1994:7), one of the simplest means of testing usability is to ask users, to sample their subjective views. This is confirmed by Nielsen (1993:209), who states that this is especially true for issues relating to users' subjective satisfaction and possible anxieties, which are hard to measure objectively. According to Macleod (1994:7),

this can be achieved in a structured way by using a questionnaire. Properly conducted and analysed, and with due consideration of contextual factors, valid and reliable measures of performance can be provided. This method is primarily a quantitative measurement of how usable a system is in the view of the user.

4.4.2 Compiling the questionnaire

An 18-item questionnaire was compiled and presented interactively on the website. Despite being mainly a quantitative measuring instrument, provision was made for qualitative questions as well. A combination of open and closed questions was included to allow respondents not only to select answers from a choice of alternative replies (quantitative), but also to provide them with the opportunity to give reasons for certain answers (qualitative). The questionnaire made use of the multi-point Likert rating scale to measure the strength of agreement against clear statements. Questions focused on information coverage, currency, ease of finding information on the website, 'look and feel' and preference with regard to search versus browsing techniques. The questionnaire was kept short and simple to promote the response rate and took between 10 and 15 minutes to complete. The questionnaire is attached as Annexure C.

4.4.3 Pilot testing

During an interview the interviewer can continuously evaluate the user's replies, making it possible to rephrase questions that seem to have been misunderstood. In contrast, questionnaires have to stand on their own. It is therefore essential that a questionnaire be subjected to pilot testing and iterative design before it is distributed, to ensure it is not too long, too hard to understand or too unprofessional (Nielsen, 1993:212). The questionnaire was thus subjected to pilot testing before it was implemented live on the website. It was digitised before pilot testing took place to ensure that the pilot test was conducted in a situation as close to real-life as possible.

The same two pilot subjects chosen for the user test were used. The pilot subjects were requested to complete the online questionnaire and submit it electronically. They were then debriefed on the comprehensibility of the questionnaire. After the pilot test the questionnaire was revised to correct difficulties experienced by the pilot subjects. The user feedback message and some questions were rephrased and two questions removed.

4.4.4 Implementation

The questionnaire was made live on the website on 14 August 2000 and was kept on the site until 16 September 2000, thus for a period of almost five weeks.

4.4.5 Limitations and advantages of this method

A possible limitation of this method could lie in the validity of the response rate. According to Crabtree (2000a), it is virtually impossible to construct a viable sampling frame of e-mail addresses. Even if a way to do it becomes available, users in lower socio-economic strata are not likely to have regular Internet access, and it will be some time before regular Internet access reaches an acceptable level of coverage. The degree to which results can be generalised to the larger population is thus a thorny question. It was also not possible to determine if a representative response rate had been achieved, as the size of the user population was not known. However, according to Crabtree (2000a), general representativeness should not be too big a concern when the survey is conducted among the segment of the population that used the Internet regularly.

Another important factor is that there is a difference between service quality and satisfaction. From a usability perspective a questionnaire is an indirect method since it does not study the user interface itself, but only users' opinion about the interface. One cannot always take user statements at face value (Nielsen, 1993:209). This evaluation method can therefore not be used to study the user interface, but only measures the perceived usability of the system. It will thus not provide detailed results with regard to usability and specific content issues.

Further limitations of this method could be the following:

- Privacy issues – concerns about security, both real and perceived, may provide obstacles. "Assurances of confidentiality ring somewhat hollow to many respondents in the largely unregulated online environment" (Crabtree, 2000a). More advanced online security techniques are helping to alleviate such fears.
- The possibility of a low response rate.
- Possible response bias.
- It might be difficult to analyse, even though open questions provide a rich source of data.
- Quantitative data do not necessarily give a valid indication of the level of usability (Macleod, 1994:3).

However, it should be noted that this data collection technique was chosen to address users' general satisfaction and attitude towards and understanding of the website. Despite its limitations, it can assist in determining the overall social and practical acceptability of the site amongst real users, as well as their attitude towards the aspects raised by the research questions. The use of results supplementary to those of the rest of the evaluation methods provided a complete picture of the most important issues to address.

5. SCHEDULING OF ACTIVITIES

To synchronise data gathering activities for the different methodologies all were scheduled to take place within the same period (14 August to 16 September 2000). Care was taken that data gathering did not take place over a period where heightened interest in the site could have influenced frequency of user visits or satisfaction with information on the site.

6. CONCLUSION

To evaluate the *SA Government Online* website, the author developed an evaluation methodology by following three main activities, i.e. the identification of evaluation criteria and guidelines, the selection of suitable evaluation methods, and the development of the test instruments for data collection.

The author developed a comprehensive list of criteria to be used for the development of the four test instruments used in the evaluation process. Criteria were developed that were applicable for the evaluation of any website, irrespective of which type of website it is, and also for the specific type of website, i.e. the gateway or entry point to other South African government websites. These criteria are presented in chapters four and five.

Although usability testing is a highly recommended evaluation method for websites, there are several other methods that could and should be used to gather supplementary data (Nielsen, 1993:207). To ensure as comprehensive as possible data gathering about the effectiveness and usability of *SA Government Online*, multiple methods were chosen for the evaluation of *SA Government Online*. The intention was that the methods should supplement each other, since they address different parts of the usability engineering lifecycle, and since their advantages and disadvantages partly make up for each other. The findings for each of the four evaluation methods are discussed in chapter six.

CHAPTER 3

DISCUSSION OF SA GOVERNMENT ONLINE

1. INTRODUCTION

To get an understanding of the first product that was being evaluated, i.e. the *SA Government Online* website, and of the findings for the evaluation and recommendations made to improve the website (see chapters six to eight), this chapter provides an overview of the site as it was at the time of the research (14 August 2000 – 16 September 2000).

Brief information on the development of the site and on its aims and objectives is provided and its main features are discussed. To enable readers to visualise the site and the features that are discussed, screen prints of the home page and main pages are also provided.

2. BACKGROUND

SA Government Online was developed in accordance with the recommendations of the Comtask Report (1996), which was accepted by Cabinet on 8 October 1996. One of the recommendations reads: "South Africa needs to develop a comprehensive government website on the Internet, and all departments, provinces and other government bodies should be able to integrate national databases into such a system." In this process, existing efforts and initiatives – both government and parastatal – needed to be linked via the network to provide ease of access, and all government structures were to supply key information into the system. As this had to be the common vehicle for all government bodies, the Government Communication and Information System (GCIS) had to facilitate the development of such a network (Comtask, 1996:75).

One of the initiatives in this regard included the setting up of an interdepartmental steering committee representing GCIS, the Department of Communications, the Department of Public Service and Administration, the Central Computer Services and Project Management Services. The implementation process was planned and co-ordinated by this committee.

3. AIMS AND OBJECTIVES OF SA GOVERNMENT ONLINE

At the launch of *SA Government Online* on 28 January 1999, Thabo Mbeki (then Deputy President of South Africa) remarked that the website would ensure that government would be accessible to the people and that it would form part of the democratic open-door policy of government (Mbeki, 1999). The introduction to the website stated: "By developing a comprehensive government Home Page, government has created a mechanism by which the information from government departments, provinces and other government bodies is accessible through a one-stop gateway. This will enable users to get a comprehensive overview of information available on government websites and to quickly navigate the vast information resources available in government."

The main objectives of *SA Government Online*, according to the introduction, were to:

- facilitate easy access to government information on the Internet
- avoid duplication regarding the availability of government information on the Internet
- ensure a co-ordinated approach to government Internet publishing
- meet transparency goals
- keep the electorate informed
- place information on the global network.

4. MAIN FEATURES OF SA GOVERNMENT ONLINE

This section provides an overview of the main features of the website and covers the home page, content, information architecture and organisation, navigation, search and design issues.

4.1 Approach with regard to carrying information content versus linking to other websites

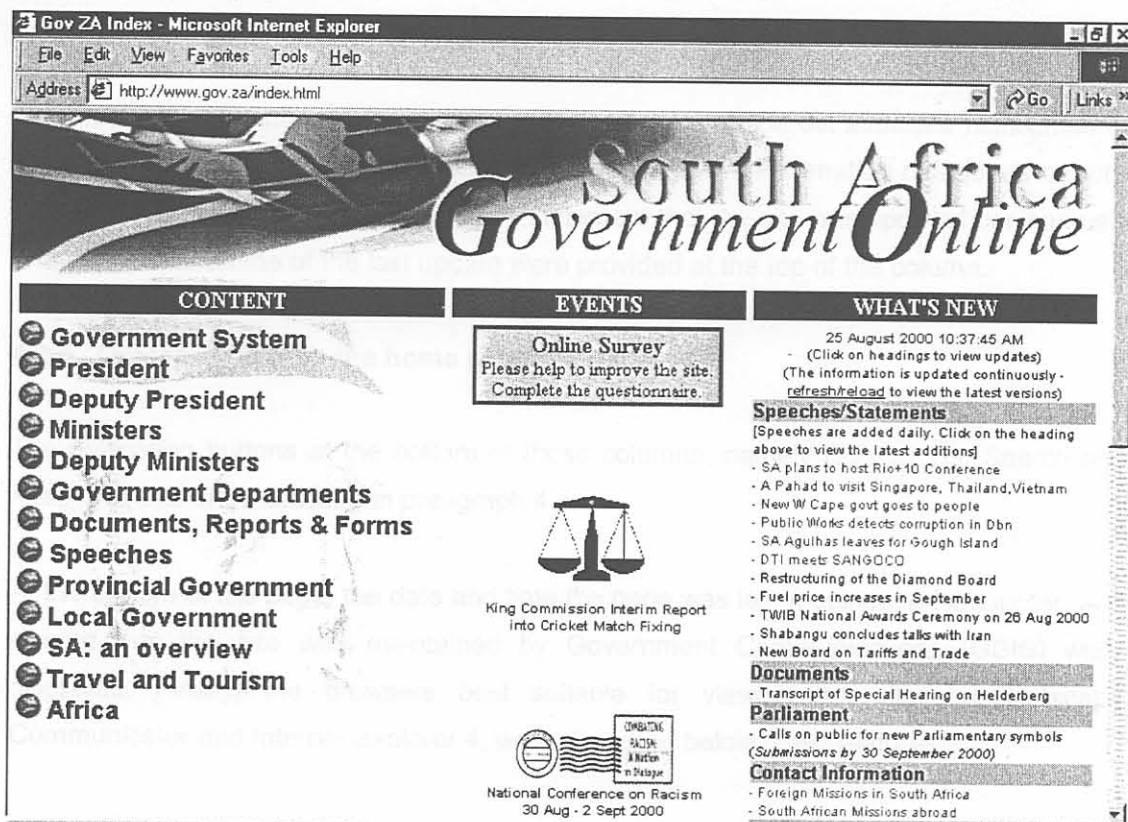
SA Government Online contained and provided links to a range of government information. The general approach followed with regard to linking versus carrying information content was that the website contained links to web pages of government departments, provinces and other government information where websites existed, information content where it was not the direct line-functional responsibility of any government department, when it would have enhanced accessibility or when government bodies did not have their own websites, and value-added features such as a search engine, maximum access points to

government information, feedback opportunity and access to additional government information (SA Government Online website, 2000).

4.2 The home page

The design of the top border of the home page made use of the South African flag and featured the title of the website, *South Africa Government Online*. The home page was divided into three columns, namely *Content*, *Events*, and *What's New* (see figure 1).

Figure 1: Home page



4.2.1 Content

A listing of the main information categories of the site was provided in the left hand column. These categories were: *Government System*; *President*; *Deputy President*; *Ministers*; *Deputy Ministers*; *Government Departments*; *Documents, Reports & Forms*; *Speeches*; *Provincial Government*; *Local Government*; *SA: an overview*; *Travel and Tourism*; *Africa*.

4.2.2 Events

Government and national events were announced in a visual way by using images accompanying the announcement thereof. Links were provided to additional information about these events, for example media advisories, media statements before or after an event, background documents and/or relevant websites. On 21 August 2000, the website carried a call to the public for submissions on new parliamentary symbols, a link to a media statement on municipal elections registrations, and an announcement about the National Conference on Racism.

4.2.3 What's New

New information posted on the site was announced and the latest additions highlighted in red. Announcements were presented according to relevant information categories or sub-categories as the situation determined. A statement that the site was updated continuously and the date and time of the last update were provided at the top of the column.

4.2.4 Other features on the home page

The navigation buttons at the bottom of these columns, namely *Contact Us*, *Search* and *About the Site* are discussed in paragraph 4.4.

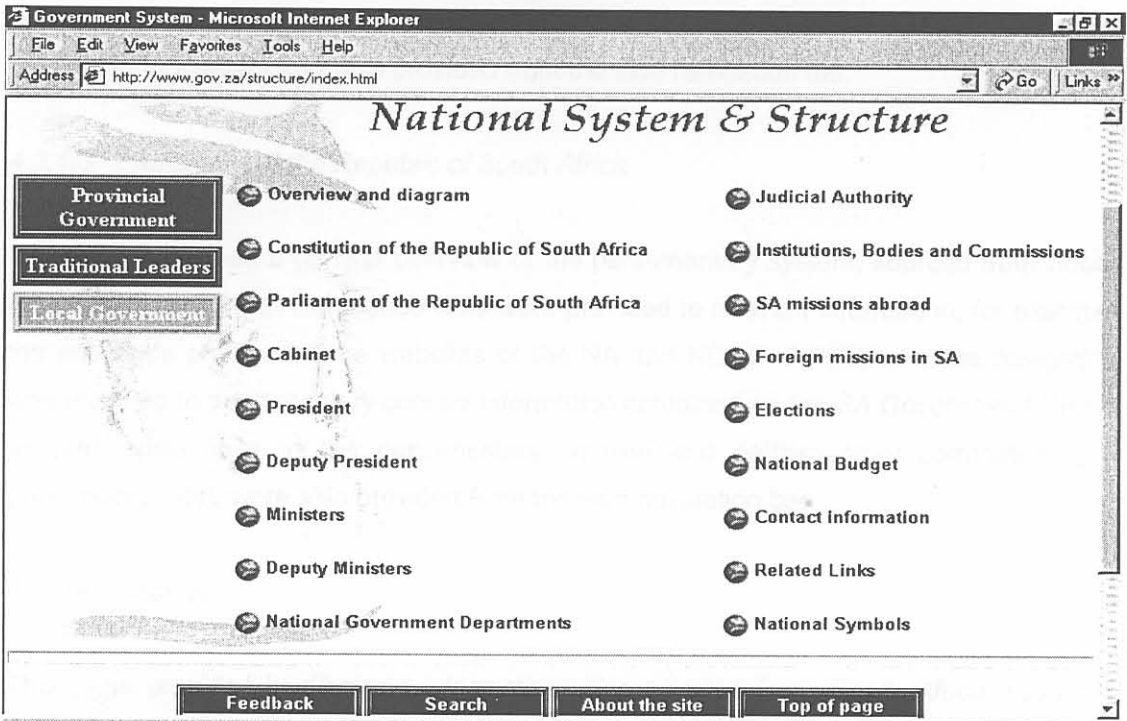
At the bottom of the page, the date and time the page was last modified, a hit counter, and a note that the site was maintained by Government Communications (GCIS) were displayed. Finally, the browsers best suitable for viewing the site, i.e. Netscape Communicator and Internet Explorer 4, were displayed below these features.

4.3 Content, layout and navigation of the main pages of the website

The website is discussed according to the main information categories presented on the home page.

4.3.1 Government System

This category provided information about the national government system and structure and how it operated. The home page entry linked to the index page as presented in figure 2.

Figure 2: Index page for *Government System*

The page contained the following sub-categories:

4.3.1.1 *Overview and diagram*

This page contained a general overview of the government system and how it operated, sourced from *South Africa Yearbook 1999*. Topics included, for example, the Constitution, parliament, the cabinet, provincial and local government, elections, etc. Embedded links were provided to relevant information, for example the Constitution, National Assembly (NA), National Council of Provinces (NCOP), and the Constitutional Assembly's website. An index to the main sections of the document was provided at the top of the page, while 'top of the page' options were provided between sections. Additional cross-navigation was provided to a government diagramme and to an alphabetical index of other government bodies and institutions. The latter linked to the respective websites of the bodies.

4.3.1.2 *Constitution of the Republic of South Africa*

This page contained background information about the Constitution, sourced from *South Africa Yearbook 1999*. Embedded links were provided to relevant information, for example the individual chapters of the Constitution and the website of the Constitutional Assembly.

Additional cross-navigation was provided to background information on the writing of the Constitution, amendments to the Constitution and a new page containing information on previous constitutions. A link to an index to websites that contained information on constitutional matters was also provided from the side navigation bar.

4.3.1.3 *Parliament of the Republic of South Africa*

This page contained a general overview of the parliamentary system, sourced from *South Africa Yearbook 1999*. Embedded links were provided to relevant information, for example the speaker's profile and the websites of the NA and NCOP. Additional cross-navigation was provided to parliamentary contact information contained on the *SA Government Online* website, while links to the parliamentary website and parliamentary committees (on parliament's site), were also provided from the side navigation bar.

4.3.1.4 *Cabinet*

This page provided background information, also sourced from *South Africa Yearbook 1999*. Embedded links were provided to relevant information, for example the *Ministries* and *Deputy Ministries* pages, NA, *The Presidency* page and the profile of Thabo Mbeki. Additional cross-navigation was provided to the relevant section in the Constitution, a government diagramme, a list of cabinet ministers and their portfolios) and a combined list of contact information for all the ministries.

4.3.1.5 *President and Deputy President*

Information for these two categories was presented together on *The Presidency* page, and provided contact information for the offices of the president and deputy president, their photographs, as well as links to their speeches and media statements, profiles, *Director-General in the Presidency* page, organisational information on The Presidency (Powerpoint presentation) and other relevant information. An 'index' at the top of the page linked to the two respective categories.

From the page containing profile, additional cross-navigation was provided to the contact information for the relevant official's office, his/her speeches, and the *Profiles* page (a listing of cabinet members and deputy ministers, linking to their profiles).

4.3.1.6 *Ministers*

This entry linked to a page with a list of the ministries, the name of each minister (this linked to his/her profile and photograph), as well as links to each official's speeches and contact information (see figure 3). Additional cross-navigation was provided to the relevant section in the Constitution, a portfolio list (an alphabetical listing of ministers and their portfolios), a combined list of contact information for all the members of cabinet, a list of cabinet members with a link to each one's profile, and to a list of deputy ministers.

Figure 3: Index page for *Ministries*

Ministries			
<small>(Speeches are currently displayed as delivered by the particular person, and not according to the person's portfolio)</small>			
Agriculture and Land Affairs	Ms AT Didiza	Speeches	Contact Info
Arts, Culture, Science and Technology	Dr BS Ngubane	Speeches	Contact Info
Communications	Dr I Matsape-Casaburri	Speeches	Contact Info
Correctional Services	Mr BM Skosana	Speeches	Contact Info
Defence	Mr MGP Lekota	Speeches	Contact Info
Education	Prof AK Asmal	Speeches	Contact Info
Environmental Affairs and Tourism	Mr MV Moosa	Speeches	Contact Info
Finance	Mr TA Manuel	Speeches	Contact Info
Foreign Affairs	Dr NC Dlamini-Zuma	Speeches	Contact Info
Health	Dr ME Tshabalala-Msimang	Speeches	Contact Info
Home Affairs	Dr MG Buthelezi	Speeches	Contact Info
Housing	Ms SD Mthembu-Mahanyele	Speeches	Contact Info

From each page containing profiles, additional cross-navigation was provided to the contact information for the relevant official's office, his/her speeches and the *Profiles* page (listing of cabinet and deputy ministers, linking to their profiles). Pages containing ministers' contact information also included a photograph of each.

4.3.1.7 *Deputy Ministers*

This entry linked to a page with a list of the deputy ministries, the name of each deputy minister (which linked to his/her profile and photograph), as well as links to the speeches

and contact information of each. Additional cross-navigation was provided to the relevant section in the Constitution, a portfolio list (an alphabetical listing of deputy ministers and their portfolios), a combined list of contact information for all deputy ministers, and to a list of cabinet members.

From the pages containing profiles, additional cross-navigation was provided to the contact information for the relevant official's office, his/her speeches, and the *Profiles* page (a listing of cabinet and deputy ministers linking to their profiles). Pages containing ministers' contact information also included a photograph of each.

4.3.1.8 National Departments

This page contained an alphabetical listing of all national government departments, with links to each department's website, a short overview of each department (vision, mission, organisational structure), its contact information and relevant ministry (see figure 4). Additional cross-navigation was provided to legislation and documents about the public service, an index of other government bodies and institutions (linking to their websites), and a combined list of contact information for all government departments.

Figure 4: Index page for *National Departments*

Department	Home Page	Overview	Contact info	Ministry
Agriculture	Home Page	Overview	Contact info	Ministry
Arts, Culture, Science and Technology	Home Page	Overview	Contact info	Ministry
Communications	Home Page	Overview	Contact info	Ministry
Correctional Services	Home Page	Overview	Contact info	Ministry
Defence	Home Page	Overview	Contact info	Ministry
Education	Home Page	Overview	Contact info	Ministry
Environmental Affairs and Tourism	Home Page	Overview	Contact info	Ministry
Finance	Home Page	Overview	Contact info	Ministry
Foreign Affairs	--	Overview	Contact info	Ministry
Government Communications (GCIS)	Home Page	Overview	Contact info	Ministry
Health	Home Page	Overview	Contact info	Ministry
Home Affairs	--	Overview	Contact info	Ministry
Housing	Home Page	Overview	Contact info	Ministry
Independent Complaints Directorate	Home Page	Overview	Contact info	Ministry
Justice and Constitutional Development	Home Page	Overview	Contact info	Ministry
Labour	Home Page	Overview	Contact info	Ministry
Land Affairs	Home Page	Overview	Contact info	Ministry
Minerals and Energy	Home Page	Overview	Contact info	Ministry
National Intelligence Agency	--	Overview	Contact info	Ministry
Provincial and Local Government (Previously Constitutional Development)	Home Page	Overview	Contact info	Ministry
Public Enterprises	Home Page	Overview	Contact info	Ministry
Public Service and Administration	Home Page	Overview	Contact info	Ministry
Public Service Commission	Home Page	Overview	Contact info	Ministry
Public Works	Home Page	Overview	Contact info	Ministry

Pages containing the contact information of each department and an overview thereof also provided links to the department's website and the profile of the responsible minister and deputy minister.

4.3.1.9 *Judicial Authority*

This page provided background information on the administration of justice, sourced from *South Africa Yearbook 1999*. Embedded links were provided to other relevant information, for example the Department of Justice and Constitutional Development. Additional cross-navigation was provided to the relevant section in the Constitution, the government diagramme and the pages for the *Ministry of Justice and Constitutional Development* and the *Department of Justice and Constitutional Development*.

4.3.1.10 *Institutions, Bodies and Commissions*

This page contained an alphabetical index of government bodies and institutions (other than those already mentioned), linking to their respective websites. Additional cross-navigation was provided to the relevant section in the Constitution, government diagramme and a combined list of contact information for these institutions (as carried on the *SA Government Online* website).

4.3.1.11 *SA Missions Abroad*

This page contained an index to information on South African representatives abroad, South African representatives at international organisations abroad, and other offices. An additional cross-navigation link to *Foreign Missions in South Africa* was provided.

4.3.1.12 *Foreign Missions in SA*

This page contained an index to information on foreign representatives in South Africa, international organisations represented in South Africa, and other offices. An additional cross-navigation link to *South African Missions Abroad* was provided.

4.3.1.13 Elections

This page contained an index linking mainly to information about the 1999 national elections. The listing contained entries to speeches and media statements on the elections, registered political parties, results of the 1999 and 1994 elections, an index of regulations and legislation pertaining to the elections, an explanation of South Africa's electoral system, the Electoral Act and media reports. Links to the Independent Electoral Commission's (IEC) website and other electoral resources were also provided.

4.3.1.14 National Budget

This entry linked to a *Budget 2000* page which contained various budget-related links to the website of the Department of Finance (for example the budget speech, *Budget Review*, *People's Guide to the Budget*) and budget-related media statements contained in the searchable database. An additional cross-navigation link, *Search on other Speeches*, was provided.

4.3.1.15 Contact information

This entry linked to an index of different government structures (cabinet, deputy ministers, national government departments, provinces, bodies and institutions, parliament), linking to combined lists of contact information for each grouping.

4.3.1.16 Related Links

This entry linked to the *Government and Politics* section on the *SA Webs* page and which provided an index linking to the websites of foreign offices, political parties and organisations, international bodies and other governments.

4.3.1.17 National Symbols

This page provided an index to information about the national symbols of South Africa (anthem; flag; Coat of Arms; animal; bird; fish; flower and tree). Background information on each of these symbols and images thereof were provided. These pages provided additional navigation to the pages of the other *National Symbols* sub-categories.

4.3.1.18 *Additional cross-navigation*

Additional cross-navigation was provided to the *Provincial Government* and *Local Government pages* and to a page about traditional leaders. The latter provided background information sourced from *South Africa Yearbook 1999*. Embedded links were provided to relevant information, for example the relevant chapter in the Constitution.

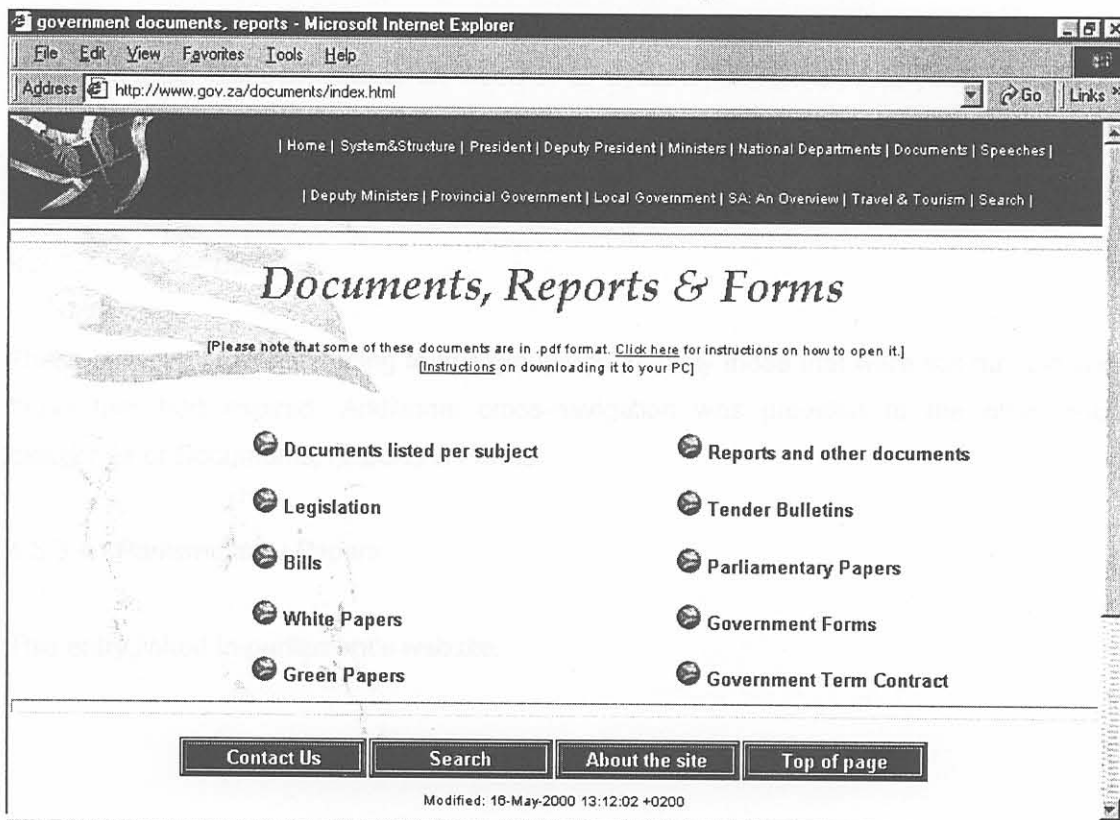
4.3.2 *President, Deputy President, Ministers, Deputy Ministers and Government Departments*

These categories linked directly from the home page to the same information as described under similar headings at *Government System*.

4.3.3 *Documents, Reports & Forms*

This page contained an index to the sub-categories described in the following paragraphs. See figure 5 for an example of the screen display.

Figure 5: Index page for *Government Documents, Reports & Forms*



4.3.3.1 *Legislation, Bills, white papers, green papers, reports and other documents*

4.3.3.1.1 *Government Forms*

For the first three sub-categories documents were categorised per annum, for example *2000 Legislation, 1999 Bills*, and so on. The initial entries linked to the *2000* pages. For the other three sub-categories documents were listed on one page each and grouped per annum. In all cases documents were listed in descending order (from new to old).

4.3.3.1.2 *Government Form Contact*

Additional cross-navigation was provided to the other sub-categories of *Documents, Reports & Forms*, and in the case of separate pages for the same sub-category, also to these.

4.3.3.1.3 *Documents per subject*

4.3.3.2 *Documents listed per subject*

4.3.3.2.1 *Documents per subject 1999*

This entry linked to the *2000 Documents per subject* page, consisting of an index of documents from all above-mentioned sub-categories published in 2000. Documents were listed according to topics and sorted alphabetically. An alphabetical index at the top of the page linked to the relevant topics.

Additional cross-navigation was provided to the other sub-categories of *Documents, Reports & Forms*, to the other documents from the same sub-category (for example *1999 Documents per subject*), and to an index of all documents from all four years. The latter listed all topics alphabetically, and contained an index (letters of the alphabet) at the top of the page.

4.3.3.3 *Tender Bulletins*

These were provided according to two groupings, namely those that were still running and those that had expired. Additional cross-navigation was provided to the other sub-categories of *Documents, Reports & Forms*.

4.3.3.4 *Parliamentary Papers*

4.3.3.4.1 *On the Speaker and Press releases page (see figure 4.3.3.4.1)*

This entry linked to parliament's website.

4.3.3.5 *Government Forms*

This page contained an index to five government forms. Additional cross-navigation was provided to the other sub-categories of *Documents, Reports & Forms*.

4.3.3.6 *Government Term Contract*

This entry linked to the website of the State Tender Board.

4.3.3.7 *Document formats*

Although most of the documents were carried on the *SA Government Online* web server in either PDF or HTML format, there were some links to documents contained on other government sites.

4.3.4 **Speeches**

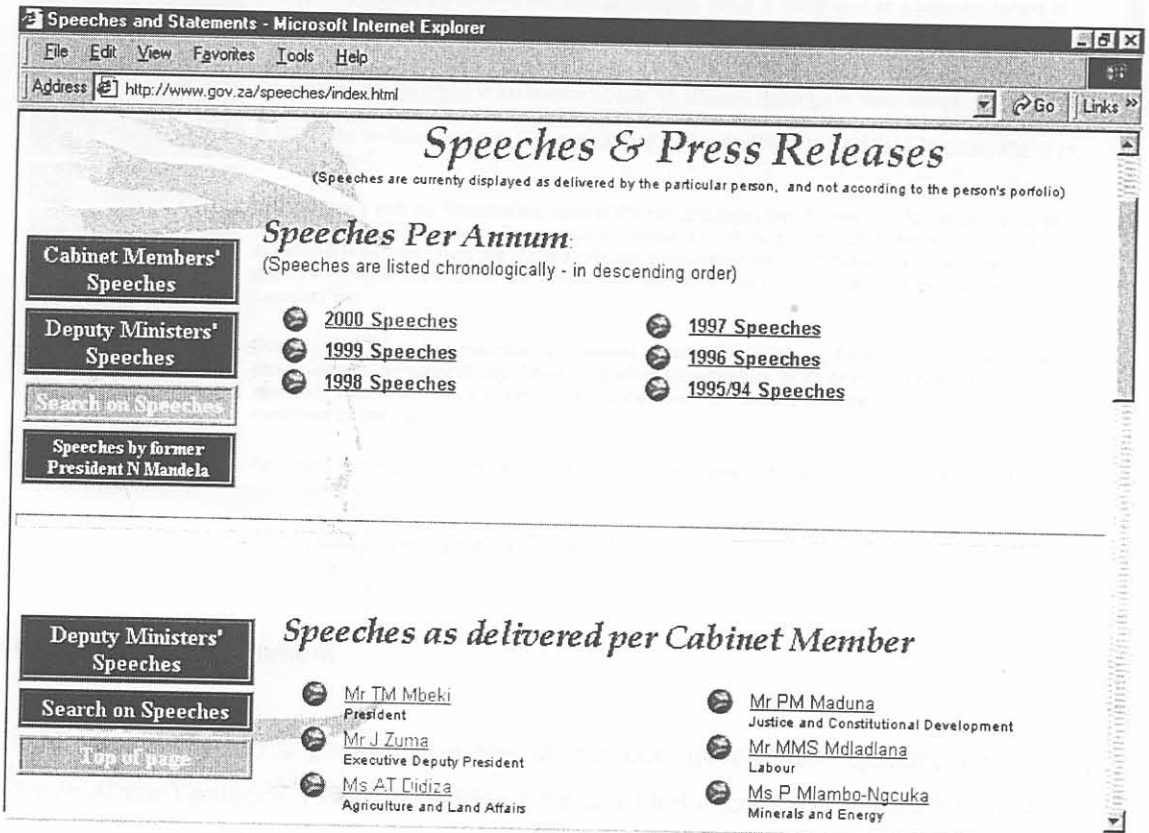
On 31 August 2000, the site contained 2013 speeches and media statements made or issued by current and former government officials during the period 1994 – 2000, as well as six made by foreign delegates.

Speeches and media statements were indexed in the full-text retrieval system or *Searchable Database* (see paragraph 4.4.2). The search interface allowed the user to choose the relevant year he/she wished to search on, to search on date, title or text fields, as well as to sort the results. After a search had been performed, the results list contained dates, titles and the occasions on which speeches or media statements were delivered. A short summary of the content of each speech/media statement was also provided. To use the search facility, the user had to go to the *Searchable Database* page from *Search on Speeches* button in the side navigation bar or the *Search* button.

On the *Speeches and Press Releases* page (see figure 6), speeches and media statements were listed per annum (in descending order, i.e. from new to old), as well as per official (minister; deputy minister). Selecting the relevant menu item (year or name of official) took the user to the information indexed in the *Searchable Database*. Additional cross-navigation was provided from the *Speeches per Annum* section to the listings of cabinet members and deputy ministers (with links to their speeches), *Search on Speeches*

and speeches by the former president, Nelson Mandela. From the *Speeches as delivered per Cabinet Member* and *Speeches as delivered per Deputy Minister* sections, additional cross-navigation was provided to the deputy ministers'/ministers' speeches, *Search on Speeches* and top of page.

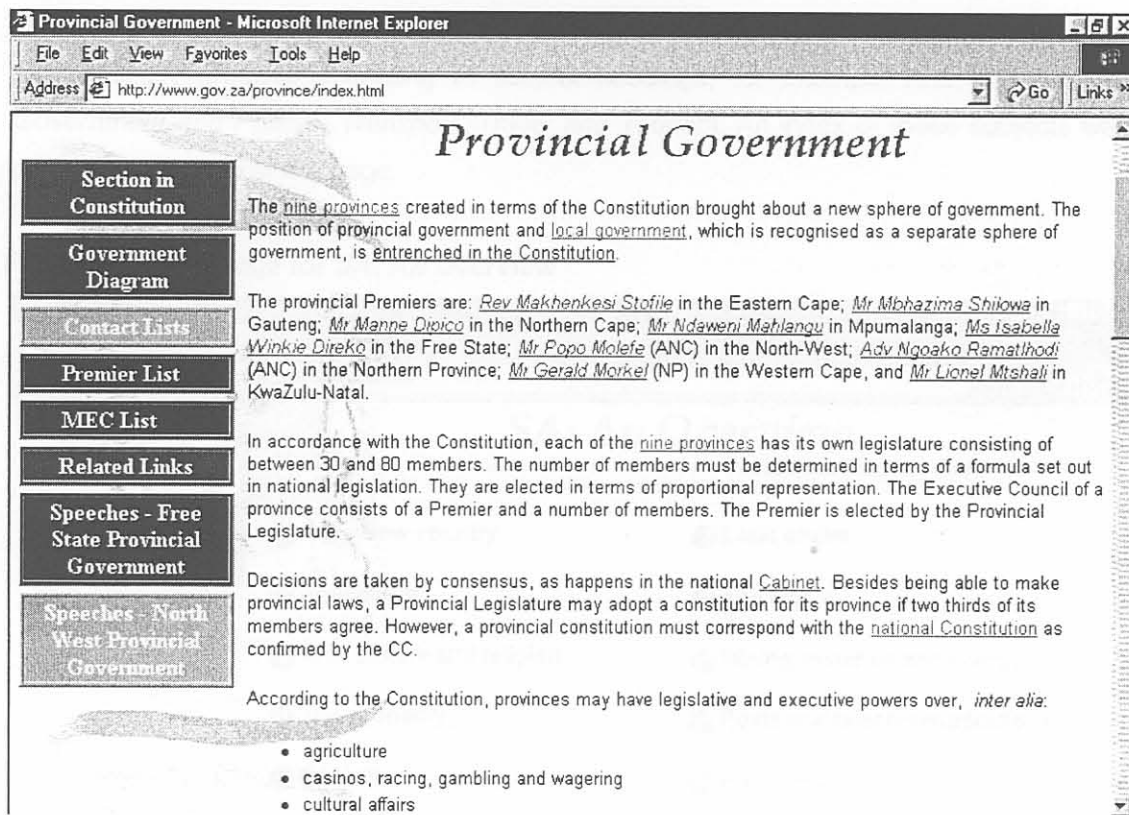
Figure 6: Index page for *Speeches and Press Releases*



4.3.5 Provincial Government

This page contained a general overview of the provincial government system, sourced from the *South Africa Yearbook 1999* (see figure 7). Embedded links provided access to a page with more detailed information about the provinces (*nine provinces*), profiles of the provincial premiers, and other relevant information. At the bottom of the page, a list of the provinces, which linked to their websites, was provided. Additional cross-navigation was provided to the relevant section in the Constitution, government diagramme, combined list of contact information for all provinces, a list of provinces with and their respective premiers, a list of MECs (Members of the Provincial Executive Councils) of the respective provinces, and speeches of two of the provincial governments, while a link (*Related Links*) to the above-mentioned listing of provincial websites was also provided.

Figure 7: Provincial Government page



4.3.6 Local Government

This page contained a general overview of the local government system, sourced from *South Africa Yearbook 1999*. Embedded links provided access to relevant information, for example the South African Local Government Association (Salga), relevant Acts, the relevant ministry and department. Additional cross-navigation was provided to the relevant section in the Constitution, government diagramme, relevant ministry and relevant department, while a link (*Related Links*) to a listing of some local government websites was also provided.

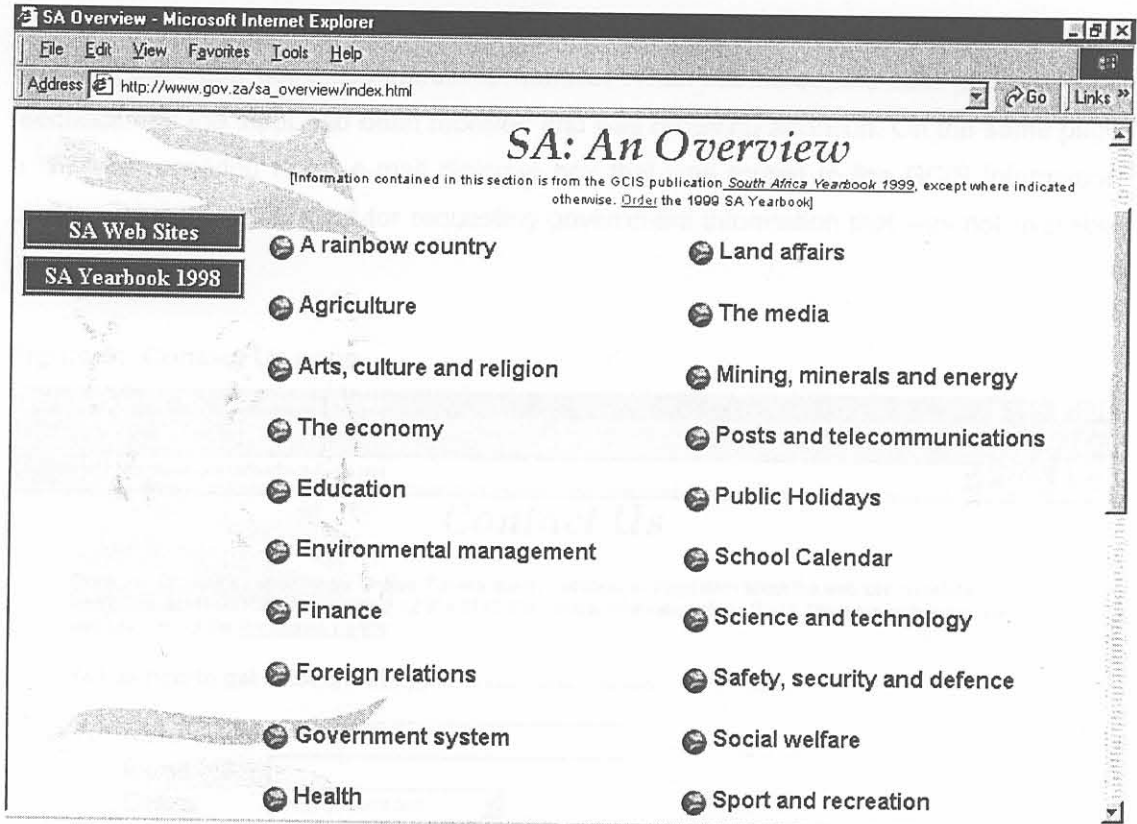
4.3.7 SA: An Overview

This page contained a topical index linking to information sourced from *South Africa Yearbook 1999* as well as to information on public holidays and work permits and to the school calendar (see figure 8). Entries were for example *Agriculture*, *Health*, *Tourism*, *Transport*, *Government system*. Each of these pages provided additional cross-navigation to *SA Webs* and back to the previous page (*SA: an Overview* index page). From the *SA: An Overview* page, additional cross-navigation was provided to *South Africa Yearbook 1998*,

and to an index of South African websites, *SA Websites*. The *SA Websites* page contained links to a variety of South African and some international websites. These links were alphabetically grouped according to subject headings, for example *Arts and Culture*, *Government and Politics*, *Transport*, *Travel and Tourism*. An index of these subjects was provided at the top of the page.

4.3.7 Contact Us

Figure 8: Index page for *SA: An Overview*



4.3.8 *Travel and Tourism*

This entry linked to the *Travel and Tourism* section on the *SA Webs* page which contained an index of websites providing information relevant to tourists to South Africa.

4.3.9 *Africa*

This page contained an index of links to the websites of the Southern African Development Community (SADC) countries as well as other African countries. Additional cross-navigation was provided to the *SA Webs* page and a page that contained information of the flood relief effort in Southern Africa.

4.4 Other organisational, navigation and design elements

Certain navigation options were provided at the bottom of all pages, namely *Contact Us*, *Search*, *About the site* and *Top of Page*.

4.4.1 *Contact Us*

This link provided access to an interactive feedback form (see figure 9) that provided for user feedback and questions about the website. When submitted, the user got automatic feedback that the input had been received and was receiving attention. On the same page a link was provided to an e-mail dialogue box that was routed to the GCIS information centre. This was to be used for requesting government information that was not available on the website.

Figure 9: *Contact Us* page

Feedback index - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Address <http://www.gov.za/feedback/index.html> Go Links >>

Contact Us

Thank you for visiting **Government Online**. For any query, comment or suggestion about the web site complete this form or contact Hilda Korsten at tel: +27 12 314 2140. For general information about South Africa not included on this web site contact the [Information Centre](#).

Tell us how to get in touch with you: (all fields must be completed)

Name

E-mail

Country

Enter your comments here:

Please contact me regarding this matter.

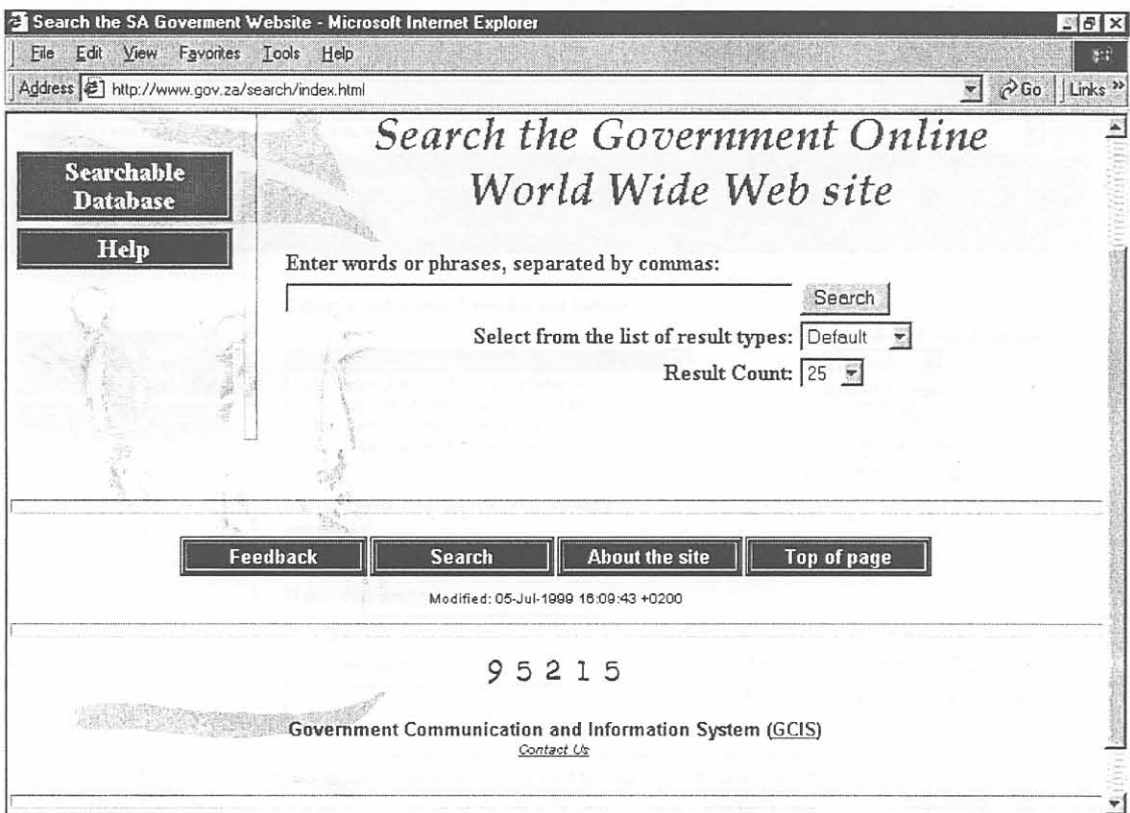
4.4.2 *Search*

This linked to the website's search page. The search facility allowed for searching in two ways.

The first, *Search the Government Online World Wide Website* (figure 10), was for searching information contained on the web (HTML) pages. The search interface allowed the user to

- enter words or phrases in a dialogue box.
- make a selection *from different result types*. Options provided were *default, standard and power*.
- manipulate the result count from 25 up to 100.
- refine a search from the results pages when the *standard* or *power* result type is selected.

Figure 10: *Search the Government Online World Wide Web site* page



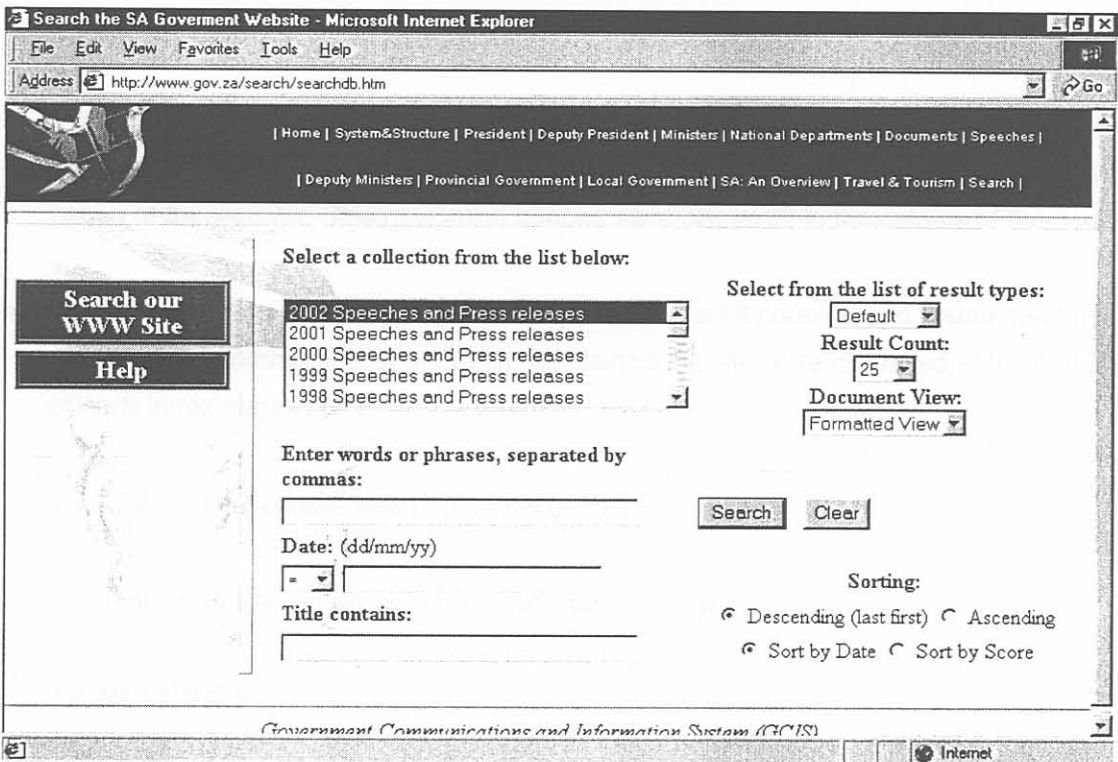
The second, *Searchable Database* (figure 11), was for searching information contained in a text retrieval system and was available from the side navigation bar on the previously mentioned search page. Main features of the search interface were that it allowed the user to

- choose the relevant data collections he/she wished to search on (for example *2000 Speeches and Press releases; 1999 BuaNews*).
- search on date, title and text fields or a combination thereof.

- sort search results. Sorting options provided were to sort according to score or date, both either descending or ascending.
- select different result types. Options provided were *default*, *simple*, *standard*, and *power*.
- manipulate the result count from 25 up to 100.
- select options to view documents, namely *formatted view* and *simple view*.
- refine a search from the results page when the *standard* or *power* result type is selected.

Information contained in the text retrieval system was also accessible from relevant web pages, and thus by browsing the website.

Figure 11: Search interface for the Searchable Database



A *Help* page was accessible from both search pages and provided information on how to search with both the search mechanisms and provided quick tips on how to search.

4.4.3 About the Site

This linked to background information on the development of the website, its main objectives and content, as well as on document formats used on the site.

4.4.4 Other features

Other features of the website were:

- In general the site made use of menus (indexes) linking to sub-menu and sub-sub-menu structures and then to the information itself. Depth of menu structures varied from one to three levels, thus requiring the user to click a maximum of three times to reach the information he/she required. In contrast, text overviews with embedded links to further information were provided in the case of *Government Structure*.
- All pages, except for the home page, contained a navigation bar at the top that provided links back to the home page and to the index pages of the main categories presented on the home page.
- The design made use of the South African flag at the top of pages and Khoisan figures as background. These elements were used on the home page as well as all the main pages of the website. Side navigation buttons were displayed in the colours of the flag.
- The date and time when the page was last modified, a hit counter, and a statement that Government Communications (GCIS) maintained the site were displayed at the bottom of each index page.
- The URL for the website was <http://www.gov.za>.
- Information on the website was provided free of charge.

5. CONCLUSION

The overview of the *SA Government Online* website as presented in this chapter will enable readers to visualise the website as it was at the time it was evaluated. When considering the findings of the evaluation process and recommendations made to improve the website (chapters six to eight), readers may refer back to this chapter.

The detailed discussion of the content features of the website made it clear that the website linked to other government websites, but also contained content itself. Furthermore, the discussion provided an indication of the navigation scheme and organisational structure of

the site, and discussed the main features of the search mechanism and the visual appearance of the website. From this discussion it became clear that the SA Government Online website was developed with the purpose of providing a one-stop service with easy access to national, provincial and other government websites, to avoid duplication, and to keep the public informed of government policies and activities.

The next two chapters will provide comprehensive criteria for effective websites in general (chapter four) and for government websites and South African websites in particular (chapter five).

In this medium, the criteria for quality will vary with the genre and the goals of the website. The first step in the identification of assessment criteria for the work of a web designer is to define the purpose of a website and then to develop criteria for the development and evaluation of websites (see chapter two) that will be used to assess the quality of the website.

The next step is to identify the criteria for quality. The criteria for quality of a website are defined as a set of criteria that are used to evaluate the quality of a website. The criteria for quality of a website are defined as a set of criteria that are used to evaluate the quality of a website. The criteria for quality of a website are defined as a set of criteria that are used to evaluate the quality of a website.

2. CHAPTER AND SCOPE CRITERIA

The criteria for quality of a website are defined as a set of criteria that are used to evaluate the quality of a website. The criteria for quality of a website are defined as a set of criteria that are used to evaluate the quality of a website. The criteria for quality of a website are defined as a set of criteria that are used to evaluate the quality of a website.

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2.1 Orientation to the website

2.1.1 Overview of the website

Some (most) users find it difficult to evaluate the quality of web sites. Some information on scope and authority is not made available. Scope notes or labels

CHAPTER 4

EVALUATION CRITERIA: GENERAL GUIDELINES AND PRINCIPLES FOR THE DEVELOPMENT OF WEBSITES

1. INTRODUCTION

As with any other medium, the criteria for quality will vary with the genre and the goals of the website. The first step in the identification of assessment criteria for the evaluation of *SA Government Online* involved the compilation of a criteria list that may have universal applicability or the development and evaluation of websites (see chapter two). This chapter reviews these criteria.

General principles and guidelines for each criterion are discussed briefly. As it is not the purpose of this study to present a detailed guide for web publishing, it was not deemed necessary to present a complete and detailed discussion of the principles and guidelines, and only the more prominent aspects will be highlighted. A consolidated list of the criteria with more detailed indicators for each is presented in paragraph seven.

2. CONTENT AND SCOPE CRITERIA

According to Sullivan (1997), information content on a website represents its “base” value and is a primary concern for websites. Rettig & LaGuardia (1999:54) state: “Content is king – if the content does not serve the audience’s need no amount of clever graphics or cool animations will make up for this deficiency.”

Content criteria are concerned with what the website actually contains. Content for a website should be selected with a discerning mindset to ensure that information is valid, accurate, current, comprehensive and come from authoritative sources.

2.1 Orientation to the website

2.1.1 Overview of the website

Smith (1997) states that users might find it difficult to evaluate the authority of websites when information on scope and authority is not made available. Scope notes or information

about the producers should be provided, and it must be possible to establish the purpose for which the website was designed. A scope note should state what information is included in the website. This includes:

- Breadth, i.e. the aspects of the subject that are covered.
- Depth, i.e. level of detail provided about the subject
- Format. A site that provides links may restrict its scope to certain classes of resources (Smith, 1997).

2.1.2 Copyright and disclaimer statements

When relevant, copyright and disclaimer statements should be provided on the website. Neale & McCombe (1997) recommend that copyright symbols be used in the footer instead of in every file and that it should contain date, symbol and organisation name.

2.2 Authority of the website

Authority in print material is frozen in time with the information. However, this is not relevant for online information. Care should be taken to ensure that users would be able to determine the authority of the website, especially for information that is expected to change often or is time-sensitive.

2.2.1 Indication of the publisher/official support/sponsorship

A good website should identify itself in terms of where it comes from. The sponsor, producer or owner of the site should be indicated to enable the user to establish the website's credibility and reliability (Rettig & LaGuardia, 1999:54), to determine the reputation, qualifications and objectivity of the host institution (Patterson, 1997), to evaluate the kind of documents he/she is reading (Kirk, 2000), and to get a quick indication of what the likely goals of the website are and what contents to expect (Shneiderman, 1997). Users will thus be able to determine if the organisation is recognised in the specific field of publishing, is legitimate and is suitable to address the topic at hand. It is worth noting that Brandt (1996) reasons that when a web document is written and/or issued by an authoritative source such as the government, it is generally accepted at face value as having validity.

Information should be provided about the organisation's experience or qualifications with regard to the development of the specific website. There should also be a phone number or

postal address to enable users to contact the organisation for more information (Rettig & LaGuardia, 1999:51).

The information about the official body responsible for the website should be readily available. Lynch & Horton (1997) recommend that all pages on the site contain such information. In addition, internal evidence should make it clear to the user that pages and documents are part of an official site, for example in headers, footers or by providing a distinctive watermark. If the organisation is not immediately recognisable, information about the organisation should be provided somewhere else on the site (Rettig & LaGuardia, 1999:54). Lynch & Horton (1997) recommend the incorporation of the “home” URL on at least the main pages of the site, as it is a way of maintaining the connection to where a page originated. Once the user has saved the page as a text file or printed the page onto paper this connection may be lost.

2.2.2 Indication of authorship

According to Patterson (1997), an author’s qualifications might constitute a strong indication of the reliability of the information that he/she presents. Users therefore should be able to determine if an author is qualified to write on a particular subject. In addition, users want to know the people behind information on the website: “Biographies and photographs of the authors help to make the web a less impersonal place and increase trust” (Nielsen, 1999e).

A site should therefore enable the user to easily find out about the authors, where they work, what their credentials are that make it appropriate for them to write about the topic, and how to get in touch with them for further questions (Schrock, 1998).

2.2.3 Inclusion of bibliographies and references

Some information on websites originates from sources such as books, journal articles and other types of publications. There should be adequate citations to these sources to confirm the accuracy of the information and to determine the origin of documents. This will strengthen the credibility of the information presented on the website and will provide users with more information about the topic. However, it is generally accepted that information about the organisation itself is reliable, and thus does not need to cite authors (Harris, 1997; Caywood, 1997).

2.2.4 Reliability of information

According to Harris (1997), information serves as the basis for beliefs, decisions, choices and understanding our world, and “if we make a decision based on wrong or unreliable information, we have no power”. Evidence of authenticity, reliability, credibility, and believability of information on the website is therefore important. Information should be factually correct, up to date, detailed, exact and comprehensive.

Previous issues as discussed in this paragraph can also determine reliability. For example, information will be reliable when written by an author who has experience with a subject or cites research from well-known authorities (Norem, 1998).

2.3 Comprehensiveness/information coverage/scope

2.3.1 Breadth, depth and amount of information

Smith (1997) describes this criterion as that which “determines what items are included in a website and if the actual scope of the site matches expectations”. It includes:

- Breadth. Aspects of the subject that are covered, also including if the site focuses on a narrow area or also includes related topics.
- Depth. The level of detail provided about the subject and if it relates to the audience for which the website has been designed.
- If a site which provides links restricts its scope to certain classes of resources.

Rettig & LaGuardia (1999:54) specify that a website's content should be “germane to the topic”, broad enough and deep enough to meet the audience's needs. It should also be fully described, for example via a scope note. Harris (1997) acknowledges the fact that it is almost impossible to include all information on a particular subject on a website, but states that a source that deliberately omits important facts or alternatives may be misleading.

2.3.2 Selection of links to external sites

According to Smith (1997), a distinction can be made between sites that only provide links to other resources and those that provide original information. He regards it as similar to Katz's distinction between control-access-directional sources (for example indexing and abstracting services or bibliographies) and source-type works (like encyclopaedias and fact books).

2.3.2 Currency of currency

Websites can be useful both as information resources in themselves and as links to other information. Smith (1997) warns, however, that “lists of resources that look promising, but simply contain more links” could frustrate users. In addition, if the value of the site lies in its links to other sources, the links should be made to appropriate resources and always be kept updated. Links must also be presented in such a way that it is clear that an external site is being referred to.

2.3.3 Unique information content

A website should offer unique information content and not simply duplicate information in other mediums or from other websites. If the content is also available in other forms, the web documents should have the features of the original, but value should be added, for example by means of improved currency or access, providing updates to the printed source or additional features.

2.4 Currency and timeliness

2.4.1 Frequency of updating and maintaining the website

When users need current information on a topic, it is important for them to find resources that include the most recent information on that topic. It is thus important that information is regularly updated. A general guideline is that the update frequency should be appropriate to the subject matter (Rettig & LaGuardia, 1999:54).

Even if information is added regularly, the site should contain the most current information (updating of pages may not necessarily guarantee currency of information). Time-sensitive information, such as announcements of events, should be available in real-time (Kirk, 2000; Lynch & Horton, 1997).

Lynch & Horton (1997) state that the presence of new information should be obvious to users. One method is to put a “New” graphic next to each updated item on the menu pages. However, if the site is complex, with many levels of information spread over many pages, it is preferred to create a “What’s New” page that is specifically designed for this purpose.

2.4.2 Indication of currency

Kirk (2000) states that a user should always be able to determine when the site was last updated. Therefore, to alert the user to the currency of the information, she recommends that every web page be dated with its creation or publication date, and that the date be changed whenever the page is updated ('last updated' date). Rettig and LaGuardia (1999:54) add that a good website should explain the degree and nature of the most recent updating.

Where there is a need to add data or update documents on a continuous basis, Levine (1995) recommends that clues be provided about what information would be updated and what the update frequency is. This is especially important when static and dynamic data are being mixed, as well as for long or complex online documents that are updated regularly, but may not look different enough to indicate a change in content to less frequent users.

2.4.3 Durability of information

Some information is timeless, other has a limited useful life, and some gets outdated very quickly. The website manager should therefore be careful to ensure that only information that is useful is kept on the site (Harris, 1997). This does not mean that older information should not be available on a website: "Old information is often good information and can be useful" (Nielsen, 1999e). It is, however, important that this information should always be valid.

Another requirement for the durability of information is that links to other sites be kept live or be removed.

2.5 Objectivity and fairness

Kirk (2000) reasons that information is rarely neutral. "Because data is used in selective ways to form information, it generally represents a point of view"; when a user finds information on the site, he/she will examine who is providing the information and what may be their point of view or bias.

Despite the fact that there is no such thing as pure objectivity, a good writing style should avoid biases. Harris (1997) regards conflict of interest as one of the biggest hindrances to

objectivity, as a website might sometimes benefit in some way (financially or politically) if the user accepts certain information rather than the objective truth.

In addition, information presented on websites should be fair, moderate and consistent (Harris, 1997). Fairness includes a balanced, reasoned argument that is not selected or slanted. Even ideas or claims made by the source's opponents should be presented in an accurate manner. A good website will also have a calm, reasoned tone, arguing or presenting information thoughtfully and without attempting to get the user emotionally worked up or inflame feelings (Harris, 1997).

2.6 Writing and editorial style

Gahran (1998) states that text is the basic building block of the web, as it plays a key role in terms of a site's content as well as in internal and external navigation schemes and user orientation.

2.6.1 Basic rules of literary composition

The bulk of content on the web is text. Quality of writing is therefore important for the content to be communicated clearly. According to Smith (1997), conventional guidelines include the careful organisation of information, use of topic sentences, limitation of each paragraph to one main idea, and providing the right amount of information. In addition, information should be free of grammatical, spelling and other typographical errors. Smith (1997) regards these kinds of errors as a lack of quality control, and also believes that it can actually produce inaccuracies in information.

Gahran (1998) considers it more effective to use shorter sentences and paragraphs on the web, as it is easier on the eyes and works particularly well for sites that display text in thinner columns. This also makes it easier to "chunk" content, so that users are presented with digestible and navigable sections of content rather than "an unbroken river of text" (Gahran, 1998).

Nielsen (1993:123) recommends that websites "speak the users' language". He recommends that terminology used be expressed in words, phrases and concepts familiar to the user and have standard meanings. In addition, dialogue should be in the user's native language as far as possible. The latter issue should also include nonverbal elements like icons.

According to Story (1999), consistency throughout the site is a key issue – users should not have to wonder whether different words, situations or actions mean the same thing. Web writers should determine a standard writing style and keep to it. Story (1999) suggests the use of a standard dictionary to assist with this.

2.6.2 Concise writing style

According to Lynch & Horton (1997) users experience web pages in two ways: as a medium where pages can be read online, and as a delivery medium to access information that is later downloaded into text files or printed paper.

Documents to be read online must be concise and structured for fast scanning. Lynch & Horton (1997) reason that the “inverted pyramid” style used in journalism also works well on web pages. Important facts should be at the beginning of the first paragraph where users can find them quickly. According to Morkes & Nielsen (1997), other elements that enhance scanning include headings, large type, bold text, highlighted text, bulleted lists, graphics, captions, topic sentences and tables of contents. In the case of longer documents, concise writing is still preferred, but Lynch & Horton (1997) recommend not to “dumb down what you have to say”.

Gahran (1998) agrees that tight writing is an advantage. She recommends that passive voice and prepositional phrases be avoided, but at the same time, there must be sensitivity to tone and flow. Copy should not be edited so tightly that it becomes choppy and abrupt, as this will interfere with readability. Furthermore, she regards it as important to understand where redundancy in web content is unacceptable. “If a text-based work is divided into multiple pages, any of which theoretically could be accessed first, you may well have to repeat some information on more than one page, so as not to force users to jump around too much and lose their place. However, if there is too much redundancy, it will frustrate and confuse users” (Gahran, 1998).

2.6.3 Handling of microcontent

All documents need clear headlines and titles to capture the reader’s attention, “but for several reasons peculiar to the web this basic editorial element is especially crucial” (Lynch & Horton, 1997). Headings and titles provide the user with information as to where they are on the website, describe the content of the current page and may provide contextual

navigation. Nielsen (1999e) indicates that headlines and other microcontent should be written differently for the web than for other media, as “they are actionable items that serve as user interface elements and should help users navigate”. He reasons that headlines are often removed from the context of the full page and used in tables of content and in search results, while page titles are normally the default way to refer to pages in navigation support mechanisms such as bookmark lists, history lists, overview diagrammes, etc. (Nielsen, 1996a).

Web microcontent should therefore be as self-explanatory as possible. “It should provide context, not depend on context” (Gahran, 1998). Other recommendations put forward for the handling of microcontent include:

- Nielsen (1999e) specifies that the writing needs to be very plain and should meet two goals, i.e. to tell users what is at the other end of the link with no guesswork required, and to protect users from following the link when they are not interested in the destination page.
- The main document should have a very distinct title. The sub-documents should then have related titles (US EPA, 1996).
- Neale & McCombe (1997) and Levine (1995) recommend that titles be short, accurate descriptions of content in a page and always include the organisation/site name. They argue that this will provide those who bookmarked a particular page with an accurate description of the page as well as where it came from. For similar reasons it is important to ensure that the first words on documents are relevant to the topic, as many search engines look for and index just these words.
- Lynch & Horton require that titles be optimised for quick scanning. This implies moving information-carrying items toward the beginning of the title and preferably starting with a word that will match the user's need when scanning down a menu or listing of titles. Nielsen (1996a) adds that titles should have enough words to stand on their own and should be meaningful when read in a menu or search listing. On the other hand, overly long titles slow down users – “so as a guideline aim at titles between four and ten words”.
- Levine (1995) recommends the use of unique titles for each page, and that the title that appears in the header of the browser window matches the HTML page title.

- Lynch & Horton (1997) consider titles and headers as “editorial landmarks” and the fundamental human interface issue in web pages, as it is the case in print publications. Therefore, they believe that a consistent approach to titles, headlines and subheadings will assist users to navigate a complex set of web pages.
- URLs should contain human-readable directory and file names that reflect the nature of the information contained in the website. Reasons presented for this requirement by Nielsen (1996c) are that users try to decode URLs of pages because of the lack of support for navigation and sense of location in current web browsers. In addition, users sometimes need to type in a URL: “The risk of typos could be minimised by using short names with all lower-case characters and no special characters” (Nielsen, 1996c).

2.6.4 Link text

Links should be properly used in text. Lynch & Horton (1997) recommend never to construct a sentence around a link phrase such as “click here for more information”. General guidelines provided by Levine (1995) are to write about the subject as if there were no links in the text. The link anchor should then be placed on the most relevant word in the sentence.

The user should be able to scan the text links and learn something of their destination without much reference to the surrounding text. It is therefore necessary to choose meaningful words for link text. An appropriate length should also be chosen – a single word may be too small a target, while using an entire sentence may be difficult to read. Links should be chosen to support concept and structure. Even if it is not possible to match the text displayed in a link with the title of the destination page, an attempt should be made to choose link text that has a conceptual similarity to the title and headers of the destination document. Furthermore, to provide context for a link, surrounding text should help users to understand what the link does, where the link leads to, and what value they will receive if they select a link.

The US EPA library (1996) recommends that it be indicated when a link to documents on other servers is made: “For example don’t say: look in the Public Health Statements database but rather: look in the Public Health Statements database on the website hosted by the Agency for Toxic Substances and Disease Registry (ATSDR).”

2.6.5 Metadata

The guideline document for information published in electronic formats (Australia, DFA, 2000), describes metadata as “information about a document”, while Harris (1997) defines metadata as “information about information”. Carton (1998:22) states that “our current information glut illustrates that unmediated data is garbage” and that users thus do not need more data, but better data. He argues that it is metadata that will add value to content and will improve content availability. Kelly (1999:76) describes metadata as “the missing architectural component of the web” and states that, although the initial web protocols enabled resources to be located, transported and displayed, HTML only enabled simple document structures to be defined, but failed to provide a means of defining information about the resource. According to Kelly (1999:77), the failure of automated search engines to provide effective results resulted in an initiative to develop a set of attributes for resource discovery. The initiative, getting known as Dublin Core metadata set, identifies 15 core attributes for resources, and has gained international recognition (Kelly, 1999:77).

Internet search engines use metadata to find and classify the content of websites. Furthermore proper information management practice requires that information be organised and categorised for easy finding thereof. Harris (1997) argues that, as the challenges produced by the increasing quantity of information continue, access to high quality meta-information will become increasingly important. It is thus necessary that websites incorporate descriptions of their key information resources and services in the form of metadata records to facilitate resource discovery and consistent access to information (Australia, DFA, 2000). According to the guideline document for information published in electronic formats (Australia, DFA, 2000), the metadata may be contained in the ‘head’ section of web documents, or can be stored separately in a database or metadata repository, and linked to the documents it describes. The metadata for the specific website should consist of descriptive elements relevant to the specific website, providing information so that users will be able to tell how old a document is and who wrote it.

3. INFORMATION ARCHITECTURE/ORGANISATIONAL STRUCTURE

According to Sullivan (1997) “processes underlying human learning and memory do not allow us to randomly acquire or recall disorganised, haphazard bits of information”. Rather, we learn and remember collected pieces of related information and map new information in terms of its relationship to existing knowledge. Sullivan (1997) regards a website thus as a

global information repository that mirrors the way we retrieve, organise and think about information.

3.1 The home page

The home page is the most important page on a website and establishes the site's identity. "It can impress users, generate interest and curiosity or, if poorly designed, cause indifference or even repel users" (Suno, 1996:131). As the home page acts as main point of entry to the complexity of web pages, it represents the user's context. Every time the user returns to the home page he/she gets back to this context. The home page thus sets the expectations or provides a mental model of the subsequent user experience (Neale & McCombe, 1997).

The home page should therefore portray the business of the organisation in a distinctive light and give a clear overview of the content. It should constitute a high-level site map informing users about the full contents of the site and establish the navigation scheme for the rest of the site (IBM, 1997b). The home page should thus identify what information the website contains and who the publisher is, and it should provide essential navigation controls to further information.

According to Lynch & Horton (1997) the home page should not be too long or contain too many links, as it may take too long to download, and the "sheer complexity of longer pages may put users off". Suno (1996:99) requires that category descriptions be general, but specific enough to contain the main objectives satisfying user requirements; the home page can present a general category listing, with sub-pages addressing sub-topics in progressively greater detail. Each major submenu then becomes a mini-home page for that section of the website. Gahrn (1998) refers to this as a "concentric" approach.

For very large-scale information spaces, Suno (1996:131) regards immediate access to a search query page as necessary to provide an alternative to browsing. A further important requirement of Lynch & Horton (1997) is to make the presence of new information obvious on the home page.

An important concern for Neale & McCombe (1997) is the use of graphics on the home page. While strong graphics can be effective at getting a user's attention, large graphic menus impose long loading times. Furthermore, long home pages of graphics, animation and text are not only confusing, but also are not visually appealing. According to Lynch &

Horton (1997), the best way to meet the needs of both casual and frequent users is to offer alternate views of the website. According to them, one approach is to develop a visually attractive main home page, but also to offer a text-orientated alternate home page that emphasises rapid access to information via detailed text menus as alternative. Another approach is to use a graphic banner at the top of the page, followed by a set of text-based links.

3.2 Organisational scheme of the website

The main purpose of an organisational framework is to provide the user with a clear, obvious structure when traversing the information space. An obvious framework plays a substantial role in the overall usability, efficiency and usefulness of a website and is an integral part of the web design process.

3.2.1 Site structure

Neale & McCombe (1997) and Lynch & Horton (1997) discuss different ways to structure and organise information on websites. One or a combination of these structures may be applied.

- The simplest way to organise information is where a linear narrative is presented. Information that naturally flows as narrative or time-line, or should be presented in a logical order is ideal for sequential treatment. Neale & McCombe (1997) consider this a good way to present instructional material.
- Lynch & Horton (1997) consider hierarchies as one of the best ways to organise complex bodies of information, as most users are familiar with hierarchical diagrammes and find the metaphor easy to understand. Hierarchies are discussed in more detail in paragraph 3.2.3.
- A third method to organise information, i.e. web structures, poses few restrictions on the pattern of information use. The goal is often to mimic associative thought and free flow of ideas, where users follow their interests in a heuristic pattern unique to each user. This organisational pattern develops in websites with dense links both to other information within the website and information on other websites. It can cause confusion and fuzzy thinking about the interrelationships of the information chunks. According to Lynch & Horton (1997) webs work best for small sites dominated by lists of

links and aimed at educated or experienced users looking for further education or enrichment.

- The grid structure is described only by Lynch & Horton (1997). They argue that grids are a good way to correlate variables, such as a time-line versus historical information in standard categories such as 'events' and 'culture'. Furthermore, they believe that information such as lists of courses and procedural manuals can best be organised as a grid. To be successful, the individual units in a grid must share a uniform structure of topics and subtopics. The topics often have no particular hierarchy of importance. The main rule is to keep it simple and to limit the number of links in any one page (Lynch & Horton, 1997).

Although there is no single way a site should look, work and act, good sites are constructed for immediate utility and understanding by the user: "Format should follow function" (Rettig & LaGuardia, 1999:54).

3.2.2 Chunking of information

According to Lynch & Horton (1997) there are fundamental reasons for subdividing a large body of information. They argue that the limitations of the human brain in holding and remembering information underlie all organisational schemes. Most people can only hold about four to seven discrete chunks of information in short-term memory. They state that the goal of organisational schemes is thus "to keep the number of local variables the user must keep in short-time memory to a minimum" (Lynch & Horton, 1997). They argue further that normal user behaviour is to rarely read long screens of text, as users do not want to scan long blocks of text to find what they need. Lastly, they reason that when a link is followed, the user usually expects to find a specific unit of related information, not "a whole book's worth of information" (Lynch & Horton, 1997).

It is therefore recommended that information be broken down into logical and digestible parts and to organise it into modular units (chunks) of information that all share a consistent organisational scheme. Nielsen (1993:120,121) recommends that information which is important to users and which will enable them to perform most tasks be identified. It will then "be better to design a single screen with this information, relegating less important information to auxiliary screens, than to cram all the information that might possibly be useful into a set of screens" (Nielsen, 1993:120,121).

According to Lynch & Horton (1997), the concept of a chunk of information must be flexible and consistent with common sense, logical organisation and the convenience of the user. The nature of the content should suggest the best way to subdivide and organise the information. Shneiderman (1997), however, warns that information should not be subdivided too much, as it will frustrate the user. The goal should be meaningful structures that guide users to the fragments they want, but excessive fragmentation disrupts those who wish to read or print the full text. According to Lynch & Horton (1997) “one to three printed pages of information will be about right for a chunk of information.”

A consistent organisational scheme is important, as a uniform format for organising and presenting information allows users to apply past experience with the site to future interaction, and allows users to predict how an unfamiliar section of the site will be organised. In addition, to reach the goal of a seamless system of pages “you may want to consider bringing important information into your local site and adapt it to the organisational structure and layout scheme rather than using links to send the user away from your site” (Lynch & Horton, 1997).

3.2.3 Internal hierarchies

The concept of hierarchies is familiar to most people. Without consciously knowing it, people absorb information in units that are structured, organised and ordered into sub-components. The human eye first scans at a higher level and then progresses further into detail and related information through the use of hierarchies. Suno (1996:100) therefore argues that hierarchies are a prerequisite to better understanding and quick comprehension in complex, information-intensive projects. Shneiderman (1997) agrees that hierarchical decomposition of information in manageable units is helpful in organising websites.

Neale & McCombe (1997) require that the information structures be confined within the limits of human cognitive capabilities and limitations. Hierarchies must therefore not be too deep, and users must be provided with the information they want in the fewest possible steps and in the shortest time. Deep hierarchies will bury information beneath too many layers of nested menus and force the user to navigate through too many levels to locate real content. Lynch & Horton (1997) argue that important or frequently accessed information positioned deep within the structure only hampers the usability of websites. Suno (1996:101) agrees with this view and points out that direct access to the needed information can contribute towards allowing users to fulfil some specific task. However, he warns that hierarchies should not be too shallow, as this may result in long menu pages

that over time may develop into lists of unrelated information listed in no particular order that could confuse the user.

Normally, complex document structures require deeper menu hierarchies, but users should never be forced into page after page of menus if direct access is possible. The goal is to produce a well-balanced internal hierarchical tree that facilitates quick access to information and helps users understand the organisation of information. In the case of bigger sites, Shneiderman (1997), however, prefers a higher branching factor for index pages, especially if it can save an extra layer: "The extra layers are almost more disorientating than longer index pages". Lynch & Horton (1997) agree with this view and refer to interface studies that have shown that users prefer fewer, denser screens of choices to many layers of simplified menus. According to them text or list-based menu pages can easily carry 12 links without overwhelming the user or forcing them to scroll through long lists. Rosenfeld (1998) refers to usability studies on the design of tables of content conducted by Toub and Farnum that further support this preference. According to him, these studies found that users preferred longer, more information-rich tables of content to ones that had just major categories with scope notes. In other words, they preferred a broader, shallower hierarchy with many options on a single long page.

According to Lynch & Horton (1997), a successful hierarchical scheme is created by ranking the chunks of information in importance, and then organising them by the degree of interrelationship among units. The hierarchy can then be built from the most important or most general concepts down to the most specific or optional topics. The goal is to build a hierarchy of menus and pages that feels natural to the users, does not interfere with their use of the website, or misleads them (Lynch & Horton, 1997).

Nielsen (1996b) considers the concept of a sub-site as a helpful additional structuring mechanism for information spaces that cannot easily be hierarchically structured, or (in the case of hierarchies) to give particular prominence to "a certain level of the hierarchy that is used as the sub-site designator" (Nielsen, 1996b). He defines the sub-site as "a collection of web pages within a larger site that has been given a common style and shared navigation mechanism" (Nielsen, 1996b). According to him, this collection of pages can be a flat space or it can have some internal structure, but there should be a single page that can be designated as the home page of the sub-site. He requires that each of the pages within the sub-site have a link pointing back to the sub-site home page as well as a link to the home page for the entire site. Also, the sub-site should have global navigation options. Nielsen views sub-sites as a way of handling the complexity of large websites: "By giving a

more local structure to a corner of the information space, a sub-site can help users feel welcome in the part of the site that is of most importance to them" (Nielsen, 1996b). In addition, he reasons that as a large site often contains heterogeneous information that cannot all be fitted into a single standard structure, the ability to have sub-sites with somewhat different look and feel can provide an improved user experience.

4. NAVIGATION AND SEARCH

Navigation deals with how easily the site and pages are explored and is concerned with menu design, indexes, tables of content and search functions. Linking and quality thereof are also relevant.

According to Sullivan (1997) information content on a site represents its "base" value and is a primary concern for websites. Anything that makes the information on the site easier to find or renders it more accessible, represents an incremental addition to this base value. Spool (1998) considers the most successful sites as those where the content and navigation are inextricably linked: "You cannot remove content without updating the main navigation pages."

4.1 Site navigation

4.1.1 Ease of navigation

In order to use a site effectively, and in order to get to the important information, it must be navigable and easy to use. Lynch & Horton (1997) state that a site should provide for the needs of all potential users, and should never require users to simply conform to an interface that puts unnecessary obstacles in their way. Simplicity should thus be an important concern. They argue that the more intricate the interface, the more skill and practice are required to use it. If users have to spend time to figure out how to move between pages, a less navigable, less soundly structured site has been created.

Nielsen (1999e) regards the back button as "the lifeline of the web user and the second-most used navigation feature". He recommends not to break or slow down the back button through opening a new browser window, through using an immediate direct (the browser returns to a page that bounces the user forward), or by preventing caching. He also warns against opening new browser windows. According to him designers open new windows on the theory that it keeps users on their sites. However, he regards this strategy as self-

defeating, as it disables the back button, “which is the normal way users return to previous sites”. He argues that users often do not notice that a new window has been opened, especially when they are using a small monitor where windows are maximised to fill the screen (Nielsen, 1999e).

Another usability guideline provided by Nielsen (1993:139) concerns the provision of shortcuts. According to him, it should be possible for the experienced user to perform frequently used operations fast by using shortcuts. Users should be allowed to go directly to the desired location in large information spaces, such as a file or menu hierarchy. According to him a hypertext-like approach can be used with links between information elements that are likely to be used together. Alternatively, popular pages may be given easy-to-remember names that have to be typed in by the user (Nielsen, 1993:139).

In order to increase the user’s feeling of being in control, Nielsen (1993:138) requires the system to offer the user an easy way out of as many situations as possible. He uses the example of dialogue boxes that could have a cancel button or other escape facility to bring the user back to the previous state. He believes that a basic principle for user interface design should be to acknowledge that users would make errors irrespective of what else is done to improve the interface, and that one should therefore make it as easy as possible to recover from these errors. The various exit and undo mechanisms should be made visible in the interface and should not depend on the user’s ability to remember some special code or “obscure combination of keys” (Nielsen, 1993:138).

4.1.2 Selection of links

Levine (1995) states that the presence and placement of links affect the usability of websites. Links provide connection to other content and organisational markers, and are a means to define terms and provide references. According to Suno (1996:89) the main advantage of hypertext linking is that it supports quick traversal across the information structure to related or needed information, as it allows for information to be accessed from multiple locations (or hierarchies) within the architectural framework. He thus requires that web designers provide needed, useful links or functionality without overloading the page with secondary functionality, and avoid a sudden jump to a different location, as it could disorientate the user.

As in the case of information architecture, the links and functionality provided on a website should be determined by the specific users’ tasks and the purpose of the website.

Overusing links that are unrelated to the current topic presents unnecessary diversions to the user and leads to useless trips to irrelevant information.

Neale & McCombe (1997) and Nielsen (2000a) discuss two types of navigation. The first, global or structural links, play an important role in user orientation. Nielsen argues: "Pages without structural links become orphans that are not conceptualised" (Nielsen, 2000a). The authors require that users always be able to easily return to the home page and to other major navigation points in the local site. Furthermore, structural links should provide basic navigation and help create the graphic identity that tells users that they are still within the site domain and require that links also be provided to the levels of the hierarchy above the current location. These 'breadcrumb' trails allow users to interpret a page better, as it enables them to see it in context. They also allow users to go directly to a higher level of the site in case the current page is not what they want, or when they arrive at pages through search or other means that bypass the higher-level navigation pages. Furthermore, structural navigation should provide a link to a page that provides an overview of the current sub-site or region and it should allow the user to always get to the search function from any page in case the user is lost in hyperspace (Nielsen, 2000a).

The second type of navigation, contextual navigation, exists of local links to related content. According to Neale & McCombe (1997) it provides the user "a robust way to navigate a single information space that might be a self-contained section within a larger site". Users often land directly on a page, for example using a search engine, and one often cannot predict how knowledgeable the user is of the subject matter. Therefore, links to similar or related pages will be useful to help users to orientate themselves. According to Levine (1995), local links could include links to similar products, related products, different versions of the current product, earlier or later versions of topic background information, author biographies, or a discussion about the current topic.

Lynch & Horton (1997) highlight another important aspect of navigation. They argue that hypertext systems share a common problem that is not relevant in printed media – going back through a series of links that have previously been visited is not the same as paging back through the preceding pages of an ordered sequence of pages. Users therefore need organised interface elements to enable them to follow and understand hypertext links from one page to another. This is particularly true when the designer wants users to be able to follow or recognise an ordered sequence of documents. By augmenting the standard web browser's back and forward buttons with 'next page' and 'previous page' buttons built into the page itself, interface tools are provided for users to navigate through the information in

the sequence the designer intended. In this regard, Levine (1995) recommends describing a destination link in absolute terms, rather than using an implied destination, as it cannot be predicted “whence someone came”. According to him ‘previous’ and ‘next’ assume that users can predict the structure. As the document structure is foreign to many users, he considers a phrase like “ahead to chapter 5: Quality”, better than ‘next’ (Lynch & Horton, 1997).

If pages are long, with several distinct sections that are not visible from the first screen, a short list or index of the section should be provided. According to Levine (1995) this will serve two purposes: first-time users will get a sense of what to expect, and returning users will be able to more rapidly navigate to the required destination.

According to Nielsen (2000a) user behaviour is characterised by the following:

- Users comment on the content first; if the content is not relevant, they do not care about any other aspect of the design.
- When they arrive on a page, users ignore navigation bars and other global design elements, but instead look at the content area of the page.
- Users often do not understand where they are in a website’s information architecture.
- In pursuit of their goal, users often rely on search as their main strategy.
- Users rarely look at logos, mission statements, slogans or any other elements they consider ‘fluff’.
- If a page does not appear relevant to the user’s current goals, then they will ruthlessly click the back button (Nielsen, 2000a).

In the light of this, Nielsen (1993:120,121) argues that navigation is overdone on many sites. He states that it is a common design pitfall to believe that providing many options and several ways of doing things will satisfy everybody. “Every time you add a feature to a system, there is one more thing for users to learn” (Nielsen, 1993:120,121). Nielsen further argues that this so-called “spoke design” where every page is linked to every other page reduces usability. He adds that sites often have overblown footers that link to too many meta-features. According to him there is no reason to mention all features of the site on all pages; instead, a very small number of highly useful features should be selected. The available space should then be used for useful links to related articles. He further argues that, having a small number of standard links on every page will make it more likely that users will notice those links they need. A link like “how to contact us” can safely be relegated to the home page, which is where users will go when they need it (Nielsen, 1993:120,121).

This does not mean that one should never provide alternative interaction techniques. According to Nielsen (1993:122), alternatives can be used when "users will be able to easily recognise the conditions under which each one is optimal so that they can consistently choose the optimal technique without additional planning: (Nielsen, 1993:122).

However, every web page should contain at least one link. 'Dead-end' pages (pages with no links to any other local page in the site) usually frustrate users, and are often a lost opportunity to bring users into other pages in the site (Lynch & Horton, 1997). As already mentioned, users often follow links directly to sub-section pages buried deep in the hierarchy of websites. They may therefore never see the home page or other introductory information on the site. If the sub-section pages do not contain links back up the hierarchy, to the home page or to local menu pages, the reader is essentially locked out of access to the rest of the website.

4.1.3 Grouping, visibility and labelling of links

Links should be displayed and organised in such a way that it aids navigation.

Only the most useful and interesting links should be placed in the main body of the text. All minor, illustrative, parenthetic or footnote links should be placed at the bottom of documents where they are available, but not distracting. The inclusion of the URL itself could also be considered, so that this information will not be lost if users print out the document or save it to disk.

Murthy (1997) recommends that in cases where a single page contains many links, the links be presented as a list rather than as links embedded in text. In addition, she prefers a one or three-column format to a two-column format when a set of links is presented.

Levine (1995) is of the opinion that where pages are consistently longer than one-and-a-half screens, it may be valuable to place navigation links at the bottom of the page in addition to putting them at the top, to help users navigate without scrolling back to the top of the page.

A link should give users explicit cues to where it will lead, how much information is at the other end of the link and how the linked information relates to the current page. A way to achieve this is to avoid concise menus: "It should be explained what each link contains, so

that users can find the right link the first time” (Serco, 1999a). Users should also be informed in advance when a link may be slow, since this information may affect their decision whether to take the link. Progress indicators should be provided to show the status of lengthy downloads (Serco, 1999a).

Furthermore, issues mentioned in paragraph 2.6.4 (link text) should also be kept in mind with regard to the handling of links.

4.1.4 Additional navigation aids

The provision of a mental model of the information space can contribute to making a site more usable. Several methods can be implemented in this regard, such as spatial overviews, graphical overviews, tables of content, alphabetical or chronological indexes, and searches. Neale & McCombe (1997) refer to the provision of alternate views to the same information space. According to them, this approach will accommodate the range of user behaviour, but they warn that it should be made clear that these alternate views are different representations and that they do not represent the data collectively. In addition, Shneiderman (1997) mentions that services that go beyond traditional media, such as indexes, fast string search, history-keeping, comparison and extraction are also available for website designers.

4.2 User orientation

Lynch & Horton (1997) regard the main interface problem in websites as the “lack of a sense of where you are within the local organisation of information”. They argue that this sense of “where you are” in paper documents is a mixture of graphic and editorial cues supplied by the graphic design of the book, the organisation of the text, and the physical sensation of the book as an object. However, electronic documents do not provide the same level of visual cues as paper documents – a web link provides few cues to where it will go, how much information is at the other end of the link, and exactly how the linked information relates to the current page (Lynch & Horton, 1997). They argue therefore that web pages need to give the user explicit cues to the context and organisation of information. Constant visual and functional confirmation of the user’s whereabouts and options could be provided via graphic design, navigation buttons or uniformly placed hypertext links. In addition, clear, consistent icons, graphic identity schemes, and graphic or text-based overview and summary screens can give users the confidence that they can find what they are looking for without wasting time (Lynch & Horton, 1997).

4.2.1 Scope of the search mechanism

As users may access pages directly without coming in through the home page, web pages need to be more independent than pages in a conventional book. Nielsen (1996b) recommends that all pages include a clear indication of what website they belong to. This usually means that the headers and footers of web pages should be more informative and elaborate than printed pages. According to Nielsen (1996b), a recommended standard is to put an official logo at the top of all pages. When clicked on, the logo should take the user to the home page of the site. In addition, individual web pages often need information such as 'copyright', 'author, and 'date' at the bottom, because a single web page may be the only part of the site some users ever see (Nielsen, 1996c).

4.3 Search mechanism

The dilemma with the web is the difficulty of finding what you need among all the available information. Levine (1995) recommends a search for sizeable websites, or even smaller sites with non-obvious structures, since it would improve retrieval and accessibility. According to Suno (1996:92), search engine technology provides the necessary means to find documents based on specific user queries, such as date, keywords, or author. It delivers specific information to the user, instead of the user browsing "coarse-grained hierarchies to locate it" (Suno, 1996:92).

Nielsen (1997c) considers search as the most important user interface element in any large website. He recommends that sites with more than about 200 pages offer a search. He argues that usability studies show that more than half of all users are search-dominant, about a fifth are link-dominant and the rest exhibit mixed behaviour. The search-dominant users will usually go straight for the search button, while the link-dominant users prefer to follow the links around a site: "Even when they want to find specific information, they will initially try to get it by following promising links from the home page. Only when they get lost, they will use the search command" (Nielsen, 1997c). He further argues that mixed-behaviour users switch between searching and browsing, depending on what seems most promising to them at a given time.

According to Suno (1996:92), this type of user behaviour makes it clear that the search mechanism should be additional to the browsing structure: "Relying solely on search could inhibit users from finding information."

4.3.1 Scope of the search mechanism

Two ways of applying the search mechanism are put forward by Nielsen (1997c). Firstly, the total site should be searchable on full-text documents. Nielsen (1997c) requires that this search option should be easily available from every single page on the site. Secondly, scoped searches, i.e. restricted searches on specific parts of the website, can be provided. According to Nielsen (1997c), special areas of the site might be “sufficiently coherent and distinct” from the rest of the site to offer a scoped search. He, however, warns against scoped searches, since users often do not understand the structure of sites. According to him, they may think that they are searching the entire site or a different sub-site than the one they are actually in (Nielsen, 1997c). Levine (1995) recommends that the scope of the collection being searched be explicitly stated on the search page when a scoped search is used. A link should be provided to the page that searches the entire site.

4.3.2 Query formulation, viewing and manipulation of results

Searching can be a complex task, and many users are poor at query formulation. However, Shneiderman (1997) considers the emergence of information visualisation strategies for viewing and manipulating large collections as changing many of the search problems of users. He argues that systems can provide a simple interface where users can type in keywords, whereafter a relevance-ranked list of result items is provided. In addition, advanced modes such as scopes, the use of boolean operators, and parametric searches are available for more sophisticated users. Various authors (Nielsen, 1997c; Pollock & Hockley, 1997; and Gray, 2000) support the need for both simple and advanced search options.

However, Shneiderman (1997) argues that users get frustrated when they do not know what the results mean, or when they cannot control aspects of the search. He argues that many systems provide no indication whether stemming, case matching, stop words or other transformations can be applied, and that “relevance ranking is a mystery to most users”. He states that the future of search services on the web may depend on how well user frustration and confusion are reduced, while enabling them to reliably find what they need (Shneiderman, 1997).

Shneiderman (1997) lists the following attributes of a good user interface, stating that these will satisfy first-time, intermittent, as well as frequent users:

- The possibility to search appropriate collections.

- Fields for limiting the source. Structured fields as well as text fields are required.
- Phrases, to allow entry of names or concepts.
- Variants, to allow relaxation of search constraints such as case sensitivity, stemming, partial matches, phonetic variations, abbreviations or synonyms.
- Search actions performed by a button with a consistent label, location, size and colour.
- The functionality to change the parameter of the formulation phase, which immediately produces a new set of results. The search engine should allow the user to revise and edit a complete search, without it being necessary to retype the search each time.
- The functionality to review results. This involves reading explanatory messages, viewing textual lists, manipulating visualisations, controlling the size of the result set, changing of sequencing and clustering (for example alphabetically or chronologically), and choosing how the results are displayed. With regard to the latter, Gray (2000) mentions that the user should be allowed to view results for example in a standard, compact or detailed format, and to select whether he/she wants to see titles only or titles and summaries for each hit.
- Refinement of searches. Gray (2000) refers to the functionality to select a document in the results list that is close to what is required and then doing a search to find documents similar to that document – the search then uses search criteria based on the indexing of that particular document.

According to Shneiderman (1997), such a search framework can make the search process more visible, comprehensible and controllable by users.

In addition, the following principles for search are considered as important:

- Search engines should allow also for natural language searching (Gray, 2000).
- Pollock & Hockley (1997) argue that users are much happier searching for information from hierarchical categories rather than keywords. According to them, their research found that Yahoo was the most popular search engine, largely because it leads users through the process of browsing through categories, rather than requiring them to formulate search keywords. Gray (2000) also supports the inclusion of this facility on websites.
- Pollock & Hockley (1997) indicate that an intelligent search engine should make provision for misspelled names and spell-checking facilities.
- According to Nielsen (1997c), search systems can be made more usable by offering synonym expansion, by “recognising the concept of quality in addition to relevance”, and by presenting results relative to the structure of the site. He uses the example of a site with a frequently asked question (FAQ) about a query term. According to him the

FAQ should be listed at the top of the results page even if other pages have higher relevance scores. In addition, he suggests that hits on a series of pages that belong to the same area of the site be collapsed into a single reference to that sub-site (Nielsen, 1997c).

- Search results should be returned to users as quickly as possible. Clear 'in progress' indicators to reassure users that something is happening will help to improve confidence in the effectiveness of search tools (Pollock & Hockley, 1997).
- Kirk (2000) specifies that search engines provide summaries of retrieved documents, distinguish types of information other than by file extension, and not retrieve documents from its own archives when the documents are no longer on the site.

5. DESIGN AND LAYOUT

5.1 Design and layout of the website

This category specifically deals with the 'look and feel' of the site with regard to aesthetic and affective dimensions. It deals with how well the site is designed in terms of graphics, readability and the use of creative elements (Wilkenson et al, 1997). Lynch & Horton (1997) regard visual and functional continuity in the website organisation, graphic design and typography as essential to convince users that the website offers them timely, accurate and useful information: "A careful, systematic approach to page design can simplify navigation, reduce errors, and make it easier for the user to take full advantage of the information and features of the website" (Lynch & Horton, 1997).

5.1.1 General impression

Despite the fact that design is a subjective issue, particular design issues are required of all good websites. Websites must embody aesthetic qualities in terms of colour, design, harmony and appeal. According to Rettig & LaGuardia (1999:54), good websites also display a sense of their medium. They "weave together relevant text, audio, video and images to give users a rich experience".

Smith (1997) requires that visual effects enhance the site and not distract from the content or be a substitute for content. Furthermore, the design should enhance information delivery and be relevant to the content. Lynch & Horton (1997) state that the graphic and editorial style for the website should evolve as a natural consequence of consistent and appropriate handling of content and layout.

Good design should create a usable site. Usability, on the other hand, should not constrain good design: "Functionality and design should blend all together to create a positive user experience" (Story, 1999).

5.1.2 Balance between design elements

According to Lynch & Horton (1997), good graphic design creates visual logic and "an optimal balance between visual sensation and graphic or text information". They reason that pages are often graphically boring without the visual impact of shape, colour, and contrast, and that they therefore will not motivate the user to investigate their contents. However, without the depth and complexity of text, high graphic pages risk disappointing the user by offering a poor balance between visual sensation, text information and interactive hypermedia links (Lynch & Horton, 1997).

Lynch & Horton (1997) further argue that the primary task of graphic design is to create a strong, consistent, visual hierarchy where important elements are emphasised, and where content is organised logically and predictably. Readers see pages first as large masses of shape and colour, with foreground elements contrasted against the background field. Only secondary to this do they begin to pick out specific information, first from graphics and then from text. Thus, they regard the overall graphic balance and organisation of the page as crucial to drawing the user into the content. "Proportion and 'appropriateness' are the keys to successful design decisions" (Lynch & Horton, 1997).

5.1.3 Organisation of information on screens

According to Lynch & Horton (1997), the spatial organisation of graphics and text on a website can provide the user with graphic impact, direct the user's attention, prioritise information, and make the user's interaction with the website more efficient. "We seek clarity and order in information sources, whether they are traditional paper documents or web pages" (Lynch & Horton, 1997).

According to Shneiderman (1997), screen layouts using the "gestalt" rules for human perception can increase the user's understanding of relationships between dialogue elements. According to these rules things will be seen as belonging together when clustered as a group or unit, if they are close together, are enclosed by lines or boxes, move or change together, or look alike with respect to shape, colour, size, or typography.

He recommends that these principles of graphic structure be used to help the user understand the structure of the interface. Preece (1993:71, 72) also recommends techniques such as colour coding, graphic borders around groups of information, highlighting, and the use of reverse video or brightness to achieve this.

In terms of normal user behaviour, users in English read from left to right and from the top to the bottom, and information that is presented 'first' in the usual reading direction normally gets more attention. Users also expect the first item in a page to be more important and are likely to select it. Lynch & Horton (1997) therefore recommend that designers carefully consider the arrangement and sequencing of information on web pages to make provision for this type of user behaviour. In addition, they consider the best measure of the efficiency of page design as the number of options available in the top four inches of the screen, "as it is the only area one can be sure that most users see". They argue that a complex home graphic that takes long to download, does not fit on the average screen, or offers little or no functionality, will repel most users. According to them the most effective page header incorporates a combination of graphics and interactive links, most often in the form of an image map. If correctly applied, it can deliver impact to the page while offering the user links within the top part of the page. They recommend that, even if graphics are not used, the header area should contain a prominent title at or very near the top of the page. To be effective, these title elements must be carefully standardised across all pages (Lynch & Horton, 1997).

To further enable users to know where to find a given piece of information, Lynch & Horton (1997) believe that a consistent format for all the screens should be used. Every web page also needs to carry basic information about the origin and age of the page, but as it often does not deserve the prominence of being placed at the top of the page, Lynch & Horton (1997) recommend that page footers carry this basic information.

In addition, Lynch & Horton (1997) consider it a common mistake in web design to spread the horizontal width of the page graphics beyond the area most viewers can fit on their screens. The layout must ensure that the portion of the page that is visible in the graphic safe area is meaningful.

5.1.4 Page length

Levine (1995) and Nielsen (1996c) refer to usability studies that have shown that few users scroll through web pages to find the information they are looking for. However, in 1997,

Nielsen (1997b) added that more recent studies found that users are now more willing to scroll. He, however, still recommends that scrolling be minimised, especially on navigation pages. Lynch & Horton (1997) state that the main problem caused by scrolling is the disorientating effect it has on users. According to them this loss of local context is particularly troublesome when basic navigation elements disappear off the screen as the user scrolls through long pages.

5.1.5 Design for print

Lynch and Horton (1997) thus argue for web pages that contain no more than one or two screens worth of information, and which feature local navigation links at both the beginning and end of the page layout. Long web pages require the user to remember too much information that is scrolled off the screen and when the major links are not visible it causes the loss of context. Furthermore, Serco (1999a) warns that designers should also avoid pages that appear complete on a small screen while hiding important buttons or links just off the bottom.

However, Shneiderman (1997) regards long pages as useful for providing information that one does not expect users to read online. If pages present text that users will want to read at length, he regards longer, scrolling pages to be acceptable, as it will allow the user to advance in the text with less loss of mental context than when following a link (Shneiderman, 1997). According to Lynch & Horton (1997) this advantage lasts up to about four screens of text. After that, there is a tendency for users to lose context and to get frustrated with scrolling. They, therefore, recommend as a general rule that the majority of pages be no longer than one-and-a-half screens of text.

Lynch & Horton (1997) describe another situation where long pages are acceptable, i.e. in well-designed modular systems covering particular topics. Longer pages could be updated more quickly without needing to change large sections of information or reformat complex pages. Another advantage is that the URL of each topic page remains the same, regardless of how long the page becomes. "Modular systems are better when you want to give your readers a sense of stability, even when the website expands" (Lynch & Horton, 1997).

One reason why long pages are often preferred is that they are easier for managers to organise and maintain and for users to download or print. According to Lynch & Horton (1997), determining the proper length for a web page requires balancing four factors:

- the relationship between the page and screen size
- the particular content

- whether the user is expected to browse the content or to download the documents for later reading
- the bandwidth available to the target audience.

In general, they recommend shorter web pages for home pages, menu or navigation pages, documents to be browsed and read online and pages with large graphics.

5.1.5 Design for print

The IBM web guidelines (1997b) consider some information appropriate for printing, for example text that users may want to keep as reference material. Very long documents, however, download slowly and present printing problems for the user seeking “just that one fact” (IBM, 1997b), whereas documents in many small parts are tedious to search, print or save. It is therefore recommended in the guidelines that these pages be designed so that they format well in printed as well as on-screen form (IBM, 1997b). A solution offered in the guidelines is to offer two versions: one in which the document is divided into several smaller sections (to facilitate browsing), and a second in which the document is provided as one long document (to facilitate downloading and to provide a means to print multiple pages as a collection). The US EPA library (1996) recommends providing the document in whole as an Acrobat document and in parts as an HTML document, as it will provide a compromise that will meet most needs.

5.1.6 Simplicity of design

For Nielsen (1993:115), one of the established usability principles is simple and natural dialogue. Preece (1993:70) requires an uncluttered screen design that can be achieved by simplifying user interfaces as much as possible. She argues that irrelevant or rarely needed elements should be limited, since any additional feature or item of information on a screen is “one more thing to learn, one more thing to possibly misunderstand, and one more thing to search through when looking for the thing you want, competing with the relevant units of information and diminishing their relative visibility” (Preece, 1993:70). The ideal is to present exactly what the user needs at the time and place where it is needed. Interfaces should match a user’s tasks in as natural a way as possible. Mapping between computer concepts and user concepts should become as simple as possible and the user’s navigation through the interface minimised (Preece, 1993:70).

5.1.7 Consistency in design

According to the US EPA library (1996) “nothing annoys and distracts readers more than a website that looks like a ransom note. Guide the reader with consistent design and colours.” Nielsen (1999e) agrees with this view. According to him consistency is one of the most basic, but also one of the most powerful usability principles. Nielsen (1993:132) reasons that users should not have to wonder whether different words, situations or actions mean the same thing – when they know that the same command or the same action will always have the same effect they will feel more confident using the system (Nielsen, 1993:132). Lynch & Horton (1997) further state that a consistent approach to layout and navigation allows the user to quickly adapt to the design, and to confidently predict the location of information and links across the pages of the website. “Repetition is not boring; it gives the site a consistent graphic identity that reinforces a distinct sense of ‘place’, and that makes the site more memorable” (Lynch & Horton, 1997).

Lynch & Horton (1997) recommends that a layout grid and style for text and graphics be established from the start. Thereafter the designer should keep with it to acquire consistency and unity across all the pages of the website. According to them many aspects of consistency then become easier to achieve as one is following a user interface standard.

5.1.8 Use of tables

Tables allow for flexibility when it comes to screen layout. Neale & McCombe (1997) reason that tables allow a designer control over the layout of pages and make it possible to define the areas of pages, align and position elements on a web page, create margins, or format text and images. The table box can be hidden or shown. Lynch & Horton (1997) recommend that tables used for page design not have borders, as table borders are “ugly and unnecessary”. Even in the context of tabular materials, they believe that it is cleaner to use spacing, alignment and indents to delimit tabular information.

5.1.9 Use of frames

According to Lynch & Horton (1997), frames allow a designer to display multiple HTML documents on a single page. Frame-based pages behave differently than regular pages because they are rather meta-documents that call and display HTML documents.

However, the use of frames may provide difficulties with regard to the effective use of websites. According to Nielsen (1996d) the fundamental design of the web is based on having the page as the unit of information. According to him, frames break the unified model of the web and introduce a new way of looking at pages that has not been well integrated into other aspects of the web; with frames, the user's view of information on the screen is determined by a sequence of navigation actions rather than a single navigation action. Navigation does not work, since the unit of navigation is different from the unit of view. Furthermore, he argues that when users create bookmarks, they may not get the same view back at a later date. Also, URLs stop working, as the addressing information shown at the top of the browser no longer constitutes a complete specification of the information shown in the window. If a user copies the URL in order to include it as a hypertext anchor in one of his/her own pages, that anchor will not lead readers to the desired view, but to the initial state of the frameset. "Given that social filtering is one of the most powerful mechanisms for information discovery on the Internet, it is an utter disaster to disable the URL as an addressing mechanism" (Nielsen, 1996d).

In addition to these fundamental problems, Nielsen (1996d) states that many browsers cannot print framed pages appropriately. With frames, the print command often results in the printing of only one frame. Lastly, search engines have trouble with frames, "since they do not know what composites of frames to include as navigation units in their indexes" (Nielsen, 1996d).

However, frames have certain advantages. The IBM web guidelines (1997b) describe frames as very useful for displaying information that one wants to keep visible at all times, such as navigation elements. According to Lynch & Horton (1997), sites suited for frames are those whose content is expected to change frequently. They reason that, because a frame-based site can be designed to have one file for navigation, only one file will have to be modified when pages are added or removed. Frames can also add a certain functional coherence to a targeted area of the site and provide additional interactivity to the page – it allows the designer to put a page up on the user's screen and change its content without actually rewriting the entire screen (Lynch & Horton (1997).

Should frames be used, Nielsen (1996d) considers the main issue to be ensuring that URLs keep working. Therefore, all hypertext links must have a TARGET="_top" attribute in their anchor tag, except when frames are used as shortcuts for scrolling within a single page.

5.2 Text readability and visibility

Sullivan (1997) argues that users will find a site more inviting and readable if it is “easy on the eyes”. Conversely, pages that visually over-stimulate a user are difficult to read and likely to result in eyestrain and fatigue. “A reader-friendly web page is one that designs for readability first, uses colour sparingly and appropriately, and avoids visually taxing, chaotic, competing presentations” (Sullivan, 1997).

5.2.1 Choice of fonts and case

Text of web pages should be designed in such a manner that it contributes to the readability and legibility of pages.

According to Nielsen (1996a) a common mistake in text design is the use of large or small font sizes as the body text of a page. He considers it acceptable to make a small percentage of the text on a given page large or small. However, he does not recommend changing the font size of all the text on a page, since it should be assumed that the user has set the default font size in his/her browser to the size that is most comfortable for that user on his/her screen. In addition, Lynch & Horton (1997) state that the amount of typefaces should be minimised. When too many typefaces are used, it destroys the “homogeneous, even ‘type colour’ that characterises good typesetting” (Lynch & Horton, 1997).

Preece (1993:70) argues that conventional upper and lower case text can be read about 13 per cent more quickly than text that is all upper case. Lynch & Horton (1997) recommend that all-uppercase headlines be avoided. They reason that the latter is difficult to read, because words formed with capital letters are “monotonous rectangles that offer few distinctive shapes to catch the user’s eye” (Lynch & Horton, 1997). They recommend the use of down style for headlines and subheadings, with only the first word and proper nouns capitalised. Preece (1993:70) considers upper case characters more effective for items that need to attract attention.

Neale & McCombe (1997) state that fonts, size and style should always be consistent throughout the site to convey the most meaning to the user. It should only be changed to make a point to the user (for example headings). The same font, size and style should be used for similar aspects on the website, for example, a font that is used in one place in the document to differentiate a heading from the text, should not be used in the body text at

another point. According to Murthy (1997), inconsistent use of fonts leads to a cluttered look and to confusion about the inherent structure and organisation of the document.

5.2.2 Alignment and spacing

Left-aligned text is recommended, as text that is not left aligned reduces reading speed. Should it be necessary to make use of another option, Preece's (1993:70) warning that right-aligned text is more difficult to read where words have variable spacing than evenly spaced text with a ragged right margin, should be kept in mind.

According to Preece (1993:70) optimal spacing between lines is equal to or slightly greater than the height of the characters themselves. Murthy (1997) recommends line spacing for text to be 1 to 1,5 times the font size.

5.2.3 Length of text lines

According to Lynch & Horton (1997) text on a computer screen is often difficult to read because the layout of web pages violates a basic rule in typography, namely that the lines of the text on most web pages are too long to be easily read. They recommend that dense passages of text be kept no wider than the users' comfortable eye span.

5.2.4 Application of emphasis

Emphasising important elements can be achieved by highlighting objects by means of large fonts, colour highlights, surrounding boxes or by making them larger (Preece, 1993:70). Preece also mentions reverse video, underlining and making information bolder and brighter.

Nielsen (1999d) considers making everything too prominent as one of the most common mistakes on the web. Murthy (1997) agrees with this view and argues that excessive use of emphasis can cause documents to look cluttered. She recommends re-organising the material first when there is really a need for emphasis. Nielsen (1999d) provides the following guidelines for prioritisation:

- Editorially select the most important stories or items and give them bigger headings or more prominent placement.
- Place links to the areas on the web page that attract most users.
- Highlight the most popular item in a list that is sorted by another criterion.

- Mark new items with a new “glyph” in slowly changing pages.
- Feature content that is deep within the site at higher levels to make the users understand what is new or “hot”.

5.2.5 Use of colour

Sullivan (1997) argues that informed colour use could help to make a page more readable, but that colour is best used as a secondary means of highlighting and emphasis. According to him, the colour equation exists of two concepts, namely colour perception and “dither-drive”.

Colour perception consists of:

- The RGB (red/green/blue) method for specifying colour.
- Hue (what colour is present, for example warm and cool colours). Using warm colours in or as a background results in competition for the foreground of the user’s visual attention.
- Saturation (how much colour is present). Computers make it easy to create over-saturated colours, but heavily over-saturated “psychedelic” hues result in a visually distracting, fatiguing presentation.
- Value or luminance (how bright the colour is). Luminance affects readability primarily through perceived size and contrast. Thus, a large difference in luminance between foreground and background is a key element in creating an easily readable page.

According to Sullivan (1997) the second aspect, “dither-drive” concerns colour rendering, which is fairly unpredictable across various graphical web clients. To minimise this client-side unpredictability, he recommends making colours “dither-proof”. According to him only 216 colours are considered “dither-proof” or “clean” in most browsers, without at least potentially being subjected to additive colour tricks that may negatively affect readability (Sullivan, 1997).

The following guidelines for the effective use of colour are put forward:

- For graphics that are designed to represent the real world, it is preferable to use colours that represent the everyday counterpart; for schematic representation, it is preferable to conform to existing conventions (red for danger, etc.); for more abstract representations (text or flowcharts) colour could be used more as a form of redundant coding, i.e. an additional to the other types (Preece, 1993:70).

- Colour can be effective to divide a display into separate areas, “for search and detection tasks and for enhancing the legibility of a colour symbol against its background types” (Preece, 1993:70).
- According to Nielsen (1999:119), colour should be used conservatively, as too many colours clutter up the screen, increasing search times. He recommends limiting the design to a small number of consistently applied colours – no more than five to seven different colours – since it is difficult to remember and distinguish larger numbers.
- Colour should be applied consistently. Neale & McCombe (1997) recommend that a colour palette be chosen for the site based on the overall look and feel. The colours in the palette should work well together and should be suitable to be used in a variety of combinations.
- Standard Internet convention is that links to pages that have not been visited by the user are blue and links to previously visited pages are purple or red. Nielsen (1996c) warns not to “mess with these colours”, since the user’s understanding of what links have been followed is one of the few navigational aids that is standard in most web browsers.
- According to Sullivan (1997), many users do not have the latest true-colour technology: “colour is wasted on about 10% of the total readership” (Sullivan, 1997). He argues that some readers view a site with minimal or monochrome video, while others use browsers with limited colour support and others are physically incapable of seeing certain colours. According to Sullivan (1997), designing a readable web page implies therefore designing for monochrome first, and then adding colour support. Nielsen (1993:119) recommends that any colour coding of information be supplemented by redundant cues that make it possible to interpret the screens without being able to differentiate between the colours. Sullivan (1997) considers it important to rely primarily on structural mark-up tags rather than colour to visually organise a page’s contents.

Focusing on readability does not mean abandoning aesthetics. Careful use of a few well-balanced, well-contrasting colours, correctly applied, can be a very effective way to help organise a page visually. Sullivan (1997), however, states: “A reader-friendly approach to web design respects the diversity among web client programs and recognises the difference between visual enhancement and visual assault” (Sullivan, 1997).

5.2.6 Backgrounds

Backgrounds and textures should enhance the visibility of text. Lynch & Horton (1997) argue that website designers with limited background of design should avoid the use of backgrounds. If used, it should be with great care.

The US EPA library (1996) recommends that backgrounds with busy or dark patterns be avoided, as these make text hard to read. As some browsers do not display backgrounds well or not at all, critical information should not be put exclusively in a background.

When choosing colours or backgrounds, an attempt should be made to have high contrast. According to Neale & McCombe (1997) black text on a white background provides high contrast, but could sometimes be too harsh. A light background that facilitates high contrast is more comfortable for reading. Lynch & Horton (1997) and Nielsen (1993:119) consider light greys or muted pastel shades of colours typically found in nature as the best choices for background or minor elements to avoid interfering with text. Bright and highly saturated colours should be avoided except in regions of maximum emphasis, and even there it should be used cautiously. According to Levine (1995) the lowest resolution should be used for background colours. Graphics can be used as elements that are tiled or repeated on a background. If these are used, it must be ensured that they are muted. If a graphic is used and not intended to tile across the screen, it should be made large.

5.3 Graphics, images and animation

The use of graphics, images, animation and sound must be relevant, professional and used with discretion.

5.3.1 Graphics

Despite Spoole's (1998) usability findings that there is no evidence that graphic design is related to the success of finding information on websites, the US EPA library (1996), Neale & McCombe (1997) and Lynch & Horton (1997) believe that images can add a lot to the visual appeal and information content of a page. Well-used graphics can enhance clarity of presentation and make it more understandable for a user. It can also add information and make a page more interesting. However, they warn that images that are used poorly can confuse the audience and can distract from the message. It is therefore important to use

graphical images relevant to the information content of the page and provide images that help explain or demonstrate the subject.

Since multimedia has a bandwidth implication (especially for users with modems), it should be used sparingly and judiciously. Care should be taken with the size, quantity and content of graphics. Large graphics or many small graphics on one page slow down page downloads. Levine (1995) recommends keeping the total size of all images used on a page to less than 30KB, while the US EPA library (1996) recommends keeping it under 40KB per page. Should large graphics be included, they recommend to link to it from a thumbnail (smaller version of the same graphic), and to add a warning to users that they will be entering a high-bandwidth area. This allows users to decide if they want to take the time to retrieve the file. Lynch & Horton (1997) also recommend that users be provided with the tools to control their experience once they are in the area.

According to Nielsen (1994b) thumbnails should not be indiscriminately used. It should communicate some information to the user and give a clear and uncluttered appearance. If it is impossible to represent an image clearly with a thumbnail, it will be better to use a textual description.

5.3.2 Graphical bullets

Icons are small graphic images that are commonly used to represent different aspects of a user interface metaphor (Levine, 1995). Levine (1995) and the US EPA library (1996) believe that the advantage of icons compared with command names is that in many cases they are easier to learn and remember. Used with care, colour-orientated arrows, buttons or pointers can reinforce page layout and cohesiveness, clarify page content or inform. However, poorly employed, for example when they are used as decorations or when they appear to have a function they don't actually have, they can make a page layout look haphazard and unprofessional and mislead users (Levine, 1995; US EPA, 1996).

Levine (1995) recommends the use of graphical bullets to highlight items in a list, to point out special status, to categorise list items, allowing the user to sort them more easily, or to reinforce the thematic content of a page.

Preece (1993:70) regards it important to take the following into account when using icons:

- The context in which the icon is used. The context influences the comprehensibility of the icons.

- The task domain for which they are used.
- The graphic form that is used to depict the object.
- The nature of the underlying object being represented
- The extent to which one icon can be discriminated from other displayed icons.

5.3.3 Consistency

According to Neale & McCombe (1997), a well-designed site will present graphics consistently. This means that a style of graphic should be adopted for a site and used throughout.

5.3.4 Image maps

Sullivan (1997) is of the opinion that a “gratuitous image map” should be avoided in web authoring: “It’s a rare image map that’s worth the screen space it uses. Image maps that exist primarily to impress aren’t really impressive” (Sullivan, 1997).

Levine (1995) supports this view and states that image maps “present rather poor user interface”. According to him, there is no clear indication of where a user can click, and having clicked, no feedback to indicate that it has been recognised by the browser. “The only sure cure with current browsers is not to use image maps!” (Levine, 1995).

Nielsen (1997a), however, states that image maps have caused few problems in more recent usability studies. He presents the following reasons for this:

- Users got used to “clicking on pictures that look different from standard GUI widgets”.
- Designers are better at visualising “clickability”.
- It is rare for pages to consist of one huge image map – instead buttons and clickable areas are more clearly delineated through the combination of multiple graphics.
- Client-side image maps allow some amount of ‘feedback’ as the user moves the mouse pointer over the image.

Image maps can thus provide a valuable means to navigate a site. When used, Nielsen (1997a) recommends clearly delineating the clickable regions, and if possible making the clickable regions look like “buttons”. If there is any ambiguity about where to click on an image map, or what the destination of the links will be, the actions required and the effects of following the link to the user should be described. Lastly, he recommends providing alternate links elsewhere on the page for image map destinations.

5.3.5 Animation

Sullivan (1997) argues that the human eye is basically “hard-wired” to respond to different signals in different areas of its visual field. “Because of the basic distribution of different kinds of visual receptors inside our eyes, there is simply no way to juxtapose text and animation without having them compete with each other visually” (Sullivan, 1997).

According to Levine (1995), people notice change or motion more readily than colour or size, while blinking text will draw a user’s eye away from text or image content. He thus regards pages with a lot of motion as difficult to read. In this context, he refers to animation as motion such as scrolling or blinking text, animated gifs, and server-push animations. He also regards apparent motion (such as “moiré-pattern or undulating backgrounds”, and competing visual presentation) as taxing on users.

Animation should therefore be used sparingly. Nielsen (1996c) warns never to include page elements that move incessantly. Levine (1995) states that it could possibly be used with the specific goal of distracting the user or to highlighting a single element in a layout at the expense of all others. Murthy (1997) states that animation consumes resources and is distracting, and must therefore be used only when there is a particular need therefore.

5.3.6 Text-only versions

Shneiderman (1997) argues that providing text-only versions for users with small displays and low-bandwidth access are likely to be strongly recommended for many years to come. He believes that users with low-cost devices, users in developing countries with no telecommunication infrastructure, users wanting low-bandwidth wireless access, users with small personal display devices, and users with handicaps constitute a large proportion of potential users.

5.4 Interaction (forms)

Interactivity allows the user to exchange information with a service. “Interactivity is where the real value to the user is made clear: without conviviality or friendliness, nothing is really usable” (Gurn, 1995).

A good way to solicit feedback is to provide a user response form accessible from any page in the site (IBM, 1997b). The IBM web guidelines state that feedback means being prepared to respond to the user's inquiries and comments. Well-designed websites should therefore always provide direct links to the site's editor or the webmaster responsible for running the site. "Planning for this kind of on-going relationship with the users of the site is vital to the long-term success of the enterprise" (IBM, 1997b).

Nielsen (1994b) recommends that forms have as much information as possible filled in for the user. Murthy (1997) recommends that command buttons be visible where the user is likely to need them. They should not be placed too close to each other, or be too small, as they could then be difficult to access. Furthermore, after users have entered data in the form, they should be able to make changes to the information before submitting it. If data is to be entered in fields, the field labels should make it clear what data items must be entered into the field. If possible, data entry fields should contain meaningful defaults (Murthy, 1997).

6. PURPOSE AND AUDIENCE

Various authors, such as Patterson (1997), Smith (1997), Shneiderman (1997), Nielsen (1993:74) and Rettig & La Guardia (1999), agree that websites should be designed with the intended users of the site in mind. Individual user characteristics and variability in tasks are the two factors with the largest impact on usability. Nielsen (1993:73) identifies the concept of 'user' to include everybody whose work is affected by the product in some way, including the users of the system's end product or output.

By knowing the user, it is possible to anticipate their learning difficulties to some extent and to set appropriate limits for the complexity of the interface. Issues that will influence design are for example the users' age group and or educational background, specific knowledge of certain topics/disciplines, work experience, educational level, previous computer experience, work environment and social context. According to Nielsen (1993:74) it is also necessary to know the class of people who will be using the systems. The product could be used in a specific department of a company, or could be aimed toward the entire population or a very large subset.

To design a website for its audience the treatment of information should be appropriate in depth and tone for that audience. This has implications for depth of content, design, complexity/simplicity of the site, reading level, and language and writing style. For example,

scholarly prose will generally be directed to an academic audience, while jargon-free, easy-to-read prose will be used for a more general audience; pages created with an academic audience in mind will generally include a reference list or bibliography to support arguments presented on the site.

Shneiderman (1997) regards as even more important the distinction between first-time, intermittent and frequent users of a website. He believes that first-time users need an overview to understand the range of services and to know what is not available, plus buttons to select actions. Furthermore, intermittent users need an orderly structure, familiar landmarks, reversibility and safety during exploration, while frequent users demand shortcuts or macros to “speed up repeated tasks, compact in-depth information and extensive services to satisfy their varied needs” (Shneiderman, 1997).

According to Shneiderman (1997) identifying users’ tasks also guides designers in shaping a website. Tasks can range from simple fact-finding to unstructured open-ended browsing of databases and exploration of the availability of information on a topic. He regards it as an equal challenge to support users seeking specific facts and to help users with poorly formed information needs or who are just browsing.

Nielsen (1993:75) argues that the user’s overall goals should be studied, as well as how they approach tasks, what their information needs are, and how they deal with exceptional circumstances or emergencies. Furthermore, the user’s model of the task should also be identified, since it can be used as a source for metaphors for the user interface. He advises identifying and observing particularly effective users and user strategies as hints of what a system could support. According to Nielsen (1993:77), one should also analyse the underlying functional reason for the task: “What is it that really needs to be done, and what are merely ‘surface’ procedures that can, and perhaps should, be changed” (Nielsen, 1993:77).

7. CONSOLIDATED LIST OF EVALUATION GUIDELINES AND PRINCIPLES

7.1 Introduction

The previous paragraphs presented a discussion of criteria, guidelines and principles selected for the evaluation of the *SA Government Online* website. After selection, these criteria were synthesised and consolidated in five main groups and 17 sub-categories to yield a standard criteria list against which all websites may be measured. The following

paragraph provides the consolidated list of criteria and more detailed indicators for each. The indicators are formulated in the form of questions against which a website may be measured.

The criteria list and indicators are derived from a wide variety of sources, namely Alexander & Tate, 1997; Alschuler, 1998; Australia, DFA, 2000; Beck, 1997; Bevan, 1995; 1998; 2000; Blount, n.d.; Brandt, 1996; Brooks, 1998; Carton, 1998; Caywood, 1999; Ciolek, 1996; Clausen, 1999; Clyde, 1996; Descy, 1999; Fleming, 1998; Gahran, 1998; Grassian, 1998; Gray, 2000; Gurn, 1995; Harris, 1997; IBM, 1997a; 1997b; Kelly, 1997; Kopak & Cherry, 1998; Lederer, 1999; Levine, 1995; Lynch & Horton, 1997; Morkes & Nielsen, 1997; Murthy, 1997; Neale & McCombe, 1997; Nielsen, 1993; 1996a; 1996b; 1996c; 1996d; 1997a; 1997b; 1997c; 1998c; 1999b; 1999d; 1999e; 2000a; 2000b; Norem, 1998; Patterson, 1997; Patterson, Wendt & Schroeder, 1997; Piontek & Garlock, 1995; Pollock & Hockley, 1997; Preece, 1993; Rettig, 1996; Rettig & LaGuardia, 1999; Richmond, 1997; Rosenfeld, 1998; 1999; Schrock, 1998; Serco, 1999a; 1999b; Shneiderman, 1997; Skov, 1998; Smith, 1997; SOSIG website, n.d.; Spool, J. 1998; Story, 1999; Sullivan, 1997; Suno, 1996; Tillman, 2000; US EPA Region 2 Library, 1996; Welinske, 1998; Wilkenson et al, 1997.

7.2 Content and scope criteria

7.2.1 Orientation to the website

Is an overview of the website provided?

- Is there a statement on the purpose, scope, and target group of the website?
- Are the services and information provided on the website clearly described?
- Are there descriptions of specific sections of the website?

Are copyright and disclaimer statements provided?

- Where relevant, is a copyright statement provided?
- Where relevant, is a disclaimer statement provided?

7.2.2 Authority of the website

Is official sponsorship indicated clearly?

- Is the website officially sponsored or supported by a reputable group, organisation, institution, corporation or government body?

- Is this body recognised as an authority or expert in the field?
- Is background information on this body provided?
- Is it clear on all pages of the website that it belongs to the official website (for example name of organisation on all pages; headers, footers, or a watermark that show the pages are part of the website; a link to a page where such information is listed)?
- If the website includes neither a signature nor indicates a sponsor, is there any other way to determine its origin?
- Can the identity of the server where documents reside be verified?
- Does the URL support the claim of authorship? (Can one easily tell from the domain name where pages originate?)
- Is the URL stable or is the user being redirected to a new URL?
- Is the URL available on documents and pages?

Is authorship indicated clearly?

- Are authors of documents indicated clearly where applicable (either individual or organisational)?
- Is background information for authors provided (full names; contact information, for example address, telephone number, e-mail address; biographical information, for example titles, position, institutional affiliation, educational and occupational background, experience, qualifications)?
- Are authors reputable? In the case of organisational authorship, is it from a known and respected organisation, i.e. corporate, governmental or non-profit? Is the author or source of information knowledgeable and reliable?

Is the information on the website well researched?

- Are bibliographies/references/lists of sources provided where applicable?
- Where applicable, are links provided to documents referred to?

Is the information on the website reliable?

- Is the information reliable and error-free? Are facts accurate?
- Is the information likely, possible or probable?
- Is conflict of interest avoided?

7.2.3 Comprehensiveness/information coverage/scope

Are breadth, depth and amount of information provided adequate?

- Is the breadth of information adequate? (Does the website cover all aspects of the subject/topics/categories of information adequately, or are important information categories omitted? Does the site include all topics or is the site focused on a too narrow area?)
- Is the depth of information adequate? (Is the level of detail provided about each subject/topic/category of information adequate, or is some of the information incomplete?)
- Does the website include only necessary and useful information (or is there superfluous information)?
- Is the site inward as well as outward focused, i.e. does it provide content as well as links to external sites?
- Is a similar extent of breadth and depth of information covered for all the main sections?
- Is overlapping of content coverage avoided? (Is some information repeated in a superfluous way?)
- Are full-text documents provided (as opposed to just titles/bibliographic details)?

Is the selection of links to external sites comprehensive and appropriate?

- Does the website contain content-critical off-site links?
- Are links to external sites adequate and comprehensive, i.e. in the website's capacity as portal/gateway to government information on the Internet, as well as for links to other relevant sites?
- Are links appropriate and acceptable? (Is the subject matter of linked sites appropriate? Are the types of sites acceptable (for example academic, government, commercial, trade/industry, non-profit, private sources, sites maintained by individual enthusiasts, sites that contain advertising)?)

Is the information on the site unique?

- Does the website contain primary information?
- What does the site offer that is not found elsewhere? (What advantage does the site have? What is the overall value of the content?)
- Is the content of the website available in another format? If so, does it have all the features of the original? Has any value been added (for example, have extra features been added; does it complement the other resource, for example by providing updates to a printed source)?

7.2.4 Currency and timeliness

Is the website frequently updated and maintained?

- Is the website improved and enlarged appropriately?
- Is the website updated frequently?
- Is the information on the website current and up to date?
- Is the material included in each update current, or do the updates include old information? (Updating of pages may not reflect the currency of the information)
- Is time-sensitive information available in near real-time (for example information such as timetables, schedules and announcements)?
- Is old information or dates for information known to change rapidly avoided?
- Is the presence of new information obvious to the user?

Is there a clear indication of currency?

- Is there an indication of when the website and pages were last updated?
- Is there a clear statement about update frequency for the website?
- Is there an indication of when web pages and documents were created/published?
- Is it indicated when documents were last revised and are version numbers for documents displayed (when applicable)?
- Do the stated dates correspond to the information in the documents?

Is static information contained on the website durable in nature?

- Where static information is contained on the website, is it durable in nature, and is it of lasting use to the audience?
- Is older information still valid, or is outdated information found (information with a limited period of use)?
- Has link-rot set in? Are dead links avoided? Is the website free of links to sites that have moved?

7.2.5 Objectivity and fairness

Is the information provided on the website unbiased and presented in a balanced way?

- Is the website free of political, ideological or other biases?
- Is the website free of advertising?

- Is the text written objectively?
- Are opponents' ideas presented in an accurate manner, or is there a one-sided view that does not acknowledge opposing views or does not respond to them?
- Is only factual information provided, or does the author attempt to sway the user's opinion?
- Is contradictory information avoided?
- Is the site free of vague or sweeping statements or generalisations?
- Is there a calm and reasoned tone, arguing or presenting information thoughtfully and without attempting to get emotions worked up and inflame feelings?
- Is exaggeration or subjective claims avoided?

7.2.6 Writing and editorial style

Does the website follow basic rules of literary composition?

- Are basic grammar and spelling rules followed, and is the website free of grammatical, spelling and other typographical errors?
- Are there digestible and navigable sections of content (for example shorter sentences and paragraphs)?
- Is the content written in a clear and consistent language style?
- Is a positive and professional tone used? Does it avoid jargon, humour, condescension, and chit-chat?
- Is terminology familiar to the user? Do words as well as non-verbal elements such as icons have standard meanings?

Is the writing style concise?

- Are documents that are intended to be read online concise and structured for fast scanning (for example bulleted lists, highlighted keywords, meaningful headings and short sections of text)?
- Does the write-up start with an overview and then present more detailed information?
- Are main points presented prominently? Are important facts presented near the top of the first paragraph?
- Are menus concise – or perhaps too concise?
- Is writing of the main content as well as microcontent 'tight'? (With about half the number of words that would be used for conventional text? Are short words used? Are sentences short?)
- Is the writing style of longer documents suited for printing?

7.2 Information architecture/organisational structure

Is handling of microcontent (headings, page titles, URLs) acceptable?

- Are headings self-explanatory and provide context?
- Are headings simple and plain?
- Are headings clearly phrased, descriptive and meaningful? Do they give a clear indication of what is on the other end of the link when used in tables of content, the home page or category pages?
- If headings cannot be completely descriptive, are there coherent and concise descriptions that follow?
- Does information provided through links match the headings and descriptions?
- Is there a logical hierarchy of headings?
- Are pages clearly and logically titled? (Are there enough words to stand on its own but meaningful when read in a menu and not too long? Are information-carrying terms at beginning of titles and starting with words matching the users' needs? Do they form a concise, plainly worded reminder of the page contents?)
- Do different pages have different titles?
- Do titles incorporate the name of the company, organisation or website?
- Is there a consistent approach to titles, headings and subheadings?
- Are URLs meaningful? (Do they contain human-readable directory and file names that reflect the nature of the information space? Are they simple? Are short names with all lower-case characters and without special characters used?)
- Does metadata add value to the information content and assist users to find the website?

Are links properly used within text?

- Is text such as 'click here' avoided?
- Are only the most salient and interesting links in the body of the text?
- Does the wording of links embedded in text help to scan the contents of pages and give prominence to links to key pages?
- Is link text similar to the text of the destination document?

7.2.7 Inclusion of metadata

- Is metadata provided to describe important resources available on the website?

7.3 Information architecture/organisational structure

7.3.1 The home page

Is the home page a well-organised conceptual space leading to information on the website and to other government information on the Internet?

- Does the home page give a clear overview of the content of the website?
- Does the home page provide a strong sense of structure and is this structure communicated explicitly to the user, i.e. can users tell from the home page how the site is organised and what options are available?
- In large, complex sites, does the home page offer a general category listing, linking to a number of sub-menu pages?
- If a 'site cover' is included, does it fit the purpose of the site?
- Is the presence of new information indicated clearly?

7.3.2 Organisational scheme of the website

Is there a logical site structure?

- Is the information on the website arranged logically?
- Is there a consistent pattern of modular units, grouping and arranging of information?

Is the information broken down into logical and digestible parts?

- Is the material organised in meaningful sections and sub-sections?
- Does the site consist of small chunks of related information that can be scanned and located quickly, i.e. are there coherent, tight groups of relevant pages? (In contrast to long, structurally complex pages or long undifferentiated units of information)
- Is excessive fragmentation avoided? (Are documents broken up too much? Is information placed on separate pages that should rather be placed in separate sections of the same page? Is the information too subdivided, so that context gets lost? Are key concepts spanning across multiple web pages?)
- Are the 'chunks' of information ranked in importance and organised by the degree of interrelationship among units?

Is there a logical internal hierarchy?

- Is there a well-balanced hierarchical tree that facilitates quick access to information and helps users understand how the information is organised?

- Is there a hierarchy from the most important or most general concepts, down to more specific or optional topics, i.e. moving from the general overview of the site (home page) down through sub-menus and content pages that become increasingly more specific and addressing sub-topics in progressively greater detail?
- Is the topic narrowing achieved via conventions such as menus that follow the organisational scheme?
- Is information provided to the user in the fewest possible steps and in the shortest time? (Are too many layers presented, making the link hierarchy too deep? Do the links take users directly to information or do they have to go through a series of mouse clicks to get the information they want?)
- Is the hierarchy too shallow?
- Are hidden layers that are difficult to discover minimised?

7.4 Navigation and search

7.4.1 Site navigation

Is it easy to navigate and browse the site?

- Are minimal user skills required to navigate and browse the website?
- Is it easy to move from section to section, page to page, item to item, without getting lost or confused?
- Do pages provide easy access to related pages?
- Is the practice to break the back option avoided (for example by design options such as opening a new browser window, using an immediate direct or by lack of caching)?
- Is the opening of new browser windows avoided?
- Are shortcut links possible for frequent users?
- Is it easy to switch back and forth from searching to browsing?
- Does the site offer the user an easy way out in as many situations as possible? (Do dialogue boxes have a cancel button or another escape facility to bring the user back to the previous state? Can users back out of the site, or do they get stuck looping between pages?)

Are links relevant and appropriate?

- Are links relevant to the subject/purpose of the website?
- Are local links made to related content, i.e. are links provided between elements that are likely to be used together?

- Are links provided to documents mentioned within the site?
- Do pages contain a list of the local contents?
- Can users easily return to the home page and to other main navigation points in the local site? (Does every page include a link to the home page? Are there links to levels of the hierarchy above the current location/back up in the hierarchy?)
- Does the website make use of links to enable users to navigate information on the site in sequence (for example 'next page' and 'previous page' type of links)?
- Are links provided to assist navigation in long documents (for example 'return to top')?
- Is overdone navigation avoided? (Are there too many – perhaps superfluous – links? Is each page linked to every other page? Are there links to too many meta-features? Does the site hide the important structural information among irrelevant information, for example links to all possible other options? Are too many links used in documents, destroying the homogeneous character of documents?)
- Is the practice to provide too few links, thus making it hard for users to predict what they will find, avoided (especially in large websites)?
- Are navigation icons always available? (Are there pages where there are no hyperlinks to anywhere else? Are there any dead-end pages with no links to any other local page in the site? Are there very long pages with no links?)

Are links logically grouped, visible and well labelled?

- Do links have an obvious ordering scheme?
- Is the website free of too many embedded links?
- If the breadth of a site is larger than the depth, are the links listed as opposed to being embedded?
- Are important navigation options displayed at the top part of the page?
- Are pages that appear complete on a small screen while important buttons or links are hidden just off the bottom avoided?
- Do navigation or menu pages that require the user to scroll, feature local links at both the beginning and end of the page layout?
- Is there a distinction between on-site and off-site links (Is it obvious when one moves to a new site, or does an outside link appear internal)?
- Are links ambiguous, i.e. is it obvious where links go?
- Is a distinction made between a contents list for a page, links to other pages and links to other sites?
- If a document/category/page consists of a collection of links is there substantial annotation or value-added information?

- Are links clearly labelled/annotated? If so, are the annotations of sufficient quality? (Do links give users explicit cues to the context and organisation of information – where a link leads to, how much information is at the other end of the link, how the link relates to the current page? Are users informed about the type and size of files they are linking to, for example a large document or image; graphics/sound/videos? Are users informed when they are about to link off the site?)
- Do essential instructions appear before links requiring user interaction?

Are links consistently applied?

- Are links consistently used throughout the website?
- Are basic links present on every page of the site?
- Is there a consistent approach to navigation? Are navigation aids consistently applied across every page in the site? Is there a consistent approach to navigation links to the home page or related pages?

Are additional navigational aids provided?

- Do larger sites have well-designed site maps and/or indexes?
- Are indexes/tables of content provided to navigate within long documents?
- Are there additional organisation/navigation methods (for example by organisation according to subject, chronology, graphical organisers, concept maps, graphs, etc.?)

7.4.2 User orientation

Can the user easily orientate himself within the website?

- Can every page on the website stand on its own? Can any page be the first page for users reaching the site from search engines?
- Do all pages include a clear indication of what website they belong to? Are there links to information providing an overview of the current sub-site or region? Is the URL provided on major pages?)
- Does the website offer constant visual and functional confirmation of the user's whereabouts and options, i.e. does the site provide a sense of where users are within the local organisation of information, and is it clear to users where they are and where they can go (for example via graphic design, clear consistent icons, navigation bullets or uniformly-placed hypertext links, graphic identity schemes, graphic or text based overview and summary screen)?

7.4.3 Search mechanism

Is a search engine provided?

- Is there a search facility on larger sites?
- Is the search facility optimised to help users find what they are looking for?

Is the search engine easy to use?

- Is it easy to use the search engine?
- Is there a simple interface to the search engine and does it give easily understood results?
- Are there consistent labels, locations, sizes and colours for buttons?

Does the search engine provide sufficiently flexible and robust capabilities to formulate the query?

- Can the user define search criteria?
- Does the search engine allow the use of boolean operators?
- Is keyword searching possible?
- Is natural language searching possible?
- Are simple as well as advanced searches possible?
- Does the system allow for field searching (structured fields as well as text fields)?
- Does the system allow for the entry of phrases?
- Does the system allow for variants to allow relaxation of search constraints (such as case sensitivity, stemming, partial matches, phonetic variations, abbreviations, or synonyms from a thesaurus)?
- Can actions be performed by changing a parameter used in the formulation phase, which then immediately produces a new set of search results, i.e. dynamic queries in which users adjust query widgets to produce continuous updates?

How effective is information retrieval?

- Are precision and recall satisfactory?
- Are relevance ranking and weighting of results available?

Can results be reviewed/controlled/changed/manipulated?

- Can users read explanatory messages, view textual lists, manipulate visualisations, control the size of the result set, control fields to be displayed, change sequencing (for example alphabetical, chronological, relevance)?

- Is provision made for clustering (for example by attribute, value, topics, etc.)?

Is refinement of searches possible?

- Does meaningful messages guide users in progressive refinement (for example if the two words in a phrase are not found near each other, is easy selection of individual words or variants offered)?
- Is it convenient to change search parameters?
- Can search results and the setting of parameters be saved, sent per mail, or used as input to other programmes?
- Is there a possibility of query refinement that allows users to narrow their search?

7.5 Design and layout

7.5.1 Design and layout of the website

General impression

- Is the design and layout visually pleasing? Does the website embody aesthetic qualities in terms of colour, design, harmony and appeal?
- Does the website display a sense of its medium?
- Does the website follow good design principles?
- Is the design of the website innovative? Is there evidence of originality and creativity in the visual design and layout?
- Is it conceptually exiting? Does it do more than can be done with print?
- Does the website look and feel friendly?
- Does the design relate to the content/subject matter? Do the design and style enhance information delivery and add to clarity of information presentation?
- Does the design aid navigation?

Is there a balance between the various design elements?

- Is there a balance between visual sensation, text information and interactive links (for example balance of text, images, links, headers, font sizes, white space, arrangement and placement of information and graphics on screens; unity, proportion, etc.)?
- Is white space used effectively and not lengthening pages without any benefit?
- Is there visual contrast between different fonts, text blocks and the surrounding empty space?

Is information organised effectively on screens?

- Are similar things or things seen as belonging together displayed together, enclosed by lines or boxes, move or change together or look alike with respect to shape colour, size or typography?
- Does the header area of the web page contain a prominent title at the top of the page?
- Is important information displayed more prominently (for example, are the most important information/items presented 'first' on pages in the usual reading direction?)
- Are important concepts and keywords highlighted/emphasised?
- Is the most important information on one screen with the less important information relegated to auxiliary screens (or are screens crammed with information)?
- Can the horizontal width of pages fit into standard display screens?

Is the length of pages appropriate?

- Is there compact vertical design within pages to reduce scrolling?
- Are long pages (meant to be read online) avoided?
- Is the website free of pages that appear complete on a small screen while important buttons or links are hidden just off the bottom?
- Are long menu pages that require the user to scroll through more than two screens limited?

Can users easily print documents?

- Are single document options available for those files that may be printed or downloaded?
- Can pages or portions of a document be printed separately?
- Are text pages designed to print properly (not too wide)?

Is the principle of simplicity of design followed?

- Is page design simplified? Are interfaces simple and easily learnable?
- Is the home page short and simple?
- Are pages uncluttered and cleanly designed? Does the website contain obtrusive 'frills'?

Is there consistency in design?

- Does the website stick to a standard house style? Is the site based on a small number of pervasive rules that apply throughout the user interface?

- Is the site design built on a consistent pattern of modular units, all sharing the same basic layout grids, graphic themes, editorial conventions and hierarchies of information?
- Are there consistent methods of grouping, ordering, labelling, and graphically arranging information?
- Are screen displays standardised and is there a consistent format for all the screens? Is the same information presented in the same location on all screens and is it formatted in the same way?
- Is there consistency in menu conventions from screen to screen?
- Are colours and backgrounds consistently used?

Does the use of tables contribute to the overall design?

- Are headings of tables distinguished by colour or shading?
- Is the unnecessarily use of borders to delimit tabular information avoided – in 'invisible' tables as well as in 'conventional' tabular material?

Does the use of frames contribute to the effective use of the website?

- Does the use of frames prevent users from bookmarking pages, stop URLs from working, make printouts of pages difficult and cause search problems by search engines?
- Is the use of frames confusing?

7.5.2 Text readability and visibility

Does the choice of fonts and case contribute to readability and legibility of text?

- Are too many typefaces used, destroying the homogeneous character of documents?
- Are the correct font sizes used?
- Is the font (type and size) used consistently?
- Does the design provide for the different ways fonts may be displayed?
- Is text in regular upper and lower case?

Do justification and spacing contribute to text readability and legibility?

- Is text left aligned?
- Is the space between lines acceptable?
- Is there consistency in the use of settings such inter-paragraph spacing?

Is the length of text lines comfortable to read?

Do graphics contribute to the clarity and usability of the information (or are graphics

Is emphasis appropriately applied?

- Are more important items emphasised?
- Is the use of emphasis consistent?
- Is emphasis over-used?

Do images support ease of navigation? Are graphics used to attract attention to content

Is colour well balanced, well contrasted and appropriately applied?

- Is colour exploited to provide effective and pleasing screens?
- Is colour-coding limited and colours used conservatively, i.e. not too many colours?
- Are colours 'dither-proof', i.e. are colours clean in most browsers?
- Is the use of several highly saturated colours, opposing colours (like yellow and blue or red and green), or extreme colours (for example yellow and purple) that are displayed simultaneously limited? Are bold, highly saturated primary colours avoided except in regions of maximum emphasis?
- Is the use of blue for text that is not clickable avoided? Is the use of red or purple for text avoided?
- Are non-standard link colours avoided?
- If colours are used to code information, is a legend provided?
- Are existing conventions capitalised on? (Do colours of graphics representing the real world represent the everyday counterpart? Are common cultural colour associations violated, or implicitly assumed?)
- Can the website be used without the colours?

Do backgrounds enhance the visibility of text?

- Are distracting or cluttered backgrounds or other visual elements avoided (for example, are screaming or warm colours used as background colours, are backgrounds busy or patterned)?
- Are there colour and tone contrast between text and background? Does type contrast with background colour?
- Is the display of critical information exclusively in the background avoided?
- Is a monochromic background used to display a colour image?

7.5.3 Graphics, images and animation

Does field items look different from data field?

Are graphics, images, and animation relevant, professional and used with discretion?

expected to think of them?

- Do graphics contribute to the clarity and usability of the information (or are graphics impeding on the ease of finding information?)
- Are large graphics imposing too long loading times for pages?
- Are there too many small graphics on one page?
- Does the user have the option of turning off the automatic loading of graphics?
- Do images support ease of navigation? Are graphics used to attract attention to target areas?
- Are graphics described (for example by means of the ALT tag)?
- Are legends short, unambiguous and distinguishable from other text?
- Are thumbnails used to represent images that are too large to be downloaded without a specific user request?
- Are the size, colour and animation of images appropriate?
- Are animation and sound used only when necessary?
- Is the site free of animation that distracts from or competes with text (for example scrolling text, flashing text, animated gifs, server-push animation)?
- Is a freeze frame mode provided where the user will be able to select a frame and freeze animation, in order to study it in greater detail?
- Are alternative displays with fewer graphics and animation made available? (If large graphic menus and/or animation are used, is there an alternative text orientated view?)
- Is too much use of horizontal rules or blank lines to separate items avoided?
- Are special visual effects distracting from the readability of the information?
- Is the use of bold, italics, blinking and other attention-getting devices limited?

7.5.4 Interaction (forms)

Does the use of forms allow the user to easily interact with the web developer?

- Are feedback links fully operational?
- Are command buttons visible when needed? Is it easy to select command buttons or hyperlinks?
- Can users change information they have entered in a form before they submit it?
- Are delimiters used to separate different fields, and is the standard delimiter selected and used?
- Do field labels indicate what data should be entered?
- Does field labels look different from data fields?
- Does the ordering of data entries follow the logical sequence in which the user is expected to think of them?

- Are helpful default values provided?

7.6 Purpose and audience

7.6.1 Purpose of the site

Does the website fit the purpose or discipline thereof, namely that of a government site?

- Does the website serve its intended purpose?
- Does the content fit the purpose?

7.6.2 Audience of the site

Is the website appropriate for its intended audience/s?

- Does the website conform to important user categories/market segments? Does the site accommodate diverse users?
- Does the website have an understanding of the users' needs and behaviour? (Is the content related to the users' needs? Does the site make provision for the information needed by the user and which is considered valuable? Does it provide for users that look for something in particular? Does it provide for users that are in a hurry and need information as quickly as possible? Is the content organised by the needs of the user? Does the information architecture/structure mirror the way the users think about the content and not reflect an internal hierarchy or how the company internally thinks about the content? Does it conform to their motivations, goals and purpose for visiting the site?)
- Is the website appropriate for the target audience? (Are the purpose/mission of the website, subject matter and information, treatment of information and the level of the website appropriate for the target audience? Does the website conform to their experience and expertise? Does the site reflect an understanding of how users do their work? Does the site make provision for the users' hardware and software – can a usable form of the site be accessed by all the browsers that the intended users are likely to use? Does the site make provision for the users' communication infrastructure – for example low-bandwidth access? Does the site make provision for the users' knowledge of computers or websites? Does the website make provision for users with handicaps – for example if a graphic menu system is used for navigation, are there text-based alternate menus to aid disabled users?)

8. CONCLUSION

This chapter provided a discussion of criteria, guidelines and principles for quality websites, and also presented a consolidated list of these criteria with more detailed indicators for each. Web developers may use this list as a checklist against which to measure a website's complicity with general usability requirements

The website guidelines and principles presented in this chapter offer a model of good usability practices for the design of any website. The criteria stress that the crucial element of an effective web presence is content that is comprehensive, current, of high quality and authoritative, that is well written, caters for the needs of a wide range of audiences, and fulfills the publishing institution's communication and information dissemination objectives. Furthermore, the criteria demonstrate that good website content is enhanced by developing a site that is easy to use, offers easy and intuitive movement through the site, and on which information is easy to find through both browsing and searching. Lastly, the criteria also offer advice on achieving a visually attractive site that does not distract from the content, but enhances information delivery through visual and functional continuity, graphic design and typography, and a careful systematic approach to page design.

While the author attempted to provide a comprehensive list of guidelines, it must be kept in mind that any single website will not necessarily have to conform to each of these guidelines. As stated by Nielsen (1993:16), each final user interface will look different. In the final instance a good website will be a combination of good practices for that particular website.

Together with the guidelines and criteria for government websites presented in the next chapter, the author used the criteria and guidelines presented here in developing the test instruments that were used for the evaluation of the *SA Government Online* website (see chapter two).

CHAPTER 5

CATEGORY-SPECIFIC AND PRODUCT-SPECIFIC GUIDELINES AND PRINCIPLES

1. INTRODUCTION

The development and use of information technology is advancing at a fast pace, and increasingly governments world-wide are launching websites in the public domain. As with any other resource or government operation or activity, a government website has to be strategically managed and must conform to specific standards set up by the government or government institution.

This chapter provides guidelines for the development or evaluation of government websites. The first section provides guidelines for government web publishing as reflected in resources on government web publishing in countries other than South Africa. Some of these resources refer to specific policy documents, while others discuss government web publishing in general or assess specific government websites. The author is of the opinion that guidelines as reflected in these sources are relevant for government websites in general, and therefore also for the evaluation of the *SA Government Online* and other government websites. In the second section, the South African government's requirements for electronic dissemination of information and for web publishing in particular are discussed. It is worth noting that, whereas the previous chapter describes guidelines in general terms, only guidelines pertaining government websites are discussed in this chapter. The general principles already mentioned in chapter four are not repeated.

2. GUIDELINES FOR GOVERNMENT WEBSITES AND GOVERNMENT PORTAL/GATEWAY SITES

2.1 Policy guidelines for the development and maintenance of government websites

Eschenfelder et al (1997) and Herson (1998) refer to different United States (US) policy documents that deal with information dissemination by government:

The USA OMB Circular A-130, *The Management of Federal Information Resources*, provides policy guidance to the US government for information dissemination. Even though it makes no explicit reference to the web, the authors consider it a comprehensive source for government-wide policy guidance to government agencies using the web as information dissemination medium. This Circular instructs government agencies, inter alia, to:

- disseminate information in an equitable and timely manner
- rely on multiple dissemination channels
- assist the public in locating information
- maintain inventories of information dissemination products
- develop search aids such as indexes and catalogues
- make certain that members of the public with disabilities have a reasonable ability to access the information
- meet the needs and requirements of the public
- avoid imposing improperly restrictive practices on subsequent uses of information by others – particularly with respect to establishing exclusive distribution arrangements, charging fees or royalties on subsequent re-dissemination of information.

The second document referred to by Eschenfelder et al (1997) and Herson (1998), the *Electronic Freedom of Information Amendments* of 1996 (USA) propose to improve public access to government information by making more information available in electronic format. The document requires agencies to, inter alia, publish electronically all information required to be published, and to make available “government material previously available only through inspection and photocopy” (Eschenfelder et al, 1997:177). While this document does not explicitly refer to the web, Eschenfelder et al (1997) and Herson (1998) state: “The direction for agencies to publish via computer telecommunications certainly appears to encourage federal agencies to use the web”.

The third document, the OMB draft policy guidelines, provides the following guidelines for use of the web as an information dissemination medium:

- Appropriate management controls should be used to ensure that information posted to a website is accurate, relevant, timely and complete.
- Websites should primarily support the public affairs function of agencies and, as such, should be developed with access of the general public in mind.
- Visitors to a website should be informed whether they can expect to receive responses to comments submitted on the website.
- Alternative means of access to information posted on a website should be provided.
- Websites should include location aids.

- Websites should be used to augment information dissemination and not to replace existing means of information dissemination.
- The appropriateness of linkages from a website to other websites should be examined (for example, linkages to other government websites would generally be considered appropriate, while linkages to commercial sites would typically be considered as inappropriate).

Hernon (1998:427) also refers to New Zealand's *Policy framework for government-held information*, approved in 1997, that provides 11 principles for the management of information. Some of these are:

- Government departments should make information available easily, widely and equitably to the people of New Zealand.
- Government departments should make the following information increasingly available on an electronic basis: all public material or material already in the public domain; all policies that could be released publicly; all information created or collected on a statutory basis (subject to commercial sensitivity and privacy considerations); all documents that the public may be required to complete; corporate documentation in which the public would be interested.
- Free dissemination of information is appropriate where dissemination to a target audience is desirable for a public policy purpose, or when a charge to recover the cost of dissemination is not feasible or cost-effective.
- Government departments are stewards of government held information, and it is their responsibility to implement good information management.
- The key quality requirements underpinning government-held information include accuracy, relevancy, timeliness, consistency and collection without bias so that the information supports the purposes for which it is collected.

Additional to above-mentioned policy guidelines and principles, recommendations that could have a bearing on the effectiveness of government sites include the following:

- Government should provide information to the public about its policies, programmes and services that is accurate, complete, timely, relevant and understandable.

- Government should also ensure that it is visible, accessible and answerable to the public (Nilsen, 1996:199).
- Government should focus on creating and developing specific databases on the Internet, geared to the most important information needs of citizens and consumers, for example extensive, up-to-date databases on all government institutions and publications. Databases should be created to enable consumers to ascertain facts or learn the arguments of the various interest groups bearing on national or local policy issues of concern to them (Beachboard et al, 1997:29).
- Information, databases and documents should be developed in such a way that it can be utilised by all potential users, irrespective of their educational background and sophistication.
- A speedy and user-friendly method of retrieving information is required. Users should, through easy-to-use interfaces, be able to access and exchange government information without having to consider where such information sources are hosted. This means that users will have access to integrated information sources running on an integrated information platform, located at various government institutions (Beachboard et al, 1997:29).
- Government should promote the use of information and communication technologies in government and society to improve the effectiveness of government service delivery (UNESCO, 1996:11,12).
- Government websites must be properly planned and designed. "Mounting cobbled together, incompletely, poorly designed material on the web is, in the long run, going to be counter-productive" (Johnson, 1996:152).
- Lack of co-ordination should be addressed. The sharing of information between different levels of government requires agreement on procedures, concepts, standards and formats (Harfoush & Wild, 1994:12).
- There should be consistency in the way similar systems are operated (Berinstein, 1995:86).

- Cooper (1998:144) states that users will become frustrated if they encounter fee-based databases.
- Content should be the primary concern for a government website (Johnson, 1996:151). Interfaces should not be system-driven, but rather user-driven. Websites should therefore be driven by people who know about delivering information, not by people who know how to deliver information technology. A properly designed information service requires the efforts of a team of skilled professionals including graphic designers, instructional designers, indexers and writers (Johnson, 1996:151).

2.2 The concept of government gateways/portals

2.2.1 Gateway/portal sites

A portal site offers a single point of access for all the goods, services and information that a company provides. According to Blount (2000), portal users “view the enterprise as a unified whole.” A portal is thus a “single, web-based interface into what would otherwise be disconnected and incompatible information spread across numerous separate applications” (IBM eCMS website, n.d.). Rather than forcing users to traverse through multiple sites, portal users need to be able to get all their needs met through single access points.

According to the IBM eCMS website (n.d), portals provide

- one-stop shopping that provides access to content, applications and collaborative or community building facilities
- the functionality of customisation of the user experience for their unique privileges, preferences and history on the site, i.e. personalised views that provide this access in the context of an individual’s preferences and business rules
- flexible navigation, including both predefined roadmaps and powerful free-form search.

Portals are valuable to users when they simplify complex information, are context-specific, provide useful services and foster collaboration and community-building.

2.2.2 Government gateways/portal sites

It is important for governments to provide support tools to enable users to quickly and easily navigate the vast information resources provided on the Internet. One of these tools may be a one-stop gateway or single entry point. Hernon (1998:432) reasons that

governments should pursue the concept of “one-stop shopping” to eliminate or reduce the number of sites that one needs to visit.

Johnson (1996:149) defines “whole of government pages” as “pages, usually mounted by a central agency, which seek to provide links to all other pages produced by agencies within that particular government. They are intended to form the ‘ante-room’ or ‘veranda’ through which the public can access the information resources of the various agencies”. Most ‘whole of government’ home pages seek to provide a single access point to other pages maintained by various agencies within a government.

Nielsen (1999b) refers to this concept as “content-integration, which brings separately-sourced content together in integrated designs”. He mentions the example of a country that creates a unified interface to all online government information, including the many ministries and departments of the national government as well as local jurisdictions. He considers this practice as a possibility to improve the web.

Caldow (1999:7) defines a portal as a window to an array of web-based content. According to her, portals are typically multifunctional and offer a variety of capabilities aggregated in one place. “In other words, if you didn’t have the portal, you’d have to go to a lot of different places on or off the web. In government, the portal is most likely the main government website.” Caldow uses the example of a user who selects a category such as “Online Citizen Services” to access a list of all online transaction services, regardless of the department, after which a form is presented that enables a transaction.

Copping & Lewis (1999) refer to the United Kingdom (UK) government’s intention to develop government portals as a “potential, single, integrated means of access to government information and services”. According to them this will allow information from different sources within government to be brought together at one point, allowing the creation of new “joined-up” services with a standardised presentation. A key element of the proposed portal is to “integrate services across government departments to deliver seamless or joined-up government as a one-stop service for citizens and businesses” (Copping & Lewis, 1999). The intention is to provide access to central government, departmental, and ultimately local government services or information. This will also include direct access into the department or agency which owns the service, access through links from other parts of the department or other departments which offer associated services, and access from similar portals, which could for example be focused on another or the same “event” (Copping & Lewis, 1999).

In line with the general definition of a portal site, Mazereeuw (2000:33) includes in his concept of a portal the functionality to allow users to create own personalised windows into the information of all levels of government.

2.3 Content and scope guidelines

2.3.1 Orientation to the website

Hernon (1998:435,436) comments positively on the variation in the types of information provided on New Zealand government websites. However, he criticises sites that list publications without indicating the completeness thereof. He also states that it is not clear what types of information resources departments and agencies maintain and that this causes some of the information on the sites to be difficult to locate. He suggests the inclusion of "a tool" that describes the content and location of the information that agencies produce (Hernon, 1998:435). He requires furthermore that users be informed how to acquire the Acrobat Reader when documents are in PDF format (Hernon, 1998:431).

Berinstein (1995:86) and Cooper (1998:144) support the inclusion of clear scope notes. Comments about limitations of data and the provision of disclaimers are regarded as good and helpful user support. Berinstein (1995:86) recommends that it be made clear whether information is free or not, as "the mix of what's free and what is not is constantly changing".

2.3.2 Reliability and integrity of information

Eschenfelder et al (1997:180) consider it as important for governments to develop various levels of administrative procedures and technical safeguards to guarantee the integrity of information on websites. This should be done to prevent risks associated with destruction or unauthorised modification of posted information.

2.3.3 Comprehensiveness

From the literature studied, it became clear that extensive information coverage is expected on government websites and government gateways. In this paragraph, an overview is provided of content indicated as important for inclusion on government websites and for gateways to provide access to. The author realises that this list is not necessarily complete. The reason for presenting this list is, however, to convey the importance thereof that

governments using the Internet for the publication and dissemination of information keep citizens informed on all aspects of government, so that users of websites would not have to go to various information sources to be provided with the full spectrum of government information.

2.3.3.1 *Information on national, provincial and local government levels*

Hernon, 1998:431 and Maxwell, 1995:26 stress the importance of convenient access to information from all levels of government. Maxwell (1995:26) refers to the *Council of State Governments* website that provides separate gateways to: (1) state and local government servers, linking to servers operated by state; (2) legislative servers, linking to sites that offer legislative information; and (3) other state servers, linking to non-governmental sites operated in each state. Colleges, universities and corporations operate these sites. He views these as “very helpful if you’re trying to get an overview of a state” (Maxwell 1995:26).

2.3.3.2 *Government documents and publications*

Documents such as constitutions, statutes, regulations, policy documents, reports, discussion papers, administrative rules and codes are mentioned. The importance of detailed legislative information, including full text of Bills with amendments, Bills introduced in the legislature and of all Bills pending is stressed. Websites also contain the full content of online publications, descriptions of content of publications, announcements of upcoming publications, and information about hardcopy publications to order. Annual reports of government departments are also posted on websites.

Maxwell (1995:30) considers the following information on the California State Server's website as a “goldmine”: a chronological list of legislative activity for each Bill, information about a Bill's current status and pending action, records of votes in committees and on the floor, and the text of veto messages by the governor. Summaries of new laws and weekly magazines from the House and Senate, as found on the Minnesota House and Senate Legislative site, are also considered as valuable.

2.3.3.3 *Policy information*

The provision of policy information and enhancing policy discussions is also considered as an important area of government web content. In this regard Stowers (1999:117) mentions

the posting of budgetary information, discussion forums and San Diego's "speak out" page (<http://www.dep.state.fl.us/law/clean-marina/forum.html>), which provides comment forms through which citizens may select a policy area and provide input. The EUROPA site (<http://europa.eu.int>), which is the main information point for the European Union, also provides fact sheets on policies (Sheehy, 1997:133).

2.3.3.4 Government systems, structures, functions, officials and contact information

Maxwell (1995:30) and Heron (1998:435) mention the following information types available on government sites:

- background information on departments
- information about departments and sections within departments
- telephone and e-mail directories for government offices
- announcements related to departments
- lists of appointments to boards and commissions.

The Minnesota House and Senate Legislative site provides information on the permanent rules of the House and Senate, daily order of business, information about members, committee information and meeting schedules. Heron (1998:431) requires that source material emanating from regional offices also be well represented on government websites, with enough links to provide the necessary connections to ensure that information is easily found.

An example of a gateway site providing access to this type of information is the New Zealand Government Online website. It lists government agencies and offers an index of services, functions and responsibilities for central government agencies (Heron, 1998:433). A *Citizen's Guide to the Government* contains an overview of the government, its structure and processes, and *related links* covers complementary indexes and organisations. *Browse services* is arranged by 14 topics and provides a starting point for someone wanting to approach government for the answer to basic questions. This access does not extend to information resources held and available other than through the web.

Another example is the EUROPA site, which provides access to a wide range of background information on EU institutions, as well as links to other EU institutional servers (Sheehy, 1997:133). It also provides general background information on European Community history and organisational structures, and access to newsletters and daily news

summaries. Most of the information related to institutional activities is full text. Some of this material is multilingual.

2.3.3.5 *Government activities, programmes, events and news*

According to Hernon (1998:433) and Sheehy (1997:133), websites are used to promote government activities, announce upcoming events, conferences, conventions, or new products. Recent news about departments (for example newsletters), departmental programmes and employment opportunities are also posted on sites. Materials specifically aimed at the general audience include a wide variety of topical fact sheets on specific issues such as health, government activities and policies, and FAQs on various topics (Hernon, 1998:433; Sheehy, 1997:133). Election information (for example campaign finance, voting information and election results) also features prominently.

Sergerie (1997a) provides an overview of the Canadian Government's On-line project, a joint initiative of the Canadian government, the Territories and local governments, who developed an electronic catalogue of current or upcoming online services provided by the various levels of government. The catalogue combines information about these services with best practices notes that are relevant to both Canadian business and foreign organisations. A major focus of the catalogue is to provide governments across Canada with a reference guide to the various online programmes offered across the country. The aim is to avoid duplication of services and to enable Canadian governments to identify new areas and projects where different levels of government can work together. The catalogue also functions as a gateway to the various online services and information networks that Canadian governments offer.

2.3.3.6 *Government services*

Information about benefits that are available from government and how to apply for them, as well as the delivery of actual services, are considered as important for all government websites, including gateway sites. Johnson (1996:153) believes that "our energies may be better spent in working towards these services than in duplicating, often badly, information services which are already being delivered effectively in other ways".

The *Canada site*, the Canadian government's primary Internet site (<http://www.gc.ca>) provides Internet users with a single electronic access point to a wide variety of government information and services. According to Mazereeuw (2000:34), the government

strives to provide information and services that affect their lives, from getting funding for a community environmental project to applying for unemployment benefits. "Users can do anything from looking up a postal code to starting to do business, from registering a trademark to filing his taxes". The Canadian government has set itself the goal to be "more than just piling print documents online – the government is striving to change the way we shop for services and information" (Mazereeuw, 2000:34).

2.3.3.7 *Press releases, speeches and statements*

This is regarded as an important information category. Maxwell (1995:26) considers it as important to include the governor's State of the Nation and inaugural addresses on government gateways. In addition to text information, Hernon (1998:430) also mentions the availability of radio addresses and oral delivery of selected speeches by presidents on government websites.

2.3.3.8 *Tourist and business information*

These categories are considered as valuable especially for government gateways. The aim should be to encourage economic development by promoting local business and industry and by stimulating tourist interest. Maxwell (1995:31) refers to the *State of Texas Government World Wide Web Server* which contains extensive information about doing business, for example government procurement information, international trade leads, a directory of Internet access providers and training companies, a directory of businesses owned by minorities or women, a market exchange where companies can post announcements about items they are seeking to buy or sell, and a directory of businesses.

2.3.3.9 *Information about the country/nation*

Government sites, and especially government gateways, provide information on the country and nation. Thornton (1997:17) refers to the Irish government's website where the user can read about the economics, literature, music, folklore, and sport of Ireland, or learn more about the way the country sees itself in relation to the rest of the world. He also mentions the Brazilian government's website that has extensive links to the country's ecology, education, medicine and health industry, business, culture and more (Thornton, 1997:17).

Government sites contain links to sites with information on state parks and historical sites, camping information, tourism information, maps, environmental issues, public broadcasting

stations, universities, libraries, schools, census data, county profiles, weather forecasts, lottery results, links to city and county Internet sites, chambers of commerce, statistics (for example on HIV/AIDS), and online directories.

2.3.3.10 *Links to related sites*

Specific mention is made of links to

- government sites in other states
- sites carrying information on related subjects, for example the New Zealand health department's website which links to public health sites in New Zealand and other countries (Heron, 1998:430)
- census figures and other statistics
- tourist information.

2.3.3.11 *Information in non-text formats*

Heron (1998:430) lists the following types of information resources that are offered by the US and New Zealand governments through the Internet: photograph collections, video footage, digital replicas of artefacts from the Roosevelt Library (such as artwork, photographs, radio broadcasts), digital maps, images, and datasets.

2.3.3.12 *Digital democracy*

Website interactivity is regarded as a crucial online activity. According to Stowers (1999:120), the ability to communicate with appointed and elected public officials can make the difference between passive information delivery and a site that provides dynamic service delivery. She considers the provision of contact information such as phone numbers and e-mail addresses as the most basic stage of providing public access through the website, and recommends the utilisation of online forms through which citizens can make comments to officials, solicit input, make complaints, or request services.

Caldow (1999:10) envisions a component dedicated to digital democracy, defining this as "any electronic exchange of value in the democratic process". She includes in this spectrum campaigns, elections, voter registration, voting, public opinion polling, communication among elected representatives and their constituencies, universal access to technology from public libraries and legislative processes that encourage greater citizen participation. According to her, technology strategy should include interactive capabilities that allow

ordinary citizens to take active, real-time participatory roles in government. Online hearings, submitting expert testimony online, opinion polling and open communication and information provides opportunities for real-time participation throughout the democratic process – not only disseminating information after the fact (Caldow, 1999:10).

Discussion forums and listservers are also considered as effective tools. Hull & Adams (1995:298) believe that the use of listservers can provide an effective tool for users interested in similar subjects – it can be used to announce the availability of new or updated information to interested users, while questions and comments can be raised about specific topics.

2.3.4 Content to fit the medium

Johnson (1996:149) requires that information on government websites be material that could not be presented more effectively in some other way. “People will not persist in spending time on a site if they could have acquired the same information more rapidly from another source” (Johnson, 1996:149).

Furthermore, she requires specific and in-depth information that adds value by presenting it on the website: “There are pages that present very general and shallow information to an unspecified population, and in many instances, it is difficult to see what value is added by presenting the information via the Net”. She criticises the compilation of existing information resources, sometimes created primarily for internal use, “that have been ‘HTMLised’ and dumped on the Net with little or no guidance for potential users” (Johnson, 1996:149). She states that, although this practice may be acceptable for some client groups like other government agencies, in many instances the raw information actually needs to be redesigned if it is to be effective for public use on the Internet.

2.3.5 Currency

Once created and distributed, electronic information products should be sustained if they are to retain their value. According to McConnel (1996:218) sustaining includes maintaining the information’s currency, availability, location, and integrity. As government sites contain a variety of rapidly changing information it could easily become out of date and care should be taken that the most current information is posted as soon as possible after it becomes available. McConnel (1996:218), however, states that replacing out-of-date information with

the latest version can be “a double-edged sword”, as it is not always obvious where to find the previous version.

2.3.6 Language

According to Sheehy (1997:135), language is a critical issue for a government that must produce documents in all the languages spoken if it is to reach and influence all its citizens. Factors to take into account are:

- English is one of the dominant languages on the Internet and it can be expected that this trend will continue.
- Preparing print materials in multiple languages causes significant delays in publication, and electronic information presents additional challenges.
- Multilingual needs of users must be balanced while at the same time preserving one of the Internet’s key advantages, its speed. Information that once took weeks or months to be printed and distributed now is accessible almost immediately. If a government waits until material is translated into all languages, one of the primary advantages of the Internet will be greatly diminished.

Sheehy (1997:135) argues that the issue of language is a difficult problem in a country with many official languages. She regards the inclusion of the full text of all documents in all languages as an almost impossible task. However, she believes that by providing at least the primary interfaces in all languages, much will have been done to improve at least the perception of language equity on a site.

2.4 Information architecture/organisational structure

As for any site, an important requirement for government websites is that information must be organised in such a way that users can easily find information.

Government sites often pose the problem that information is not easily accessible. Berinstein (1995:85) considers it as “bad news” that it is not always easy to find what you want on government websites. “You can get to agency level easily, but below that you may find trouble.”

Johnson (1996:152) criticises government sites that are designed with a top-down, inside-out paradigm. She believes that information on government websites must be complete and well designed. It must be presented in enough depth and with an adequate structure. "Much of the information is either too shallow or made up of large chunks of hastily 'HTMLised' text with inadequate structure" (Johnson, 1996:149). She also criticises the practice of 'whole of government' pages being only a set of links to various agencies that have set up pages on the web: "I am not sure that the 'whole of government' page conceived as a set of links is the best way to get people to the right information" (Johnson, 1996:149). She adds that even in those cases where all relevant agencies are represented and have put up more than a "pretty picture and their phone number", this presents a problem. She argues that users who needs a specific piece of information will not be satisfied to be presented with a list of agencies, forcing them to guess which is the relevant one. "If a user wants to know how to get a permit to install a well in his garden, he/she may neither know nor care whether this is handled by the Water Department or the Mines Department or the Department for the Environment" (Johnson, 1996:153).

Hernon (1998:431) considers it a critical problem to find information on US government websites. According to him, users have to be extremely knowledgeable about the government's structure, the scope and activities of departments and agencies, terminology referring to the legislative process and types of source material. He requires websites to reflect the expectations of the users, and not the internal structures of the government agencies producing the information.

Maxwell (1995:25) considers arranging information by subject rather than by department or government body as one way to make it easier for users to search for government information. Links can be arranged by categories such as criminal justice, economic development, education, finance, health, environmental issues and so forth. Each category will then provide links to all sites containing any information on the category.

Mazereeuw (2000:34) furthermore quotes Velanosi, who was involved in the Canadian Government Online initiative: "Part of this work is to stop organising ourselves by our traditional structure of government departments and programmes, and put the information in a way that resonates more with citizens and businesses". The Canadian website thus functions as a directory for the government's various web initiatives in three basic ways: alphabetically (by name of department or agency, by topic (such as health), and by target group (from youth to seniors).

Johnson (1996:153) regards cases where 'whole of government' pages have moved away from direct links to agencies, and where a subject approach is followed with links for education, health, transport, etc., as a move away from the straight reflection of government structure to the presumed perceptions of users. However, according to her, even then the information behind the topics often retains its agency basis. "The buttons have been rearranged but the information is the same" (Johnson, 1996:153). She suggests, therefore, the further organisation of information around geographic, household or service desk metaphors that link to information drawn from differing levels of government, as this would be more useful than the many current 'whole of government' pages "which are built from the inside out" (Johnson, 1996:154).

2.5 Navigation and search

2.5.1 Navigation aids

Ease of use is regarded as crucial as good content: "Without effective navigation systems, sufficient help features and adequate general information, websites are not user-friendly, a factor in keeping visitors from making full use thereof" (Stowers, 1999:122).

Websites should include various methods to assist users to find information on the site. Methods described are:

- Levergood (1998:149) mentions a subject A – Z index leading to a list of fairly detailed subject terms and detailed subject access for lists of publications. She commends the website of the US Department of Commerce's (<http://www.census.gov>) inclusion of a brief user manual, available from the home page, informing the user about the principles involved in compiling the subject listings. She suggests that it will also be useful to display these principles prominently on the *Subjects A – Z* page itself, with accompanying advice to use the search capability or the publications subject list to further guide the user (Levergood, 1998:149).
- Categorisation of free publications by broad subject, detailed subject and new publications. Levergood (1998:148) considers a title list to be useful, while a listing of products for sale might provide ordering information, brief subject content, other formats available, etc.
- Indexes of Bills by number and/or subject.
- Arranging information alphabetically by department or government body.
- Providing a FTP site alongside the website.
- Maxwell (1995:30) considers as "superb" the *User's Guide and Tutorial (How to Find*

Legislative Information) on the California website (<http://www.ca.gov>).

- Advanced indexing and abstracting. Berinstein (1995:86) dislikes “government sites’ rudimentary indexing and abstracting”.
- A site map may help the user easily find clusters of relevant information (Levergood, 1998:149).
- Stowers (1999:122) mentions help sections, guest books and linkages to “What’s new” on a site. In addition, she considers the availability of one page itemising all interactive services that are available online as very useful.

2.5.2 Search

Johnson (1996:153) propagates the provision of a search engine as one method to overcome the agency-based structure to allow clients to find what they need, regardless of which agency produced it. She warns, however, that it can, without knowledge of the government system and the scope of its activities, and without some skill in the search process, be a time-consuming process to locate the information required – assuming it is there in the first place. According to her, this knowledge gives users an idea of the scale of resources they are using and insight into the terminology used. She therefore requires that search interfaces give the first-time user information about the size, scope or terminology of the database being searched. Specific features mentioned as necessary for search engines are the use of keywords to search for information (Maxwell, 1995:31) and the option to search one or more document formats (HTML, PDF, ASCII) (Levergood, 1998:148).

Search engines could be implemented on different levels:

- A search facility that searches the entire website (Cooper, 1998:144; Levergood, 1998:148; Farrel, 1998:143).
- Search engines at each layer or sub-site. Farrel (1998:143) describes the USDA’s (US Department of Agriculture, <http://www.uds.gov>) design of placing search engines strategically throughout the website as “excellent”, while Maxwell (1995:30) commends the Indiana State Government Page for the fact that many areas of the server have their own search capabilities.
- According to Nielsen (1999b) a way to save time and effort while searching for government information is to have a search facility on a gateway site that can index and search all government sites.

Farrel et al (1996:397) view the use of advanced indexing, search and retrieval tools as necessary to identify, describe and dynamically link users to government information. According to them, the information is of little value unless such type of finding aids are developed to find government information on the Internet. They describe the so-called "pathway services" developed by Library Programming Services as such a tool. According to them it consists of a pathway indexer combined with the categorising of government sites by subject terms. The indexer is a group of tools designed to present a web-based interface for searching government information on the Internet. The aim is to index government sites in a database, which can then be searched by a database search engine. To facilitate browsing, the second method of access, categorising government sites by subject terms, is aimed at users who want to see what is available on government Internet sites. According to Farrel et al (1996:397), this type of service will provide flexibility in searching for government information.

Furthermore, Eidelman (1999:377) refers to a search site developed as a joint venture between the National Information Service (NTIS) and Northern Light technology in 1999 (<http://govsearch.ntis.gov/>). According to them it was developed as "the first search site customised to provide one-stop access to U.S. Federal Government information" (Eidelman, 1999:377). The site provides the ability to search any combination of government sites, the NTIS archives and the Northern Lights special collection. It searches federal, state and international government sites and has a power search feature enabling the user to sort results by date or limit the search to a particular domain. Eidelman (1999:377), however, describes the results as disappointing and uneven, especially for the public. "It provides non-professional users with more search alternatives than they probably want, and searches provide irrelevant hits while missing some of the most relevant information" (Eidelman, 1999:377). According to her, even simple searches did not provide the expected results. She requires the ability to do complex searches without sacrificing relevance, along with simplicity, speed and intuitiveness.

2.5.3 Government information locator services (GILS)

Johnson (1996:154) regards the implementation of a GILS as another method to ease the finding of information on government sites. According to her the idea with a GILS is that a set of core locator records for key government information resources is created and made available on the Internet. She describes it as a distributed system where each agency maintains its own core records. Searchable terms include free text and controlled

vocabulary. Where available, users can move directly from the GILS record to the online version of the document or other information resources. GILS records also cover information resources in formats not accessible via the Internet, like print and live people (Johnson, 1996:154). According to Johnson this approach takes some of the emphasis away from the agencies and places it on the information.

Maxwell (1995:30) also refers to the value of a GILS. He mentions the New York State Library's State Government Information Locator which provides four ways to access state government information, namely a database of state government information; an alphabetical list of state government services and programmes, with details about each programme; and an alphabetical list of state agencies which provides details of each agency and links to other state government Internet sites, including a searchable database of procurement notices and legislative sites.

Christian (1994:306) requires that a GILS be comprehensive, yet user-friendly. It must answer specific questions, yet also allow for scanning a wide range of government information. It must be able to answer questions from the most inexperienced user, yet allow for in-depth research.

2.6 Consistency

The same requirements for websites than discussed in chapter five are mentioned in the literature. An additional requirement stated by Herson (1998:431) is that government sites should not change too often. He regards it a problem that "government sites disclose vast differences over relatively short periods of time" (Herson, 1998:431).

2.7 Common 'look and feel' for government websites

It is important that all the websites for a government should have some design elements in common, for example page layout, colours, placement of buttons, menu structure etc., in order to create a corporate image for the government and to assist the user to navigate. Johnson (1996:153) considers it the responsibility of the people responsible for the 'whole of government' page to encourage the other agencies to give their pages a common look and feel.

However, governments experience difficulties in this regard. Mazereeuw (2000:34) mentions for example the disjointed service delivery by the various departments in Canada.

Sheehy (1997:133) states that it appears that the EU has difficulty developing consistent policies from agency to agency. Nielsen (1999b) furthermore states that each agency wants its own information architecture and does not want another to dictate its design. He also refers to the difficulty of “getting a city or county administration to follow guidelines from the capital” (Nielsen, 1999b). In addition, he argues that when content from different sources is brought together, interface complexity increases immediately unless integration is made a priority. “The stakes go up in aiming for a unified design and it becomes harder to overcome organisational politics and petty squabbling between groups” (Nielsen, 1999b).

Despite these difficulties, Nielsen (1999b) considers it important to achieve some integration, as usability suffers when users have to perform the integration in their head. “It is hard enough to find information on websites when you can compare two things and assume that they are indeed comparable because they were designed by a single source” (Nielsen, 1999b). He considers uniform meta-content as necessary for content integration to succeed. According to him, different departments or agencies need to agree on the following standards for metadata to describe each content unit:

- Writing style for headlines so that users can scan listings and understand what each headline links to.
- Controlled keyword vocabulary (or at least guidelines specifying when to use what type of keywords, how many keywords to use, how much something should be discussed to warrant a keyword, and rules for weighted keywords).
- Conventions for linking between collections.
- Standards to support parameter-driven access (for example what the definition of a creation date is and how much something needs to change to get a different modification date).
- Classes of content in the unified interface (for example making it clear whether something is a detailed research report or a one-paragraph news item).

According to Johnson (199:153) a common look and feel should not only extend to the look, but also to the content. “There is not much point having a nicely painted front veranda with a matching colour scheme throughout if some rooms inside are empty and others stacked to the ceiling with piles of yellowing documents” (Johnson, 1996:153). Sheehy (197:132) believes that consensus should be reached among various offices and directorates regarding the type of information that it will distribute through websites (Sheehy, 1997:132).

Mazereeuw (2000:34) mentions that the Canadian government online initiative includes ensuring that departments maintain a coherent format and meet certain standards. This entails not only ensuring that all departments provide all information, but also that information is organised in such a way that makes sense to citizens, so that they “don’t suffer the Net equivalent of being transferred from department to department, and extension to extension” (Mazereeuw, 2000:34).

Hernon (1998:432), however, is of the opinion that for large and complex governments such as the USA, one-stop shopping for all information needs is an elusive goal. He therefore stresses the important role of public interest groups and universities to develop sites that lead to government sources on the Internet, to enable users to negotiate the maze of websites and to find key information. Bouwman & Nouwens (1999:43) believe that the integration of government information and privately owned information could have positive effects on the attractiveness of a one-stop service. According to them public-private partnerships can increase the integrity of government information, and can create a critical mass of services. As example, they mention information about environmental pollution that can be provided by both the specific government department and Greenpeace (Bouwman & Nouwens, 1999:43).

2.8 Metadata

An important aspect of standardising government websites/publishing will be the organisation of information on all government websites. Individual websites all attempt to provide some kind of subject access to their sites. According to Chowdury (1999:216) these approaches to subject access are not based on tested and acceptable tools such as the Dewey Decimal Classification, Library of Congress Decimal Classification, and so on, and therefore results will vary from one search engine to another. Chowdury (1999) points to Younger’s argument that metadata, library cataloguing objectives, record structures, persistent names and addresses for Internet accessible resources, and the management of diverse metadata schemes are important concerns in building a coherent system of bibliographic access for information seekers.

A collection of metadata will comprise descriptive information about government information and services that can be used to classify, present and search the information that it refers to (Australia, DCITA, 2000).

2.9 Purpose and audience

Johnson (1996:151 – 153) considers it important that government websites must comply with the purpose or business of the specific government body, as well as with users' needs. She provides the following principles:

- Government should not be in the business of vanity publishing or providing a stimulating leisure activity. Government presence on the web should be assessed by the same objective, performance-based criteria applied to other spheres of government activity.
- Government websites should not be viewed principally as an exploration of the medium but as a service delivery medium for specific client groups. Government websites should have the provision of a public information service as their primary goal. A professional approach should be taken to the planning, implementation and evaluation of new information services, and therefore also websites. Thought must be given to the justification, utility and evaluation of the web presence.
- Government websites should comply with users' needs and should serve a well-defined community of users. The starting point in publishing or disseminating government information should be the identification of the needs of user groups, and evaluation of the most appropriate means of meeting those needs where all alternatives are considered.
- The web has a useful role in disseminating information within and between government agencies. "But it still has a long way to go before it becomes a truly effective means of distributing information to other government clients. In particular, web publishing must be viewed as one medium among many and not as something which is qualitatively distinct from print or broadcast publishing" (Johnson, 1996:153).

3. GUIDELINES AND PRINCIPLES FOR SOUTH AFRICAN GOVERNMENT WEBSITES

In South Africa, the electronic dissemination of government information is embedded in a legislative, regulatory, policy and institutional framework. Already in 1994, the Reconstruction and Development Programme (RDP) made a pledge with regard to the availability of government information by the means of sophisticated technology: "Open

debate and transparency in government and society are crucial elements of reconstruction and development. This requires an information policy that guarantees active exchange of information and opinion among all members of society. Without the free flow of accurate and comprehensive information, the RDP will lack the mass input necessary for its success" (South Africa, Parliament, 1994). The South African Constitution (1996a) makes provision for freedom of expression and freedom of access to information, while one of the objectives of the Promotion of Access to Information Act (2000:1) is to "actively promote a society in which the people of South Africa have effective access to information to enable them to more fully exercise and protect all of their rights". Various other Bills, Acts and policy documents have been passed to put mechanisms in place to support this vision, amongst which the Legal Deposit Act (1997), the Telecommunications Act (1996b), the State Information Technology Agency Bill (1998), the White Paper on Transforming Public Service Delivery (1997), the Broadcasting Act (1999), the Report of the Presidential Review Commission (1998) and the Report by the Communication Task Group (Comtask) (1996). In addition, at the time of this research, the government was developing an IT policy for government.

Furthermore, the government's recognition of the importance of information provision is clearly demonstrated by various statements by Thabo Mbeki. At the G7 meeting on the Information Society (Brussels, February 1995) he stated: "It is, however, also clear that we need a vastly expanded and modern information and communication infrastructure to help us address these concerns, which helps to emphasise the urgency of attending to what, at first glance, might seem to be something to which we should give less priority" (Mbeki, 1995b). In his opening address to the Government Communicators Conference on 25 August 1995, he declared the following: "We must strive to ensure that each individual, whatever his or her station in life, plays a meaningful role in decision-making and in governance. One of the ways this can be done is to ensure the citizen's access to information...These [political and social stability – HK] are prerequisites for the achievement of objectives such as the creation of jobs, the building of houses, the provision of health facilities and delivery of clean water to our people. In the pursuance of these objectives, provision and access to information is pivotal" (Mbeki, 1995a). He also sees the role of government information as being to communicate government policy to the citizenry, define and help implement strategies for communication, including direct communication, and define mechanisms for the public's access to information in the hand of the state (Mbeki, 1995a). An important principle of government communication is to include the possibility for exchange of information between the government and society as a two-way process. "The principle of two-way communication between government and society is in

this [RDP – HK] context, central, so that people know what government is doing and they themselves can contribute to the formulation of policy and take an active part in this implementation. At the same time, information policy should create conditions for people to fully exercise their right to freedom of expression" (Mbeki, 1995a). At the official launch of the *SA Government Online* website, Mbeki pointed out: "We believe that it is indeed the responsibility of the government to communicate to the South African population. It is important that the people should know what the government is doing... so that the people themselves can make an impact on that process of ensuring the accessibility of government to the people" (Mbeki, 1999).

The government has embarked on a number of initiatives to give effect to above-mentioned policies, legislation and commitments, focussing mainly on infrastructure to enable the dissemination of information to rural communities. Amongst other initiatives, government information is increasingly being made available on the Internet, while the *Government Online* initiative was launched by GCIS in 1999. However, at the time of this research, the South African government did not have any direct policies or guidelines in relation to web publishing, thus allowing government departments to develop websites and electronic channels of communication within a very loose framework.

The most comprehensive document dealing with guidelines for government communications, including how government should utilise the Internet for effective communication and dissemination is the so-called Comtask report (Comtask, 1996), adopted by Cabinet on 8 October 1996. According to the report, most governments have a central information or service provision agency, providing or co-ordinating the provision of basic data on the country and ensuring accessibility, for example maintaining a home page on the Internet (Comtask, 1996:41). The recommendation is thus made that "South Africa needed to develop a national web-site into which all departments can provide data" (Comtask, 1996:82).

The Comtask report provides the following guidelines for the development of a government website:

- Websites should be professionally designed to provide maximum access by both information provider and information receiver (Comtask, 1996:75).
- It must have the widest possible network of users. The principle should be multi-use with the maximum supply of non-confidential information (Comtask, 1996:75).

- It should be a comprehensive network and a common vehicle for all government bodies. Existing efforts and initiatives, both government and community-based, need to be linked via the network to provide easy access. The information delivery systems developed by the open democracy structures need to be linked to the network (Comtask, 1996:75).
- Commercial and statistical information should be made available by means of government websites (Comtask, 1996:45).
- An international information service about South Africa should be available on the Internet in co-operation with the Departments of Trade and Industry (DTI) and Foreign Affairs (DFA), SA Tourism (SATOUR), and others (Comtask, 1996:82).
- There should be an obligation on all government structures to supply key information (Comtask, 1996:9). Therefore all departments and statutory bodies should be required to make all documentation printed by the Government Printer and other printers available in electronic format to this network for immediate distribution (Comtask, 1996:88).
- Efforts should be made to establish a system of cataloguing all government documentation (Comtask, 1996:9).
- The dissemination of government information should be without restriction and should not be copyrighted by commercial concerns or otherwise. It should be available to the public, "who should not have to rely on commercial concerns with proprietary rights as their only source" (Comtask, 1996:88).

Some of the general recommendations and principles contained in the Comtask report may have a direct bearing on the government website, and are therefore presented here:

- Effective co-ordination must facilitate, but not centralise information flow (Comtask, 1996:60).
- Government on all three levels should commit itself to provide information about its operations, plans and projects (Comtask, 1996:16).

- An efficient government information system should make provision for a two-way system of communication. The people should be able to express their views to government and vice versa. This interactive means of information sharing will enable the people to gain access to government (Comtask, 1996:34).
- It is essential that government must inform people of its policies, actions and motivations, not only for the exercise of rights, but also for the governing of their lives (Comtask, 1996:3). Information affecting all aspects of their general lives should be provided.
- Directories of information resources available in government on all subjects should be established, but with a special emphasis on development issues and nation building (Comtask, 1996:34).
- A corporate identity for government and consistency in government communication must be developed (Comtask, 1996:77).
- Electronic application must be developed wherever possible to enable people to make enquiries and retrieve information (Comtask, 1996:34).

4. CONCLUSION

The importance of information, and thus also of electronic information as an important government resource that demands strategic management, has been illustrated in this chapter. It became evident that governments have an obligation to make information available easily, widely and equitably, increasingly also in electronic formats. This puts an obligation on government institutions to look as a priority to the way they publish electronic information, as the standard of electronic information publications should be no less than of their hard copy counterparts.

An attempt was made in this chapter to provide an overview of expectations for electronic dissemination of information by government institutions. These also include more specific requirements for government websites as the primary medium for electronic information dissemination. As with any website, requirements for government websites encompass specific requirements for content to be available, for sites to be convenient and easy to use and to be aesthetically pleasing. In addition, an important requirement is that government

sites should take into account the different levels of experience and competence of all potential users of these sites.

FINDINGS FOR THE EVALUATION OF SA GOVERNMENT ONLINE
Another important aspect that emerged was the need for a 'whole-of-government' approach to any government's web publishing effort. The importance of such an approach for ultimately assisting users to access and find all available information for that government and to improve efficiency and quality of government information became evident.

At the time of the evaluation of the *SA Government Online* and other government websites, there were no official government information policies or standards for website development by the South African government. However, according to the author, the electronic dissemination of information was already embedded in a legislative, regulatory and institutional framework. In addition, government's recognition of the importance of information provision was clearly demonstrated in statements by government officials such as Thabo Mbeki. The author believes that this framework, existing documentation such as the Comtask report (1996), as well as web initiatives by leading e-government countries in the world, provide a solid platform from where one can identify valid requirements for South African government websites and for the *SA Government Online* website.

2. HEURISTIC EVALUATION – EXPERT OPINION

2.1 Introduction

Four expert evaluators were chosen to conduct this part of the heuristic evaluation. They were asked to complete a semi-structured qualitative guide based on the ten heuristic usability criteria (see chapter four) which was provided to them online. The evaluation was conducted during the period 23 August to 8 September 2000. See chapter two, paragraph 4.1 for a description of the method, and Appendix A for the evaluation guide.

CHAPTER 6

FINDINGS FOR THE EVALUATION OF SA GOVERNMENT ONLINE**1. INTRODUCTION**

Chapters four and five presented detailed discussions about guidelines and principles for website development in general and for government web publishing respectively. These guidelines and principles were integrated as part of the four evaluations methods selected and developed for the evaluation of the *South African Government Online* website (see chapter two). The website was evaluated during the period 14 August to 16 September 2000.

The purpose of this chapter is to provide detailed reports on the findings of the evaluation methods that were applied. The findings of each evaluation method are discussed separately and each report is presented in accordance with the evaluation instrument that was developed for each test. However, the exact sequence of questions is not followed in the discussion of the user tests (see paragraph four), in order to logically group related questions together. The author attempts to represent the findings in a comprehensive and unbiased manner, also reporting on comments and suggestions made by evaluators and respondents during the evaluation. No attempt is made to draw conclusions or suggestions for improvement, since a consolidated summary of the findings is presented in chapter seven, and solutions for improving the site in chapter eight.

2. HEURISTIC EVALUATION – EXPERT OPINION**2.1 Introduction**

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2.2 Content

2.2.1 Orientation to the website

Among the aspects that were positively remarked on by the evaluators was that the orientation statement provided a clear overview of the information covered, and that the website provided a clear indication of when each section was last updated. Descriptions were regarded as comprehensive and the layout as “clear and easy to navigate”.

One evaluator recommended that the site be clearly announced as the official website of the South African government and also remarked that a sentence to explain the purpose of the site would be useful to novice users.

2.2.2 Authority

Two evaluators were of the opinion that the organisation responsible for the website was clearly indicated, as well as that it was the official website: “It is clear that the GCIS is responsible for the official government site of South Africa – the GCIS page provides ample information on the services rendered.” One evaluator, however, indicated that it was not clear who was responsible for the website in the final instance, while another remarked that the overview page should indicate that this was the official website of the South African government.

One evaluator stated that the names of authors of documents were provided, and that in some instances e-mail links were provided to enable the user to send a message directly to the author. This evaluator also commented that there were references to other relevant information that could be accessed if required.

Criticism was directed towards the fact that document formats were not always indicated, that departmental contact information was not updated and that incorrect information on the structure of departments was sometimes found.

2.2.3 Comprehensiveness/information coverage/scope

Three evaluators considered the scope of information to be sufficient or “comprehensive enough”. Comments made were: “it covers an excellent variety of topics”; “the content is of interest and value to the user”; “the site includes critical and relevant information, e.g.

contacts”; “there are links to other relevant sources of information, e.g. parliament”; “appropriate links are provided”; and “a clear indication is given of all other relevant information sources and links provided”.

Suggestions for the inclusion of additional content included

- Hansard and the Government Gazette
- more speeches on provincial and local government level
- organisational structures of departments, the so-called “clusters” of government and updated visions and missions of departments
- definition of “*Government Bodies and Institutions*”
- information on parastatals
- discussions of parliamentary committees.

2.2.4 Currency

Three evaluators commented that the website (and especially the home page) was current and up to date. Positive aspects commented on included that there was a clear indication of the date of update, that there was a warning to “refresh”, and that “aspects mentioned in the news, or newscasts, are given on the website, which almost makes it a news service”.

The fourth evaluator, however, was not satisfied with the currency of the site. According to her the vision and mission of departments, departmental contact information, and changes made to the names of departments were not up to date. One evaluator indicated that dates did not appear on all the pages, for example *Ministries*. According to her “it is extremely important that people know when the page was last updated.” Two evaluators indicated that there were links that did not work: “there are pages without active links, although the navigation bar is there”, and “I have encountered a number of dead links”. It was recommended that all links be thoroughly checked. Lastly, one evaluator encountered some old pages (April/May 2000), but was unsure if the information had indeed changed since that date.

2.2.5 Objectivity and fairness

All evaluators were satisfied with the objectivity of the website. They stated that no bias was found, and that the content was balanced. One evaluator remarked: “I compliment the designers for ensuring a balanced, non-political influence and content with most of the pages and the content thereof.”

2.2.6 Editorial style

Positive remarks made on the writing and editorial style were for example: “surprisingly few spelling/typing errors”, “no editing problems”, “pages are easy to read”, and “overall the site makes a good impression”. One evaluator also remarked on the clear headings and page titles.

There was criticism as well. One evaluator pointed out that some pages were very long and “if you need only a portion of the information it can be very frustrating to print everything out”. She suggested that pages be broken up into shorter pages using the same table of contents, “but instead of anchors use links to other pages”. Another evaluator was of the opinion that the site “warrants chunking to prevent unnecessary scrolling”. She alternatively suggested the use of “frequent return to top buttons” on pages.

2.2.7 General comments on the contents of the website

A negative aspect commented on was the slow downloading of some pages: “as much as 20 minutes very early in the morning”. Another comment was that a sophisticated search engine would enhance the content. One evaluator was of the opinion that the content covered the most relevant issues that should appear on a government website.

2.3 Information architecture/organisational structure

2.3.1 The website as portal to South African government information

This aspect was found to be satisfactory. One evaluator remarked: “The website is an excellent entry point to government information”. Reasons put forward were that relevant information on other sites was easy to access, that navigation was clear, and that “the home page enables users to get an overview of the information on the site”. One evaluator recommended that scrolling on the home page be avoided.

2.3.2 Organisational structure

In general, the evaluators commented positively on this aspect. Specific issues commented on:

- The home page was well designed and “short enough”.

- Information was broken down in logical units: “I never wondered which link to follow”.
- The organisational structure of the website was “excellent” as there was “a clear interface where users are able to see at a glance where they are and what is presently on the page”.
- The home page provided an organisational scheme of the website.
- The information was organised in easily digestible chunks “with the added advantage of downloading some of the information from the website”.

Issues pointed out for attention were:

- Pages were too long.
- One evaluator remarked that there was too much detail on the home page, influencing the impact of the main issues.
- The PDF format was found to be “very unfriendly”, especially because “you have to rely on the ‘find’ functionality”.
- The search engine: “You desperately need a search engine to make sense of the width and depth of the site”. It was recommended that results be provided in a standardised, easily browsable and user-friendly format.

2.3.3 General comments on the information architecture

Comments were made that information was sometimes too compartmentalised, and that more use should be made of information chunking.

2.4 Navigation and search

2.4.1 Site navigation

There were conflicting findings with regard to navigation on the website. Two evaluators found the site easy to navigate and browse. One of them commented positively on the consistency of navigation and also commented: “I always knew where I was”. However, two evaluators felt that navigation had to be improved. One commented that there was not enough navigation and that “one loses track of position within the website”. The other was of the opinion that the website would be significantly improved by adding navigation options such as ‘previous page’, ‘next page’, ‘home’, and ‘events’. She was of the opinion that these would help to improve orientation to the website. Cases of inconsistency were found, and “sometimes underlined words are clickable but do not look like links”.

A question was raised about the functioning of *What's New* on the home page: "Is it clickable or not?"

One evaluator remarked that the website had a clear interface, but that the top navigation bar took up too much space on the screen: "One must always remember that the top 10 cm of a page is what is most often read and if the top navigation bar is too wide, it takes up space which could have been used for the actual content of the page and the user loses interest and leaves that page."

Evaluators found internal links that did not work, for example *Deputy Ministers*, *Prof DC du Toit* and *Speeches*. Some links to external pages also did not work, for example *Boeredata* and the *Constitutional Assembly* links. The legislation choice did not display at <http://www...../greenpaper/index.html> and <http://www...../whitepaper/index.html>. In addition, <http://www.local.gov.za/SALGA/salindex.html> linked to a blank page, and some of the pages failed to open, for example the Identification Amendment Act – the evaluator commented that she had to wait too long.

2.4.2 Search

Two evaluators were satisfied with the search mechanism. One did three searches and detected no problems: "I found the information that was retrieved correct and the ranking useful." The other considered the search mechanism as "easy and effective", and that ranking and weighting were well done.

However, the other evaluators did not find this aspect satisfactory at all. One described it as "bad, bad, bad", and another considered it as an area that impacted negatively on the actual success of the site: "It puts you off and one thinks twice before trying it again."

The search mechanism was considered not user-friendly for the following reasons:

- There was no clear distinction between simple and advanced search facilities, or between the part of the site that facilitated full-text retrieval and the indexed database.
- Evaluators felt the advanced search was hidden and that users should have had an option earlier or higher up to access the search category.
- No explanation was provided of how searches were going to be executed

(boolean + or -, proximity, etc.), how ranking took place and what 'power' search meant. It was also not possible to determine whether headings were indexed, to what depth pages or records were indexed and whether stop words were used, and if so, how they were determined. One evaluator also stated: "Author does not mean anything".

- One evaluator stated that keywords were not available. In addition, It was not clear if and how truncation and wildcards were functioning: "It seems as if * does the job, but I couldn't find the description in the help." One evaluator suggested including proximity and date selections for the simple search.
- One evaluator commented on "serious inconsistencies" in the functioning of boolean operators. She stated the example of a search on the names of premiers of provinces. The search query "premiers and province" yielded a result count of 273 retrieved documents, of which none of the first twenty-five displayed were relevant, although the top three listed were indicated as 100% relevant. In addition, the same search, separating the keywords by a comma, yielded 1281 documents, and the relevance ranking started at 75%. However, when the boolean OR was used, 1281 documents were again retrieved, but the first 25 records were not the same records retrieved by using the comma, and the relevance ranking started at 100%.
- The search interface was criticised because of the use of pull-down menus. An evaluator regarded these as deceptive: "I only saw the *Speeches and Press Releases* options and later found out that other options are listed below those." The query box was regarded as too small.
- Several negative remarks were directed at the returned results. Firstly, different results were found when entering the same search term in lower and upper case (for example SITA versus sita): "Either the coverage is very superficial or the retrieval is very shallow." Secondly, one evaluator regarded the first lines of actual text of documents displayed as "often not descriptive". Further criticism included that the search mechanism did not support clustering, sorting, subcategories, image searching and search limiting, that the sizes of files were not displayed, that second level searching was not available, and that only 25 results were displayed per page and that this was not customisable.

2.4.2 Design and layout

2.4.3 General comments on the navigability and/or search mechanism of the website

One evaluator remarked that navigation was “good”. Another described navigation and search as “bland and unfriendly”. Reasons provided by the latter were:

- Results did not give any context, for example information on the category the result originated from or where in the text keywords occurred, or how many hits/keywords occurred.
- “If you open a link in the result of a search, for example a tender, you get a very funny format.”
- Documents were provided in PDF format.
- No provision was made for easy updating/search on newly added information on the whole of the website, e.g. “information added within the last week”.

Recommendations included the inclusion of a site map and the availability of multiple ways to navigate. In addition, one evaluator commented that cross-referencing/linking of information might add to the functionality and a more integrated feel on the website.

2.5 Design and layout

2.5.1 General impression

The general impression of the website ranged from “professional” to “practical, but boring/bland”. The use of the South African flag and flag colours was commended, while one evaluator remarked that considerable consideration had been given to making it appealing and representative of South Africa.

The “cave drawings of the Boesmans” were questioned for its “political correctness”. One evaluator considered the look and feel of the site as excellent, but criticised the use of the black navigation bar: “The extensive use of the black navigation bar can be distracting.” Another evaluator, who considered the white on black as too strong, shared this sentiment: “It interferes with the layout and the lettering is difficult to read.” In addition, one evaluator remarked that the website was not “terribly exciting for young people”.

2.5.2 Design and layout

The design and layout of the website were considered as user-friendly, and not too complex. There were conflicting findings on consistency: one evaluator remarked positively on the fact that the static components of the site were presented in the same place on all the pages, while another remarked that the design and look of the site felt consistent. However, one evaluator mentioned a lack of consistency in creating links, for example to tenders.

Evaluators recommended giving attention to “style and flair”, to the navigation bar with regard to size and colour, and to the prominence of links on some of the pages. It was also stated that the layout was not resizable. One evaluator considered the use of tables as “good”, but another considered the tables on the pages of the different ministers as “very stereotyped and boring – they could be more exciting, with more graphical information”.

2.5.3 Text readability and visibility

All four evaluators considered this aspect as satisfactory. Specific aspects mentioned were the font colour and pitch and visibility of text. However, one remarked that the site was boring, and recommended that more colour/background be used. She also remarked that fonts were not standardised and in most instances “old-fashioned and drab”.

2.5.4 Graphics, images and animation

One evaluator was satisfied with the use of graphics: “I didn’t find any distracting animation or large graphics, and did not experience any problem with downloading time.” However, she felt that the site could be more colourful. The second evaluator felt that graphics were very limited and not used in a creative way. The third considered this aspect as a potential problem. She found that the contents of the national symbols page took a long time to download, “which means a no interest page”. An evaluator recommended: “The excessive use and combination of various images and animation must be carefully controlled to ensure that there is no clashing with regard to image orientation on the home page and most importantly the downloading time of the pages.”

2.5.5 Interaction/use of forms

Comments made were that forms were clear and easy to understand, that they provided clear and easy to follow instructions, and that *Contact Us* was simple and effective. One evaluator indicated that more government forms should be made available.

2.5.6 General comments on the design/layout/presentation of information/aesthetic aspects of the website

The following comments were put forward:

- “Overall, I think it is a good and clean design.”
- “Graphics, for example the logo of the specific department, could be added to speeches to make it more appealing (as part of a house style).”

2.6 Purpose and audience

The general view was that the site suited its purpose and intended audience. One evaluator commented that the content appeared to be relevant to the subject domain and would therefore probably have been interesting and valuable to the user. However, two evaluators thought that it was not clear who the intended audience was. According to one: “I am not sure if it is for South Africans or for overseas visitors”.

One evaluator considered the site as an excellent source of information on government issues, especially “if you have the time and ability to delve deep into the layers of usable information”. One evaluator felt that needs with regard to current awareness were not catered for.

2.7 General assessment and remarks

2.7.1 Overall rating

Three evaluators rated the site as “good”, and one rated it as “poor”.

2.7.2 General comments

One evaluator commented that the site was a good attempt at bringing together diversified information into one usable form whilst still maintaining a unique character. One respondent remarked: "Congratulations on a job well done."

3. HEURISTIC EVALUATION – CRITICAL EVALUATION OF THE WEBSITE

3.1 Introduction

The critical evaluation was conducted by the author during the period 23 August to 8 September 2000. The list of criteria and indicators (see chapter four, paragraph 7) was used for this method, and the content and features of the website were compared against the criteria to determine to what extent the website complied with them.

3.2 Content and scope

3.2.1 Orientation to the website

An overview of the website was available from the *About the site* button at the bottom of the home page. Background information on the development of the website, its main objectives, a short listing of information content, as well as information on document formats and instructions on how to open documents were provided. However, no statement on the intended audience was found.

The overview did not provide a real understanding of the breadth and depth of content. Although it was stated that the website acted as an entry point to government information and that it carried information content, it was not clear when content and when links were provided and how linking to other websites was approached. Some of the main pages, for example *Documents, Reports & Forms* did not provide a clear indication of the content thereof, on the information included or omitted or on how the information was handled. It was also not made clear (either in the overview or within the site itself) how far back information dated.

There was no disclaimer statement on the website. Without a disclaimer statement the developers of the site would not have been covered should information have been out of

date or incorrect. Only some instances were found where a page was copyrighted (*National System & Structure; Speeches as delivered per Deputy Minister*).

3.2.2 Authority of the website

It was clear that the Government Communication and Information System (GCIS) maintained the website. Almost every page displayed a link to the GCIS's website which provided an overview and contact information for the department. However, the statement "Maintained by Government Communications" was omitted on a few pages (for example *Ministries*) and it was not phrased consistently throughout.

The URL (<http://www.gov.za>) gave a clear indication of the 'domain' of the website and thus supported the concept of an 'official' site, i.e. that it was the website of the South African government. The site did not, however, contain an explicit statement that it was the official South African government website.

Authors of documents or references were provided where applicable, for example the *South Africa Yearbook 1999* (in the case of *National System & Structure*), the *South African Government Directory* (in the case of contact information) and for speeches and media statements. It was thus easy to determine where documents originated. However, where chapters of the *South Africa Yearbook* were used at *SA: An Overview*, a general reference to the source was found only on the index page, and not on the individual pages themselves. This could have caused problems when these pages were printed, since with later use the users might not know what the source and date were.

Where the *South Africa Yearbook* was listed as a source, a link was provided to the index page of *SA: An Overview*, obviously with the intention to link to the complete publication. This would have been acceptable if the entries to this page had linked, since that page also included links to information from other sources. This practice might have been confusing to users, as the link and the information found at the other side thereof did not correspond.

In some cases contact information for an author was not available. Where this information originated from the GCIS, it was not regarded as a problem. However, at *National Symbols*, contact information should have been provided.

With regard to reliability, most information seemed to be error-free and accurate. However, incorrect or out of date facts were presented on some of the main pages providing text

overviews. For example on the *Constitution* and *Local Government* pages, the text still referred to the Department of Constitutional Development (changed to Justice and Constitutional Development at the time of the research). In addition, when information on the vision and mission of government departments was verified against the same information on departmental websites, instances were found where the information differed. Discrepancies were also found with regard to contact information.

3.2.3 Comprehensiveness/information coverage/scope

The website presented a fairly comprehensive and balanced choice of material, since it provided access to information about a variety of topics, such as government documents, speeches and media statements, information on government systems and structures on national, provincial and local level, and information on South Africa and Africa. In addition, there were announcements on upcoming national and government events/activities and links to relevant websites were provided. All information was necessary and useful. However, when compared to the type of information covered on other government websites as described in chapter five, and considering the scope of South African government activities as well as documents available in hard copy format, the website was not comprehensive enough.

With regard to the breadth of information, information categories such as public service vacancies, government projects, campaigns and programmes, and government services were not available on the website. In addition, the opportunity for two-way communication between government and citizens or for so-called digital democracy (see chapter 5, paragraph 2.3.3.12) was not provided.

The depth of information in most categories could also be improved. The situation with regard to individual categories was found to be the following:

- Government documents and publications. Only five government forms and two annual reports of government departments were available on the site, while sub-categories such as *White Papers* and *Reports & other documents* were not complete.

Important documents such as the Government Gazette and provincial gazettes were not available. With regard to the former, Acts and Bills were available as separate document categories. Some Bills published as notices were found in the *Bills* sub-category, but with no explanation that some notices were indeed available. There were

some regulations and proclamations on the *All documents per subject* page that were not included on any other document page.

Legislative documents were listed on the site according to specific categories or subjects. There was, however, no indication what their status was, and how different documents ultimately related to the same legislation in process or ultimately passed.

Other types of government publications that were not available or comprehensive enough were reports of the Auditor-General, statistical reports and reports of commissions and committees, amongst others. Another omission was online publications of government departments and bodies, or any reference or links thereto.

The site only contained government documents published since 1997. This seemed to be inconsistent in comparison with the *Speeches* category, where information since 1994 had been made available.

- Government structures, functions, officials and contact information. This category was relatively comprehensive, especially on national government level. In some cases, e-mail addresses of departments or officials were not available, while the *Presidency* page did not include information on the Minister in the Presidency. The question arose whether the listing of *Government Bodies & Institutions* had been comprehensive, and if the website should not have contained more information about some of these institutions, for example those specifically mentioned in the South African Constitution.

Some information about government departments was contained on the site, for example the mission, vision, functions and contact information of each. This, however, was found not to be comprehensive and updated, and as already mentioned, differed from that found on departmental websites. Should this type of information be carried on the website itself, the user might also expect information on organisational structures of departments.

The scope of information presented for this category was not consistent for the three levels of government – more detail was provided for national government than for the other two levels of government. In fact, except for links to provincial government websites, contact information, name lists of premiers and MECs (members of executive councils) and profiles of the premiers, the *Provincial Government* category did not contain much information on the various provincial governments structures. Local

government information was even more limited, and no contact information for local government structures was available.

- Government activities, programmes, events and news. Provision was made for the announcement of events from *Events* on the home page. Announcements linked mainly to other websites or to press releases or newly released documents carried at relevant sections on the website. It did not seem as if there was a policy that determined the length of the period the event was carried, inter alia how long before the event actually took place was the announcement posted on the site or for how long were announcements kept available. It was also not clear if events were selected according to specific criteria – it was, for example, not always evident why a media statement would be classified as an 'event' or merely as 'new' information on the site.

The site did not contain any information on government projects (for example presidential lead projects), while recent news about government (for example newsletters), fact sheets or FAQs on specific key issues such as HIV/AIDS also did not feature.

- Press releases and speeches. This category seemed to be comprehensive – it included information since 1994, as well as speeches made by the former president, Nelson Mandela.

Despite the fact that speeches and media statements of government officials not in office any more (since 1994) were available on the site by means of the search engine (*Searchable Database*), access to this information was not available from the web pages. In addition, the speeches made by provincial officials were not as comprehensive as those made by national government representatives.

Provision was made for a category: *Speeches by foreign delegates*. However, only six speeches made between August 1994 and November 1999 were available. This raised the question about the scope or purpose of this section. As in the case of previous government officials, this category was only available from the *Searchable Database* and not from the *Speeches & Press Releases* page.

- Information about South Africa. The site contained a wide variety of information about South Africa at the *SA: An Overview* section. The information was mainly sourced from the *South Africa Yearbook 1999*. Information from other sources included public

holidays, school calendars and entries on work permits and immigration. Important topics missing from this category were statistics on South Africa, for example labour statistics and census information, as well as a country profile and demographic information.

- Tourism and business information. Links to travel and tourism websites were available from *Travel and Tourism* on the home page and *SA Webs*. Links to business sites were also available from the latter, but was not evident from the title. Except for indexes to sites, no additional value had been added to make this an interesting and more attractive section to attract investment and tourism to the country.
- Links to other websites. The website was found to be useful as information resource in itself, as well as with regard to links to other information. The site contained an extensive index of websites that linked to a wide variety of South African, and a selection of some international websites. The topics covered were relevant for a government site to link to, as it covered, amongst others, topics such as development, education, health, labour, tourism, environment, housing, business and finance, etc. Links to government sites in other countries were also included. No explanation was found about a selection policy for external websites. It was not clear from where external sites could be accessed. Some users might have expected *SA Webs* to be the logical location from where all external links could be accessed. However, it was hidden and only accessible from a deeper layer (*SA: An Overview*). There were also other links, some embedded in text and others from sidebar links at other sections of the website, for example *National System & Structure (Government Bodies & Institutions; Related links)*, *Provincial Government* (provincial government websites), *Local Government* (websites of municipalities), and so on.

A separate button on the home page was effected for links to African sites. This section contained links to SADC countries, the SADC and OAU websites and to an index page linking to websites of African countries. This page provided only a set of links, without information on important issues such as regional co-operation.

- Information in non-text formats. The only information in non-text formats included photographs of government officials and images of national symbols.

3.2.4 Currency and timeliness

Frequency of updating was found to be satisfactory and relevant to the subject matter. During the evaluation period the website was updated three times per day, but no updates were made during weekends. New information (shortened titles of documents or speeches) was announced prominently on the home page, with the latest additions highlighted. These announcements were provided per category, for example *Speeches/statements, Legislation, Bills, Tender Bulletin, Contact Information, Government Structure*, and others as the situation determined. This enabled users to immediately see the latest additions to the main sections.

The date and time of the latest site update was indicated at the top of the list of new information on the home page. However, no indication was given when specific documents were added to the site, or what the update frequency of the site was.

It was also not clear if the *What's New* section announced new content posted on this website only, or that posted on other government websites as well. It appeared as if only selected information items on other government sites were announced on this site. In addition, it was not clear for how long 'new' information was displayed on the home page. It seemed as if this was determined by the amount of new information available, and thus differed from day to day and from category to category.

A clear indication of when individual pages and documents were last updated or 'modified' was provided on almost every page, thereby indicating that the site contained current information. Some instances were found where these dates were omitted, for example *Foreign Missions in SA, SA Webs and Africa*. Update dates were also not displayed consistently at the same place on pages. The norm was at the bottom of pages, but at *South African Representatives abroad*, for example, the last updated date was displayed at the top of the page, and at *The Presidency* in the content table.

It was difficult to determine if the latest information was available in all instances. Refer for example to a previous statement (paragraph 3.2.3) about the 'overview' information of departments – the bulk of this information was last updated during 1998. In addition, contact information for government bodies was generally updated during February/March 2000, which raised the question if later changes were always identified and added. The same question may be asked with regard to the profiles of government officials. In addition, the latest speeches and documents were not always included in the last updates.

Another page that was not updated was the *Elections* page. It only had information on the 1999 elections. At the time of the research users might have expected information on the site about the municipal elections scheduled for the period between November 2000 and January 2001.

Some dead links were found, including both internal as well as external links. An example was the *SA: An Overview* link on the *SA Webs* page.

3.2.5 Objectivity and fairness

The website was found to be objective and free of advertising. Only factual information was provided and in an unbiased manner.

3.2.6 Writing and editorial style

Text was written in a clear and consistent style, and a professional tone was used. Jargon was absent and no obvious grammatical, spelling and other typographical errors were found.

In general, the presentation of information meant to be read online was concise and easy to scan because of the use of bulleted lists, the clear display of headings and the bold text used for headings. The writing style of longer documents was suited for printing.

Headings were mostly simple, plain and distinct enough to allow users to find information. However, in some cases menu entries and headings of the page linked to differed, or headings did not match the content linked to. Examples were: *Government System* and *National System & Structure*; *Deputy President* and *The Presidency*; *Ministers* and *Ministries*; and *Speeches* and *Speeches & Press Releases*. Some of these pages did not present any real problems, but others might have caused ambiguity. Using *Government System* might have created the expectation that users would find all information on national, provincial and local level; instead it linked to a page with national government information. Similarly, after selecting *Speeches*, a page offering press releases in addition to the speeches was displayed.

Instances where headings were missing were found, for example *1999 Documents per subject* and the page containing the government diagramme.

In some cases, different headings linked to the same information: the *Government & Politics* heading at *SA Webs* linked to *South African Embassies*; *Related links* at *National System & Structure* linked to *SA Missions abroad* – the first contained links to websites, and the latter contact information on South African representative offices in foreign countries.

In addition, text chosen for the side navigation bar or menu entries were not always self-explanatory. While an attempt was made to keep the entries short and concise, context was lost in some cases. Examples included: *Portfolio list* and *Combined Contact List (Ministries and Deputy Ministries pages)*; *Related Links (Provincial Government and Local Government pages and the Constitution page)*, *MEC List (Provincial Government page)* and *Related Links (National System & Structure)*. In addition, a heading such as *A rainbow country (SA: An Overview)* did not give the impression that it would link to information on, for example, the climate of South Africa. Some inconsistent headings were also found, for example *Cabinet* and *Cabinet Members and Ministers*. Also, the term *Legislation* was used for Acts carried on the site. This concept (legislation), however, actually has a broader definition and pertains to other government documents such as Bills. In the case of *Overview and diagram*, the page linked to a text overview (*Government Overview*), whereas the diagramme was presented one level deeper.

Overall, appropriate titles for index pages allowed the evaluator to quickly understand the information presented. There were instances, however, where page titles were not changed to reflect changes in content, for example in the case of *Presidency*, "Office of the President" was used for the page title. Some inconsistencies were also found with regard to naming conventions for titles, for example *Ministers home*, versus *Deputy Ministers index* versus *Green Papers index page*. Also, as titles were already short, the use of abbreviations was not necessary. In contrast with index pages, not all HTML documents contained HTML titles, or in the case of PDF documents, not all PDF fields were indexed. This became evident in the results lists displayed after searching.

3.2.7 Language

Language used on the website was mainly English. Only two instances were found where some of the other official languages had been used. This was at *National Symbols* and *Speeches* (some Afrikaans speeches when originally delivered as such).

3.3 Information architecture/organisational structure

3.3.1 Organisational structure of the home page

The home page was busy, but well organised. It was clearly divided to provide distinct functionality; the main categories were provided prominently on the left hand side of the screen in the form of a bulleted list, the announcement of events in the middle column and new information was posted on the right hand side.

The main categories provided a general overview of the content available on the site. The choice of main categories, however, created the impression that the main focus of the site was organisational information, but when one browsed the site, it was found that this information was spread out more horizontally than other categories, not necessarily constituting more important or broader information content. The first category presented on the home page, for example, was *Government System*. However, the subject matter of the other main categories, *President*, *Deputy President*, *Ministers*, *Deputy Ministers*, *Provincial Government* and *Local Government*, also form part of the government system. This immediately raised the question about what the choice of sub-categories for each would be. Should the developers have reasoned that these categories were more important than others, and therefore decided to put them on a higher level, I do not believe choices were made logically – should information such as governmental contact information, the Tender Bulletin, national symbols and the websites of government bodies not also have been handled in the same manner?

It was not evident from the links on the home page that certain information was available at deeper levels of the website. Contact information, links to other websites, profiles, budget information, as well as information relating to national identity are examples of information that was not easily identifiable from the home page.

The font size used for titles listed under *What's New* was very small in relation to other information on the page, and therefore difficult to read. Individual titles were not clickable. Headings linked to general category listings presenting all the information available in these categories and not only to the new titles. In addition, the new information was not always presented in the same sequence as on the home page.

The search option was displayed at the bottom of the page amongst navigation options such as *Contact Us* and *About the site*, making it difficult to detect. This problem was

exacerbated when the home page became very long when there was a substantial amount of new information and/or events and one had to scroll to see all the new information or announcements of events.

The mix of graphics and text items on the home page was aesthetically pleasing. The graphic banner at the top was well presented and contributed towards making the home page visually attractive. Graphics were not applied too extensively as to impose long downloading times. However, text used for the announcement of events was difficult to read due to the imbalance created as a result of the size of the accompanying graphic.

3.3.2 Organisational scheme of the website

The website mainly applied a hierarchical organisational scheme. In general, the site made use of menus linking to sub-menu and sub-sub-menu structures and then to the information itself. In these cases the menu structures made provision for a hierarchy from the more general concepts to more specific topics.

This practice was, however, not consistently followed. In some cases an index provided access to different categories of information for a variety of similar entries (*Ministries, Deputy Ministries, National Departments*). In other cases the information itself was immediately presented on main pages. The *Provincial Government* and *Local Government* pages were for example presented as detailed text overviews from where embedded links lead to relevant information or more detailed information. Where the text did not allow for information topics that were needed for the specific main category, provision for these topics was made from the side navigation bar. On the *Presidency* page some detailed information content (contact information) was provided in tabular format, while links to information that could be considered just as important were provided from the same table or from the side navigation bar. Other examples of information relegated to lower levels include indexes such as *All documents per subject*, the profile list and the MEC list, all of which were only available from the side navigation bar (from the various document pages and the *Ministries* and *Provincial Government* pages respectively). Users would in all probability not have realised this information was available on the site. In addition, the index page of *Documents, Reports & Forms* served as an entry point to different categories of documents; one of these 'categories', however, was the title of one specific document, the *Government Term Contract*. Was this document really so important that it justified a separate entry?

A positive feature was the depth of the hierarchy structure, which varied from one to three levels. Only one instance of a fourth level page was found, namely the page constituting the government diagramme. Despite the relatively shallow link hierarchy, some important information was still hidden and difficult to discover because it was not accessible in the shortest route possible. Examples of this include information such as contact directories (so-called *Combined Contact List*), national emblems, provincial and country-wide profiles, topical information (for example health and HIV/AIDS), provincial and local government websites and websites of government bodies other than national departments.

Another problem experienced was the many long documents that were on the website, for example *Administration of Justice*, most documents available from the *SA: An Overview* page, and some of the index pages such as *SA Webs* and the document index pages. In addition, no links were provided to some of the important information contained in these documents, making this information difficult to locate or even to know about its existence. Many users would, for example, probably never know that information about the Office of the Public Protector and the Commission on Gender Equality existed on the site. Extensive use was made of the *South Africa Yearbook* to provide background information on South Africa and the South African government. Value was added in the sense that improved access to this information was provided, but by publishing complete chapters without chunking them further, much of the valuable content was hidden and only accessible by means of the search engine or by scrolling down very long documents.

Documents that logically related to each other were placed in separate sections of the website so that key concepts spanned across multiple pages. This could have meant that users who favoured browsing would find incomplete information on specific topics, as they would not know that there was more information on the same topic available on other pages. Examples are:

- Information on the Constitution formed part of a comprehensive *Government Overview* document (available from the *Overview and diagram* entry point on the *National System & Structure* index page), but was also presented as a separate document available from the *Constitution of the Republic of South Africa* entry on the same index page as well as from the *SA: An Overview* page. Although the text of these documents was similar, the second also contained links to the various chapters of the Constitution and the third had even more detail, for example election results.

- Different versions of information on public holidays were available at *Arts, culture and religion (SA: An Overview)* and as a separate entry on the same main index page.
- Information on some of the national symbols was available at *Arts, culture and religion (SA: An Overview)* but a complete description of all was available at *National System & Structure*.
- Speeches and press releases of some provincial officials were not grouped with those of the national and other provincial officials, but were only available from the side navigation bar from the *Provincial Government* page.
- Information on provincial profiles was available at *Provincial Government* as well as at *SA: An Overview*. A country profile was available at *SA: An Overview*.
- A separate *Elections* page existed, but other information on this topic was also available from *SA: An Overview*.
- Duplication of entries was found on different levels of the website, for example the home page, and from the *National System & Structure* and *Government Overview* pages (*President, Deputy President, Ministers, Deputy Ministers, National Departments*); in some cases different information was presented and in other cases information was similar.
- Another example was *South African Missions abroad* and *Foreign Missions*; information on these was available from *National System & Structure*, but links to some of the websites of these offices were provided at *SA Websites*.

The way in which *Portfolio lists* on the *Ministries* and *Deputy Ministries* pages was treated is another example of inconsistency. The information was available from the side navigation bar on the relevant pages, but with *Deputy Ministries* the list formed part of the index page, without a heading other than *Portfolio List*. Were it printed as an independent unit (which had probably been the aim), context would have been lost. A solution could be to treat it the same way as at *Ministries*, i.e. as an independent page that can stand on its own.

A positive aspect of the website was the alternative methods of organising and providing access to documents as well as speeches and press releases. In the *Government*

Documents & Reports section the different types of documents (for example legislation) were chronologically ordered per annum. The different types of documents were also arranged alphabetically per subject for each year. Thirdly, all documents for all years and all types were presented together and organised per subject. Speeches and media releases were sorted per annum, or alphabetically per speaker. Other alternative methods such as different listings of, for example, ministers and their portfolios were also found valuable, but were not sufficiently visible or identifiable as additional organisational tools.

3.4 Navigation and search

3.4.1 Site navigation

Overall, the site provided an easy way to browse and navigate it. Structural as well as local links were provided, and pages provided easy access to relevant pages.

Structural links were available on all pages. All pages contained a link to the feedback form and search mechanism, and the top navigation bar contained links back to the home page as well as links to the main information categories as presented on the home page. This allowed users to immediately access other main sections of the website from any page on the site, without having to use the *Back* or *Home* buttons. However, the sequence presented in the top navigation bar differed from that of the home page, while the phrasing of some entries was inconsistent with that used on the home page. In addition, the *Africa* entry was omitted from the top navigation bar. The principle of applying 'breadcrumb trails' (links to the levels of the hierarchy immediately above the current location) was followed only in some instances, such as on the *National Flag* page, where a link was provided in the sidebar to *National Symbols*.

Despite the fact that the top navigation bar provided various navigation options, it was not optimally usable and accessible. The text used on the top navigation bar was difficult to read because of the small font size and the use of white text against a black background. In addition, it was cumbersome to scroll back to the top of the page on longer pages.

Some duplication of structural links was found, for example: on the *Department of Agriculture* page and similar departmental pages the home page link was duplicated in the sidebar; on the *SA: An Overview* content pages a *Back to Index* button linked back to the *SA: An Overview* index page, while the link was already available from the top navigation bar; on the *Ministries* page, the entry *Deputy Ministers* was available from the side

navigation bar as well as from the top navigation bar; on the *National System & Structure* page *Provincial Government* and *Local Government* were duplicated in the side and top navigation bars.

The sidebar navigation constituted a method to provide local links to relevant information, as the links provided access to information deeper down in the information hierarchy and to relevant information. This feature provided the user with the opportunity to cross-navigate between different types of information without having to go back to the home page or the main categories. However, the side navigation bar was not applied consistently and logically and was used for various types of links. It linked, inter alia, to:

- Related information that was available on the site itself, for example *List of Profiles (Ministries page)* and *Legislation/documents on Public Service (National Departments page)*.
- Information that provided more detail about the relevant page, for example *Section in the Constitution (Ministries, Deputy Ministries, Provincial Government pages)*.
- Other websites, for example *Related Links* on the *Provincial Government* page.
- Other sub-categories of the same information category, for example at *Documents Reports & Forms*.
- Additional indexes, for example *Portfolio list* (on the *Ministries* and *Deputy Ministries* pages), *All Documents combined* (on the various *Documents, Reports & Forms* index pages), *Cabinet Members' Speeches* (on the *Speeches & Press Releases* page).
- Information that formed part of the same category, but was placed on a deeper level. For example, on the *Presidency* page, the sidebar linked to the profile of President Mbeki; on the *Provincial Government* page, the entry *Contact Lists* linked to the contact information for provinces.

Other problems identified are as follows:

- Only a few of the longer pages (for example *Government Overview* and *Green Papers*) contained bookmark links or a short list or index to assist navigation. Longer text pages as well as some index pages (for example *Documents per subject* and the other

document index pages) would have been more usable if 'top of the page' options were available. In addition, pages such as *The Presidency* would have been more usable if a link from the *Deputy President* section was provided to the top of the page. In contrast, on pages such as *Deputy Ministries* and *Speeches & Press Releases*, links such as *President*, *Deputy Ministries*, or *Speeches per Annum* respectively would possibly have been more suitable than *Top of Page*.

- The bottom navigation bar was missing on some pages, for example *Ministries*, *South African Missions abroad*, and *Foreign Missions in SA*.
- Links did not give users explicit clues to where they would lead and how much information was at the other end of the link.
- Other than the subject indexing of documents and an A-Z index bar on some of the documents pages, the site did not contain methods to assist the user to form a mental model of the website – such as an alphabetical index, a site map, tables of content, spatial or geographic overviews or help sections.

3.4.2 Search mechanism

Although the use of Verity's Search97 search engine offered a potential powerful search mechanism for the site, the practical implementation thereof was not successful.

A positive feature of the search mechanism was that the search option was available from the top as well as the bottom of all pages. Both search facilities allowed for boolean searching, the entry of phrases and variants (such as case sensitivity and stemming), the selection of default, simple, standard or power view for search results, and for controlling the size of the results list. Documents in both HTML and PDF formats could be retrieved. Refinement of searches was possible when the standard and power views were selected. In addition to the above, the *Searchable Database* also made provision for the selection of specific data collections, field searching (structured fields as well as text fields) and the sorting of results according to date or score (descending or ascending).

The following main problems were detected:

- The criterion about the availability of some kind of simple as well as advanced search was adhered to. However neither of these two options was available for the complete

site – the 'simple' search (*Search the Government Online World Wide Website*) could only be used for documents on the web pages, while the 'advanced' feature (*Searchable Database*) searched for documents that had been indexed in an information retrieval system. Also, the *Search the Government Online World Wide Website* could not really have been considered a simple search, as it contained features such as 'standard' and 'power' view.

- It was not possible to use the two search mechanisms together for a comprehensive search on the site. For example, using the first and most prominent search facility (*Search the Government Online World Wide Website*) to find Mbeki's speech at the AIDS conference did not yield the relevant speech, not because it was not available on the site, but because it was not available through the specific search mechanism. An aspect that might have exacerbated confusion was that some provincial speeches were picked up by the latter search engine (*Search the Government Online World Wide Website*) – something that might have created the impression that speeches were available by means of this search engine. These were, however, speeches that were available from the *Provincial Government* page.
- It was not clear what the scale of resources was and what type of terminology was used in the database. Natural language searching was also not possible. In addition, the search interface was too complex. Terms such as 'default', 'simple', 'standard' and 'Result count' would probably not have been familiar to the average user, and were also not explained. Another factor that contributed to the difficulty of use of the search mechanism was that there was no indication whether stemming, case matching, stop words or other transformations could be applied.
- In one instance, at *Speeches & Press Releases*, an attempt was made to include a scoped search, and a link, *Search on Speeches*, was provided on the relevant page. However, the link took the user to the search interface of *Searchable Database*, where speeches were listed together with other information categories. The relevant data collections for speeches still had to be selected, adding an extra step for the user. In addition, as these data collections were listed at the top of the list (other options were not visible), the user could easily have entered a search query without realising he/she had to make a selection, thus getting back many irrelevant hits.
- It was difficult to search for speeches or media statements of specific officials. When entering a specific name in the text field, the results returned many irrelevant

documents. The reason for this was probably that although provision was made for date and title fields no field was available for names of officials. It was therefore easier to browse to find speeches made by specific officials.

- The system did not allow for variants such as phonetic variations, abbreviations, or synonyms from a thesaurus. When a search had been executed, it was also not possible to immediately change the search parameter to produce a new set of results.
- No provision was made for the clustering of results lists. No explanation was provided of how relevance ranking was performed. It was also not possible to save search results and to set parameters.
- Some results included incomprehensible titles, for example “zer1708.tmp” or only a URL. This was especially found with older documents on the site and resulted from PDF files or HTML titles that had not been indexed.
- Search terms were highlighted in documents searched from the *Searchable Database* but not from the *Search the Government Online World Wide Website*.
- When the ‘power view’ was selected, results indicated that documents found contained “no pages” (this occurred when documents were less than one full page).
- No facility was available on this website to search for information on other government sites.

3.5 Design and layout

3.5.1 Design and layout of the website

Overall, the website was found to be visually pleasing in terms of aesthetic qualities such as colour, layout and appeal, and the use of the South African flag and Khoisan figures contributed to giving the site a national identity. The use of features such as images on the home page to visualise upcoming events, icons at menu entries, photographs on the *Ministries* and *Deputy Ministries* pages, as well as the use of the images of the national emblems (*SA National Symbols*) contributed to its general appeal and to make the site colourful.

Overall, the graphic balance of pages was good. The balance between the header and rest of the pages was satisfactory, and the page elements were in most cases consistently applied for all pages. However, the size of the images used for *Events* on the home page was too big, and contributed to an unbalanced relationship between text and images, making the text more difficult to read. Some inconsistencies were detected in the display of information in specific locations, for example indication of 'last updated' dates. In addition, pages that acted as index pages were not consistently displayed. The index for *Combined Contact Lists*, for example, was displayed in a visible table, while other pages made use of bulleted lists or provided text overviews.

In general, information was organised effectively on the screens. However, some pages were cluttered and some index pages contained information that just kept on and on, for example *SA Webs*. In addition, on many pages links were underlined, a practice that is not necessary on these pages, while spacing between entries was often too limited.

It was not always clear what criterion determined the sequence of menu entries on pages. For example, the *Documents, Reports & Forms* page did not present information alphabetically; neither were similar things grouped together, or more important aspects displayed in more prominent positions or 'first in the normal reading order'. In contrast, pages such as *Ministries* displayed information alphabetically.

Overall, the site was well designed and easily viewed with a 15" monitor. In some cases the right hand part was cut off when printed, for example *The Presidency, Department of Agriculture* and similar departmental and *Ministries* pages, as well as the page containing the government diagramme. A few index pages were also cut off, but these would probably not have been printed by users (home page and *National Departments*).

As already mentioned, the website contained a number of documents that were too long and took long to download. Most of these documents did not contain internal navigation aids such as indexes at the top of the page and 'top of the page' links. Sometimes one had to scroll through as many as 24 or more pages or print them to determine what content was included. Amongst these were *Administration of Justice*, most documents in the *SA: An Overview* category and a Power Point presentation available from the *Presidency* page.

Main index or menu pages were generally within acceptable limits, but as stated before, the home page sometimes got too long with the addition of new information or events, necessitating scrolling to see all entries. Despite the statement made in chapter four that

longer index pages are not necessarily unacceptable, several secondary index pages on this site were still too long, for example *SA Webs, Government Bodies & Institutions*, and generally all indexes in the *Documents, Reports & Forms* category (*2000 Documents per subject* was 10 pages long), requiring users to scroll too much.

Index pages such as *Ministries* and *Deputy Ministries* and content pages such as *The Presidency* made use of visible tables, of which the table borders were shown. The use of double lines, together with the underlined links resulted in some of these pages looking busy and cluttered. The display of entries such as *Speeches and press releases* in an extended table on the *Presidency* page made the text difficult to read.

The website was written in standard HTML. Government documents were, however, provided in either PDF or HTML format. No indication was provided of which documents were available in which formats. Downloading time of PDF documents generally took too long.

3.5.2 Text readability and visibility

Fonts were not always used consistently. Different font types and sizes were used. This was apparent for documents as well as for index pages. Compare for example *SA: An Overview* with *National System & Structure, Documents, Reports & Forms* and *Africa*. Different font types and sizes were also used for headings within documents. In some cases font size was found to be too small, for example at the *What's New* on the home page and the entries in the top navigation bar. The font used for the summaries of search results was also difficult to read.

In general, justification of text did not present problems, but sometimes spacing, or the lack thereof made text difficult to read. At the *Director-General in the Presidency* page, for example, the postal address, street address and telephone and fax numbers were all presented without proper spacing, while the entries on the *Presidency* page were also difficult to read.

On some pages (for example *Government Overview*) text spanned over the complete width of the screen, making it difficult to read and requiring extra effort to scan through.

Throughout the site the colours of the South African flag were used for the side navigation buttons. The five colours used could be considered as sufficient. Unfortunately these

colours were relatively bright and became a bit overwhelming on pages with many sidebar options, for example the *Documents, Reports & Forms* pages. The background image, however, was applied well and did not distract from the readability of the text.

3.5.3 Graphics and images

The graphical elements chosen were found to be relevant to the information content and contributed towards enhancing it. The photographs of government officials (*Ministries* and *Deputy Ministries* pages) contributed to making these people more personal to the user, while the images on the *SA National Symbols* pages contributed to the user's visualisation thereof, thereby enriching the textual description. The use of the South African flag for the icons on index pages and the flag colours added to the perception of visual unity. Graphics were not too big to influence the downloading speed negatively. The evaluator was of the opinion that there were many more photographs that could have been added to the site and that the design might have been enhanced if more graphics were used as an integral part of the design.

3.5.4 Interaction (forms)

Easy access to the feedback facility was provided on the home page and all other pages. The feedback form invited users to comment on the site or to submit general questions and was simple and easy to complete. The automatic response the user received after submitting the feedback form, as well as the fact that the form provided the opportunity to request response or comment on the website, contributed to two-way communication and demonstrated government's willingness to respond to the users.

However, no indication was given of the time-frame within which users could have expected a response. The distinction between the types of query that could be submitted by means of the form versus those that had to be submitted to the Information Centre was also not clear, both in the wording and in the display of the instruction. In addition, the distinction between website related queries and content queries, and the fact that the first was handled by means of a feedback form and the latter by means of an e-mail facility did not make sense.

3.6 Purpose and audience

Overall, the website fulfilled its purpose to act as an entry point to government information on the Internet. However, it seemed as if priority was afforded to carrying information content and keeping it maintained in favour of providing access to government information on other sites. At the time of the evaluation, users had to go to the individual government sites to determine what information was available on them.

A formal and official style was achieved by following a formal writing style and by presenting mainly official documents. As this evaluation concentrated on the more sophisticated user, the site was considered as appropriate for its audience.

4. USER TESTING

4.1 Introduction

The discount usability approach was followed for the user tests. Five users were selected as respondents. They were selected to be representative of the most common user populations, to have different levels of Internet and *SA Government Online* experience, and to be from different age and gender groups. The user tests were conducted during the period 14 to 21 August 2000. The respondents were provided with work tasks, and the tests were conducted individually for each respondent in his/her normal work environment. See chapter two, paragraph 4.3 for a description of the method, and Annexure B for the questions used.

4.2 The home page and *What's New*

4.2.1 Impression of the home page (Question 1a)

When asked to give their overall impression of the home page, respondents mostly commented positively. Comments included the home page was colourful, lovely, looked professional and well thought out, that the header was nice and effective, and that "the background is effective and not at all distracting from the content". The icons used next to the main category entries were also commented on positively. In addition, the home page was considered as comprehensive and "loaded with information", and "the left hand side seems to be a good display". One respondent thought that the home page was a good representation of the government's identity.

However, the respondents regarded the following aspects as problems:

- According to one respondent, the design of the home page in three columns was not clear enough: "When I used it the first time, the three columns did not hit me immediately - perhaps it is the font size, or the headings are not clear enough; it is also not immediately clear what the main content is and what is new."
- Three respondents were of the opinion that the *Search* button at the bottom of the page should be more prominently placed, as "I don't want to scroll down to find it", and "it is not at all clear at the bottom of the page". It was commented that the options it was grouped with did not have an equal weighting to a search facility and it was recommended that it be included at the bottom of the main content list: "You can scan down to see if you want a specific category, and then select search if necessary."
- One respondent said the home page was too cluttered.
- One respondent initially attempted to click on the icon next to the main headings on the home page, but immediately corrected this by clicking on the menu title itself.

Respondents provided the following suggestions for improving the home page:

- When moving over the buttons, descriptive information should be displayed for users to see what it is about, especially in the case of the main content: "This will entice users to use the site".
- Two respondents suggested that the home page should be livelier: "The home page is too static, more graphics could be used"; "introduce something lively, like a flashing flag or something".
- One respondent suggested that the hit counter could perhaps be omitted, as "it may appear as if the site is being boosted – as it is, however, it is used discreetly".

4.2.2 Find a specific speech that was posted on the website today (Question 1b)

All respondents got confused with various aspects of the *What's New* function. When asked to look for a specific speech under the *What's New* heading, the following problems were experienced:

- Each and everyone attempted to click on the required entry. They complained when the specific item was not returned, and expressed the need to go directly to the required item. Remarks made were: "The link is not active"; "I would have expected to click on the speech itself to find it, and not on the heading"; "I expected to be able to get the specific document when I click on it"; "This is not a hot link – I need to link immediately to the relevant information".
- Two respondents expressed dissatisfaction with the highlighting of the latest additions. One remarked: "I don't understand the colours – why is it necessary to distinguish between the newer ones and others – everything here should be new."
- Respondents commented on the fact that other information was found: "I expected to find only new information when selecting information at *What's New*, and not everything"; "*What's New* is a combination of *What's New* and a database – it's not just new documents"; "I don't need 3800 documents, only the new ones – the downloading speed would also have been faster"; "It took me to all the speeches when I needed just the specific one".

In addition, two respondents could not immediately establish that the right-hand column provided new information posted on the website, and got confused with the repetition of headings in the left and right columns. One of them wanted to know what happened with the speeches at *What's New* – "I don't know where it moves to and then I don't know where to find it."

One respondent felt that the presentation of new information was too cluttered and recommended that less information be presented. In addition, the font used was considered as too small, and the red colour as ineffective – "the red on white does not work and strains the eyes".

Lastly, one respondent remarked that he did not think it necessary to inform the user that information is updated continuously and that speeches are added daily, as “I assume that it should be done”.

4.3 Presidency page

4.3.1 Who is the President of South Africa? And Deputy President? (Question 2)

No problems were experienced to identify the correct category on the home page to determine who the president was. A specific recommendation made about the *Presidency* page was: “One page for the president and deputy president is confusing – it will be better to use office of the presidency, or presidency, or president and deputy president; either have all photos on top, and also those of other important people, with e-mail addresses.”

Positive comments were made about the inclusion of photographs on the *Presidency* page. One respondent remarked that it “will help to bring a face to the name”. Other comments made about the *Presidency* page were that the lines of the tables were unattractive and that the typeface (italics) did not work well “as it made reading difficult”. In addition, one respondent found it confusing that *TM Mbeki* was used for the link – he expected the photograph and name to be one link.

Respondents approached the task of finding information on the deputy president in various ways. Two respondents made use of the *Deputy President* button at the top ‘index’ of the page, and one of them remarked positively on the inclusion of the ‘index’ links at the top of the page: “This is ok, now I don’t have to scroll.” Two respondents did not use the index – they realised the information on the deputy president was on the same page and preferred to scroll down to this information. One respondent selected *Back* to go to the home page and there selected *Deputy President*, only to return to the same page.

4.3.2 Find the profile of President Mbeki (Question 7a)

Overall, respondents experienced no problem to locate the profile of President Mbeki. However, one attempted to find it from the *Ministries* page, expecting to find a link to the *Presidency* page.

The following behaviour was observed: Only two respondents immediately clicked on the name at the bottom of the photograph. One searched for a specific heading (CV),

remarking: “a flag on the links will help”. Two respondents expected to find the president’s profile by clicking on the photograph, as “one normally assumes it is an icon, and one would not see the distinction between the name and the icon” (expecting the photograph and name to be one link).

4.3.3 What is Mankahlana’s position in the Presidency? (Question 7b)

It was interesting to observe that some respondents did not realise that the information on Mankahlana was contained on the same page as President Mbeki’s information. One respondent used *Back* to go to the home page, selected *Speeches* and then *Search on Speeches*, with the explanation that “Mankahlana is the president’s spokesperson”. Another respondent initially wanted to do a search, but then left the *Presidency* page to go to the *National System & Structure* and *Ministries* pages: “Perhaps he is a minister or has some relation to a minister.” He then tried *Cabinet*: “Perhaps he is a member of the National Assembly.”

4.4 Documents, reports & forms

4.4.1 Find the Act relating to nuclear energy, Act No. 46 of 1999 (Question 3a)

When asked to find the Act, respondents overall were able to identify that Acts were grouped under *Documents, Reports & Forms* and then at *Legislation*. It is, however, worth noting that one respondent initially looked for this in the general category listing on the home page, and that one respondent initially opened the *Bills* sub-category to find the Act, only realising after scrolling through the index page for Bills that the wrong heading had been selected. Another respondent browsed through the right hand column on the home page (*What’s New*) and clicked on the heading *Acts*. When he found the wrong information, he opted for the search option, but when asked to browse again, he again browsed through the *What’s New* column, this time selecting *Documents*. This behaviour corresponds with similar problems with the *What’s New* column as described in paragraph 4.2.2.

However, respondents experienced considerable problems to find the specific Act requested. After selecting the correct category (*Legislation*), they did not immediately notice that the page they found only listed the legislation for 2000, and that further navigation tools were provided to find Acts published in other years. The only one who was able to identify this remarked: “If I did not know the site, I would probably have used the search option or go to the relevant department’s website.” Respondents immediately started to scroll

through the index, and when realising that the relevant document was not there, started to look for other options. Three then found the *1999 Legislation* entry in the side navigation bar. However, even then one respondent did not notice this option and returned to the *Documents, Reports & Forms* index page, selecting *Documents listed per subject*.

Specific remarks made were: "I almost got confused with the reports" (when selecting the correct option – *1999 Legislation* – in the side navigation bar). On realising that the page only contained documents for the year 2000, another remarked: "I rather should have used the search, without having so much trouble."

4.4.2 Name government documents and reports which cover transport issues from 1997 to 2000 (Question 3b)

Two respondents initially selected the option *Government Departments* with the aim of getting the documents on the website of the Department of Transport. The other three selected the category *Documents, Reports & Forms* and then *Documents listed per subject*. It was interesting to note that two of these went back to the home page and selected the category from there, even if they were already within pages of the relevant category. When they could not find the information there, they also considered going to the website of the Department of Transport.

When the first two were requested to look for the documents on *SA Government Online*, both opted to search. After observing their search behaviour, they were requested to find the information by other means.

When the relevant sub-category (*Documents listed per subject*) was selected, respondents did not notice that the *2000 Documents per subject* page was displayed and that the *All Documents combined* option was available from the side navigation bar. When alerted about the option, one respondent remarked: "I found it confusing, I didn't realise that *All Documents combined* will go to documents of all years." Another responded that she expected that *All Documents combined* would be "for all subjects, but not for all years; the title 'archive' can probably be used".

One respondent scrolled down the *2000 Documents listed per subject* page and attempted to pick out the documents that might cover transport issues. He remarked that he only saw some of the documents pertaining to transport (he did not look for a heading 'Transport'), and also only documents from 2000. When asked to try again, he noticed the relevant

heading, but remarked: "It is still only 2000 documents." He then selected *1997 Documents per subject* and announced his further intention to repeat this for every year required. This behaviour (selecting the individual years from the side navigation bar) was repeated by another respondent. Both remarked that this was very cumbersome. Only one respondent made use of the alphabetical index to go to *Transport*.

Specific comments and suggestion on the *Document, Reports & Forms* category were as follows:

- The interpretation of documents "must be more clear".
- There must be a link to the relevant department's site from the subject heading.
- All documents should be "in all subjects in all years together".
- The *All Documents combined* should be on top of the side navigation bar, "because it is easier to get everything you need at once".
- One respondent remarked that she got confused between the meaning of, for example, *Documents listed per subject* and *Reports and other documents* and whether it was going to be an archive: "It would have been nice if a flag could show the meaning of headings while running with the mouse over the buttons."
- It was commented that the alphabetical index was confusing, as the respondent expected to find document titles when clicking on the alphabetical letters.
- All documents should be chronological as well as alphabetical.

A comment was also made about the way links were presented on the *National Departments* page: "I assumed one can click on the name of the department to get more information about the department or to go to its home page – it is not necessary to include the *Home page* or the other options in the table."

4.5 Speeches and media statements

4.5.1 Find all the media statements made by Minister Asmal (Question 4a)

An interesting observation was that not one of the respondents selected the option *Speeches* for this task. One respondent selected *Documents, Reports & Forms*. The reason she provided was that she was looking for a document named "South African Government Directory", which she knew contained information on ministers, and then expected to link from this page to Asmal's speeches. When this did not work, her second choice was *Ministers*. However, she then selected *Asmal* explaining that, as she only saw the link to *Speeches* and not media releases she expected to find media releases when

clicking on *Asmal*. When his profile was found, she went back to the *Ministries* page and tried *Speeches*, remarking: “perhaps it will be here”. When the results browser was displayed, she remarked: “Now I don’t know, it looks all like speeches – is there a difference?”

A second respondent preferred to search, with his second option the *Ministries* page. The others preferred the route through the *Ministries* page. One respondent also clicked on *Asmal*, and from the profile page he then selected *Speeches* in the side navigation bar.

4.5.2 Find the oldest speech on this site made by Minister Asmal (Question 4b)

Overall, the respondents did not experience problems to find the oldest speech made by Minister Asmal. However, only one respondent realised that this was not necessarily Asmal’s oldest speech, the reason being that the results list when using the browsing option was limited to a specific number of speeches (in contrast to when the search option was used). One respondent commented that it should be stated that speeches and statements are sorted from new to old.

4.5.3 Combination of speeches and media statements

Respondents were additionally asked to indicate their preference with regard to the combination or not of these two types of information.

Three respondents preferred speeches and statements to be presented under separate headings. Comments made were: “Enquiries will specifically state a preference for one of the two”; “If it’s only media releases, the current handling is good enough. However, should public debates or departmental speeches that are not carried in the media be carried on the site, the entry ‘speeches’ is not sufficient, and a distinction should be made between the two”; and “Speeches can be open for speculation about how the user will interpret it.”

One respondent did not mind that speeches and media statements were combined. One had a specific preference for speeches and media statements to be grouped together, as “you don’t know exactly what is needed, only that clients need information on what was said”. Another stated: “It does not matter, as long as you can search it on a theme.” A remark was also made that journalists might prefer them to be separate, as they would want to find a media statement quickly.

These comments must be seen against the background of respondents' behaviour already reported on which indicated that the presentation of speeches was not clear to them.

4.6 Questions relating to SA: An Overview

4.6.1 What is South Africa's national animal? (Question 5)

Overall, respondents experienced problems to find this information. It was evident that they were not able to deduct from the home page categorisation what the relevant category for this information was. One respondent was not able to identify a relevant category at all and opted for search, while the other four initially selected the *SA: An Overview* page. Different options were attempted on this page, for example *Arts, culture and religion*, and *Tourism, Sport and recreation*, and *A rainbow country* ("I expect to find information about the country"; "I don't know what it means"), all to no avail. Another's second attempt was *Systems & Structure* on the top navigation bar, remarking: "I assume it is part of how government functions."

One respondent, after selecting *SA: An Overview*, selected *Arts, culture and religion* on the *SA: An Overview* page, finding information on some of South Africa's national symbols, but not that on the national animal. She remarked: "This is strange, I expected it to be with the Coat of Arms, I really expected it here." When she was shown where the information was, she remarked that there was duplication of information on the Coat of Arms, and that she would not have expected it there.

Other remarks or suggestions were:

- "The national identity symbols are important, I would prefer them to be separate; if we want to sell the country everyone should be able to access them easily – perhaps it should be on the home page, it is even more important than the ministers."
- "It will be easier if the national icons could be included on the home page, as they are hidden now. Otherwise at the *Presidency*, but no, it symbolises the nation, it should be afforded its own space, as this is a national site."
- "Another thing that would be nice is the national anthem with its music."

- When entering the *SA: An Overview* page, one respondent remarked: “I see a lot of buttons, but I don’t have an idea what they are about, what type of organisation is being followed – alphabetical, topical – and where the information originated from.” She suggested that an explanation be provided on the site.

4.6.2 When is Youth Day celebrated in South Africa? (Question 8a)

Two respondents were able to find the information by following the route *SA: An Overview*, *Public Holidays* and *Youth Day*. Another respondent mentioned that search would be his first option, but when browsing, he selected *SA: An Overview* from the top navigation bar and found *Public Holidays* with the remark that “it is perhaps distinct from national days but I assume it is here.”

One respondent clicked on the heading *Events* on the home page, remarking: “It doesn’t allow me.” He then scrolled down the events and remarked he would “rather go the quick way and search”. Another respondent first scanned the right hand column. He then attempted to click on the heading *Events* with the remark: “Maybe it should be under events, something like national events.” He then tried the search option. When browsing again, he selected *Government System*, not scrolling down to look for a more relevant heading: “People will not make a clear, logical connection to look for it here.” He finally selected *SA: An Overview* and initially considered finding it at *Arts, culture and religion*.

4.6.3 What do you think you will find when you select ‘Back to index’? (Question 8b)

Three respondents indicated that they expected to find the previous page, namely *South Africa: An Overview*. Another commented: “I assume it will be the previous one where I came from, but when I used search, I would not have known.” The third remarked: “I don’t know why this is necessary, because there is a *Back* – it should not be replicated. To my mind I won’t need it.”

Two respondents expected to find the home page. One remarked: “Home page in Internet language is always referred to as such.” Another expected “probably a list of public holidays.”

4.6.4 How is the media regulated in South Africa? (Question 10)

One respondent selected *SA: An Overview*, remarking: "If you really want something on South Africa, go to SA Overview." The four others opted for search, three of them after first considering other options. One remarked: "If you know which is the relevant Act, you can go to *Documents, Reports & Forms*." However, as she did not know this answer, she opted to use search. The second remarked that his first option would be to go to the responsible department's website, but then, realising he did not know which that would be, he selected search "to make things easier". Another respondent wanted to look for policies with regard to the media, "but as there isn't a link to policies, I will look at documents, or use the search engine". When shown where the information was, one respondent remarked that it made sense, "because it is information on South Africa".

4.7 Ministries page

4.7.1 Who is South Africa's Minister of Foreign Affairs? (Question 6a)

Although different routes were chosen, respondents did not experience problems to find the answer to this question. Three respondents selected *Ministers* from the home page. One selected a slightly longer route through the *National System & Structure* page, thereafter selecting *Cabinet* and *Cabinet Members*. Another respondent selected *Government Departments, Foreign Affairs, Minister*.

4.7.2 What would you expect to find when selecting 'Portfolio List'? (Question 6b)

This question was asked to determine the legibility of the term *Portfolio list*. From the responses it became clear that the term was not phrased clearly enough, and that it caused confusion. Respondents expected, for example, an "alphabetical list of ministers", "the name of departments with its ministers", "ministers and departments they are heading – perhaps what departments are doing", "something the same as here at the ministries, perhaps according to the name of the ministers", and "a list of work descriptions and work titles and what they are responsible for". One respondent remarked: "This is confusing for me – will perhaps find portfolios of ministers or portfolio committees – although this is too parliamentary – the first perhaps."

All respondents expressed the opinion that the portfolio list was a duplication of information, and did not realise that it was in fact an alternative way of organising the information. When the list was displayed, comments were made such as: “Oh, this is the same”, “it seems like duplication, I don’t know if it gives me extra info, the list of profiles is duplicated also”; “It’s a duplication of the previous page – it is still the Minister of Education and his name”.

4.8 Links to other websites

4.8.1 Find the website of the South African Parliament (Question 9a)

One respondent expected to find the link to the website at *SA Webs*, explaining: “I expect it here because it is a related website.” The next option tried was *Government System, Cabinet*, “as parliament relates to the Cabinet”. When she was asked to try again, she selected *Government Diagram* and attempted to look for a link from the section on parliament. She only then saw the side navigation bar entry to the relevant page.

One respondent expected the link to parliament’s website to be on the home page, “as it is more important than local government”. Scanning the home page, he remarked: “I’m quite lost, perhaps I should look at the overview.” On the *SA: An Overview* page, he attempted *SA Websites* and only thereafter tried *Government System*. When he saw *Parliament of the Republic of South Africa*, he remarked: “Oh, but that’s ok!” However, he expected to find parliament’s website to be linked to from this menu item. A second respondent also went to the home page to “look for something related to parliament to go straight there”. Not finding it, he selected *Government System* and then *Parliament of the Republic of South Africa*. Only one respondent immediately selected *Government System, Parliament of the Republic of South Africa*. It is worthwhile to note that this was the respondent with a high exposure to the website.

Three respondents, when clicking on the last mentioned entry, expected to go directly to the parliamentary website, and not through yet another link.

4.8.2 Find the website of the Commission for Gender Equality (Question 9b)

This link was expected under a variety of headings – only one respondent found it at *Government System, Institutions, Bodies and Commissions* without any problem. However, he remarked: “It could be confusing for others, but it’s a problem, there is a lot of information to be placed”.

One respondent first looked for a heading “something like links”, but when she could not find it, she considered the option of going to the website of the Department of Justice to find the link. She never considered the possibility of finding it at *Government System*. Another also commented: “It will definitely not be under *Government System*, it’s more a commission, a working group – I see no logical grouping for this.” When shown where it was, she stressed that it was definitely not a system.

The other two options followed were the search facility and *Government Departments*, the latter with the expectation that there would be a “link to government controlled bodies”.

One respondent suggested that all links to other sites should be grouped together with a title such as “related links”. Another suggestion was to change the home page entry *Government System* to *System and Structure*.

4.8.3 Find the website of a government department with demographic statistics on South Africa (Question 9c)

Three respondents had no trouble to identify *Government Departments* as the relevant entry. One opted for search. The last initially looked for this link at *Government Diagram*, but then from previous experience with the diagramme realised that it would not work. She then selected *Government Departments* from the home page.

4.8.4 You need information about the departments of the Western Cape Provincial Government. Find a website with this information (Question 9d)

The initial identification of *Provincial Government* was obvious to all respondents. However, not one was able to identify *Related Links* to be the link to the websites of the provincial governments. All respondents expected the embedded link *nine provinces* to provide a list of the nine provinces. When they clicked on this link, not finding the expected list, they scrolled to *Western Cape* and then through the text under this heading, not realising that they were still in the *SA Government Online* website. Respondents scanned the side navigation bar a few times, still overlooking the *Related Links*. One eventually selected *MEC List* in the side navigation bar and from there *Western Cape*, remarking: “This is a very long way.” Other fruitless attempts included selecting respectively the name of the premier and *Contact Lists*. When respondents were eventually directed to the side navigation bar entry *Related Links*, comments made were: “I did not expect it here, it was

just a question of elimination”; “This is not clear at all, you would rather expect to find this information when clicking on *nine provinces*, as it gives the impression that it is going to the provincial sites”; “I expected the *Related Links* button to link to information on the NCOP, parliamentary issues, and things related to Provincial government”; “I expect information to be related to where I am”; “This is not really logical.” In addition, dissatisfaction was expressed that a further click was required to get to the required information: “Now I must click again to get it.”

During this exercise the following comments were also made about the *Provincial Government* page:

- “Something is missing from this page – a map where you can click on a province and get information about the province with different options.”
- “It should be more like the national part, to get used to the pattern of the site – I expect to find the same form.”
- “Most users will not need the general information; the page should rather be similar to the other menu pages. You can use a bullet in the menu to get the general information.”

4.9 Contact information and profiles

4.9.1 You need the addresses and telephone numbers of all deputy ministers, ministers, provincial premiers, as well as South African representatives in foreign countries (Question 11)

Respondents had some difficulty to locate the combined contact list – only one (the respondent with high exposure to the website) was able to easily identify the relevant information category as *Government System*.

The other respondents all selected either *Ministers* or *Deputy Ministers* and started to select *Contact Info* for each of the officials individually, some commenting that it was very time-consuming. Some only later saw the *Combined Contact List* option in the side navigation bar.

The following recommendations were made:

- A logical place could be “at the tables of the ministers, deputy ministers and the *Provincial Government* page respectively, and to go from there to the different contact info; if there was a way to display it all together, it should not be too cumbersome and

only include the most important information, something like minister, portfolio, e-mail, telephone.” The respondent also required it to contain an index, “or else it will become too long”.

- A combined list should be at *Ministries*, or *National Departments*, or *National System & Structure*, as it forms part of government structures: “Contact information is very important information, as you would want to complain, congratulate and so on.”
- Some respondents suggested that this information should be accessible from the home page: “Contact information is used often and should rather be presented on the home page.”
- Three respondents thought it would be logically placed under *Government System*. One explained: “It seemed to be overarching.” One suggested a heading such as *Government Directories*.
- The possibility of grouping contact information with *Documents, Reports & Forms* was also mentioned.
- After finding the index page for the *Combined Contact List*, one respondent commented: “It is still not one document”, explaining that many users will expect to find the *Government Directory*. The respondent suggested that the information contained in the *Government Directory* should also be made accessible as one document, even if it would take long to download, on the condition that a warning in this regard was included.

Two respondents expressed the need for the addition of a media directory on the website.

4.9.2 Find the profiles of all ministers, deputy ministers and provincial premiers (Question 12)

The respondent with high exposure of the website was able to identify immediately that the profiles could be accessed from *Ministers* and then *List of Profiles* from the side navigation bar. For the provincial premiers, she went to *Provincial Government* from the home page, and then selected *Premier List* from the side navigation bar.

The other respondents expected the information to be at *Government System* because of their experience with the previous question about *Combined contact lists*. One remarked: "Maybe I can try this place again, as I would look for the CVs the same way." Another selected *Contact information* at this category and remarked: "It doesn't seem as if there is also a combined list of CVs".

Thereafter, they attempted several other options, including *Overview and diagram* ("because it summarises everything") and *Ministries*. With regard to the latter, one remarked: "No, it is only those of the ministers." He then noticed and selected *List of Profiles* and thereafter *Deputy Ministers* in the side navigation bars of the respective pages. With the remark: "I need the CVs of the premiers on the same place", he returned to the *Ministries* page to find the CVs of the provincial premiers. On not finding it, he remarked that it was "scattered all over the place" and that he wanted it to be together.

Three respondents started to select each name on the *Ministries* page individually, expressing the intention to do the same with *Deputy Ministers* and *Provincial Government*. In this process, one noticed and selected *Portfolio list* in the side navigation bar, expecting to find a broader list than only the ministers and deputy ministers. He then opted to go to *Provincial Government* and then *Premier List*. He remarked: "It should be all together, perhaps from *Ministers* or *Government Departments*." He also remarked that the wording for the profiles as well as for the contact lists was confusing and should be made more clearly.

Another suggestion was made to make profiles of government officials accessible from the previously mentioned government directory.

4.10 Questions determining preferences for the inclusion of additional information on the website

4.10.1 Where on the website will you look for the Government Gazette? (Question 13a)

The respondents were all in agreement that the Government Gazette should be available on the website and that it should part of the *Documents, Reports, & Forms* category. One respondent expected the Gazette to be part of *Parliamentary Papers* category on this page, as "the Gazette is a result of parliamentary activities", but when she did not find it there, she remarked that it should rather be a sub-category of the *Documents, Reports, & Forms*

category. One respondent initially looked for the Gazette on the home page. Another suggested that the Gazette be put at *Government System*.

The following specific requirements or suggestions were put forward:

- A listing of the Government Gazette as such is needed, but users should also have access according to the type of information contained in the individual gazette (for example notices, Bills, etc.).
- The Gazette should be made available chronologically as well as alphabetically.

4.10.2 Where on the website will you expect to find a listing of government services to the public? (Question 13b)

Four respondents expected this information to be accessible directly from the home page. Another alternative mentioned was *Government System*. Noteworthy comments in this regard were:

- “The departments are very fragmented – there must be an easy way to search for this without going to individual sites – to search all services from a central place – however, as services have a wide scope, for example tourism, visas, etc., care must be taken to make clear what it is about.” She considered *Forms* to be part of the services concept, “as it is a type of service”.
- “It should be on its own on the home page – it is more important than some others on the current listing.” To create space, it was suggested that the entries on the home page be reduced: “Take away *Ministers* and *Deputy Ministers* and *Africa*. *Africa* is secondary and can be under something such as *Related Links*.” The respondent also suggested that *President* and *Deputy President* be integrated as one entry, namely “Office of the Presidency”.
- “It should be on its own on the home page, I don’t want to go to individual departments.”

4.10.3 You want to know which posts are available in the Public Service (Question 14)

All respondents commented on the importance of having this information available on government websites. It is, however, significant that three respondents did not consider it as this website’s primary responsibility to contain information on public services vacancies,

but commented that it should rather be a departmental responsibility. One reason put forward for this was: "This information changes from day to day and the government site will not be able to update it continuously."

If it were to be on the site, three respondents wanted it accessible from the home page. Remarks in this regard included: "If it becomes too many categories, *What's New* could be on the second level, especially because it does not link"; "Otherwise, I won't know where I will find it – there is not a relevant sub-category, and people will not expect it to be the DPSSA who is responsible for it."

Two respondents suggested that this information be categorised at *National System & Structure* while alternative suggestions were *National Departments and Services*.

4.10.4 Where on the website do you expect to find the Constitution of South Africa? (Question 16)

Recommendations for the inclusion of the Constitution entailed *Government System and Documents, Reports & Forms*.

Reasons presented for the first were that "government systems are based on the Constitution", and "we need a constitutional section here to explain the historical background".

4.11 Search mechanism

4.11.1 Find the Act relating to nuclear energy, Act No. 46 of 1999 (Questions 3a and 15a)

As previously stated, behaviour of respondents using the search mechanism for question 3a is also reported on in this section.

All respondents made use of the first search interface displayed (*Search the Government Online World Wide Website*) after selecting the *Search* button. They found it relatively easy to formulate their search queries ("nuclear energy"; " nuclear energy act"; "nuclear and energy and act"). Only one respondent did not enter a correct search string the first time. He entered the exact title of the Act "Nuclear Energy Act (Act No. 46 of 1999)" and got an error message, but was successful with the second attempt ("Nuclear Energy Act").

Afterwards, he commented: "When I use search, I should be able to type in the whole thing."

Other comments included that the search button should be displayed more prominently on the home page and that the italics used for the summative text of the search results was difficult to read. One respondent commented positively on the results returned: "44 documents are not too bad". When using the search form, she commented that it was well designed. In addition, a further search option "straight on the results page", to enable the refinement of results was recommended.

4.11.2 Name government documents and reports which cover transport issues from 1997 – 2000 (Question 3b)

The first respondent selected the *Search the Government Online World Wide Website* search and typed in "transport". When the results list was displayed, she remarked that she had found too many documents. She went back to the search page and typed "transport and act", and remarked that she did not know the meaning of some of the titles displayed in the results list.

The second respondent used the *Searchable Database*, remarking: "I expect this to be an advanced search, which is a function that will be important to me." He entered "transport" in the text field and considered various options to enter in the date field.

It is also worth noting that two other respondents considered using the search mechanism as an option when experiencing difficulties to find information by browsing the site.

4.11.3 Find all the media statements made by Minister Asmal (Questions 4a and 15b)

All respondents used the search page presented after selecting the *Search* button (*Search the Government Online World Wide Website*). Only two of them were able to identify that the *Searchable database* was an option after the first attempt had been unsuccessful.

Respondents experienced far more problems with selecting relevant query terms for this question. One entered "Asmal". As this did not return relevant results she tried "media statements", but remarked immediately: "Oh gosh, I will get everything now, not only those of Asmal!" She then tried *Searchable Database* and entered "Asmal" in the text field.

The following respondent entered "Asmal" with the remark: "This is going to take long." He then attempted "Asmal speeches" and exclaimed in surprise that he did not get any result. He thought of trying *Searchable Database*: "Perhaps I can manipulate the database." He did not select the relevant data collections and entered "Asmal speeches" in the text field, and thereafter only "speeches". When the results list was returned he complained that he was not able to modify the list he got "which is unfortunate".

The next respondent attempted search strings such as "media statements by Minister Asmal", "Media releases by Minister Asmal", "Asmal", "Kader Asmal speeches", all with no results. He was then supported by the experimenter and told to go to *Searchable Database*, where he entered "Minister Asmal press releases" in the text field, but did no selection on the data collections presenting different date options.

The fourth respondent initially made use of the first search page and entered "Asmal and media", with no results. When he was shown the searchable database, he selected the relevant data collections and entered "Asmal" in the text field.

The last respondent entered "Asmal and media and statements", expecting to find the same list as previously displayed (question 4a). It did not make sense to her that a different results list was displayed. When shown the *Searchable Database*, she remarked that she did not know what to expect "as it is not self-explanatory". She expected to go directly into the database and for the system to immediately activate the same query ("Asmal and media and statements") in the database. After clicking twice on *Searchable Database*, she remarked that the whole button should be active.

4.11.4 Find media statements made by Minister Asmal as from 1 May 2000 and sort them from old to new (Question 15c)

Overall, respondents were not able to use the search mechanism correctly to find this information.

Only one respondent selected the relevant data collections for the required years, while only two respondents made use of the sorting functionality. With regard to the date field, three respondents understood how to enter the date in the date field but two of them did not use the parameter correctly (used >) or left it out. One respondent entered "press statements" in the title field.

Afterwards, a respondent remarked: "This is too technical for me." Another commented that this interface would be too difficult for the more inexperienced user.

4.11.5 Find all information on the site concerning health issues (Question 15d)

Nobody was able to find the required information, as they did not realise that the site had two search mechanisms that provided access to different sets of information.

Except for one, all respondents remained on the search page they had been on for the previous search, i.e. *Searchable Database*. When asked to pick out speeches about health issues from the results list, the first was amazed that she could not find any speeches. Despite having used the site before, she never realised that speeches could not be found this way.

One respondent browsed the data collections to search for documents on health issues. Search terms used were: "health" and "health documents".

When results were displayed, a respondent asked: "Why is it giving me the Y2k stuff?" Afterwards he mentioned that he thought that *Searchable Database* meant that a search could be manipulated. He also expected all information to be searchable from one place.

4.11.6 Search mechanism used for other questions

Some respondents also opted to search for the following information:

- National animal (question five): when this information was not found quickly, three respondents opted to make use of the search mechanism. Two respondents entered "national animal". The third entered "coat of arms", expecting to find information on the national animal together with the Coat of Arms. One respondent remarked that the summary of the results list did not tell him what information was available.
- Youth Day (question 8a): After attempting to browse for this information, four respondents mentioned search as a better option for this question. One first looked for the information at *Events* on the home page, but then remarked: "I will rather go the quick way and go to search." He then entered "national youth day".

- Regulation of media (question 10): When respondents did not see an apparent category for information on the home page, they chose to search. "If you know which is the relevant Act, you can go to *Documents, Reports & Forms.*" However, as this respondent did not know this answer, she opted to use search. A next respondent remarked that his first option would be to go to the responsible department's website, but then realised he did not know which that would be. He then selected search "to make things easier". The third favoured a search "because it is fairly technical and not in the forefront of the website". The last respondent initially considered if a specific body was involved and then decided to look for a report on media related issues "perhaps an Act" by searching.

Search terms used were "media and act and media and bill", "media regulation" (which returned the Comtask Report) and "the media", but did not return comprehensive or relevant information.

5. ONLINE SURVEY

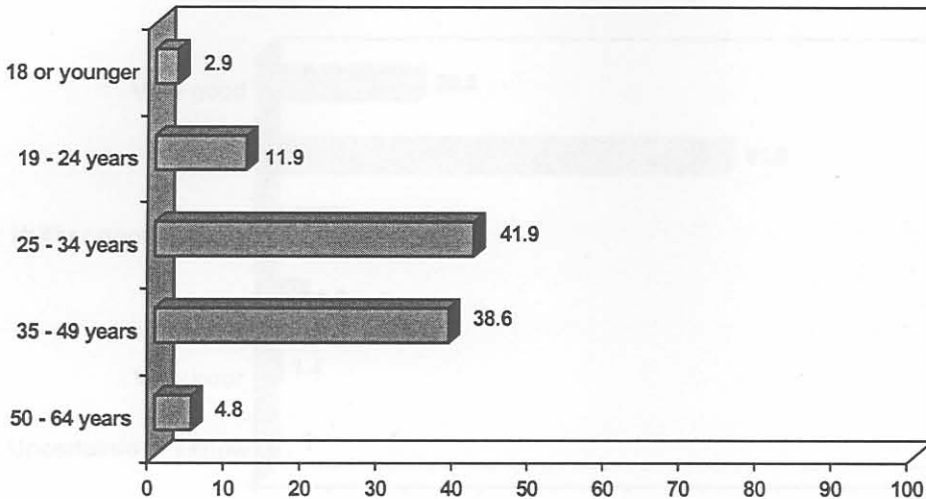
5.1 Introduction

The main purpose of this method was to provide a quantitative measurement of the usability of the website in the view of the user. An 18-item questionnaire was compiled and presented interactively on the website. Respondents had to give an overall rating for the website as well as rate various aspects from the four main evaluation categories presented in chapter four. Questions focused on information coverage, currency, ease of finding information, 'look and feel' and preference with regard to search versus browsing. Provision was made for quantitative as well as qualitative answers. A total of 210 respondents completed the online questionnaire during the period 14 August to 16 September 2000. See chapter two, paragraph 4.4 for a description of the method, and Annexure C for the questionnaire.

5.2 Profile of site visitors

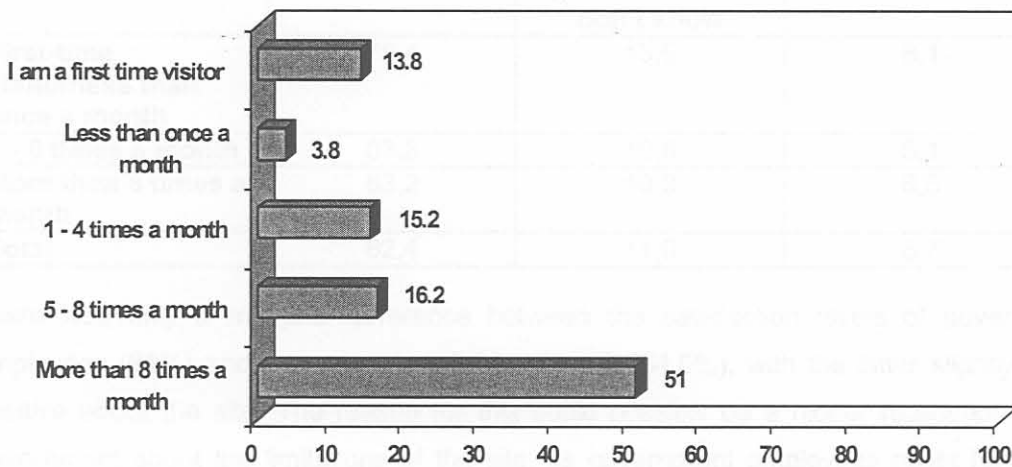
The respondents came from all age groups, with the distribution peaking in the age groups of 25 - 34 and 35 - 49 years (see figure 12).

Figure 12: Distribution of respondents according to age groups



Most of the respondents (60%) were government employees, and 10,5% represented the business sector. Nearly nine out of every ten respondents (86,2%) had previous experience of the website – just more than half (51%) indicated that they used the website more than eight times a month, and 31,4% used the site one to eight times a month. A total of 13,8% indicated that they were first-time visitors (see figure 13), and 85,7% of the respondents were from South Africa.

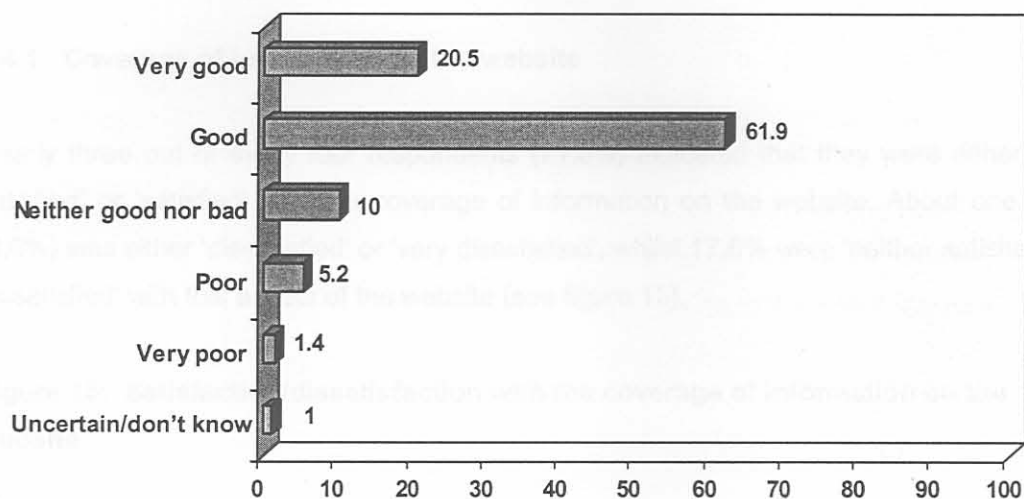
Figure 13: Frequency of use of the website



5.3 Overall rating of the website

In response to being requested to give an overall rating of the SA Government Online website, the majority (82,4%) rated it as either 'very good' or 'good'. A mere 6,6% rated it negatively ('poor'/'very poor') – see figure 14.

Figure 14: Overall rating of the SA Government Online website



Respondents who used the site at least once a month or more rated the site slightly more positive (83,3%) than those who used it less than once a month or responded as first-time users (78,4%) – see table 1.

Table 1: Overall rating of the website in relation to frequency of use

Frequency of use of website	Overall rating of website (%)		
	Very good/good	Neither good nor poor/uncertain/don't know	Poor/very poor
First-time visitor/less than once a month	78,4	13,5	8,1
1 - 8 times a month	83,3	10,6	6,1
More than 8 times a month	83,2	10,3	6,5
Total	82,4	11,0	6,7

There was only a marginal difference between the satisfaction levels of government employees (81%) and users in other fields of work (84,5%), with the latter slightly more positive about the site. The reason for this could possibly be a higher realisation within government about the limitations of the site, as government employees might have had better knowledge of the government structures and systems.

5.4 Content

In evaluating attitudes regarding the content of the website, questions were asked about

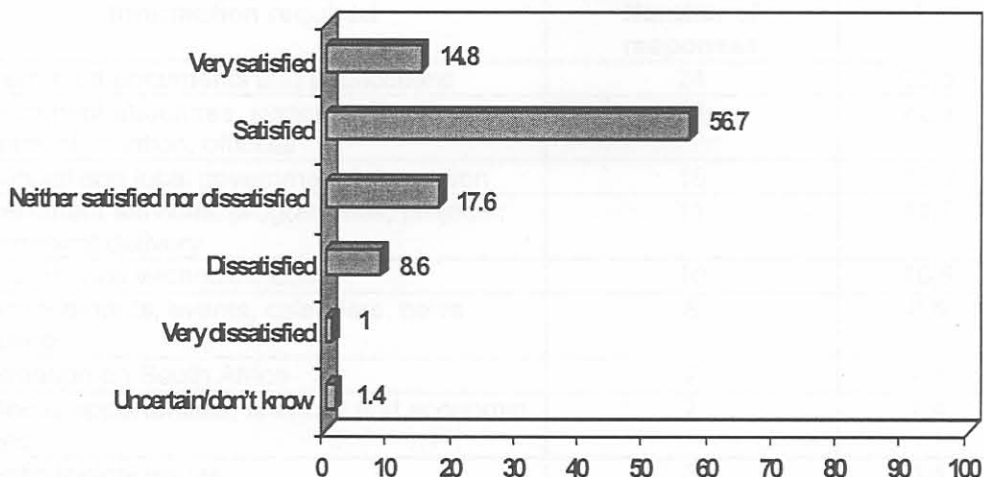
- coverage of information on the website

- currency of the website
- accuracy of information on the website.

5.4.1 Coverage of information on the website

Nearly three out of every four respondents (71,5%) indicated that they were either 'very satisfied' or 'satisfied' with the coverage of information on the website. About one tenth (9,6%) was either 'dissatisfied' or 'very dissatisfied', whilst 17,6% were 'neither satisfied nor dissatisfied' with this aspect of the website (see figure 15).

Figure 15: Satisfaction/dissatisfaction with the coverage of information on the website



As can be seen in table 2, a breakdown of responses to determine the satisfaction level for coverage of information in relation to frequency of use indicated the same general trend as for the results discussed in paragraph 5.3, with the more frequent users (more than eight times a month) more positive about the coverage of information (72,9%) than those being first-time users or using it less than once a month (67,6%).

In response to being requested to indicate any additional information respondents would like to see on the website, 118 responses came from the 210 respondents. Prominent responses were about the need for government documents and publications (25,5% of those responding to the question) and information regarding government systems, structures, functions and contact information (22,3%) – see table 3.

Table 2: Satisfaction with information coverage in relation to frequency of use

Frequency of use of the website	Satisfaction/dissatisfaction with the coverage of information (%)		
	Very satisfied/satisfied	Neither satisfied nor dissatisfied/uncertain/don't know	Dissatisfied/very dissatisfied
First-time visitor/less than one a month	67,6	21,6	10,8
1-8 times a month	71,2	18,2	10,6
More than 8 times a month	72,9	18,7	8,4
Total	71,4	19,0	9,5

Table 3: Additional information required on the website*

Information required	Number of responses	%
Government documents and publications	24	25,5
Government structures, systems, functions, contact information, officials	21	22,3
Provincial and local government information	15	16,0
Government services, programmes, projects; government delivery	11	11,7
Public Service vacancies/jobs	10	10,6
Announcements, events, calendars, news headlines	8	8,5
Information on South Africa	7	7,4
Business opportunities, financial and economic issues	7	7,4
Specific topical issues	6	6,4
Speeches, press releases, statements, specific topical issues	5	5,3
Other than South Africa	4	4,3

*More than one response allowed. Some respondents did not provide a response, whilst others provided more than one. "Percentage" indicates respondents providing the specific response as percentage of total number of respondents to this question.

Specific information required by respondents in the categories listed above include the following:

- In the category *Government documents and publications*, the Government Gazette was singled out more often than the others, followed by the need for government documents prior to 1997. Respondents also mentioned that they would have liked the website to include *Hansard*, regulations promulgated in terms of legislation, a policy section, and annual reports of government departments and annual financial statements of national

and provincial departments. One respondent also mentioned “feedback documents presented after international visits”.

- Requirements for additional information about government structures, systems, functions and contact information included more detailed information on the organisational structure of departments, for example staff structures, e-mail addresses for ministers, deputy ministers and departments, as well as updated contact information for heads and regional offices of departments. In addition, respondents suggested the inclusion of profiles of more government officials, for example that of directors-general and senior officials of departments. One specific comment was: “profiles of people, especially those in the president’s office – there is no information on the key players, such as Frank Chikane”. Lastly, access to “all organs of state’s websites” was suggested.
- Provincial and local government information featured third (16%) with regard to additional information needed. Specific requirements for local government information were mainly for contact information, for example for mayors and for media liaison officers from local government departments. Provincial information required included provincial events and activities, developments in provinces, provincial gazettes, Acts, Bills and annual reports. In addition, more speeches from provincial and local government officials were required.
- Respondents also suggested the inclusion of information pertaining to government services, programmes, projects, as well as on government service delivery (11,7%). The following quotes demonstrate some of the requirements for this type of information: “how to access government services”; “specific details on the government’s delivery process”; “service delivery standards of various departments”; “more information geared at youth development programmes”; “the various development projects occurring in government”; and “user-friendly interpretation of processes”. Specific services mentioned were home loans and visa requirements.
- With regard to *Announcements, Events, Calendars, and News*, the main requirements were for more comprehensive coverage thereof. One respondent also asked for “something like key issues in the news”.
- Additional information needed on South Africa included the history of the country, information on past presidents, term calendars of universities and technikons, statistical information and links to schools and tertiary institutions.

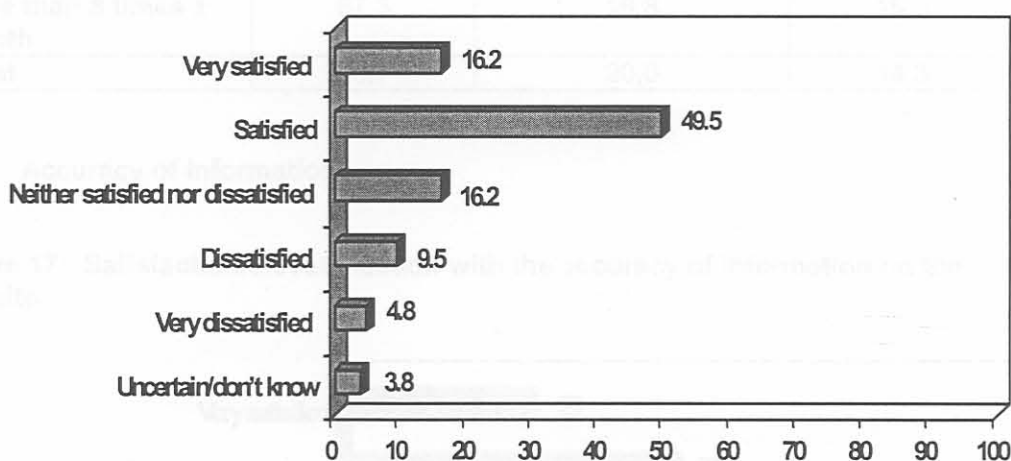
- Specific topical issues suggested for inclusion on the site included information on socio-economic issues, the upcoming municipal elections, HIV/AIDS and housing-related matters.

It is worth noting that, although not asked in this question, several references were made regarding the need for more updated and current information. Respondents required, for example, more current Bills and regularly updated contact details for government officials.

5.4.2 Currency of the website

Although nearly two thirds of the respondents (65,7%) expressed satisfaction with the currency of the website, it is important to note that 16,2% were 'neither satisfied nor dissatisfied' whilst 14,3% were 'dissatisfied' or 'very dissatisfied' (see figure 16).

Figure 16: Satisfaction/dissatisfaction with the currency of the website



Only 98 responses were provided by the 210 respondents to the request to motivate their answers with regard to their satisfaction/dissatisfaction with the currency of the website. It should, however, be noted that from those providing a reason, 43,5% of the 'dissatisfied' or 'very dissatisfied' respondents, and 55,6% of the 'neither satisfied nor dissatisfied' or 'uncertain' respondents motivated their responses by referring to the availability of the most current information. It is also worth noting that 21,1% of motivations provided to the question about the currency of information on *SA Government Online* related to the frequency of updating of the websites of other government departments.

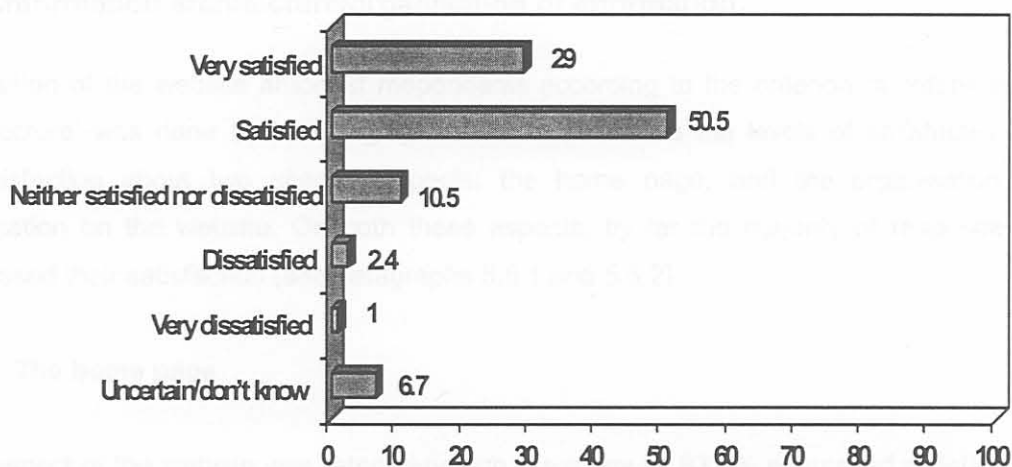
A breakdown to compare satisfaction/dissatisfaction with the currency of the website with frequency of use revealed that the more frequent users (more than once a month) were generally more positive about the currency of the website than the less frequent users (first-time visitors/less than once a month), but also that they were more 'dissatisfied' or 'very dissatisfied' than the less frequent users. It is, however, important to note that a higher percentage of first-time visitors or visitors that visited the site less than once a month was 'neither satisfied nor dissatisfied' (27%) than users that visited the site more than eight times a month (16,8%) – see table 4.

Table 4: Satisfaction with currency of information in relation to frequency of use

Frequency of use	Satisfaction/dissatisfaction with the currency of information (%)		
	Very satisfied/satisfied	Neither satisfied nor dissatisfied uncertain/don't know	Dissatisfied/ very dissatisfied
First-time visitor/less than once a month	62,2	27,0	10,8
1-8 times a month	65,2	21,2	13,6
More than 8 times a month	67,3	16,8	15,9
Total	65,7	20,0	14,3

5.4.3 Accuracy of information

Figure 17: Satisfaction/dissatisfaction with the accuracy of information on the website



As could be seen in figure 17, nearly four out of every five respondents (79,5%) expressed satisfaction with the accuracy of information on the website, whilst 10,5% were 'neither satisfied' or 'very dissatisfied'.

satisfied nor dissatisfied' and 3,4% expressed dissatisfaction regarding this aspect of the website.

5.4.4 Evaluation of content: a synopsis

It is clear from paragraphs 5.4.1 to 5.4.3 that the majority of respondents rated the website positively regarding specific content related issues. The following table (table 5), which consolidates the results reflected in above-mentioned paragraphs, reveals that the level of satisfaction ('very satisfied' and 'satisfied' responses combined) regarding accuracy (79%) was the highest, followed by coverage (71,5%) and currency (65,7%). From comments made it was evident that expectations about currency as well as coverage of information were not met to a sufficient extent.

Table 5: Consolidated results for the evaluation of content

Evaluation	Aspect of content (%)		
	Coverage	Currency	Accuracy
Very satisfied	14,8	16,2	29,0
Satisfied	56,7	49,5	50,5
Neither satisfied nor dissatisfied	17,6	16,2	10,5
Dissatisfied	8,6	9,5	2,4
Very dissatisfied	1,0	4,8	1,0
Uncertain/don't know	1,4	3,8	6,7
Total	100.1	100.0	100,1

5.5 Information architecture/organisation of information

Evaluation of the website amongst respondents according to the criterion of 'information architecture' was done by including questions to determine the levels of satisfaction or dissatisfaction about two specific aspects: the home page, and the organisation of information on the website. On both these aspects, by far the majority of respondents expressed their satisfaction (see paragraphs 5.5.1 and 5.5.2).

5.5.1 The home page

This aspect of the website was rated very high. As many as 83,8% expressed satisfaction with the home page – 27,6% were 'very satisfied' and a further 56,2% were 'satisfied'. About one out of every ten respondents (10,5%) indicated that they were 'neither satisfied nor dissatisfied' with the home page whilst a mere 4,3% indicated that they were either 'dissatisfied' or 'very dissatisfied'.

Only 32 responses were received in response to the request for suggestions for the improvement of the home page. Suggestions focused mostly on additional information categories, improvement of the organisation and structuring of information and design.

With regard to additional categories of information to be presented on the home page, specific recommendations entailed the adding of categories for business opportunities, public service vacancies, government projects, as well as direct links to other websites, specifically those of provinces and parliament. One respondent requested a “menu search on topics”.

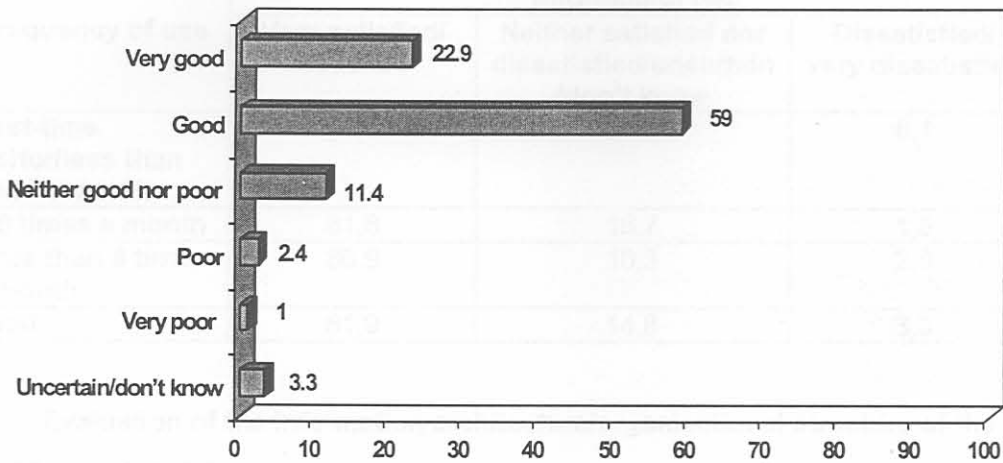
Suggestions with regard to organisational aspects were that some categories should be merged so that links could be provided to more important issues, while one respondent suggested a search box on the home page itself. Several comments were made about the way *What's New* should be handled. For example, it was recommended that there be direct links to the specific speeches or reports, that new information be presented for a specific period of time, and that a separate page be used for *What's New* to enable the provision of even more new information.

The most prominent recommendation with regard to the design of the home page was that it should be less cluttered. Specific suggestions included for example: “limit the number of speeches on the home page so it doesn't carry on so long”, and “It seems a bit busy; it would be nice if one could maybe navigate on the home page via folders, as in the websites of Business Day and Vodacom.” Other comments centered on the use of too many graphics, whereas a few respondents did not like the background graphic: “it adds nothing to the aesthetics of the page nor to the content; it is puzzling”; “to many foreigners they (stick figures) probably look like starving people and I wonder if that is the image you really want to convey? I think you would be better off with something that conveys a more modern...upbeat image”.

5.5.2 Organisation of information on the website

Just more than four out of five respondents (81,9%) rated the organisation of information as either ‘very good’ or ‘good’, while only 3,4% indicated that it was ‘poor’ or ‘very poor’ (see figure 18).

Figure 18: Rating of the organisation of information on the website



When asked to motivate their responses, the information structure and the ease/difficulty to find information featured most prominently. With regard to the information structure, positive responses focused mainly on the “logical”, “clear” “sequential” and “user-friendly” way information was organised, that it “is difficult to get lost” and that information could be found under the right headings. All respondents who referred to the ease/difficulty to find information as the motivation for rating of organisation, commented positively thereon. Negative responses about organisation concerned issues such as the categorisation of speeches, the fact that some information did not feature prominently enough on the home page, that there was duplication of information and that there “is just a lot dumped under documents”. One respondent commented negatively on the use of alphabetical navigation keys, while the fact that there was “no easy link to search on the home page” was criticised.

When a breakdown of responses was made to determine the satisfaction level for information organisation in relation to frequency of use, the general trend was once again that the more frequent users were more satisfied with the organisation of information on the website (see table 6). The fact that the percentage gap in this case is much wider (19,3%) could possibly mean these users were used to the site and knew where to find information they needed, and were no longer aware of limitations.

Table 6: Satisfaction with information organisation in relation to frequency of use

Frequency of use	Satisfaction/dissatisfaction with the organisation of information (%)		
	Very satisfied/satisfied	Neither satisfied nor dissatisfied/uncertain /don't know	Dissatisfied/very dissatisfied
First-time visitor/less than once a month	67,6	24,3	8,1
1-8 times a month	81,8	16,7	1,5
More than 8 times a month	86,9	10,3	2,8
Total	81,9	14,8	3,3

5.5.3 Evaluation of the information architecture/organisational structure of the website: a synopsis

The discussion in paragraphs 5.5.1 and 5.5.2 indicates that the majority of respondents were satisfied with the two aspects of information architecture evaluated – both issues rated above an 80% satisfaction level. Table 7 summarises these results.

Table 7: Consolidated results for the evaluation of information architecture/organisational structure of the website

Rating*	Aspect of content (%)	
	Home page	Organisation of information
Very positive	27,6	22,9
Positive	56,2	59,0
Neither positive nor negative	10,5	11,4
Negative	2,9	2,4
Very negative	1,4	1,0
Uncertain/don't know	1,4	3,3
Total	100,0	100,0

* For evaluation of the home page, ratings correspond respectively with 'very satisfied', 'satisfied', 'neither satisfied nor dissatisfied', 'dissatisfied', 'very dissatisfied'. For evaluation of organisation of information, ratings correspond with 'very good', 'good', 'neither good nor poor', 'poor', 'very poor'.

5.6 Navigation and search

To measure users' satisfaction with regard to navigation and the search mechanism, questions with regard to five aspects were included in the questionnaire, namely

- ease/difficulty to find information on the website,
- ease/difficulty to navigate the website,

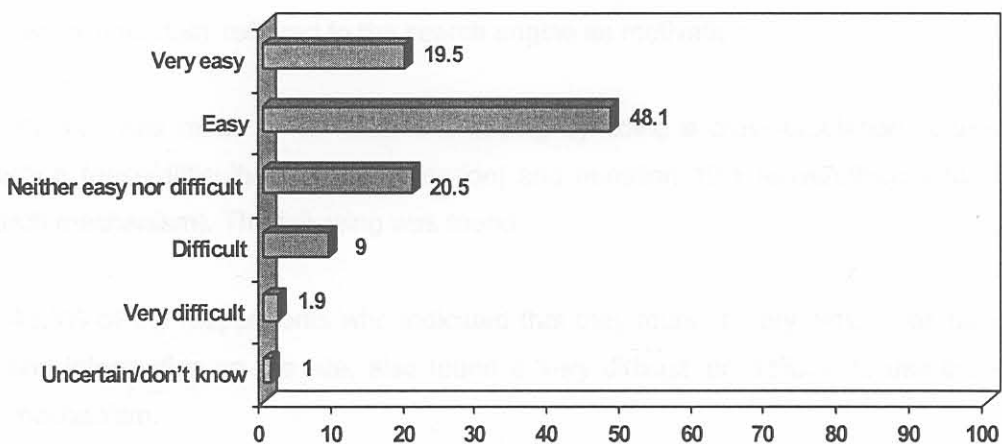
- methods used to find information, and
- effectiveness of the search mechanism.

In general, it was evident that the satisfaction level for this aspect of the website was markedly lower than that of the organisational aspects as discussed in paragraph 5.5, and also lower than for content.

5.6.1 Ease/difficulty to find information on the website

A cumulative percentage of 67,6% of responses indicated that respondents found it either 'very easy' or 'easy' to find information on the website, while almost a third of the respondents (32,4%) found it 'very difficult', 'difficult', 'neither easy nor difficult' or were 'uncertain' or 'did not know' (see figure 19).

Figure 19: Ease/difficulty to find information on the website



When asked to motivate their answers, the majority of responses (47,6%) concerned the organisation of information. Positive responses in this regard were that the site was “easy to understand”, “logically structured”, “well organised”, “well set out”, “user-friendly”, “self-explanatory” and had a “simple layout”. Respondents also commented: “I like the way you list all the government departments” and “the information is organised according to topics or individual minister and department”. Several comments referred to the fact that the content on the home page made it easy to find information.

In contrast to the above-mentioned positive comments about the role of the home page to find information, several respondents also remarked that information was not immediately visible or “was not made apparent on the home page”. Other issues that contributed to

dissatisfaction included that information was “spread out amongst the various departments... one does not always know in advance which department is in charge of which Act”, and that “you have to go down quite a few layers to get what you want”. One respondent remarked: “The absence of the words ‘laws’ or ‘legislation’ on the home page makes it difficult for a person unfamiliar with the site to navigate to these documents.”

A significant finding was that 27% of the responses concerned the search engine, and that the majority of these (15 out of 17) were negative. Among the comments were responses that the search engine was “hopeless”, “very unfriendly”, “unclear”, and “totally inadequate and slow”.

In addition, it was found that 54,8% of the respondents who were positive about the ease with which they found information on the website, used the organisation of information as motivation (mainly positive comments), while 14,3% mentioned the search mechanism (mainly negative comments). However, 63,6% of the respondents who found it ‘difficult’ or ‘very difficult’ to find information, and 40% of those who found it ‘neither easy nor difficult’ or who were ‘uncertain’ referred to the search engine as motivation.

An attempt was made to correlate this finding by doing a cross-tabulation between this question (ease/difficulty to find information) and question 10.1 (ease/difficulty to use the search mechanism). The following was found:

- 43,5% of the respondents who indicated that they found it ‘very difficult’ or ‘difficult’ to find information on the site, also found it ‘very difficult’ or ‘difficult’ to use the search mechanism.
- 73,2% of the respondents who found it ‘very easy’ or ‘easy’ to find information, also found the use of the search mechanism ‘very easy’ or ‘easy’.
- Only 7,7% of the respondents who indicated that it was ‘easy’ or ‘very easy’ to find information on the website indicated that they had difficulty with the search mechanism.
- 51,1% of the respondents who were ‘neither satisfied nor dissatisfied’ were also ‘uncertain’ about the search mechanism.

See table 8 for an analysis of these findings.

Table 8: Comparison between ease/difficulty to find information and ease/difficulty to use the search mechanism

Ease/difficulty to use the search mechanism	Ease/difficulty to find information (%)			Total
	Very easy/easy	Neither easy nor difficult/ uncertain/don't know	Difficult/very difficult	
Very easy/easy	73,2	31,1	34,8	60,0
Neither easy nor difficult/uncertain	19,0	51,1	21,7	26,2
Difficult/very difficult	7,7	17,8	43,5	13,8

A comparison between ease/difficulty to find information on the website and frequency of use indicated the same trend as with other aspects, namely that of increased satisfaction among the more frequent users, but this time with a gap of 12,4% between the more experienced and less experienced users (see table 9). The reason could possibly be that, because less frequent users did not have the same exposure to the site, they experienced difficulties where the more frequent users found a way around during their previous use of the site.

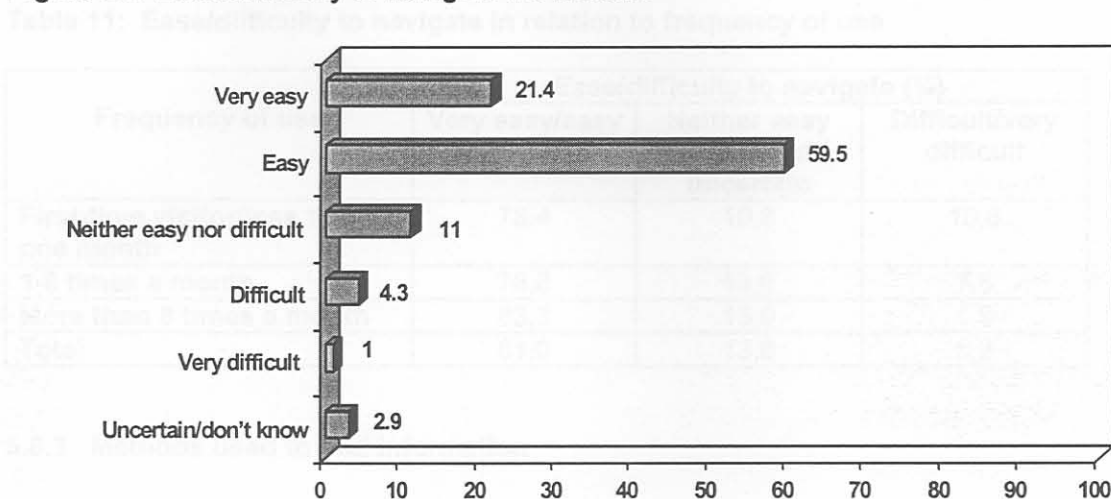
Table 9: Ease/difficulty to find information in relation to frequency of use

Frequency of use	Ease/difficulty to find information (%)		
	Very easy/easy	Neither easy nor difficult/ Uncertain/don't know	Difficult/very difficult
First-time visitor/less than one month	56,8	27,0	16,2
1-8 times a month	71,2	19,7	9,1
More than 8 times a month	69,2	20,6	10,3
Total	67,6	21,4	11,0

5.6.2 Ease/difficulty to navigate the website

Compared to the previous question, responses to this question resulted in a more positive rating – slightly more than four out of five (80,9%) respondents indicated that it was either 'very easy' or 'easy' to navigate the site, while 11% found it 'neither easy nor difficult' and only 5,3% found it 'very difficult' or 'difficult' (see figure 20).

Figure 20: Ease/difficulty to navigate the website



Again, very few respondents provided reasons for their ratings. Suggestions with regard to navigation were the inclusion of a site map and index, a more user-friendly directory, and provision of brief descriptions of what links really dealt with. There were two comments that the search engine was not user-friendly.

A breakdown was made to determine the relation between ease/difficulty to navigate the website and methods used to find information on the website: 80,6% compared to 46,5% of those who found it 'very easy' or 'easy' to navigate, indicated that they browsed and searched respectively (see table10).

Table 10: Ease/difficulty to navigate in relation to methods used to find information

Methods to find information*	Ease/difficulty to navigate (%)		
	Very easy/easy	Neither easy nor difficult/don't know	Difficult/very difficult
Browse	80,6	69,0	50,0
Search	46,5	55,2	50,0
Events	27,1	20,7	-
What's New	32,4	20,7	30,0
Bookmarked pages	8,2	27,6	10,0
Other	2,9	10,3	10,0

*More than one response allowed per respondent

A breakdown to correlate ease/difficulty to navigate and frequency of use indicated a relative even distribution – the most frequent users were slightly more positive than less frequent users, with only a 4,8% gap in the satisfaction level (see table 11).

Table 11: Ease/difficulty to navigate in relation to frequency of use

Frequency of use	Ease/difficulty to navigate (%)		
	Very easy/easy	Neither easy nor difficult/uncertain	Difficult/very difficult
First-time visitor/less than one month	78,4	10,8	10,8
1-8 times a month	78,8	13,6	7,6
More than 8 times a month	83,3	15,0	1,9
Total	81,0	13,8	5,2

5.6.3 Methods used to find information

For this question, respondents were allowed more than one response. The responses indicated that the dominant user behaviour on this website was to browse through the menu structure. The majority of respondents (77,5%) preferred to browse through the site to find information, while less than a half (47,8%) used the search engine. Just more than four out of every ten (43%) indicated that they made use of both the browsing and searching methods. 55% used browse but not search, and 25% searched but did not browse. In addition, 33 respondents (15,8%) indicated that they never searched and only three (1,4%) that they never browsed.

It is also significant to note the frequent use – and thus importance thereof – of the *What's New* and/or the *Events* sections to find information (see table 12).

Table 12: Methods used on the website to find information

Methods to find information*	Responses	%
Browse through menu structure	162	77,5
Search page	100	47,8
What's New section	64	30,6
Events section	52	24,9
Bookmarked pages	23	11,0
Other	9	4,3

*More than one response allowed per respondent

A comparison of the methods used to find information on the website with frequency of use indicated that 82,2% of the most frequent users (more than eight times a month) browsed the website and 45,8% used the search facility, compared to the less frequent users (first-time visitors/less than once a month), where 61,1% indicated that they browsed and 47,2% that they searched (see table 13).

Table 13: Methods used to find information compared to frequency of use

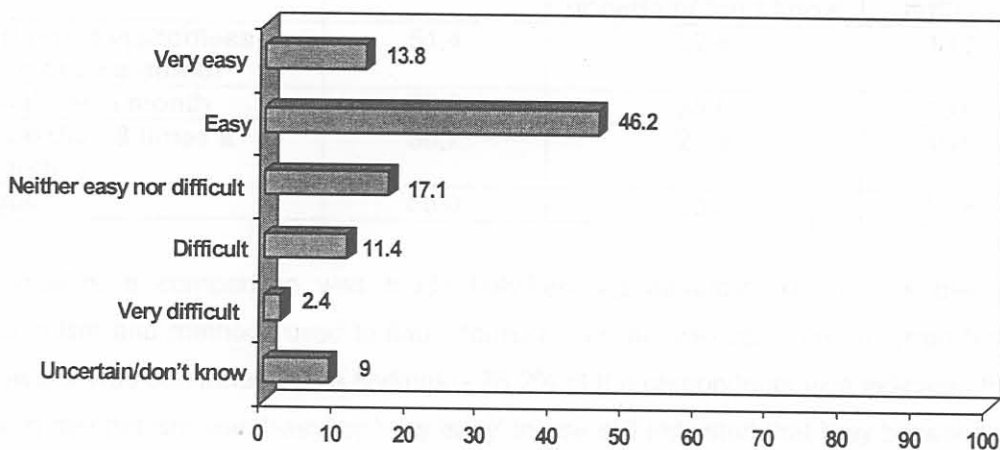
Methods to find information*	Frequency of use (%)		
	First-time visitor/less than once a month	1-8 times a month	More than 8 times a month
Browse	61,1	78,8	82,2
Search	47,2	51,5	45,8
Events	16,7	22,7	29,0
What's New	8,3	22,7	43,0
Bookmarked pages	5,6	13,6	11,2
Other	2,8	3,0	5,6

*More than one response allowed per respondent

5.6.4 Ease/difficulty to use the search mechanism

Although three out of five respondents (60%) indicated that they found it either 'very easy' or 'easy' to use the search mechanism, the satisfaction level regarding this aspect was the lowest of all aspects evaluated in the online survey. Whilst only about one eighth (13,8%) found the use of the search mechanism either 'difficult' or 'very difficult', a relatively high percentage (26,1%) found it to be 'neither easy nor difficult' or provided a response of 'uncertain/don't know' (see figure 21).

Figure 21: Ease/difficulty to use the search mechanism



When asked to motivate their responses, the main aspects that were commented on entailed firstly the search results, and secondly the search interfaces and search facility itself. In both cases the responses mainly reflected negatively on the search mechanism. Comments about the search results included comments that too much information was retrieved, or that no relevant information was found. The following were typical remarks:

- “It doesn’t narrow it down enough, so you have to sift through a lot of other stuff you don’t want.”
- “The search mode gives a host of results that are not necessarily what one wants, because it is too wide.”
- “It would help if you could search for specific information – not giving you everything – speeches reports, etc. where a search word is used.”
- “You have to know what information you want.”
- “The problem is that the underlying government sites are not part of the index and some of them have poor search facilities.”
- “It seems that more than one search can be done simultaneously – I found this very confusing.”

An analysis to compare the ease/difficulty to use the search mechanism with frequency of use again indicated a slightly higher satisfaction rate amongst more frequent users (see table 14).

Table 14: Ease/difficulty to use the search mechanism in relation to frequency of use

Frequency of use	Ease/difficulty to use the search mechanism (%)		
	Very easy/easy	Neither easy nor difficult/ uncertain/don't know	Difficult/ very difficult
First-time visitor/less than once a month	51,4	32,4	16,2
1-8 times a month	63,6	25,8	10,6
More than 8 times a month	60,7	24,3	15,0
Total	60,0	26,2	13,8

In addition, a comparison was made between the ease/difficulty to use the search mechanism and methods used to find information on the website. The preferred browsing behaviour was confirmed in the findings – 76,2% of the respondents who indicated that the search mechanism was ‘easy’ or ‘very easy’ to use still indicated that they browsed to find information, compared to 53,2% of this group which indicated that they used the search mechanism (see table 15).

Table 15: Ease/difficulty to use the search mechanism in relation to methods used to find information on the website

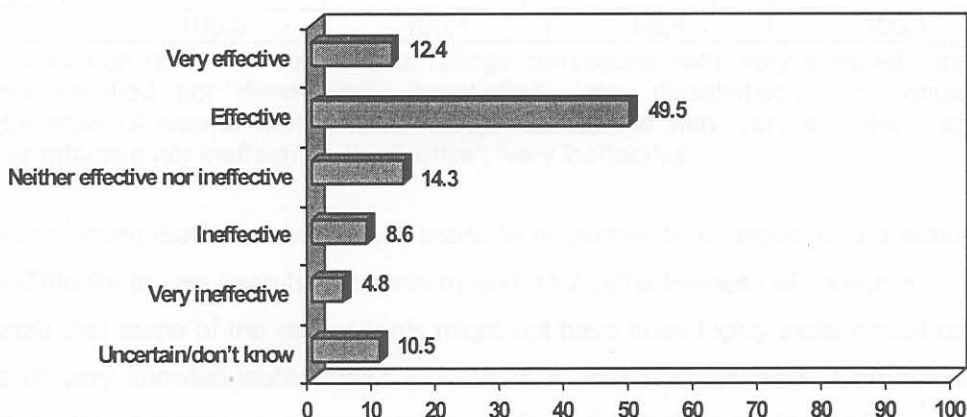
Methods to find information*	Ease/difficulty to use the search mechanism (%)		
	Very easy/easy	Neither easy nor difficult/ uncertain/don't know	Difficult/very difficult
Browse	76,2	74,5	89,3
Search	53,2	34,5	50,0
Events	25,4	16,4	39,3
What's New	31,0	20,0	50,0
Bookmarked pages	10,3	10,9	14,3
Other	4,8	5,5	-

*More than one response allowed per respondent

5.6.5 Effectiveness of the search mechanism

The results for this aspect correspond with those of the previous aspect (i.e. the ease/difficulty to use the search mechanism): 61,9% of the respondents indicated that the search mechanism was 'very effective' or 'effective', compared to 60% that found it either 'very easy' or 'easy' to use. In addition, a percentage of 13,3 respondents indicated that the search mechanism was either 'ineffective' or 'very ineffective', while 13,8% indicated that they found the mechanism 'difficult' or 'very difficult' to use (see figure 22).

Figure 22: Effectiveness of the search mechanism



Although few respondents motivated their responses when asked to do so, the majority of the responses (27 out of 31) reflected negatively on the search engine. Most of the comments made concerned search results that were not satisfactory.

5.6.6 Evaluation of navigation and search: a synopsis

5.7 Design and layout

In the evaluation of issues presented in paragraphs 5.6.1 to 5.6.5, it became clear that the satisfaction with navigation and search aspects rated well below that of information architecture, and also below that of content. Although respondents were satisfied overall with the ease with which the website was navigated, they found it more difficult to find information and to use the search mechanism. Table 16 presents an overview of the results discussed in these paragraphs.

Table 16: Consolidated results for the evaluation of navigation and search

Rating*	Aspect of navigation or search (%)			
	Finding information	Navigation	Use of search mechanism	Effectiveness of search mechanism
Very positive	19,5	21,4	13,8	12,4
Positive	48,1	59,5	46,2	49,5
Neither positive nor negative	20,5	11,0	17,1	14,3
Negative	9,0	4,3	11,4	8,6
Very negative	1,9	1,0	2,4	4,8
Uncertain /don't know	1,0	2,9	9,0	10,5
Total	100,0	100,1	99,9	100,1

*For evaluation of first three aspects, ratings correspond with 'very satisfied', 'satisfied', 'neither satisfied nor dissatisfied', 'dissatisfied', 'very dissatisfied'. For evaluation of effectiveness of search mechanism, ratings correspond with 'very effective', 'effective', 'neither effective nor ineffective', 'ineffective'; 'very ineffective'

It is worth noting that some comments made by respondents in response to questions 10.2 (ease/difficulty to use search mechanism) and 11.2 (effectiveness of search mechanism) indicated that some of the respondents might not have been highly experienced computer users or very knowledgeable about the use of a search mechanism. Comments made included: "this depends on computer skills attained, it is not the problem of the website"; "I am still a beginner on websites"; "it also depends on computer literacy"; "what is a search mechanism? My PC is a Win95 – it is slow but it gets there".

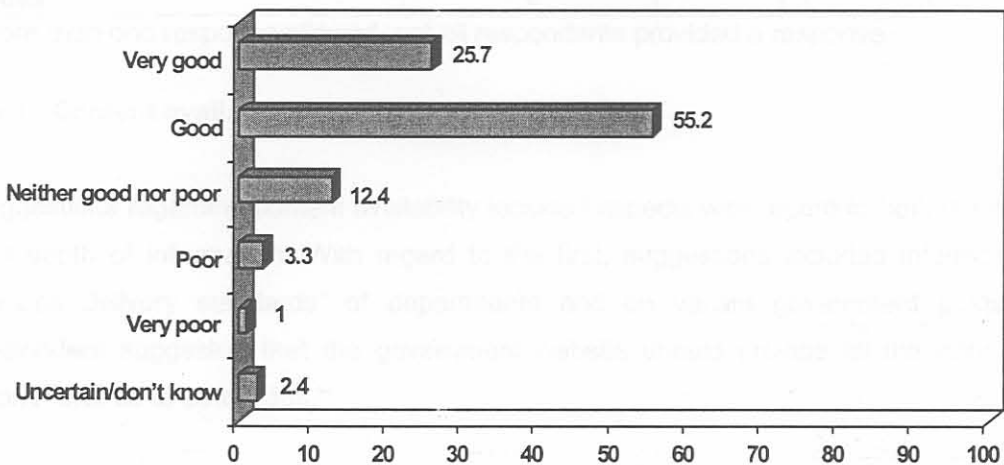
It is also evident that the search mechanism was the biggest problem experienced by both experienced and inexperienced users and that this contributed to the relative difficulty of finding information.

proceeding in the broader sense of the word, and not in the SA Government's narrow

5.7 Design and layout

The last aspect of the site that respondents had to rate concerned the visual aspects/look and feel/graphical layout of the site, for example the use of fonts, caps, colours, icons, use of graphics, consistent design and backgrounds and textures. Rating of this aspect was more in line with satisfaction as expressed with information architecture/organisation of information on the website and ease to navigate. About four out of five (80,9%) respondents indicated that the visual aspects were either 'very good' or 'good'. A mere 4,3 % rated this aspect as 'poor' or 'very poor', whilst 12,4 % regarded it as 'neither good nor poor' (see figure 23).

Figure 23: Rating of the visual aspects of the website



The view that the site was aesthetically pleasing constituted the majority of the positive responses when users were asked to motivate responses. The few negative responses included comments that the site was "too bland", that it "feels too busy", that too many graphics slowed down the downloading of pages, that there was a "random mixture of type sizes and faces", and "the use of a lot of serif faces".

5.8 Suggestions on how the website can be improved

Respondents were requested to provide suggestions on how the website could be improved. 103 responses were returned, and suggestions with regard to the availability of content, currency, organisation, navigation and search, as well as issues concerning software, downloading speed and document formats were the most prominent. It must also be noted that the second largest number of suggestions related to government web

publishing in the broader sense of the word, and not to the *SA Government Online* website specifically (see table 17).

Table 17: Suggestions on how the website can be improved*

Suggestion	Number of responses	%
Content availability	26	34,2
Government web publishing	17	22,4
Currency/frequency of updating	16	21,1
Organisation and navigation	13	17,1
Software, downloading speed, document formats	12	15,8
Interactivity	8	10,5
Search mechanism	5	6,6
Design	3	3,9
Language	2	2,6
Other	1	1,3

*More than one response allowed, not all respondents provided a response

5.8.1 Content availability

Suggestions regarding content availability included aspects with regard to both the breadth and depth of information. With regard to the first, suggestions included information on “service delivery standards” of departments and on vacant government posts. One respondent suggested that the government website should provide all the information: “Don’t refer us to other sites.”

With regard to depth of information on the website, respondents suggested the adding of

- the Government Gazette, Hansard and older legislation
- more government forms
- more detail on government departments
- names of deputy directors-general
- developments in government
- information on the Human Rights Commission
- history of the South African government
- a list of past presidents
- events, and more detail on the events presented on the home page
- a diary of weekly events that ministers take part in
- information relevant to government officials, such as “salary negotiations and developments in the Bargaining Council”

- a centralised press release service
- more comprehensive coverage of speeches
- a map of South Africa
- more Africa-focused items
- more links to popular sites
- more information relevant for school children.

5.8.2 Government web publishing

Suggestions on this aspect included suggestions that other government departments should update their information more frequently and should include more current and relevant information on their sites. One comment was made that other government departments should be motivated to “match your clarity, comprehensiveness and currency”, while another respondent remarked that government departments should add more relevant information to the *SA Government Online* website. Some respondents suggested standardisation of government websites – one respondent for example commented: “It will help if all government departments’ home pages are more or less the same”. Two respondents suggested that the Department of Foreign Affairs get a website.

In addition, more provincial government information was required, while the development of provincial websites was regarded as urgent. Comments in this regard included comments that “provinces must be compelled to have websites running and updated”, and “provincial web pages should be developed as a matter of urgency for investment networking purposes”.

5.8.3 Currency/frequency of updating

With regard to improvement of the currency of information, the following was specifically mentioned: names and contact numbers of media liaison officers, ministers’ speeches, press releases, Bills, Acts and other documents. One respondent considered a review period between updates as a matter of urgency. In addition, a suggestion was made to include a mail notification service, “so that if you are monitoring happenings in, for example the trade and industry sector, you will be e-mailed automatically if information is added to the site”.

5.8.4 Organisation and navigation

The following suggestions were put forward:

- Naming of entries on the home page should be clearly defined.
- Less detail should be presented on the home page.
- Easier access to departmental home pages should be provided by means of direct links from the home page.
- The press release section “has too many stories on one page so it takes a while to upload. Maybe you should categorise them so that you click on the year then the month that you are interested in, so it is not so much at once.”
- A “properly archived directory” will be a better option than the use of the search engine to list speeches/statements. The search engine should only be used for particular subjects.
- A full archive of all the year 2000’s speeches/statements should be available.
- There should be additional grouping of speeches and media statements, and cross-referencing between news stories.
- Government gazette numbers should be added at documents sorted according to subject.
- A further detailed breakdown of departments and their major sections is needed.
- A coherent index should be developed.
- More cross-referencing should be available.

5.8.5 Software, downloading speed, document formats

Although this was not asked, several respondents commented on the slow downloading speed of the site. With regard to document formats, it was suggested that all documents be made available in PDF format, while other respondents suggested more legislation available in HTML format.

5.8.6 Interactivity

Respondents suggested that current debates be highlighted. One enquired about the possibility of e-commerce. The suggestion was also made that there should be a “virtual spokesperson that can officially answer questions on a 24-hour turnaround basis”. One respondent suggested “more questionnaires such as this one...for input on policies that are formulated by government that affect the public directly”, and another suggested a “public

comment section, showing documents on which comment is being solicited". Further suggestions entailed an online chat with departments, and direct e-mail to ministers and the president.

5.8.7 Search mechanism

Additional suggestions with regard to the search engine included the following:

- There should be more options to "narrow information down".
- It must be more user-friendly.
- Users should be able to search for specific information.
- There should be only one search facility.
- The provision of "brief search tips on the search page would help".
- The search option should be supplemented with an "archived list".
- A "limit search option" should be included.
- The title fonts of the search results should be smaller.
- The search function should be more sophisticated – "more criteria rather than just a word".

5.8.8 Other suggestions

Among suggestions made to improve the website were the following:

- The background colour needs a "face lift".
- A clear South African flag and the Coat of Arms should be incorporated in the visual aspects.
- More photographs should be included.
- Some of the important information units could be packaged in various local languages, or that a "mechanism for translation into various local languages" should be provided.
- The use of long URLs should be stopped, as it makes it "extremely difficult to send URLs in e-mails".

5.9 Summary of findings for the online survey

From the results, it is evident that there was an overall positive rating of the site – all aspects rated positively above 60%. The highest satisfaction level was achieved for the broader category of information architecture/organisation of information on the website (82,6%), followed by the visual aspects/look and feel of the website (80,9%), and content

(72,2%). The lowest satisfaction level was achieved for navigational/search aspects of the website (67,6%).

The individual aspects of the site that were most positively viewed were the home page (83,8%), organisation of information (81,9%), ease to navigate the site (80,9%), visual aspects (80,9%), and accuracy (79,5%), which were all above the average rating of 73,4% for all the individual aspects. Aspects of the site that scored below this average were coverage of information (71,5%), ease/difficulty to find information on the website (67,6%), and currency (65,7%). The effectiveness of the search mechanism (61,9%) and ease/difficulty to use the search mechanism (60%) were viewed as the least positive aspects of the website. Table 18 provides a summary of these findings.

Despite the fact that all aspects of the website were rated relatively high, there are reasons for concern. Compared to the overall high rating of the website (82,4%) and the aspects that rated well above average, markedly lower satisfaction levels were achieved for aspects such as the search engine, ease of finding information, currency and information coverage. The difference between the aspects rated the highest and lowest differed as much as 23,8%. The developers should consider improving the aspects that rated lower to ensure that they match the higher satisfaction levels and the overall perception of the website.

An important concern is ease, or the lack thereof, of finding information on the website. Even though 67,7% of the respondents indicated that they found it 'very easy' or 'easy' to find information on the website, this aspect does not compare favourably with aspects such as organisation and navigation. After all, one of the main aims of this site should be to enable users to find the required government information as easily as possible. This occurred despite the fact that most respondents viewed both navigation of the website and organisation of information in a positive light. There could be various reasons for this. The one possibility could be that the search engine created this perception. Another reason could be that respondents looked for information that was not available on the site (or on other government sites) or not posted immediately on the site; this conclusion is correlated by a comment such as "it is hard to find information on job vacancies", and by responses, when asked what additional information was required, that referred to the need for more updated information. Yet another possibility could be that, despite the fact that organisation was rated positively, users did not realise that information was available at other locations on the site than where they expected it – respondents for example requested information that was already available in the site, such as provincial government links.

Many comments focused on the need for an improved search engine. The fact that only minimal user behaviour as described by Nielsen (1997c) was not evident for the website

Table 18: Consolidated results for the main evaluation categories and specific aspects evaluated

Evaluation category	Aspect evaluated	Positive rating* for specific aspect (%)	Ranking for aspect	Positive rating* for category (%)	Ranking for category
Overall rating	-	-	-	82,4	-
Content	Coverage	71,5	5	72,2	3
	Currency	65,7	7		
	Accuracy	79,5	4		
Information architecture/ organisation of information	Home page	83,8	1	82,6	1
	Organisation of information	81,9	2		
Navigation and search	Ease/difficulty to find information	67,6	6	67,6	4
	Ease/difficulty to navigate	80,9	3		
	Ease/difficulty to use the search mechanism	60,0	9		
	Effectiveness of search mechanism	61,9	8		
Design	Visual aspects/look & feel	80,9	3	80,9	2

*For the evaluation of coverage, currency, accuracy & home page, ratings correspond with 'very satisfied', 'satisfied; for the evaluation of the effectiveness of the search mechanism, ratings correspond with 'very effective', 'effective; for the overall rating, the evaluation of organisation and design, ratings correspond with 'very good', 'good'. For the evaluation of ease to find information, to navigate and to use the search, ratings correspond with 'very easy', 'easy'.

It is clear from the discussion that users both browsed and searched the site, with the majority of users preferring to browse, even the more experienced users. It is worth noting that users who did not experience major difficulties in searching, also preferred to browse. Despite this, the main reason for this behaviour appeared to be the way in which the search mechanism was perceived: i.e. difficult and/or ineffective. In addition, the organisational scheme of the website, as well as the navigation thereof was highly rated, which made it logical for users to prefer browsing.

Many comments focused on the need for an improved search engine. The fact that the normal user behaviour as described by Nielsen (1997c) was not evident for this website

might perhaps be ascribed to the fact that respondents found it too difficult to use the search engine or got irrelevant results, therefore preferring to browse. Another possibility is that users of this website were generally more inexperienced than those tested by Nielsen. It is, however, possible that the way the search engine was implemented could have impacted on users' overall perception of the website, but more importantly, on their ability to find information.

A second major issue that emerged was the perceived lack of updated information. There was a clear expectation that material should be kept current, and this expectation was not always met. The availability of additional information was also identified as an important concern. There were specific and varied expectations with regard to additional material that should be included on the website. Respondents sought information on all aspects of government, from comprehensive coverage of government documents and government policy, to government structures and activities and services rendered. Comprehensive information coverage on South Africa also featured, but perhaps not so prominently as might have been expected.

In addition, the results of the survey indicated that the following issues also needed attention:

- Improved organisation and structuring of information categories on the home page and the possibility of including additional information categories to make some important and frequently used information more apparent on the home page.
- The need for the search button to be displayed more prominently on the home page.
- Rethinking the way *What's New* is being handled, to make provision for more 'new' information, for items to be clickable and to link directly to the relevant items.
- Inclusion of additional aids to ease the finding of information, such as a site map and indexes.
- Description of links.
- In addition to issues raised with regard to the search engine the survey also pointed to specific aspects of the search engine that need attention, such as: simplifying the search interface; support to users to specify what they need, as well as on how to use the mechanism in general; inclusion of other government sites in the search index; and the combination of the two search mechanisms.
- Consistency in the use of fonts.
- The perception that pages were "busy" and cluttered (especially the home page).

There seems to be a correlation between frequency of use and satisfaction with the website. Users who used the website more frequently were more positive. This might be because they had a better understanding of the site's content and organisational and navigation features due to their longer exposure thereto, and thus did not experience some issues as a problem any more.

It also became evident that many respondents did not make a distinction between the SA *Government Online* website, serving as an entry point to government information, and the various government websites that it linked to. Respondents expected to find all government information from this site, and incompleteness, lack of currency or poor organisation of information on other sites also reflected negatively on this website.

6. CONCLUSION

This chapter provided detailed discussions on the findings for each of the four methods applied for the evaluation of the SA *Government Online* website. Each of the methods revealed that the website did not conform to various usability criteria nor general expectations for government websites. These deficiencies were demonstrated in each of the broad areas of the usability criteria used, namely that of content, information architecture and organisation, navigation and search, as well as design and layout. Valuable suggestions and comments by respondents and evaluators were also recorded. These will be consolidated and presented as part of the next chapter.

In the following chapter, the author presents a consolidation of the findings of the four evaluation methods, with the aim of providing a comprehensive overview of the deficiencies and usability problems of the website. Some correlations between the findings of each evaluation method are also pointed out. These, together with comments and suggestions by respondents and evaluators regarding the improvement of the website form the basis for the recommendations for improving the site as presented in chapter eight.

CHAPTER 7

CONSOLIDATION OF FINDINGS

1. INTRODUCTION

The previous chapter presented detailed reports on the findings of each of the evaluation methods used to evaluate the *SA Government Online* website. This chapter provides a consolidation of these findings. An attempt is made to present a comprehensive overview of usability problems experienced and identified, as well as of complaints, comments and suggestions of respondents and evaluators during the evaluations. Where the findings of the respective evaluation methods confirm each other they are indicated as such. In addition, substantial findings that reflected the view of only one or some of the respondents or evaluators, or which were only revealed in one or some of the evaluation methods are also reflected. No attempt is made to draw conclusions based on the consolidated findings, or to present solutions for the improvement of the website, as these are discussed in chapter eight.

The findings are presented in the same way as the discussion of evaluation criteria in chapter four.

2. CONTENT

2.1 Orientation to the website

The results of both the heuristic evaluation methods found the availability of an orientation to the website to be a positive feature. It was reasoned that the orientation provided a background on the development of the site, on its main objectives, an overview on information covered, an indication of when it was last updated, as well as information on document formats.

However, the critical evaluation pointed out that the overview lacked depth. It did not provide a clear enough understanding of the depth and breadth of content and main index pages did not provide an overview of the content thereof, how information was handled, or how far back information dated.

The critical evaluation furthermore pointed out the lack of copyright and disclaimer statements.

2.2 Authority of the website

According to the critical evaluator, the URL of the website (<http://www.gov.za>) and the reference to the GCIS as responsible organisation for the maintenance of the website contributed to the authority of the website. The critical evaluator, however, also mentioned that the site did not clarify that it was the official South African government website and that the statement "Maintained by Government Communications" was not consistently applied.

Overall, the site was considered to be without glaring errors and the information accurate. However, instances of wrong or inaccurate information were found, for example the structures and contact information of government departments.

The heuristic evaluators indicated that references and indications of authors of documents had made it possible for users to determine where documents originated and where relevant information could be accessed. It was, however, pointed out that contact information for authors was not consistently provided.

2.3 Comprehensiveness/information coverage/scope

The findings of the heuristic evaluation indicated that the site provided a fairly comprehensive and balanced choice of material, and that it covered the most relevant issues that should appear on a government website. Information was considered useful and necessary. The inclusion of forthcoming events was considered a positive feature, while the *Press Releases* category was considered very comprehensive, as it included information since 1994. Information about the country was regarded to be comprehensive. The website was found to be useful as information source in itself, as well as with regard to links to other information.

The findings of the online survey, however, indicated that respondents were only moderately satisfied with the coverage of information on the website – 71,5% of respondents indicated that they were either 'very satisfied' or 'satisfied' with this aspect, but more importantly, it ranked sixth of the 10 individual aspects measured.

Each of the four evaluation methods identified that additional material should be added to the website or linked to. It was significant that the individual findings indicated the same range of information as essential ingredients for the website.

With regard to the breadth of information, information categories such as public service vacancies, government projects, campaigns and programmes, the history of the South African government, and FAQs were suggested for inclusion on the site. Inclusion of information on government services and on government service delivery was also required. The critical evaluator additionally indicated that two-way communication between government and users was not sufficiently provided for. This perception was confirmed by the online survey, where respondents suggested that users should be provided with the opportunity to ask questions, provide input on government policies, comment on government documents, chat online with departments and e-mail government officials.

Several suggestions were made towards the improvement of the depth of information:

- Government documents and publications. The findings indicated that the *Government Documents, Reports & Forms* category lacked complete listings of government forms, white papers, notices, and other documents and reports. With regard to the latter, reports of the Auditor-General, statistical reports and reports of commissions and committees were specifically mentioned. It was suggested that this category should be expanded to also include Hansard, the Government Gazette, provincial gazettes, regulations promulgated in terms of legislation, annual reports of government departments, policy documents, departmental publications, annual financial statements of government departments and discussions of parliamentary committees. The user tests also revealed a need for the inclusion of two of GCIS's publications, the *Media Directory* and the *Government Directory*.

All the findings indicated the requirement for the website to contain at least those government documents prior to 1997.

- Government structures, functions, offices and contact information. The need was expressed for more detailed information on departmental staff structures, e-mail addresses for ministers, deputy ministers and departments, and contact information for regional offices of departments. The need to include information on the so-called government 'clusters', the names of deputy directors-general, and information on parastatals was also expressed. It was suggested that a definition be provided of

Government Bodies and Institutions. In addition, the inclusion of profiles of more government officials, for example of directors-general and senior departmental officials was requested. User test respondents also requested the inclusion of contact information for MPCCs and local governments.

- Government activities, programmes, events and news. It was suggested that this category be expanded even further and that information on government projects, recent news about government, fact sheets, FAQs on specific issues such as HIV/AIDS, a consolidated calendar of forthcoming events and schedules/diaries of prominent government officials additionally be included. According to the critical evaluator it seemed as though events were selected randomly without any clear policy or guidelines on the selection process as well as the time-scale of display.
- Speeches and media statements. Speeches by provincial officials and foreign delegates were found to be not comprehensive enough. In addition, the critical evaluator found that access to media statements issued by government officials no longer in office, as well as speeches made by foreign delegates were restricted to the *Searchable Database*.
- Provincial and local government. The critical evaluator commented on the unequal coverage between the three levels of government, i.e. that more detail was provided for national government than for the other two levels of government. This observation was confirmed by the need expressed by respondents in the online survey for information on provincial events, activities and developments in provinces, provincial gazettes and annual reports, and more speeches from provincial and local government officials. With regard to local government information, special mention was made of the need for local government contact information, while the user tests revealed that there was also a need for the contact information of MPCCs.
- *SA: An Overview.* The critical evaluator suggested the inclusion of statistical and demographical information and a country profile. The online survey revealed a further need for information on the history of the country, a map of South Africa, information on past presidents and the term calendars of universities and technicons. A need for specific topical issues such as socio-economic issues, the upcoming municipal elections, HIV/AIDS and housing related matters was also expressed. One of the user test respondents required the music of the national anthem.

- *Travel and Tourism.* The critical evaluation considered this category as merely links to related sites, and thus not successful in attracting tourism to the country.
- *Links to other websites.* The critical evaluator commended the wide selection of information linked to and the relevancy of the topics covered. However, the evaluator criticised the unavailability of an explanation about selection policy, and remarked on the difficulty of finding all the links to external websites, as different access points were scattered over the site. The online survey revealed a need for more links to popular sites.
- *Information in non-text formats.* The critical evaluator commented on the limited use of information in non-text formats.

2.4 Currency and timeliness

Three expert evaluators were satisfied that the site was current and up to date. However, the other findings indicated that this aspect of the website was lacking with regard to what could have been expected from a government website. With the exception of the search engine, this aspect rated most negatively in the online survey (a 65,7% satisfaction level).

Aspects found to be satisfactory were the presentation of new information on the home page itself, the indication of the date and time of the latest update and the categorisation of new information as it provided users an immediate overview of the latest additions to the main sections. In general, the heuristic evaluators found the frequency of updating satisfactory, but the critical evaluator mentioned that no updates were made over weekends.

The aspect of out-of-date information featured prominently in the findings. There was a clear expectation that material should be kept current, but the findings revealed that this expectation was not always met. Information considered not being updated included the vision and mission of government departments, contact information for government officials, structures and bodies, profiles of government officials, Bills and other documents, and the *Elections* page. Dissatisfaction was also expressed that the most current information was not always available soon enough, as the latest speeches and documents were not always included in updates. The findings of the heuristic evaluation indicated that name changes of departments were not always effected quickly.

Among other issues that were found wanting was that no indication was given of when specific documents were added to the website, or what the update frequency of the site was. Furthermore, inconsistencies were found with regard to the handling of 'last updated' dates – on some pages these dates were omitted, while they were also not displayed consistently on pages. Lastly, dead links were found on the site.

2.5 Objectivity and fairness

The heuristic evaluators indicated they were satisfied with the objectivity of the site – no bias was found and the content was regarded as balanced. The other evaluation methods provided no results in this regard.

2.6 Writing and editorial style

Positive remarks were made about the overall writing style, and heuristic evaluators commended aspects such as the lack of typographical errors and editorial problems, the fact that pages were easy to read, the professional tone used and the availability of clear headings and page titles. The presentation of information to be read online was found to be acceptable.

The critical evaluation and the user tests revealed instances of ambiguity with regard to the labelling of menu entries and link text. The *Documents, Reports & Forms* sub-category provided the most problems in this regard for test users, but the critical evaluation also identified this problem for the rest of the categories of the website. The following problems were identified:

- Sometimes menu entries/labels were found to be inconsistent with the headings of pages linked to, or headings and entries did not correspond with the content linked to. For example *Government System* and *National System & Structure*, *Deputy President* and *The Presidency*, *Ministers* and *Ministries*. The *Press Releases* heading also included media statements, while user test respondents had various interpretations for the term *Portfolio list*.
- In some cases, the text chosen for the sidebar or menu entries was not self-explanatory and did not provide sufficient context. Subsequently it was difficult to recognise it as the relevant entry to specific information. Examples include *Related links* in the side

navigation bar on the *Provincial Government* page, *Events* as found on the home page, *Combined Contact List*, *Portfolio list*, *A rainbow country* and so on.

- The distinction between sub-categories at *Documents*, *Reports & Forms* was not clear enough, for example *Documents listed per subject*, and *Reports and other documents*.
- Different entries or headings were used over the site for linking to the same information. For example, the *Government & Politics* heading at *SA Webs* linked to *South African Embassies*, and *Related links* at *National System & Structure* linked to *SA Missions abroad*.

The critical evaluation found some pages where headings were omitted, as well as instances where page titles were not changed to reflect changes in content. Some instances were also found with regard to inconsistent naming conventions for page titles (for example *home* versus *index* versus *index page*). The critical evaluation also commented on the occasional omission of page titles or indexed PDF fields.

Both the heuristic evaluation findings, as well as the user tests revealed that issues such as overly long pages had a detrimental effect on the overall usability of the website. This aspect is discussed in more detail in paragraphs 3.2.3 and 5.1.

2.7 Language

The critical evaluator and respondents in the online survey mentioned that the use of languages other than English was too limited.

3. INFORMATION ARCHITECTURE/ORGANISATIONAL STRUCTURE

3.1 The home page and *What's New*

As the home page is required to be a conceptual space leading to information on the website and providing organisational context for the user, this aspect was discussed as part of the paragraph about information architecture in chapter four (paragraph 3.1) and in chapter six. However, to consolidate all aspects related to this issue, navigation and design issues relating to the home page itself also form part of the discussion in this chapter. As the *What's New* functionality formed part of the home page on the site at the time it was

evaluated, it will also be discussed here, as will navigation and design aspects of the home page.

3.1.1 The home page

The heuristic evaluation results found the home page a good entry point to government information, as it provided a good general overview of the information on the site and of its organisational structure. Other positive elements highlighted were the page's aesthetic appeal, especially with regard to the mix of graphics and text, its good basic design, as well as the top graphic banner. The results of the online survey supported the perception that the home page was well designed and organised, as this aspect achieved the highest satisfaction rate (83,8%) of all individual aspects evaluated.

However, there is reason for concern, as problems and dissatisfaction with the home page became evident in the findings of all evaluation methods.

The main issues that were negatively experienced are as follows:

- In contrast to positive comments made by the critical evaluator with regard to the division of the home page in three distinct columns, the other evaluators and respondents experienced problems with this practice. User test respondents found it difficult to distinguish between main category headings and the *What's New* headings. The main reason for this seemed to be the duplication of headings and/or the perception that *What's New* presented subcategories that were a more direct route to the required information. Responses in the online survey about duplication of information on the home page confirmed this observation.
- The home page was considered to be too cluttered and busy, or as having too much detail.
- The display of the search button at the bottom of the page was experienced as a problem. Respondents and evaluators expected it to be more visible and did not want to scroll down to find it. It was suggested that the search box be displayed on the home page itself, and not only at a deeper level.
- The findings indicated that the choice of main categories presented on the home page did not fulfil the needs of respondents and evaluators. Reasons offered for this were

that it did not sufficiently guide users to information lying deeper down in the site, that some information did not feature prominently enough on the home page, and that information was not immediately visible or made apparent enough from the home page. Contact information, links to other websites, profiles, budget information and information relating to national identity were examples of information not found easily from the home page. User test and online survey respondents commented on and made suggestions with regard to the relegation of certain categories to lower levels, the combination or merging of certain categories, adding categories of information that were not yet available, and moving up certain categories that were often used but which were only available at a deeper level. Additional information suggested for inclusion on the site and to be accessible directly from the home page included national symbols, parliamentary information, government services, contact information and public service vacancies. Easier access to departmental home pages from the home page was mentioned as a specific requirement. To create more room for additional information categories, the removal of entries such as *Ministers*, *Deputy Ministers* and *Africa* were suggested.

- The critical evaluator found that the main categories focused too much on government organisational information, and that no trace was found of an attempt to also follow a functional approach. Furthermore, the main categories did not represent a true reflection of the actual content of the website, as national government information was spread out more horizontally over the site than other categories, but did not necessarily constitute more important or broader information content.

3.1.2 *What's New*

The critical evaluator considered the announcement of new information posted directly on the home page in a positive light, as it supported users to immediately view the latest additions to the website without having to click down to a next layer. However, the treatment of this feature by the web developers did not support this positive perception, but rather contributed to a negative perception thereof. Many difficulties were experienced and dissatisfaction was expressed with the way the announcement of new information was treated on the site.

Specific issues that presented problems or what were commented upon were as follows:

- The critical evaluation found the font size and font type used for the entries listed under *What's New* too small, especially in relation to other information entries and graphics on the home page, and therefore difficult to read. In addition, user test respondents criticised the use of red for the latest additions.
- Individual entries or document titles were not clickable. Users were required to select the heading of the relevant category. These headings linked to general category listings presenting all the information in these categories and not only to the new information. Furthermore, the new information was not always presented in the same sequence as presented on the home page.
- The heuristic evaluation findings found that the home page became too long when a substantial amount of new information or events were presented, resulting in users having to scroll down to see all the new information or events.
- The expert and user tests found the presentation of the new entries to be too cluttered.
- It was not clear if the announcement of new information also included postings to other government websites.
- It was not clear for how long 'new' information was displayed on the home page, and it was not possible to determine which information was added on the website for a specific period.

3.2 Organisational scheme of the website

On the surface, online survey findings for the organisational aspects of the website seemed to be positive, as the broader category of information organisation (also including findings for the home page) rated the highest of all categories in the online survey (81,9% satisfaction level). Furthermore, expert evaluators generally commented positively on this aspect.

Aspects found to be satisfactory included the relative shallow link hierarchy, the clear interface that enabled users to see at a glance where they were and what information was available, the logical and sequential way information was organised, the grouping of information under the right headings, and the availability of alternative methods of organising and providing access to documents, speeches and media statements.

However, when evaluating the findings for related questions, almost a third of the online survey respondents indicated that they found it difficult to find information on the site, or found it 'neither easy nor difficult', or were uncertain on this. At the request to motivate their answers, the majority of responses concerned the organisation of information. Factors that contributed to respondents' dissatisfaction included that "information was not immediately visible" or "was not made apparent on the home page", that information was spread out over the site and that labelling was not always logical. The findings of the critical evaluation and user tests confirmed that fundamental problems existed with the organisational structure of the website that could have contributed to usability problems and to users not being able to find the information that they required.

The main problems identified with regard to the organisational structure of the website are discussed in the following paragraphs.

3.2.1 Fragmentation of information

The user tests revealed that information was often fragmented, causing key concepts to span over multiple pages. In instances where the same information was represented multiple times with slight variations, and where information on the same topic was carried in different sections of the website, user test respondents became confused. The findings of the heuristic evaluations confirmed this observation and mentioned the following categories in this regard: links to the different levels of government (national, provincial and local), links to other government bodies and to other external websites, information on the Constitution, public holidays, arts and culture, elections, the Coat of Arms and other national symbols, speeches and media statements, provincial profiles, documents, and contact information.

3.2.2 Hidden information

The critical evaluation, online survey as well as user tests found that certain important information was hidden and difficult to find. In this regard, the findings specifically identified government documents, media statements, links to external websites, contact information, profiles of government officials, familiar information products such as the contact directories, national emblems, provincial and country-wide profiles, topical information, provincial and local government websites and the websites of government bodies other than national departments.

3.2.3 Long documents

The critical evaluation found that the long documents carried on the website contributed to the problem of hidden and therefore difficult to find information. As no links were provided to the main sections contained in these documents, the content was difficult to locate. This finding was confirmed by the findings of the online survey and expert evaluation. The chapters of the *South Africa Yearbook at SA: An Overview* were specifically mentioned in this regard – the critical evaluator found that publishing complete chapters without chunking them further hid much of the valuable content contained therein.

3.2.4 Hierarchical scheme

The user tests revealed that users got irritated when unnecessary steps had to be followed to get to the required information – they wanted information immediately. For example, respondents expected to find the parliamentary website when clicking on *Parliament of the Republic of South Africa* on the *National System & Structure* page. Dissatisfaction was also expressed when a further click was required to find the provincial websites after clicking on *nine provinces* on the *Provincial Government* page. This observation is confirmed by the finding of the critical evaluator that information was not always accessible via the shortest possible route, resulting in users having to take unnecessary steps to reach the required information.

The critical evaluation further identified that hierarchies were not built in a consistent way, causing difficulty to move easily through the site without getting lost. Sometimes information was presented from general to specific, but in other cases specific information was presented immediately on the main pages, with information just as important relegated to deeper levels of the hierarchy.

3.2.5 Consistency

User test respondents expected a consistent approach to the organisation of information. After they were shown how contact information was treated on the site, they expected the same treatment and organisational approach when looking for profiles of government officials.

3.2.6 Organisational methods

The following problems were experienced and suggestions made by respondents in the user test:

- It was not clear to respondents that an additional sorting method or option of finding documents according to subject had been provided. This was also relevant for documents listed per annum and all documents listed together for all the years.
- Respondents suggested that documents should be listed chronologically as well as alphabetically, and that all documents for all years and for all subjects should be grouped together in one listing. The title “archive” was suggested in place of *All Documents combined*.
- Respondents not only required a listing of gazettes but also wanted to have access to gazettes according to the type of information contained therein.
- The requirement for an alphabetical listing on longer pages such as *National Departments*, and which would make it possible to have shorter pages with less information on each was expressed. It was suggested that for the less experienced user a general page listing for all the departments be combined with the first option.
- Respondents did not recognise that additional listing methods had been provided to ensure improved access to information. For example, the *Portfolio list* was perceived as unnecessary duplication of information content.

3.2.7 Specific information presenting problems during the user tests

Categories and subcategories that especially presented difficulties for user test respondents were *Speeches*, containing speeches as well as media statements, documents, *Contact information*, and links to external websites.

- Speeches and media statements. The first factor contributing to difficulty was the heading “Speeches”, requiring the user to guess that media statements were also available in this category. This observation was made with regard to the home page listing as well as the link on the *Ministries* page. Secondly, when results were displayed

after a search had been performed for either of the two information types, it seemed that respondents did not know whether speeches or media statements had been returned. They were thus required to open the documents from within the results browser to determine which were speeches and which were media statements. Thirdly, there were incomplete listings of speeches and media statements and respondents did not realise that only the latest 25 were listed when linking from the *Speeches & Press Releases* page to listings of speeches in the database. Relevant to this issue is that respondents in the online survey criticised the use of the search engine to list both speeches and media statements. They indicated a preference for an archived directory of speeches and improved chronological categorisation thereof. It is worth noting that on enquiring about respondents' preferences regarding the handling of this information the response was mixed. Three respondents indicated their preference for speeches and media statements to be presented under separate headings, and two did not mind them combined.

Additional to the problems observed in the user tests, the critical evaluator noted that the speeches and media statements of some provincial officials were not grouped with those of national and other provincial government officials.

- Contact information and biographical information. It was not evident to respondents that contact information was provided both per individual category (e.g. *Ministers, Deputy Ministers*) and in a combined format. When this was conveyed to them they found it difficult to find the combined contact list. They did not expect to find it at *National System & Structure*, and were unable to identify the relevant entry in the side navigation bar on pages where this option was available. Respondents who had some knowledge of government structures and information expected existing hard-copy documents to be presented on the site in the format familiar to them. This was demonstrated by the fact that the *Government Directory*, a well-known product within government was searched for at *Documents, Reports & Forms* by two respondents in different circumstances.
- *Documents, Reports & Forms*. Locating specific documents on the website constituted one of the biggest problems for respondents. It is worth noting that some preferred to look for documents on the relevant government department's website or opted to search when difficulties were experienced to find specific documents such as the Nuclear Energy Act. Linking of the individual *Documents, Reports & Forms* sub-categories to pages only containing listings for the latest year's documents (2000) in that sub-category confused respondents. When a specific entry was selected and the

relevant page displayed, respondents immediately accepted that all documents for the sub-category were listed on that page. They did not notice that indexes for the other years were available from the side navigation bar, but immediately scrolled down to find the specific document.

- Links to external websites. Respondents found it unsatisfactory that links were scattered over the site and were only accessible from a deeper layer of the site. When respondents were asked to find links to external websites, their first option was to search for links according to a topical organisational scheme (except in the case of government departments) where all external links were grouped together. Only when such an option was not found, were the 'organisational' indexes consulted. One respondent suggested that all external links be grouped together with a title such as "related links".

Respondents expressed different needs, expectations and preferences for where information should be categorised or accessed from. In addition to the previously mentioned aspects, changes to existing organisational structures suggested were that the Constitution be categorised at *Documents, Reports & Forms*, that the Government Gazette be located at *Documents, Reports & Forms* or *National System & Structure* or *Parliament*, that public service vacancies be available from *National System & Structure* or *Services* or *National Departments*, that government forms be part of *Services* and that the *What's New* listing be on a second level and not on the home page.

4. NAVIGATION AND SEARCH

All the evaluation methods revealed that this category presented many problems and dissatisfaction. In the findings of the online survey the lowest satisfaction level (67,6%) was achieved for the questions relating to navigation and search, a percentage well below that achieved for the other categories of questions, including those on information architecture (see chapter six, paragraph 5.5) and content (see chapter six, paragraph 5.4). The findings of the other evaluation methods confirmed this finding.

4.1 Site navigation

The results of the online survey indicated a relatively high satisfaction level (80,9%) with regard to the specific question about site navigation (indicate how easy/difficult you find it to navigate this website). However, responses to a related question on the ease/difficulty of

finding information on the website showed a much lower satisfaction level – a percentage of only 67,6% of responses indicated that respondents found it either 'very easy' or 'easy' to find information on the website. Despite the fact that many responses concerned the organisation of information, navigation aspects were also indicated as the causing factor. The expert evaluators had conflicting opinions – two found the site easy to navigate, but the others regarded navigation as an aspect that should be improved. The critical evaluation found both positive and negative aspects, but pointed to aspects that could have caused usability problems.

The online survey and both the heuristic evaluation methods pointed to the following positive aspects in this regard:

The online survey and both the heuristic evaluation methods pointed to the following positive aspects in this regard:

- Overall, it was easy to navigate and browse the site.
- Structural and local links were provided, and pages provided easy access to relevant pages.
- Navigation was consistently applied.
- Pages provided links to go back to the home page, as well as access to the search mechanism.
- On most pages, links were provided back to the higher-level pages in the hierarchy.
- Additional cross-referencing was provided by means of the side navigation bar.

The aspects that presented the most problems are discussed in the following paragraphs.

4.1.1 Top navigation bar

The findings indicated that the top navigation bar was not optimally usable and accessible, and did not fulfil expectations.

The critical evaluator found that the sequence of entries in the top navigation bar did not correspond with that of the home page, while the labelling of some entries was not consistent with that on the home page. In addition, the small font size and use of white text against a black background made it difficult to read the text. An expert evaluator was of the opinion that the top navigation bar took up too much space on pages.

Behaviour and comments made during the user tests confirmed that the top navigation bar was not providing effective navigation support. It was interesting to note that in most cases respondents did not make use of the top navigation bar. The general behaviour was to go back to the home page by means of the browser's *Back* button to select the category for

the following question from there. This sometimes occurred even when respondents were already within the relevant category for the next question. The first time that a navigation button other than *Back* was used, was with question five, when three respondents selected *Search*, *Home* and *System & Structure* from the top navigation bar respectively. Reasons for not using the top navigation bar can be derived from comments such as:

- “The top navigation bar is totally inadequate”.
- “It is difficult to read”.
- “It will perhaps be better to put it on the side making use of frames”.
- “Home should not be part of it, but on the page itself, as most users prefer to go back to the home page”.

4.1.2 Side navigation

The critical evaluator referred to the side navigation as a good method to provide local links to relevant information and as a good opportunity to cross-navigate between different types of information without having to go back to the home page or the main categories.

However, during the user tests it was observed that respondents mostly scanned through the options provided in the sidebar, often overlooking the relevant link. Furthermore, the critical evaluation found that the side navigation bar was inconsistently applied – it provided for a variety of link types. For example, links were to related information on the site itself, to more detailed information on a topic, to external websites, to other sub-categories, and to additional indexes.

4.1.3 ‘Previous’ and ‘next’ options

User test respondents and expert evaluators respectively commented that ‘previous’ and ‘next’ buttons would have made navigation easier and would have helped to improve orientation to the website.

4.1.4 Long pages

During the user tests the moderator observed that respondents had trouble to find information contained within longer documents. The critical evaluator commented on the unavailability of bookmark links or an index to assist navigation on most of the longer pages.

4.1.5 Additional navigation aids

All the findings indicated that the website failed to provide sufficient methods to assist the user to form a mental model of the website, such as a site map, cross-references, alphabetical indexes, spatial or graphical overviews and coherent indexes. However, it was interesting to note that during the user tests, limited use was made of the tools that had been provided. Only one respondent made use of the alphabetical index on the top of the *Documents per subject* page. Two respondents found the alphabetical index confusing, expecting it to link to document titles starting with the alphabetical letter selected. In addition, the user test indicated that it was not clear to respondents that alternative listings for the same information had been provided (see chapter six, paragraph 4.4.2).

4.1.6 Description of links

The critical evaluator found that links failed to provide adequate cues to where they lead and how much information was at the other end of the link. This view was confirmed by the user tests in which respondents complained that links were not described. They were of the opinion that this function would be helpful to orientate users about information that was available and about where they would be going. A flag showing the meaning of headings when running mouse-over buttons was suggested.

4.1.7 Additional problems experienced and suggestions made

In addition to above-mentioned aspects, respondents and evaluators experienced the following problems and difficulties:

- The critical evaluator criticised the occasional duplication of structural links. The same entries were found on different levels of the site, while duplication of entries was found between the top and side navigation bars.
- One expert evaluator was of the opinion that the site did not provide clear indications of where users were within the website.
- According to expert evaluators the navigation scheme was not consistently applied. The critical evaluator further found that the principle of applying 'breadcrumb trails' was not followed consistently, while the bottom navigation was omitted from some pages.

- Two user test respondents initially attempted to click on the icons next to main headings. A further problem experienced was that only part of the *Searchable Database* button was active to click on.
- Where photographs were presented with names of officials (for example on the *Presidency* page), user test respondents expected the photograph and text to be one link instead of the photograph being a thumbnail to a bigger image and the title being a link to the profile of the official.
- One expert evaluator found links that were not easily identifiable as links.
- User test respondents criticised the way links were presented on the *National Departments* page. According to one, users might have assumed that they could have clicked on the name of the department to get more information about the department or to go to its home page, and therefore it was not necessary to provide all the other options. Respondents also expected to find a link to government-controlled bodies from the *National Departments* pages.
- Additional cross-referencing was required from all relevant pages to profiles of government officials.
- Both the heuristic evaluation methods indicated that dead links were found. This included internal and external links.

4.2 Search

Overall, the search mechanism was rated and experienced as one of the most negative aspects of the website. With the exception of two expert evaluators who considered the search mechanism as satisfactory, the heuristic evaluators considered the search mechanism as inadequate and as an aspect that should be improved upon. In the online survey the two aspects of the search mechanism tested, i.e. ease/difficulty to use the search mechanism and effectiveness of the search mechanism, returned the lowest individual ratings of all aspects tested (60% and 61,9% respectively). Significant was also that 27% of the responses to the question about the ease/difficulty of finding information on the website concerned the search engine, and that the majority of these (15 out of 17) were negative. In addition, a correlation was found between the ease/difficulty of finding information and ease/difficulty of using the search mechanism. A percentage of 63,6 of the

respondents who found it 'difficult' or 'very difficult' to find information, and 40% of those who found it 'neither easy nor difficult' or who were 'uncertain' referred to the search engine as reason. Above-mentioned finding was confirmed by observations made during the user tests.

Positive features of the search mechanism from the findings included:

- The availability of ranking and weighting.
- The attempt to make simple as well as advanced search functionalities available.
- Both the search mechanisms allowed various search formulation options and provided some options for the refinement of searches as well as for the manipulation of results.
- The *Searchable Database* made provision for the selection of specific data collections, field searching and the sorting of results.
- Documents in both PDF and HTML formats could be retrieved.

The findings indicated the following aspects as contributing to the negative perception of, or experience with the search mechanism:

4.2.1 Two search mechanisms

The critical evaluator criticised the provision of two separate search mechanisms for different parts of the site. According to the evaluator, this made it impossible to do a comprehensive search on all information on the website.

The findings of the expert evaluation, user tests as well as that of the online survey confirmed this observation. Expert evaluators as well as user test respondents were not able to distinguish between the two search mechanisms provided on the site, and did not realise that the two mechanisms provided access to different sets of information.

It became evident that heuristic evaluators and user test respondents perceived the two search mechanisms as an attempt to provide simple and advanced search facilities. Heuristic evaluators indicated that the distinction between the 'simple' and 'advanced' search facilities was not clear, and were of the opinion that the 'advanced' search was hidden and should have been more easily available. As in the case of the heuristic evaluators, user test respondents expressed their perception that the *Search the Government Online World Wide Website* search provided a simple search, while the *Searchable Database* was perceived as an advanced search mechanism where searches entered in the previous mechanism could be manipulated further. Respondents also

expected all information available on the site to be searchable from both search pages. In addition, an expert evaluator commented on the difficulty of determining if there was a distinction between full text retrieval and the indexed database, and could not determine how indexing took place.

General behaviour during the user tests was to go to the search page that was the most easily available at the time. User frustration is expressed in the following quotes: "The two searches made it very difficult" and "I don't know what is in the databases – there should be only one search facility – the web pages and database should be one". Respondents in the online survey also suggested that there should be only one search mechanism.

4.2.2 Search interface and query structuring

The search interface and facilities to structure queries drew the following negative reaction:

- The heuristic evaluators mentioned that descriptions of the different search functions and on how searches should be done were not clear enough. Descriptions were required, for example, on the scale of resources available for searching, the type of terminology used in the site and in the databases, how ranking took place, what terms such as 'power search', 'default', 'simple' and 'standard' meant, and how truncation and wildcards functioned. Comments from respondents in the online survey confirmed that they also experienced problems with these issues.

User test respondents did not try to make use of the help function.

- The findings of all evaluation methods indicated that the search interface was complex and not user-friendly, especially for inexperienced and average users. The user tests revealed that respondents did not notice that more data collections than speeches were available on the *Searchable Database* page and that specific collections could be selected. This observation was confirmed by an expert evaluator, who mentioned that the pull-down menus at the *Searchable Database* page were deceptive as not all the options were visible in one glance. Other observations during the user tests were that some respondents did not notice the sorting option when asked to sort media statements from the latest to the oldest, while specifying specific dates presented problems – including both the formatting of the date as well as defining parameters. The critical evaluator also mentioned that features such as 'default', 'simple' and 'standard' would probably not have been familiar to the average user.

- The critical evaluator pointed out that it was difficult to search for speeches or media statements of specific officials and that it was therefore easier to browse the website to find speeches made by specific officials. The reason for this was ascribed to the fact that although provision was made for date and title fields, no field was available for names of officials.
- The heuristic evaluators remarked that the search mechanism did not allow for phonetic variations, abbreviations or synonyms from a thesaurus, truncation, wildcards, proximity searching, case sensitivity, field searching and natural language searching. It was suggested that proximity and date selections be included as part of the simple search. In addition, an expert evaluator detected inconsistencies with regard to the functioning of boolean operators, while another expressed dissatisfaction with the fact that “separating by commas”, meaning the boolean OR, was used as default. Comments by online survey respondents indicated a need for more options to narrow down information and for having more search options than merely entering a word.
- According to the critical evaluator the attempt to provide a scoped search failed, as the applicable entry linked to the complete *Searchable Database* interface, and not to an interface providing for only a search on the relevant part of the website. However, the need for scoped searching became evident from comments from online survey respondents, inter alia that it would be helpful to search specific information or information categories.

It is worth noting that user test respondents had trouble to formulate logical queries. Formulation of queries followed two main trends:

- Respondents entered the question as provided in the user guideline, for example the Act number or the exact title of the Act – Nuclear Energy Act (Act No. 46 of 1999). The remark was made that one “should be able to type the whole thing in”. This behaviour also confirmed the need for natural language searching.
- Queries were formulated very broadly. Respondents entered very short search strings (one or two words), such as “transport” or “health”, resulting in a large return. In addition, they sometimes overlooked the item they were trying to find, even when it was included in the search results.

Remarks made by online survey respondents indicated that they did not have much experience of search engines and of formulating queries.

4.2.3 Search results

The following aspects regarding the search results were found to be unsatisfactory:

- The critical evaluator found incomprehensive document titles in the result list.
- Use of italics for the summaries in the results list. A comment was also made that the summaries were not descriptive enough of the content of documents.
- The fact that too many documents were returned, many which were irrelevant. It must, however, be noted that as stated in paragraph 4.2.2 of this chapter, queries were often formulated very broadly by user test respondents. In one instance, after a query was entered correctly, a respondent with high Internet exposure commented positively on the results displayed.
- One respondent suggested that an option for refining results be added directly on the results page.

Furthermore, an expert evaluator commented that results neither gave sufficient context, for example the number of keywords/hits after a search, nor an indication of the keywords in the text, nor of the category from where the results originated. Another expert evaluator found different results when entering the same search in lower and upper case. With regard to the aspect of keywords, the critical evaluator found that search terms were highlighted in retrieved documents from the *Searchable Database* but not from the *Search the Government World Wide Website*.

Additional problems highlighted were the lack of functionalities to cluster results, to save results, or to set parameters.

4.2.4 Search other government websites

The critical evaluation as well as comments made by respondents of the online survey indicated the need for an option to search for information available on other government websites from the *SA Government Online* website. The search behaviour of user test

respondents, where they attempted to go directly to other government sites to find specific types of information, confirmed this need.

4.3 Searching versus browsing

The online survey found that the dominant user behaviour was to browse the menu structure. The majority of respondents (77,5%) preferred to browse through the website to find information, while less than a half (47,8%) indicated that they preferred the search engine. Just more than four out of every ten (43%) indicated that they made use of both the browsing and searching methods. In addition, 33 respondents (15,8%) indicated that they never search, and only three (1,4%) that they never browse. In addition, 15,8% of the respondents indicated that they never search and only 1,4% that they never browse.

A comparison of the methods of finding information on the website with frequency of use indicated that 82,2% of the most frequent users (more than eight times a month) browsed the website and 45,8% used the search facility, compared to the less frequent users (first time visitors/less than once a month), where 61,1% indicated that they browsed and 47,2% that they searched (see table 13).

It is significant that a comparison between the easy/difficulty of using the search mechanism and methods of finding information on the website revealed that 76,2% of the respondents who indicated that the search mechanism was "easy" or "very easy" to use still indicated that they browsed to find information, compared to 53,2% of this group who indicated that they used the search mechanism (see table 15).

Observation during the user tests revealed that respondents both browsed and searched the site to find information. The two respondents that often tried to use the search engine were the one with average Internet as well as *Government Online* experience, and the one with high Internet but no *Government Online* experience.

An important observation was that respondents did not have much patience when their attempts to find information through browsing failed, and subsequently switched over to search. They also easily switched back to the browsing mode when search did not quickly provide the desired outcome. It was evident that respondents preferred searching to browsing for specific types of information. It was especially evident when

- searching for specific documents such as the Nuclear Energy Act or for documents on a specific subject

- information was not evident from the home page categorisation, for example when asked to determine what South Africa's national animal was and when Youth Day was celebrated
- the information needed was broad and did not fit one specific category, for example in response to the question on how the media was regulated in South Africa
- locating speeches.

5. DESIGN AND LAYOUT

5.1 Design and layout

In general, the look and feel of the website was commented on positively. This aspect was rated the second highest (80,9%) of all individual aspects evaluated by means of the online survey, while heuristic evaluators and test user respondents regarded the site as visually pleasing in terms of aesthetic qualities. A liking was expressed for the header, the use of colour, the background image and icon used for menu entries (flag), the clean and clear-cut design, and consistency of layout. Furthermore, the design and layout were considered as being user-friendly and not too complex. Both experts and user test respondents expressed the view that the website was representative of South Africa.

One expert evaluator criticised the “drabness” in the look and feel of the site and recommended that added style and flair be integrated into the design of the website. User test respondents commented that the home page should be livelier and that more graphics should be used. One expert evaluator questioned the political correctness of the Khoisan figures, and another remarked that the site design did not cater for the youth. The exclusion of the Coat of Arms as design element was criticised by the critical evaluator and online survey respondents.

The findings identified the following as aspects that could be improved:

- Display of information on pages. As previously reported, the design of the home page in three columns confused some of the user test respondents. They could not determine that the right-hand column presented only the latest information and got confused with the repetition of headings between the right and left columns. Comments were also made that the home page was too cluttered – especially with regard to the presentation of new information. This was confirmed by the critical evaluation.

An expert evaluator found the top navigation bar distracting and remarked that it took up too much space on the screen.

- Length of pages. Heuristic evaluators criticised the long index pages since it necessitated scrolling to see all entries. It did not seem, however, as if user test respondents experienced major problems with scrolling down menu pages that did not fit on to one screen – with the exception of the *National System & Structure* and *SA: An Overview* pages, they scrolled down to locate desired items. In contrast, scrolling through the list of documents on the *Reports and Other Documents* page irritated some respondents, while they also did not want to scroll to the bottom of the home page to find the search button. The critical evaluator and the user test respondents commented that the home page sometimes became too long with the addition of new information or events.

In addition, dissatisfaction was expressed with long documents without additional navigation aids such as indexes and 'top of page' links, as well as long documents that took long to download.

- Use of tables. User test respondents perceived the use of tables, for example at *The Presidency* and where used for contact information, as a neat and effective way to present this information. The lines of the tables were, however, considered unattractive and the type-face (italics) used not suitable, influencing text readability. The treatment of visible tables was also criticised by the heuristic evaluators. They found it busy and cluttered, thus contributing to difficulty in reading the text.
- Consistency in design. The critical evaluator detected some inconsistencies in the layout of the website. These included the display of some features on all pages, such as 'last updated' dates, the sequence of menu entries, and the treatment of main index pages.
- Printing of pages. Some pages that were cut off on printing were found.
- Indication of document formats. No indication was provided of the format in which individual documents were available.

5.2 Text readability and visibility

In general, expert evaluators considered this aspect as satisfactory. They remarked positively on the use of font colour, pitch and visibility of text. The critical evaluator furthermore commented positively on the way that the background image was applied.

In addition to the aspects mentioned in the previous paragraph as part of the discussion about the use of tables, the following aspects were highlighted as issues that should receive attention.

- Choice of font and case. The critical evaluator, one expert evaluator and respondents in the online survey commented on the inconsistent use of font types and sizes in text and document headings. In addition, the user test and critical evaluation revealed that the font used for *What's New* was too small and that the red for new entries was ineffective. The font used for the summaries of search results was also found difficult to read. Furthermore, the unbalanced relationship between text and images on the home page contributed to the difficulty experienced in reading the text.
- Justification and spacing. The inadequate spacing between text or entries, as well as text spanning over the complete width of the screen, were identified in the user tests and critical evaluation as additional aspects which contributed to the difficulty experienced in reading the text.
- Use of colour. The way colour was applied for the side navigation bar was found to be somewhat overwhelming by the critical evaluator, specifically on pages that displayed many sidebar options. The white lettering used on the black background in the top navigation bar was found to be difficult to read by the critical and one expert evaluator. Two expert evaluators recommended that the site be more colourful.

5.3 Graphics, images and animation

The critical evaluator regarded the graphic elements as relevant to the content and as enhancing it. The evaluator commended the use of images on the home page to announce upcoming events, and the use of icons at menu entries. The use of photographs was regarded as contributing to the general appeal of the website and as making government officials more personal to users. Similarly, the photographs of national emblems were

regarded as visualising them for users. The user tests also found the inclusion of photographs of government officials to be a positive aspect of the website. Online survey respondents suggested the inclusion of additional photographs.

One expert evaluator was satisfied with the use of graphics on the website, but two expert evaluators did not react favourably to this aspect. They found that not enough graphics were used and when used, they were not used creatively. One expert evaluator complained that some pages with graphics took too long to download.

5.4 Interaction (forms)

Expert evaluators were satisfied with the treatment of forms as well as of the *Contact Us* functionality, while the critical evaluator found the *Contact us* forms easy to use and expressed a liking for the automatic response received by the user after submitting it. However, the critical evaluator criticised the fact that no indication was given of the time-frame within which users might expect to receive a response, and that the distinction between the functionalities to contact the webmaster and to request further information from the Information Centre was not clear enough. Evaluators and respondents suggested the inclusion of more government forms, while respondents in the online survey expressed a need for more interactive features to enable users to talk to government in various ways. This aspect was not covered by the user tests.

6. PURPOSE AND AUDIENCE

The general view of the expert evaluators was that the site suited its purpose and intended audience, that the content was relevant to the subject domain, and that the site was a good source of government information. This view was confirmed by the findings of the critical evaluator who perceived the website as fulfilling its purpose to act as an entry point to government information on the Internet.

7. THE WEBSITE AS ENTRY POINT TO SOUTH AFRICAN GOVERNMENT INFORMATION

The heuristic evaluators found this aspect to be satisfactory, as the home page provided a good overview of information available on the site, and as the website made it easy to access relevant information on other government websites. However, the critical evaluator criticised the fact that the website did not provide access to all information on other

government sites, but rather focused on duplicating and maintaining content already available on those sites.

The user tests revealed that respondents had a need for easier access to departmental websites. They expected to find government information on specific topics from a central place, i.e. the government website. Users, for example, stated that they did not want to go to the websites of individual departments for government services. Respondents, however, attempted to go to the websites of the relevant government departments to look for specific government documents. Announcements of new information posted on other government sites were also required.

8. ADDITIONAL OBSERVATIONS

8.1 Frequency of use versus satisfaction/dissatisfaction with aspects evaluated

Respondents and evaluators differed with regard to the level of experience they had in using websites. The experts and the critical evaluator could be regarded as more advanced users. Three user test respondents had high Internet exposure, one of whom also had high exposure to the *SA Government Online* website. 6,2% of the online survey respondents did have some previous Internet exposure and just more than a half (51%) used the website frequently.

From the findings of the online survey, it became evident that there was a correlation between the frequency of use and satisfaction with the website. Respondents who used the website more frequently (more than once a month) were generally more positive about the aspects evaluated (comprehensiveness, currency, organisation, ease/difficulty of finding information, navigation, ease/difficulty of using the search mechanism) than the less frequent users (first-time users/less than once a month).

It is also interesting to note that that the biggest gaps between ease/difficulty of finding information and frequency of use were with the aspects organisation, difficulty of finding information, and difficulty of using the search mechanism, where the gaps were 19,3%, 12,4% and 10% respectively.

At this point it is important to point to comments made by respondents during the online survey that indicated that some of them might not have been highly experienced computer

users of very knowledgeable about the use of a search mechanism (see chapter 6 paragraph 5.6.6).

It was also evident that the search mechanism was the biggest problem experienced by both experienced and inexperienced users and that this contributed to the relative difficulty of finding information.

8.2 Government web publishing

Despite the fact that the evaluation instruments did not test this issue, the findings of the online survey indicated that the respondents' experience of other government websites influenced their perception of the *SA Government Online* website. Suggestions were made that other government departments should update their websites more frequently and should include more current and relevant information on their sites. It was also suggested that all national departments and provincial governments should develop websites and that government websites should be standardised.

8.3 Slow downloading time

As with the previous paragraph, this aspect was not included in the evaluation instruments. However, the findings of the heuristic evaluations, user tests and online survey included comments on the slow downloading time of some pages. Mention was specifically made of long documents, graphics and executing searches.

9. CONCLUSION

This chapter provided a consolidation of findings for the four evaluation methods applied for the evaluation of the *SA Government Online* website. The consolidated findings indicate that many aspects of the website were satisfactory and that the website generally fulfilled its purpose. The findings, however, also confirm the comments made in the previous chapter that there are reasons for concern. Defects and problems were found with aspects in all the categories evaluated – content, information architecture/organisation of information, navigation, search, as well as design and layout of the website. The most prominent aspects identified as requiring improvement were the comprehensiveness and currency of the website, handling of the *What's New* feature, long documents without internal navigation support, and the difficulties experienced to find information. The findings show that the latter problem was most probably related to excessive fragmentation of

information, the complex and inconsistent navigation scheme, a poor search mechanism, and the fact that important and much needed information was not easily accessible from higher-level pages.

Furthermore, the consolidated findings demonstrate that the findings of the individual evaluation methods confirmed each other in many respects. However, the author believes that most of the aspects identified by only one or some of the evaluation methods can be considered as relevant concerns and deficiencies, and these, together with the deficiencies that were identified by two or more of the methods, should be regarded as aspects that should be considered for improvement.

The following chapter presents conclusions with regard to certain aspects discussed in this chapter, and poses possible solutions for the problems identified.

3. CONTENT

3.1 Orientation to the website

The site's purpose and intended audience should be declared more clearly. The site will also benefit from a more substantive orientation to the scope and content period. It will be useful to provide a clearer indication of what information content is available. In some cases links are provided, as well as how linking to other websites is approached. It will be an indication of how far back information on the site dates may contribute to an overall understanding of the breadth and depth of information content on the website.

CHAPTER 8

SA GOVERNMENT ONLINE: THE WAY FORWARD

1. INTRODUCTION

The major outcome of the evaluation methods applied for the evaluation of *SA Government Online* was a listing of findings relating to the content and of usability problems experienced and identified. A consolidation of these was presented in the previous chapter.

The purpose of this chapter is to draw conclusions based on the findings and to provide possible solutions for the problems or deficiencies of the website. As many web design issues cannot be addressed in a standard way more than one solution is presented at times. Furthermore, the author does not claim to have presented all possible solutions for all aspects identified, but rather attempted to make recommendations that conform to the basic principles for good website design. When considering the recommended solutions, it must be kept in mind that a website is a complex combination of various aspects where the right relationship between different web design aspects has to be achieved to develop a balanced and effective website, and that all improvements must complement each other to contribute to a successful and usable total solution.

Solutions are presented according to the structure used for the discussion of website criteria in chapter four. These criteria, those discussed in chapter five, additional sources discussing successful websites, as well as the author's own experience form the basis for the solutions presented.

2. CONTENT

2.1 Orientation to the website

The site's purpose and intended audience should be declared more clearly. The website will also benefit from a more substantive orientation to the scope and content thereof. It will be useful to provide a clearer indication of what information content is available, in which cases links are provided, as well as how linking to other websites is approached. Providing an indication of how far back information on the site dates may contribute to an improved understanding of the breadth and depth of information content on the website.

Short descriptions on the main index pages of information content and the way it is handled will give a picture of what is to be expected in that specific part of the website. This will be especially useful for information such as speeches, media statements and documents, since the website carried speeches and media statements delivered from 1994 onwards, whereas only documents published since 1997 were included. As the content in the *Documents, Reports & Forms* section was not comprehensive, an explanation can be provided about categories of documents that are included and omitted. In addition, the relationship of some of the entries to the Government Gazette, and how and where to get documents such as the Government Gazette and Tender Bulletin in hard copy format can be provided. An explanation about the frequency of updating for the Tender Bulletin should be provided on that page.

A disclaimer statement would ensure that the developers of the site are covered should information be out of date or incorrect. This is particularly important for a site such as *SA Government Online*, where other government bodies contribute to the information on it, either by providing updated sites themselves, or by providing information to the *SA Government Online* developers.

2.2 Authority of the website

It is recommended that a clear indication be given that the *SA Government Online* website is the official website of the South African government. This may avoid confusion since another website (maintained by a private company) also provides comprehensive government information.

The possibility of including the URL on documents should be considered. This will assist users to identify where the information originates from when pages are printed. It is further recommended that contact information for authors be included where omitted, so that users can obtain more information on the relevant topics if so required.

It will be necessary to reconsider the way in which the source indication for the *South Africa Yearbook* is handled. Despite the fact that the *SA: An Overview* page indicated that the information accessible from the page had been sourced from the *South Africa Yearbook*, the individual chapters of the yearbook should also be sourced as such to have this reference available when individual documents are printed. To avoid a situation where links do not correspond to the information found at the other side thereof, cross-referencing to

the *SA: An Overview* index page from pages where the *South Africa Yearbook* is used in other sections of the website should be removed, as this page also included links to information from other sources.

Discrepancies between this website's content and the same content on other government websites reflected negatively on the authority of the site. The immediate assumption in such instances would probably be that it was the government website's information that was not correct or up to date. This situation should be rectified as a matter of urgency, since it may reflect negatively on the integrity of the entire website. The site should be thoroughly checked to ensure that the information is error-free and accurate, that all information is updated and that changes are implemented consistently across the site on all relevant pages.

The web developers should ensure that all pages consistently display the phrase "Maintained by Government Communications". In addition, the provision of contact information for authors of documents should be consistently applied.

2.3 Comprehensiveness/information coverage/scope

By its nature, the *SA Government Online* website must contain or link to a vast amount of material to meet the needs of all users seeking information about the South African government and South Africa in general. In meeting these needs, it seems as if the website presented a fairly comprehensive and balanced choice of material. However, when compared to the types of information covered on other government websites (see chapter five), and considering the scope of South African government activities and documents available in hard copy format, this is an aspect that could be improved upon.

With regard to the breadth of information, information such as public service vacancies, government projects, campaigns and programmes, government services, and the history of the South African government should be added to the site. In addition, the provision of information about policies and opportunities for discussions on these policies, as well as the inclusion of a section covering frequently asked questions (FAQs) could contribute to an enhanced website. This section should contain real questions with detailed answers, and should give users adequate guidance so as to not leave them confused. Not every query should be added, as it will become difficult to find the appropriate FAQ. Government should also consider the dissemination of consumer and issue-orientated information, i.e. information for solving day-to-day problems and coping with life.

With regard to the depth of information, all categories of the website should be reviewed for the possible inclusion of additional information, and government sites should be scrutinised to identify relevant categories and information to link to or to post on the site. The following is recommended:

- In particular, all subcategories at *Government Documents, Reports and Forms* with incomplete information should be expanded. This includes government forms, white papers, notices and other documents and reports. Additional sub-categories should also be added, such as regulations, Hansard, national and provincial gazettes and annual reports. When adding the Government Gazette, the *Government Documents, Reports and Forms* index page should be altered to include separate entries for notices, regulations promulgated in terms of legislation and proclamations. In line with international sites, the website should also provide or link to more detailed legislative information, for example the status of legislative documents. In addition, it could be expected that this website should at least carry information relevant since the time the new South African government came into power, i.e. 1994. The category *Government Documents, Reports and Forms* could also be expected to contain older documents, for example Acts which were promulgated before 1994 and which are still valid.
- Although the information on government structures, functions, officials and contact information was found to be relatively comprehensive, it is recommended that more detailed information on organisational structures and additional contact information (also on provincial level), information on the government 'clusters', as well as profiles of senior departmental officials be added. The website should also contain more detailed information about government bodies and institutions, especially those specifically mentioned in the South African Constitution.
- As with the other categories, information on government activities, programmes, events and news should be extended. The most important information to be added is that of government programmes and projects, as well as feedback from government on its delivery. Other information that will add value to the website include information on key issues such as HIV/AIDS and additional 'events' such as the diaries of government officials and other government activities, the launch of government projects or programmes and so on.

It is recommended that that the site developers consider formulating selection criteria for the selection of events to ensure that they differentiate between an 'event', the announcement of new information, important news and different types of events. They should also consider formulating policy on the length of time an 'event' should be carried (including how long before the actual event the announcement should be made).

- The first aspect to be improved at the *Speeches* category is the comprehensiveness of speeches made by provincial government officials, and perhaps also senior local government officials. Furthermore, a decision should be made with regard to the sub-category *Speeches by foreign delegates* – either to remove it, or to make it more comprehensive and then to update it regularly. If retained, it should also be made available from the web pages, and not only from the search page. Another aspect to consider is the inclusion of speeches in formats other than text, inter alia audio and video.
- An attempt should be made to get the availability of provincial government information on par with that of national government, and to treat this information in the same way as that of national government. Events, activities, programmes, documents, speeches, and other information on provincial government level should feature to the same extent as national government information.

The author realises that providing a comprehensive overview of local government structures on this website will possibly not be a realistic goal in the immediate future due to the wide span of local government structures, as well as the limited number of local government sites available. However, providing more detailed information on local government structures in general, basic contact information, information on local government officials, and a more detailed listing of local government websites should be considered.

- Consideration should be given to expanding the information about the country (*SA: An Overview*) even further, for example to include statistical and census information, a country profile, demographical information, information on the history of the country, and information on tertiary institutions. Information that informs or educates users about prominent issues affecting their daily lives, for example HIV/AIDS and other health issues, setting up a business, housing subsidies, and so on should also be considered.
- Making the tourism and business sub-categories more interesting and attractive could

contribute towards attracting tourism and investment to the country. The newly launched (March 2002) SA Tourism website can be an important source of information in this regard.

- It will be worthwhile to re-evaluate the *SA Webs* page with regard to the selection of sites linked to. Criteria for inclusion of resources should be developed and implemented. Lutkenhaus (2000) recommends that criteria for government resources could, for example, be that the servers on which the information exists be controlled and managed by a state agency, and/or that the server must have an obvious government domain. Also, local government links could be included if the server is managed and controlled by a local agency or is a government server that has a domain name that is obviously a city. With regard to non-government sites, she recommends that the criteria be determined even more carefully and in line with government or departmental policy. Evaluation criteria for the inclusion of personal sites and the like should include the type of site as well as the quality or standard thereof (Lutkenhaus, 2000).
- An expansion of the site to also include information in non-text formats could contribute to a more diversified and interesting presentation of information. However, as some pages downloaded slowly, this aspect should be carefully approached until such time that bandwidth problems have been addressed satisfactorily.

The official website of the government should contribute towards two-way communication between users and the government. It is therefore recommended that more should be made of this feature and that a separate section on the website be developed for so-called digital democracy. Opportunities for users to comment on government policies, programmes and activities, or to e-mail the president or other government officials directly should be built into the website. However, it is not clear if all these officials will welcome an increased flow of electronic mail from Internet users and if they have the capacity to respond. The same argument is relevant to government departments. E-mail users usually expect rapid responses, and poor servicing of these services may be hazardous to the government's image. It will therefore be important to find a way to diminish expectations and to make it clear what reaction users might expect. Online chatting is another way the website can facilitate two-way communication. It is, however, recommended that government officials, to ensure that users do not abuse it, moderate this facility. Online surveys or questionnaires to get the opinion of users on specific issues concerning government may also be considered, as well as the possibility of including an 'add a link'

form to request links to be added or existing links to be modified. Another aspect that can be improved is the provision of contact information such as telephone numbers and e-mail addresses for specific products and services available from the website. Government should also use the website to ask for comments on proposed legislation or other policy documents.

Listservers could be implemented to bring together users who are interested in a specific interest area. This is a relatively simple way to allow people with similar interests to share ideas, publications and information online. The listserver can thus form a useful forum where members exchange relevant and topical information or request hard-to-come-by information. These lists can function with a central list owner or with multiple list owners who have equal or varied levels of access. Lists can be public or private, open or closed, moderated or unmoderated. Listservers can be used for announcements or discussions. Announcement lists function like traditional newsletters: the mail messages flow in one direction, from publisher to subscriber. Discussion lists function like a public forum, providing a place where subscribers can receive information, ask questions, offer advice and exchange ideas (Canada, Treasury Board, 2002b).

An excellent way to improve accessibility is to include an 'information-on-request' facility to provide users with specific government information they are interested in. This notification technology automatically sends information to users based on preferences they have submitted. This can, for example, be used to notify a business of new regulations that may affect it (Atkinson & Ulevich, 2000:18), or to notify users about updates on specific topics.

2.4 Currency and timeliness

The lack of updated vision and mission statements and departmental contact information featured strongly in the evaluation findings. To solve this problem the developers of the site could reconsider the way in which information content versus linking is handled. Should they decide to keep information such as the mission, vision, functions and contact information of government departments on the site, care should be taken that the information corresponds with the information on the individual websites of departments, and also that the content is comprehensive enough and updated. If users still have to go to other government websites to find some of the information this whole exercise will be futile. It should be kept in mind that this option means that the site developers will have to spend time and effort to continuously check government websites for updates, and to update the *SA Government Online* website accordingly. Another solution for this problem could be to

remove some of this content from *SA Government Online* and to ensure that the relevant information on government websites is easily accessible from the website through clear and logical linking practices. The disadvantage of this is that users will be presented with different levels of detail on each website, as there is no standard for web publishing in government. However, this option will probably be more logical, especially in the light of one of the objectives of the site, i.e. to avoid duplication regarding the availability of government information on the Internet (*SA Government Online* website, 2000).

Moving towards a database environment can significantly enhance updating (and searching) of contact information, as well of all pages that are being updated frequently. Data input needs then be done only once, with all relevant pages then being updated dynamically. The site developers will thus not have to manually update pages any more and no longer run the risk of missing a page.

Other issues that will need attention:

- An indication of the update frequency of the site should be given. As both static and dynamic data are available on the site, this can be explained in the overview document or alternatively on specific pages, or both.
- The site design should provide for the consistent display of the 'last updated' indications on all pages. The website should thus be checked to identify pages where these dates were omitted.
- The website should be thoroughly checked for dead links, and these must then be corrected. This requirement applies to internal as well as external links.
- In line with Kirk's (2000) requirement that users should always be in a position to know how current information is, it will be useful to label information entries with dates to indicate their original publication or delivery dates.
- Several aspects of the *What's New* section were found to be unsatisfactory and are discussed in paragraph 3.1.2.

2.5 Objectivity and fairness

As this aspect of the website was found to be satisfactory, no recommendations are presented.

2.6 Writing and editorial style

It is the author's opinion that ambiguity of menu entries, link text and headings contributed to the difficulties in navigating the site and thus to find the information needed – as users did not know what to expect on the other side of the links or what heading to choose to find specific information. It is recommended that improving this aspect be made a priority. Links and headings should be thoroughly checked to ensure that the labelling is logical and gives a clear indication of the content that follows. Ambiguous titles such as "general" and "index" should be removed and replaced with short but descriptive titles. The developers should also ensure they are consistent with regard to labelling the same content at different locations on the website.

Other minor aspects that need attention:

- Include headings on the few pages where they were omitted.
- Correct page titles that do not correspond with the content of the relevant page, or are outdated, or where page titles are inconsistent with regard to naming conventions on the website.
- Ensure that all web documents contain HTML titles or, in the case of PDF documents, that the fields are indexed. This will assist users to identify relevant documents in the results browser when making use of the search engine.

2.7 Language

The author does not believe that it will be practical to present the site in South Africa's 11 official languages, as the majority of official government documents are published in English only. However, the use of official languages other than English for information that will also be used by less sophisticated users (as at *National Symbols*) should be extended. Consideration should also be given to allowing users to communicate with government in languages other than English.

3. INFORMATION ARCHITECTURE/ORGANISATIONAL STRUCTURE

3.1 The home page and *What's New*

3.1.1 The home page

Respondents and heuristic evaluators had trouble to gather what information was available on the website from the entries provided on the home page. A web usability study by Nielsen (1994b) found that users praised screens that provided overviews of large information spaces. In line with this finding it is recommended that the home page design for the *SA Government Online* website provide users with an improved overview of the content thereof, as well as an improved entry point to the maze of online government information.

It is the author's view that problems experienced with the choice of information entries on the home page were related to the deficiencies in the overall organisational structure/architecture of the website, as discussed in chapter 7, paragraph 3.2). The author believes that a clear and simple organisational scheme for the website as a whole will assist in a logical choice of entries on the home page, logically representing the information to be found at the deeper levels of the website.

To ensure a logic selection of main entries on the home page the web developers should among others consider factors such as important and frequently needed information and the need to ensure that all information available on the site is evident from the home page. With regard to the first, evaluating frequently used information on the site, could be done by logging real use thereof. With regard to the second, decisions on the overall organisational structure of the website should always take into account the implications that it will have on the way information will be presented from the top level of the hierarchy to the deeper layers.

Since the developers did not follow the organisational approach recommended for the organisation of government websites (inter alia to avoid the practice of reflecting government structures – see chapter five), they should consider adapting the access structure to also include topical entries reflecting the activities of government.

However, the developers should still keep in mind that as this is a relatively big informational site, it will be difficult to represent all content in detail on the home page. The labelling of category headings should therefore be carefully considered to give a true and accurate reflection of the content thereof. There are various options to consider to make it more evident to which content entries will be linking to or what information is available on the website. To eliminate the “which heading do I want” guessing game, main headings could be listed with sub-headings underneath them, or a mouse-over functionality could be used to describe links, e.g. by means of a text description or a drop-down menu. Yet another option is Gahrn’s (1996) suggestion of offering a general category listing on the home page linking to a number of ‘sub-sites’, containing their relevant sub-menus. Each sub-menu then becomes a mini home page for that section of the website. These sub-sites might also be a solution for structuring the information that is difficult to represent hierarchically.

Improving the organisation and display of information on the home page as part of the page design may also contribute to finding information more easily. Less detail on the home page, resulting in a less cluttered look and feel will improve the impact of the main issues. Should this recommendation be followed, it will probably impact on the way *What’s New* and *Events* will be handled. Recommendations in this regard are discussed in paragraph 3.1.2 of this chapter.

The way elements were displayed (fonts for main categories, graphics for events, small fonts for events, small fonts for *What’s New* entries) should be reconsidered. Should *Events* remain displayed on the home page in the same way as during the evaluation period, the graphics used for the announcement of events could be smaller to allow balance with the text announcements that is ultimately the most important element and should as such be easily readable. In addition, the display of the search option on the home page should be reconsidered. For a site as comprehensive as this, it can be expected that a substantial number of users will prefer to use the search option. It will thus be preferable to have it more prominently displayed on the home page, possibly as part of the general category listing or even on its own. Displaying the search box for a simple search, combined with the option to access an advanced search page is another possibility. These two changes will save users from having to scroll down to the search button that then jumps to another page.

3.1.2 *What's New*

The way new information was announced caused substantial usability problems and dissatisfaction amongst evaluators and respondents.

The *Government Online* website is an active site with new information and events posted on the home page at least daily. Displaying all this information and keeping it available here for a reasonable length of time created many of the problems experienced by respondents and evaluators. A possible solution is to relegate the *What's New* feature (or the *Events* or both) to a next level. The *What's New* button should then be displayed prominently on the home page. This will also address the problems experienced with a too long home page, the font sizes and the cluttered appearance of the home page, as well as how to present additional information categories. It will also allow the presentation of all new information for all categories for a specific period on the *What's New* page, and provide users with an indication of the date of publication of the new information and of when specific documents were posted on the site. Additionally, it will allow flexibility for the presentation of events, possibly the grouping of specific types of events. The website strategy should determine the time period that an entry should be carried on the *What's New page* before it is removed from this page.

Attention should be given to the way users get access to the latest additions from the *What's New* section. It is good Internet practice to allow users access to information as directly as possible, and the practice at the time of the evaluation of not having individual entries clickable was not acceptable. Each entry should link directly to the specific document it refers to, without the additional step of going to an index page from where the entry has to be found and selected again.

The development of an e-mail notification service whereby updates about issues as subscribed to by individual users are forwarded to the subscriber is recommended. This may contribute to users being more aware of the last updates on the website. This facility should be developed in such a way that users are redirected to the website, thereby creating an additional marketing opportunity.

As the *SA Government Online* site website was supposed to be the entry point to all government Internet information, the author does not find it acceptable that only content posted on this website was announced at *What's New*. New information posted on other South African government sites, or at least the most prominent information published on

these sites should also be announced, with an indication of and link to the applicable site where the information is available.

3.2 Organisational scheme of the website

On the basis of the findings of the evaluation, the author is of the opinion that the *South African Government Online* website did not optimally provide users with a clear, obvious structure for traversing the information space. Contributing factors were the lack of a clear, obvious framework, an inconsistent hierarchical scheme, unnecessary fragmentation of information and because the availability of some information was not evident enough from the home page. Thus the overall usability and efficiency of the website were negatively affected.

It is the view of the author that the organisational scheme was a main contributing factor to problems such as users browsing the website not finding specific information, even though it was available, or users finding incomplete information on a topic, as they would not have known that there was more information available on the same topic. It is also worth noting that respondents to the online survey and user tests suggested the inclusion of information such as legislation and the Constitution – all of which were already available on the website. Possible explanations could be that first-time users did not realise that the information already existed, or that the availability thereof was not apparent enough. The inconsistent hierarchical scheme also contributed to the inconsistent sidebar entries – sometimes it contained links to relevant categories and at other times links to additional information categories (see chapter 6, paragraph 3.4.1 and chapter 7, paragraph 4.1.2). In addition, users had to understand government structures, activities and terminology to find information either through searching or browsing, as the site was structured according to the organisational structure of government.

Should the site be redeveloped, the restructuring of information will have to be one of the main priorities. The author recommends that particular attention be paid to the aspects discussed in the following paragraphs.

A new design and layout for *SA Government Online* will have to involve a replanning of the information architecture. The aim should be greater simplicity and uniformity between the different sections of the site. The information architecture should be simple and easy to navigate for new, inexperienced, and less frequent users. However, shortcut routes should also be available for more experienced and more frequent users. It is recommended that the hierarchical scheme be retained, since this is the most familiar concept to most users

and, according to Lynch & Horton (1997), one of the best ways to organise complex bodies of information. Decisions, however, will have to be taken on the following:

- How information should be broken down into logical and digestible parts and how it should be organised into modular units.
- The relative importance of concepts to enable hierarchy building from the most important or the most general concepts.
- The way the hierarchical scheme should be applied and in which way the various layers should be presented. The objectives should be a less complex and more consistent hierarchical approach, an interface where users would be able to see at a glance where they are and what information is available within the structure of the site, and reaching information required via the shortest possible route.

Decisions on the information architecture of the website should follow a holistic approach as it will have an effect on the navigation, home page design and overall design considerations.

It is the author's view that the fragmentation of information has caused users who favoured browsing to find incomplete information on certain topics, as they would not have known information on the same topic was available elsewhere too. Also, on finding similar information at different destinations, users might have wondered whether the different pages were not in fact identical. Users should not be put in a position where they have to figure out which information relates to a specific topic or where information was duplicated. Documents that logically relate to each other should be grouped together in the same category or sub-category, and then made accessible from a single page. Links for cross-referencing from other relevant pages could then be included on these pages.

Care should be taken not to effect changes in such a way that it results in a deeper layering of information structures. The goal should be a hierarchical structure of not more than three layers but where the information is less fragmented than was the case when the website was evaluated, and where users will find the information they want in the fewest possible steps. In planning for this objective a balance will have to be found between long menu pages with long lists of information and shorter menu pages that might lead to excessive fragmentation. As stated before, this site is a large information site, and therefore the better approach will probably be to have a higher branching factor for index pages to save an extra layer. This recommendation is in line with recommendations by Lynch & Horton (1997) in this regard (see chapter four, paragraph 3.2.3).

The author is of the opinion that the findings indicated that the website did not always make use of its medium, as content originally published for other mediums was duplicated without providing maximum value-added features. To optimally make use of the web environment, information must be presented in such a way that the content of long documents is more visible. Larger documents should be chunked into smaller but logical units to prevent unnecessary scrolling so that they are easier to read online. Tables of content should be provided to provide access to the different units, and the chunks may be linked by navigation support options such as 'back' and 'forward'. Frequent 'return to top' options should be used to enable users to return to the table of content without unnecessary scrolling. In addition, the complete documents should also be available so that users may print them as a whole. Using the original titles of information products or documents will ensure that users who are familiar with government structures and information will be able to find this information more easily on browsing the site, or on searching for the specific title. In addition to chunking larger documents, specific sections or chapters of documents should also be grouped together with other information on the same topic.

The practice of providing different alternatives for accessing some of the information categories can be considered a value-added feature of the website, as it attempted to accommodate individual user preferences. This practice should therefore be extended. Furthermore, the practice of 'functional' organisation of information should be expanded (for example to offer information according to topics) to run parallel to the current approach. In practice this will mean that information on the site, irrespective of whether it covers national, provincial or local government, will be organised according to topics, rather than according to government structures.

Recommendations with regard to the handling of specific information categories include the following:

- Speeches and media statements. There are different options to address the problems experienced with this information. One option is to present speeches and media statements separately. This will mean that the *Searchable Database* page will have to display them as two different collections to choose from. Index pages will then also have to be created to provide for the respective access options (according to date and according to source). A second option is to keep the speeches and media statements as one category. In this case all headings and labels should be changed to reflect this so that users will know what to expect. For both options a database field will have to be

added and all existing information be re-categorised, a time-consuming and human resource intensive exercise.

A complete listing of speeches should be available on selecting the category from the web index pages. Alternatively a direct link from the results pages to the rest of the relevant speeches should be provided. The author acknowledges that the practice of listing a limited number of entries was probably followed for faster downloading speed, but is of the opinion that it was done at the expense of accessibility of information and that it could have contributed to users being in the dark about the availability of more information. It should not be expected of users to guess that there could actually be more documents available than those listed, and then to know how to find these. Nor should they have to browse again to find them.

Another aspect to address is the accessibility of speeches and media statements of government officials no longer in office. These speeches and media statements should also be accessible from the web pages and not only from the search page. The same is relevant for *Speeches by foreign delegates*.

- Contact information. Access to contact information should be simplified. A solution more logical than grouping it as part of *Government System & Structure* should be considered, for example making it accessible as a category from the home page. In addition, it is not logical to display different formats of the same content at different locations on the website. A simpler approach can be followed, for example the development of an index page that provides access to all relevant groupings of government departments or bodies. Entries should link to different pages, each containing contact information for the specific grouping. Access should also be provided to the various contact directories as complete documents, so that users will be able to print them easily. These links and documents should be labelled according to the original titles of these directories (e.g. *Directory of Contacts*). Should cross-referencing be necessary from other parts of the website, it should link to the relevant content in this section of the website. Should a database application for contact information be developed (see paragraph 2.4 of this chapter), a link on the entry page for contact information to a scoped search facility could be provided. The search should be developed to be highly flexible with regard to search facilities as well as results displayed.

- *Documents, Reports & Forms*. The categorisation for this category should be reconsidered to provide for the additional categories suggested in paragraph 2.3 and for the Constitution. The index should not be displayed in the side navigation bar together with the other navigation options, but should rather be placed at the top of the page or somewhere else on the page where it would be easily identified as such.
- Links to external websites. To simplify access to these, all links should be grouped together and made accessible from a central location. A high level link, possibly on the home page, linking to a topically arranged index page of all links to external websites is a possible solution. In addition, other sections of the website should include links to external websites where relevant.
- *South Africa Yearbook*. It is the view of the author that the way in which use was made of the *South Africa Yearbook* on the site contributed to the problem of scattered information on the website and to the difficulty of finding information. The use of the *South Africa Yearbook* on the site will thus have to be re-evaluated. In the first instance, it is recommended that it be made available as a complete publication at the *Government, Documents, Reports and Forms* category in both PDF and HTML formats. Where specific chapters are used at the *Government System* or *SA: An Overview* categories, only relevant information from these chapters should be selected, and not necessarily the complete chapters. This information should be presented in HTML format as short documents, accessible from indexes linking to individual topics. Where information from the Yearbook is supplemented with information from other sources to make information on topics more comprehensive, separate entries should link to the different subtopics, and when the same topic or subtopic is covered by different sources, new text will have to be prepared to provide a comprehensive entry for the specific topic.
- Online democracy. It is recommended that all functionality for interaction between government and users be presented together and made accessible from one page. To make this page optimally visible, it should be available from a prominent place on the home page.

4. NAVIGATION AND SEARCH

4.1 Navigation

During the evaluation of the website, many comments were made on its navigation and solutions presented for the possible improvement thereof. The general problem was that navigation was overdone, too complex and inconsistently applied, thereby confusing users and making it difficult to move within the website. It is thus recommended that navigation be simplified and made more consistent. In determining a linking strategy for the website, the web developers should decide on the type of links, how to distinguish between the different groupings of links and how and where these groupings should be displayed on the website.

Attention should be given to the following:

- Top navigation bar. The display of structural links in the top navigation bar should be more usable. It is no use having such links if users do not use them. Issues to consider are the readability thereof and the consistent treatment on deeper level pages in relation to the presentation thereof on the home page. The latter includes the sequence of presentation and choice of terminology. In addition, should the redeveloped site also make use of main navigation options at the top of pages, the repetition thereof at the bottom of pages could possibly assist users to navigate without having to scroll back to the top of pages.
- Provision of 'breadcrumb trails'. As this practice was followed on some pages, users may have expected the same trend on all pages. This type of link on all third-level pages and deeper level pages will be useful for users to see the pages in context, and thus to interpret them better (for example *South African representatives abroad*, the respective pages containing contact lists and the page containing the government diagramme). It will also enable users to move back more easily to the higher level in the organisational hierarchy if the page is not what they want or when they arrive on pages bypassing the higher-level navigation pages.
- Side navigation bar. It seems as if the side navigation bar was earmarked for contextual navigation. However, this goal was not achieved as links were provided indiscriminately. It seems as if all links that did not fit logically on specific pages were accommodated here, thereby causing this navigation to become fuzzy, complicated, inconsistent and thus confusing. This practice might have contributed to decreased

usability, resulting in users having to figure out where links would take them or simply avoiding them altogether. The author believes that the way information was organised on the site contributed to the way the sidebar entries were applied and that changes to the organisational structure will also contribute to improving this aspect of the website. Another factor contributing to information not being found from the side navigation bar could have been that entries were not labelled clearly enough for users to understand what information was at the other side of the link (see chapter seven, paragraph 2.6).

Consistency of links. The sidebar users to understand information is available at the site.

It might be a good idea for the site developers to redefine the functionality of the side navigation bar and to ensure that it is used in a consistent way. The developers should decide what the real purpose of the sidebar is – to link to information that does not logically fit into the current organisational scheme, or to act as a tool that provides logical and intuitive movement to relevant information presented on specific pages. Organisational restructuring of the site to accommodate the problems described in paragraph 3.2 will probably contribute towards reducing the options provided in the side navigation bar, so that only the most useful features would be displayed. This planning and decision-making should be done in the initial planning phase for the site – before any ‘real’ designing commences.

Use of the sidebar for navigation. A sidebar can be used for navigation.

- Long documents. Difficulty to find information in long documents was, amongst other, caused by the unavailability of bookmark links or indexes to assist navigation. It is recommended that this practice be adopted as a standard practice for the whole of the website. Longer text pages as well as some index pages (for example *Documents per subject* and the other document index pages) will be more useful if ‘top of the page’ options are available. In addition, pages such as *The Presidency* will be more usable if a link from the *Deputy President* section was provided at the top of the page. In contrast, on pages such as *Deputy Ministries* and *Speeches and Press Releases*, links such as *President*, *Deputy Ministries*, or *Speeches per Annum* respectively will be more suitable than ‘top of page’.

Consistency of links. The sidebar users to understand information is available at the site.

Long documents are good when one expects users to print out or download pages for future reference. A disadvantage is that long pages of 40KB or more may take too long to download. With multiple short pages the index will jump to many shorter pages that treat just one subject each. It will not take long to view, but care should be taken that this is not used for pages that users may want to download or print.

Use of the sidebar for navigation. A sidebar can be used for navigation.

Consistency of links. The sidebar users to understand information is available at the site.

- Long index screens. As this is a big site, fragmentation can occur easily (as was the case at the time of evaluation), causing users to lose context. The author believes that it will be better for this site to display index information or menus on one or two screens, instead of having too many screens with few entries. The cost in time and the annoyance of having to 'flip' continually between two or more screens will outweigh any possible advantage gained in splitting the information across multiple screens.
- Description of links. To assist users to know what information is available at the other side of links, especially with a site as large as this one, the recommendation of Serco (1999a) to explain on menu pages what links contain may be considered. This may be achieved by 'mouse-over' text descriptions of the content linked to or drop-down menus to provide a listing of further sub-categories. Users should also be informed in advance when a link may be slow.
- Navigation aids. Additional features may be considered to assist users to form a mental model of the website, to orientate them within the website, to help them keep track of their position in the website, to navigate the information space, to improve their understanding of the organisation of the website and to ease the finding of information on this and other government websites. A site map can, for example, provide a mental model of the website, and organisational tools such as alphabetical, chronological and functional/topical indexes or help sections could be developed. The navigation structure must provide a more prominent display of these methods to enable users to make quick and easy decisions on the options available to them. In addition, augmenting the web browser's 'Back' and 'Forward' buttons with 'next' and 'previous' buttons will enable users to navigate information in sequence to page back and/or forth through the pages of an ordered sequence of pages or documents. The provision of tables of content for users who are not familiar with the website structure or the nature of content should be considered. This will provide a general overview or outline of content to lead users to appropriate topics (Welinske, 1998). In addition, additional cross-referencing may contribute to a more integrated feel and to finding documents relating to each other. The site also needs a way to provide visual and functional confirmation of the user's whereabouts in the site.
- Consistency. Consistency should be attained in all navigation aspects of the website, for example the display of structural links in the top navigation bar in relation to that on the home page, the application of 'breadcrumb' trails, menu structures, link selection in the sidebar, display of links in the bottom navigation bar, and so on. A simple and clear

navigation scheme for the website will have to be worked out as an overarching style and then consistently applied.

Other aspects that need attention:

- The duplication of structural links should be eliminated.
- All links must be easily identifiable as links, so not to be confused with headings.
- Care should be taken that all links are easily readable. Fonts, font sizes and background colours should be reconsidered when redesigning the website.
- It is recommended that the site be thoroughly examined to ensure that all links work.

4.2 Search

In the light of the fact that the search mechanism presented problems to respondents and evaluators alike, and considering the probability that this might have had a negative impact on the overall success of the site, it is recommended that improving it be made a priority.

As stated in chapter four (paragraph 4.3.2) the ordinary user is not good at formulating queries. In addition, according to Chowdury (1999:219), web search engines are inferior to retrieval engines that come with commercial databases available in the market, and users accustomed to these searches find the web search interface less attractive and less easy to use. Based on these assumptions and the findings of the research, the author doubts if many of the *SA Government Online* users would have been able to use any of the two search mechanisms effectively. In addition, users not familiar with the South African government may have found it difficult to define the correct search terms. To support users optimally, the following improvements are recommended:

- The use of two search mechanisms for different information on the site confused respondents and experts and may have contributed towards users not finding specific information despite the fact that it was available on the site. Although an explanation was provided at *Help*, the normal user would probably not have read it and would therefore not have realised that different sets of information were searchable by means of these different search mechanisms. It is recommended that using different search mechanisms for different content be discontinued. Regular 'simple' and 'advanced' search mechanisms should be provided, both allowing searches over the total content of the website.

- The search interface should be simplified to enable experienced and inexperienced users to use it without difficulty. The first aspect that should receive attention is the use of pull-down menus. As users often do not scroll down drop-down lists, all options should be visible on the drop-down screen. Secondly, the query boxes should be enlarged to encourage users to use more terms when searching – users often do not know that the box scrolls to accommodate longer search strings. Thirdly, personalisation of the search page may contribute to accommodating experienced as well as inexperienced users. Lastly, the practice of indexing officials' names as part of the title field when they delivered speeches or issued media statements was not a logical solution for indexing speeches and media statements. It cannot be expected from users to know that entering an official's name in the title field is the way to find the speeches or media statements of this official. A more logical solution will be to add another database field to provide for the name of officials when speeches or media statements are indexed. This will make it possible to find speeches of specific officials without returning all documents containing that official's name.
- The search engine should allow for natural language searching and should support additional functionalities such as stemming, phrasing, truncation, wildcards, proximity searching and case sensitivity.
- The developers may consider developing a search page similar to that of Yahoo, where users will be able to search for information from hierarchical categories rather than keywords.
- An expansion, and even a more prominent display of the help function, is recommended. It is important that users are informed of how searches may be executed (for example boolean, proximity), whether stemming is supported, how weighting is done (e.g. is there more functionality than only weighting according to frequency of occurrence of search terms, the place of occurrence of the terms, and so on), what the meaning is of terms such as 'power search' and 'author', how truncation and wild cards function, whether headings are indexed, to what depth pages are indexed, if stop words are available and how they are determined, etc. Formulation of queries can also be explained in more detail. Clarity on the scale of resources and the type of terminology used will also contribute to improved query structuring.
- Although Nielsen (1994b; 1997c) warns on the danger of scoped searches, the author suggests that this site implement scoped search facilities for certain subsets of

information on the website, for example for contact information and for speeches and media statements respectively. Care should be taken that it is clear to users which information is included in the scoped search and which not. A clear distinction between the two types of searches will have to be made. There should also be a direct link to the global search page (Nielsen, 1994b. 1997c).

4.1 Design and layout

- With regard to the display of search results, attention should be given to the text descriptions provided together with the document title – as it was found to be not descriptive enough, the developers should consider changing it to be more descriptive of the document content. In support of this, the search results may provide additional context for the documents found by presenting the results in relation to the structure of the website (e.g. name of collection, category or database, then sub-category, and so on). In addition, document sizes should be displayed.

Clustering of results and the functionality to do a second level search should be possible. Changing the parameters of the search without retyping the search every time should also be possible, as should additional sorting options, e.g. alphabetically.

4.3 Searching versus browsing

It is clear from the findings of the online survey that users browsed and searched the site, with the majority of users preferring to browse, even the more experienced ones (see chapter 7, paragraph 4.3). It is worth noting that those users who did find it difficult to search, also preferred to browse. These findings are contradictory to the findings of Nielsen (1997c) who argues that half of users are search-dominant, a fifth link-dominant and that the rest exhibit mixed behaviour.

A possible reason for the user behaviour on this site may be that respondents found it too difficult to use the search engine or got irrelevant results and therefore preferred to browse. Another reason could be that many of the users were not as sophisticated as the average users tested by Nielsen, and not as experienced in search methodologies and search engines, thus preferring browsing to searching.

It is, however, evident that the search engine must be improved, as the way it was set up may have influenced users' overall perception of the website, but more importantly, hindered their ability to find information. In addition to improving the search mechanism it

will be just as important to identify those issues that made it difficult to browse – thus to improve the ease with which information is found through this method.

5. DESIGN AND LAYOUT

5.1 Design and layout

To address the problems identified regarding the design and layout of the website, the following is proposed:

- The Coat of Arms. In line with requirements and current developments with regard to the development of a so-called 'corporate identity' for the South African government based on the Coat of Arms, it is recommended that it be integrated into the overall design of the website.
- Handling of events and news. The author is of the opinion that the design of the site did not provide sufficient flexibility for handling different types of events and activities and government news. The design should be altered to provide for a distinction between different types of events. For example, less important issues such as international and national commemorative days, conferences, the daily activities of government officials, etc. should be distinguished from the launch of important programmes, the president's programme and so on.
- Cluttered pages. To address the problem of cluttered pages, user interfaces should be simplified, with page elements displayed in a clean and organised manner. Organisation of information on screens should be more logical – page elements should be grouped according to the "gestalt" rules for human perception (see chapter 4, paragraph 5.1.3), so that related elements will be seen as belonging together (e.g. by clustering them as a group or unit, by displaying them closely together, by enclosing them by lines or boxes, by moving or changing them together, or when they look alike with regard to shape, colour, size, or typography, or by using colour coding, graphic borders around groups of information, or highlighting. Another option is to make use of horizontal rules (<HR>) to partition pages. The option of listing information with different icons to indicate the different parts of the list has already been mentioned, while irrelevant items should be limited. Addressing navigation as discussed in paragraph 4.1 will also contribute to a less cluttered page design.

- Use of tables. It is recommended that the way tables are applied for contact information be reconsidered. The double lines used for the borders are unnecessary and contribute to the cluttered appearance of these pages. Consider the use of spacing, alignment and indents to delimit tabular information.
- Consistency. When redesigning the website, those aspects that were inconsistently applied should be addressed. They include 'last updated' dates, footer elements such as 'Maintained by GCIS', etc. It is recommended that a layout style be established during the initial planning phase and that this style then be applied as a template in the design process.

5.2 Text readability and visibility

The use of different typefaces and different font sizes on different pages could have impacted negatively of the homogeneous character of the website. Standardisation thereof should be achieved.

5.3 Graphics, images and animation

The author believes that opportunities for enhancing the content through graphics should be explored. The site may for example include more photographs of government officials and of government activities and projects. Care should be taken that photographs personalise people or communicate information. Thumbnails could be used to avoid too large graphics slowing down the system, but care should be taken to avoid too many small thumbnail pictures where too much photographic detail is shown in too little space to be clearly visible. It may be a good idea to include a photo gallery on the site from where photographs may be downloaded, and not to provide downloadable versions from the text pages where photographs are used for graphical enhancement or to communicate additional information. Another possibility for enhancing the appearance of the site is to display the cover pages of publications, for example the *South Africa Yearbook* and some of the special reports published on the site – not only when announced on the *Events* page, but also on the *Documents, Reports & Forms* page.

In addition, it should be a standard practice on the website for the system to give advance notice of document formats and big files before users retrieve them.

6. PURPOSE AND AUDIENCE

The findings of the online survey revealed a correlation between frequency of use and satisfaction levels with specific aspects of the website. This could possibly be ascribed to the fact that the more frequent users became used to the site and therefore understood the website's organisational and navigation features. Less frequent users could have experienced the difficulties that the more frequent users may already have discovered and compensated for. Adaptations to the website should therefore accommodate as wide as possible an audience. It should cater for first-time, intermittent and frequent users of the website. Shneiderman (1997) believes that first-time users will need an overview to understand the range of services and to know what is not available, plus buttons to select actions. Intermittent users need an orderly structure, familiar landmarks, reversibility and safety during exploration. Frequent users need shortcuts or macros to speed up repeated tasks, compact, in-depth information and extensive services to satisfy their varied needs. For more frequent users, it could also be considered to introduce a 'personalisation' feature. This will enable these users to customise their view of the website to satisfy their specific and unique preferences.

7. THE WEBSITE AS ENTRY POINT TO GOVERNMENT INFORMATION

The author is of the opinion that value-added access to the broader information holdings available on other government sites did not receive the attention that it should have, and due to this much information on government sites and on government itself was difficult to find from the *SA Government Online* site.

It is important for government to provide support tools to enable users to quickly and easily navigate government information resources provided on the Internet. The first of these tools is an improved entry point or gateway site. The government website should make specific information on other sites more visible, so that users will know what is available and access it easily and directly from the entry point. The entry point should provide convenient access to all of the Internet sites operated by national, provincial and local governments. It should contribute towards saving time and aggravation in searching for government information.

There are different ways to reach these objectives. The first is to arrange information alphabetically by department or government body – the basic way is to present a list of the departments with links to their websites. This is, however, not the best way, as users often do not know which department performs which function. This home page paradigm fits

government's perceptions of itself and its internal structure and does not attempt to deliver a service that fits the needs and perceptions of users.

Another way is to arrange information by subject rather than by department or government body. Outline-based subject directories or 'virtual libraries' for browsing through lists of resources are organised according to a topical scheme, similarly to that of Yahoo. Links may be arranged by categories such as criminal justice, economic development, education, finance, health, environmental issues and so forth. Each category will then provide links to all sites containing any information on the category. This is a move away from a straight reflection of government structures to the presumed perceptions of users. It will make it easier for users to start a search for specific government information as well as for users who do not have specific information in mind or do not know what they are looking for. Browsing subject directories would make it possible to get ideas, keywords and subject terms to use in future searching. Browsing a subject directory (or a so-called master index) could also help users get an idea of the types of information available from the site. In implementing subject directories care should be taken with the selection of classification terms. Natural language has the advantage of being understandable by many types of users, but the use of non-standard subject schemes can make searching more difficult. Solutions for this potential problem include established classification schemes for government information, but at least a standardised scheme for the whole of the website should be used. In establishing such a scheme decisions will also have to be taken with regard to the depth and breadth of the classification scheme – should it cover fewer information resources, but offer more in-depth evaluation, or should it be comprehensive lists of all resources on government websites. It has, however, to be kept in mind that the latter option could result in virtually no quality control or evaluation of information that is accessible from the site. Care should also be taken that the information behind the topics does not retain its organisational/departmental basis – in other words, that the buttons are re-arranged but not the information.

Lastly, as an entry point to government information on the Internet, one would have expected to find information on other government websites by means of browsing as well as searching from this website. The developers should consider implementing a 'crawling' or 'spidering' functionality to enable users to search for government information on other servers from this one single point of entry. The provision of such a facility will allow users to find what they need, regardless of which government body produced it. Such a search engine can be helpful, especially when the user has some knowledge of the scope of the

government system and its activities. However, without this knowledge and some skill in the search process, it can be time-consuming to locate the information required.

When implementing such a solution, it must, however, be kept in mind that the performance of the chosen retrieval system with regard to recall and precision could be perceived as being worse than that of a traditional retrieval system. Chowdury (1999:213) states that relevance judgements become impractical as the size of the document set increases. A user may thus face problems concerning the recall of the retrieval system. In addition, one may not be sure of the exhaustivity of the search, as the web environment (in this case government information sites) is unconstrained and one can never say exactly how many documents should be retrieved or how many in total are available.

In developing an interface for this type of solution it should be kept in mind that the user would not know about the nature, volume, format and location of the required information (in contrast to the web developer), as information may come from a variety of different sources, located in different places, in different forms and formats, and so on. Thus, the issue of the user interface is even more critical in this environment. According to Chowdury (1999:214), the ideal solution will be where the user is allowed to search on remote systems without prior knowledge of the other systems' syntax, strategies or data content. The user only interacts with this website's interface, while the implemented computer system acts as an intermediary between the user and the other system despite possible differences in hardware and/or software. Chowdury (1999:214) also refers to a study by Payette & Rieger that concluded that in order to satisfy user requirements for the presentation of results from a multi-database search, the system will have to support merged result sets, compression of duplicates and across-database relevance ranking.

In addition, in deciding how to set up the site as search engine, it will be helpful to consider the following:

- The coverage of the database. Which of the government web resources will it include? What types of resources will be included – web pages only, listserver archives, information in databases?
- What area of the documents should be searchable? For example the page title, headers?
- What search options should be included? Should it allow for searching small subsets of the database? Should it offer boolean searching and to which extent? Should it offer sophisticated compound searching with proximity and 'not' options, etc?

Over and above the previously discussed ways to enhance the entry point, the following may also be considered:

- a FTP site alongside the website
- indexes of Bills by Bill number and/or subject
- links to other government information world-wide
- links to non-governmental sites containing government information.

8. CONCLUSION

This chapter provided some conclusions based on the findings of the evaluation of the *SA Government Online* website. Recommendation for the improvement of the website and for the inclusion of features to support useful user strategies were made. When evaluating these proposed solutions, it is important to remember that they do not necessarily have to be implemented exactly as suggested, but the developers should ensure that they achieve a logical cohesion between all aspects that they may implement. Management and strategic decisions about the purpose and audience of the website should determine the best approach to take with regard to content, information architecture, navigation, search, and aesthetic appeal. This will affect the options chosen and the interrelationships between these options.

The findings of especially the online survey and user tests indicated that respondents had a negative perception of the standard of government web publishing in general, and that the perceived success of the *SA Government Online* website as an entry point to government websites was influenced by these perceptions. Comments and suggestions also revealed that there was recognition of the need that provincial and national government websites should demonstrate a more standardised approach towards content, navigation, design, and options to find information. To investigate the validity of above-mentioned perceptions, the next chapter presents findings of an audit of national government websites that was conducted in February/March 2001. The audit provides an overview of the quality and usability of government websites at the time of the audit.

CHAPTER 9

AUDIT OF GOVERNMENT WEBSITES

1. INTRODUCTION

During the evaluation of *SA Government Online* it became evident that the perceptions of respondents and evaluators about the usability, effectiveness and quality of government websites negatively influenced their perceptions of the *SA Government Online* website. The purpose of this chapter is to provide an overview of the quality and usability of South African government websites overall. The objective is to identify the usability problems on government websites, thereby determining if above-mentioned perceptions about government websites can be confirmed. In addition, the author aimed to determine if there was any similarity between usability problems experienced on government websites in general, and those identified for the *SA Government Online* website.

In February/March 2001, the author co-ordinated an audit of national government websites that was conducted by GCIS. The purpose was not to do a comprehensive evaluation, as was the case with *SA Government Online*, but to assess the effectiveness of national government websites in providing access to government information. The audit was therefore not conducted on the same level of detail, but was a more overarching analysis of government websites. A shortened version of the criteria used for the evaluation of the *SA: Government Online* website was used, and the audit was conducted by means of the heuristic evaluation methodology.

This chapter provides a brief overview of the aim, objectives and scope of the audit of national government websites, the methodology used, as well as a consolidated discussion on the findings of the audit. The complete audit results for individual departments are available in *Audit of government websites*, February/March 2001 (South Africa, GCIS, 2001).

2. AIM, OBJECTIVES AND SCOPE OF THE AUDIT

2.1 Aim and objectives

The aim of the audit was to assess the effectiveness of national government websites in providing access to government information. The main objectives were to determine to which extent government websites

- contained the information content that is expected of government websites
- allowed users to access and find information easily
- allowed interactivity between the department and the user.

The purpose was not to do an extensive evaluation of departmental sites, or to prescribe to government departments how their websites should be developed. The purpose was rather to identify issues that influenced the usability of government websites and to identify information and functionalities that could be added in order to commence with processes to enhance the effectiveness of government web publishing, and to ensure that government websites develop towards the South African government's vision for e-government.

2.2 Scope of the audit

The audit was conducted for 26 national government departments. A list of departments whose sites were audited is attached as Annexure D. Provincial websites and some national government websites did not form part of the audit.

The following national departments were excluded from the auditing process:

- The Departments of Home Affairs and of Foreign Affairs. These departments were in the process of developing websites, but had not yet officially launched them.
- The Department of Sport and Recreation. At the time of the audit, no information was available on this website. On accessing the site the user was met with the following statement: "This site is under construction". No indication was provided of when the site would become available.
- The Department of Health. The site was not accessible during the period the audit was performed.

- The National Intelligence Agency, the SA Secret Service and The Presidency did not have a web presence.

The Public Service Commission and the Secretariat for Safety and Security each had a web presence on the GCIS website. These 'sites' were not comprehensively audited, as they were not considered independent sites.

3. METHODOLOGY

3.1 Criteria used for the audit

A list of criteria was compiled against which the websites were audited to ensure that auditors used the same criteria and indicators for the auditing process, and to ensure that they followed a consistent approach. These criteria were derived from those developed by the author for the evaluation of *SA Government Online* (see chapters four and five). The criteria were grouped in three broad categories, and then under subsidiary headings. The following criteria were used:

3.1.1 Information content criteria

(a) Orientation to the website

- The scope and the aim of the website are clearly stated/the services and the information on the website are described.
- Instructions on the use of the website are provided.

(b) Authority

- It is clear on each page that it belongs to the website (e.g. name of department on all pages).
- The name of the department is provided in the title and/or URL so that the source may be recovered.
- Bibliographies/references/lists of sources are available (including original publishing dates of documents).
- The URL supports authorship (one can easily tell from the domain name where pages originate; URLs are not likely to be confused or mistyped).

(c) Currency

- The information on the site is current and up to date and the most current information is available.
- 'Last updated' information appears on pages with substantive content.
- The site provides an indication of frequency of updating.
- New information posted on the site is announced prominently.

(d) Writing and editorial style

- The writing style (information to be read online) is concise and structured for fast scanning (text).
- Headings and subheadings are clearly phrased, descriptive and understandable.
- Information provided through links matches the headings and descriptions, and links are properly used in text.
- Typing, spelling and grammatical errors are absent.

(e) Content

- The site includes necessary and useful information.
- Breadth of information is adequate.
- Depth of information is adequate.
- Links are made to relevant external sites.
- Provision is made for online service delivery (for the purpose of this audit, services were defined as any action/transaction that could be executed online, even if only to a limited extent).
- Provision is made for interactivity.

Content was audited against the following minimum requirements:

- Contact information
 - Department's general contact information (telephone, fax, e-mail, street address, mail address)
 - Contact information for regional offices (if applicable)
 - Minister
 - Deputy minister (if applicable)
 - Director-general/head of department/senior officials
- Structures, functions, officials
 - Vision, mission, mandate of department

- Organisational structure
- Functions of main components
- Information about senior officials
- Minister
- Deputy minister (if applicable)
- Director-general/head of department
- Information on bodies/institutions related to/affiliated to/attached to the department
- Documents
 - Annual reports
 - Legislation/Bills relevant to the department
 - Policy documents/discussion documents/green papers/white papers
 - Departmental publications/newsletters/other documents
- Speeches, media statements, interviews
 - Minister
 - Deputy minister
 - Director-general/head of department/other senior officials
- Services offered by the department
 - Listing of services
 - Description thereof
 - Information on how to apply for services
 - Forms to complete to obtain services
 - Contact information
- Departmental activities, programmes, events, news
 - Announcements of activities, upcoming events, conferences, etc.
 - Annual calendar of events
 - Departmental programmes, projects
 - Information on current, topical issues
 - Vacancies/jobs/employment opportunities
- Links to related sites
 - Related sites
 - Government Online
- Interactivity and other value-added features
 - Feedback about the site
 - Comments, queries on departmental activities/policies
 - Discussion forum/chat
 - Subscription services

- o Frequently asked questions (FAQs).

3.1.2 Organisational structure/information architecture navigation/search

(a) Organisation

- The home page is well organised and gives a clear overview of information contained on the site.
- There is a logical site structure and internal hierarchy.

(b) Navigation

- Local links are made to related content.
- Main navigation options are displayed prominently.
- Indexes/tables of content are provided for long pages/documents.
- There are no dead/broken links.
- Links are provided on all pages to return to the home page.
- Links are provided to assist navigation (to higher level pages; 'return to top' for long documents; 'previous page'; 'next page' links).
- Dead-end pages are avoided (pages with no links to any other page on the site).
- The site does not launch additional browsers to pages that form part of the same site.
- A warning statement is provided when a link leads to a large document or image.
- Additional navigation aids are provided, for example a site map or site index.
- It is easy to switch back and forth from search to browse.

(c) Search

- A search facility is available for the whole site.
- Provision is made for advanced searching (e.g. sorting of results, refinement of searches).
- Relevance ranking is available for results.

3.1.3 Design and layout

- The design is visually appealing.
- There is a consistent look and feel across pages.
- The home page is short and simple.
- The site is based on the national Coat of Arms.
- Screens are uncluttered.

- Information is organised effectively on screens.
- There is minimal use of large graphics or of too many little graphics on a page.
- Very long pages (meant to be read online) that require a lot of scrolling are avoided.
- Backgrounds are not too busy or distracting.
- Use of bold, italics, blinking and other attention-getting devices is not distracting.
- Single document options are available for files that may be printed or downloaded.
- The use of frames does not limit functionality of the site.
- It is indicated when document formats other than HTML are used.
- There is a way to interact with the developers of the site.
- There is an indication of applicable browsers with which the site can be viewed.
- The site is consistent when accessed via the standard browsers (Internet Explorer, Netscape).
- Script error messages do not appear.
- Pages fit on a screen of 800 pixels by 600 pixels.

3.2 Conducting the audit

The criteria were used in the form of a checklist against which the auditors could check the level of compliance to criteria identified. Questions were answered by indicating “yes”, “no” or “partly”, and by providing comments where applicable. “Yes” was used when a site conformed with a criterion to a great extent, and “partly” when a site conformed to it only to some extent or not consistently. The GCIS Directorate: Research captured these responses, using appropriate software.

The websites were audited during the period 12 February 2001 to 8 March 2001. The audit was conducted by employees of the GCIS subdirectorates Electronic Information Resources and the Information Centre. Each website was audited by two auditors to enable a second phase during which the first-round results could be verified. After each audit had been performed, one person involved in the audit for the particular site compiled a report. The report was verified by the second person involved in the audit, as well as by the author, who was not involved in the initial audit.

3.3 Interpretation of findings

On interpreting the results, the following must be kept in mind:

- The audits for individual sites were performed during a specific period. The report therefore reflected websites as they were during that period. Some sites have since implemented changes.
- The criteria used did not entail a complete set of criteria against which websites may be audited or evaluated. An attempt was made to select general aspects that influence the usability of websites. In addition, the audit mainly focused on site level issues (such as the home page, information architecture, navigation, search, layout, site-wide design standards, etc.) and did not attempt to identify specific issues pertaining to individual pages or to accessibility principles.
- Although every effort was made to avoid subjectivity and to ensure a consistent approach, some individuals may disagree with some of the findings. In addition, as different auditors performed the audit, the level of detail, depth and style of reporting for departments may have differed slightly.
- Certain aspects were not tested in depth. For example, all links were not tested. Similarly, the submit function for online forms was not tested.

3.4 Reporting to departments

A comprehensive report was prepared, including aspects as discussed in the previous paragraphs, as well as the findings for each of the government departments audited. The complete report was only provided to the e-government office in the Department of Public Service and Administration (DPSA), but considered as confidential and not to be provided to individual departments or other parties. The individual departments were provided with the introductory sections covering the aim and objectives of the audit, the scope thereof, the methodology followed, the overview of the findings (see paragraph four), as well as the findings for the respective department.

4. OVERVIEW OF FINDINGS

This section provides an overview of government web publishing as it emerged from the audit of individual government websites and discusses prominent issues and trends pertaining to the three main categories of criteria used for the audit.

4.1 Content

4.1.1 Orientation to the website

This criterion was the worst met of all the content criteria. No single departmental web page contained clearly defined aims or a statement on the scope of the site in such a way that it suggested that the website had been designed to help the department achieve its aims. Only one site attempted to provide this type of information. Furthermore, only nine sites provided basic information on the use of the website. This mainly constituted information about applicable browsers and, in some instances, on the use of the search engine.

4.1.2 Authority of the website

This aspect was also found to be unsatisfactory. The main problem identified was the insufficient indication of sources and especially publication dates for documents (24 sites). Another problem was the poor indication that web pages form part of a specific website. This problem became evident from the fact that either the department's name was not provided on all pages of the website (15 sites), or was not provided in HTML document titles or sufficiently in the URL for the source to be easily recovered.

4.1.3 Information posted on the site

The audit examined various information features contained on sites as listed in paragraph 3.1.1e. Information most commonly available were speeches and/or media statements by the relevant minister, media statements issued by the department, policy or discussion documents, departmental contact information, information on the organisational structure of the department, information or links to bodies/institutions related to/affiliated to the department, Acts and/or Bills, other departmental publications/newsletters/documents, and links to related websites. Table 19 provides an overview of the information most featured on sites.

Table 19: Information most featured on government websites (“no” answers taken into account)

Information	Number of websites		
	Yes	Partly	No
Ministerial speeches	20	3	3
Departmental media statements	19	3	4
Links to related websites	20	2	4
Green papers/white papers/discussion documents/policy documents	17	5	4
Organisational structure of department	18	3	5
Departmental publications/newsletter/other documents	17	4	5
Legislation/Bills	15	6	5
Information or links to bodies/institutions related to/affiliated to the department	14	7	5
Departmental contact information	10	11	5
Vision/mission statements	20	-	6

From this table it is also clear that the government websites audited varied significantly in the extent to which information had been made available. As with the breadth of information provided, there was also disparity with regard to the depth of information. This situation is evident from the “partly” column in table 19. These numbers reflect the number of sites that contained the information listed to *some* extent, even if there were only one or two appearances thereof.

Table 20 provides an overview of information least featured on government websites. Few websites provided information such as profiles of senior officials in the department (four sites), a departmental calendar of events (two sites), or job opportunities in the department (seven sites). Only six sites provided frequently asked questions (FAQs) with corresponding answers, of which only one provided this feature for the major part of the site.

Table 20: Information least featured on government websites (“yes” and “partly” answers taken into account)

Information	Number of websites		
	Yes	Partly	No
Vacancies/employment opportunities	7	-	19
CV/profiles of senior officials	4	-	22
Calendar of events	1	1	24
Frequently asked questions (FAQs)	1	5	20

These tables provide a clear indication that, at the time of the audit, government websites still had a long way to go before they disseminated information to the satisfaction of all users.

With the exception of one site (of the Department of Trade and Industry), which offered translation services into six European languages, no provision was made for the use of languages other than English. In some instances, individual documents such as annual reports were available in other languages.

4.1.4 Services

Of the 26 websites audited, 15 featured one or more online services, albeit very basic. Only five of those could be considered as having a relatively comprehensive array of services. In most instances services were not listed together and were scattered over the sites, making them difficult to identify or find as such.

As with information content, there was a variation in the extent of services available on websites audited. Services ranged from the provision of publications to order, subscriptions to databases or services, and an application for a housing subsidy. The lack of standardisation among government websites regarding this feature extended to the way services were presented, as well as to the way in which to obtain them. For example, some sites allowed users to obtain forms online, print them and then post the paper copies to the department, while others only provided an e-mail address.

4.1.5 Democratic outreach

While the technology to facilitate interactivity is readily available, many government sites had not taken full advantage of its benefits. Government websites tended to offer more basic information than features to make their websites interactive. For the audit, several key features were identified to determine to what extent government websites facilitated this functionality. These included:

- Offering phone contact information and/or addresses. Most sites contained at least basic contact information.
- The facility to contact the webmaster firstly by e-mail, and secondly by means of an interactive form. With the exception of seven websites, the majority of websites contained either of these options.
- The facility to e-mail a person in the department other than the webmaster. With the exception of five sites, the majority of sites contained at least one e-mail address, for example a general e-mail address for the department. The websites of the Department of Communications and the Department of Trade and Industry handled this feature exceptionally well, as an extensive list of contact information for different topics was made available on each.

This functionality also referred to sites that invited comments on discussion documents. This feature, however, was available on a limited number of sites, and then only for some documents.

- Employment of methods to facilitate conversation other than through e-mail, for example bulletin boards, chat rooms and discussion forums. With the exception of one site this feature was absent from websites.
- Features to make information available to users according to their particular needs, i.e. the ability to register to receive updates regarding specific issues or the capability to personalise the website. Six websites complied with the first and none with the latter requirement.

It was clear that government websites had not progressed very far with regard to providing options and features towards online democracy, and had a long way to go to fully realise the benefits thereof at the time of the audit.

4.1.6 Currency

It was evident that updated and current websites were not the norm with government websites. The audit identified only 12 websites that were sufficiently updated, while seven sites conformed only partly to this criterion. Seven lacked updated information.

Users need to be assured that information on a website is in fact up-to-date. This requirement was often not met. Only seven websites consistently provided an indication of when pages were last updated, and only two provided some indication of frequency of updating. The fact that most government sites did not consistently include dates as part of document listings exacerbated the difficulty of determining currency.

The usability of a website is enhanced by the prominent announcement of new information posted on the site. This criterion was sufficiently met by only 17 websites. Six sites conformed partially to this criterion, for example not incorporating all new information posted, while three sites did not make provision for this feature at all. A common problem was that the listings of new information posted did not make provision for the original publication date of documents, contributing to uncertainty about the currency of the information.

4.1.7 Writing and editorial style

This aspect was not audited in depth. However, websites generally performed satisfactorily in this regard. The most common problem was clarity of links – links did not always provide a clear indication of what information was found at the other side of the link. Gross spelling, typing and grammatical errors were limited.

4.2 Organisational structure/navigation/search

Due to the organisational schemes and the navigation options provided (or omitted), information was often difficult to find on many sites. In addition, search engines were not always available or only provided for a basic search.

4.2.1 Organisation of information

Table 21 provides an overview of audit findings with regard to information organisation.

Table 21: Organisation of information

Feature	Number of sites		
	Yes	Partly	No
The home page is a well-organised conceptual space leading to information on the site	8	13	5
There is a logical internal hierarchy	6	16	4

From this table, it is clear that government departments had to pay attention to the way information was organised on their websites. The main problems experienced were:

- Important information was hidden due to its placement in the organisational hierarchy or as part of certain categories.
- The same type of information was often scattered all over a site and included in different main categories (e.g. online services).
- Information was listed inconsistently on the same site, for example:
 - Sometimes information was listed from the oldest to the latest information, in other instances it was the other way around.
 - In some instances websites used topical indexes, but not all information on the topic was categorised accordingly.
- The choice of main categories on the home page was often not logical and did not provide a clear overview of the information on the website.
- Information was categorised in 'wrong' categories. Often a more relevant category was available for a specific type of information.
- In some cases there were as many as 15 and 24 links (main categories) on home pages. Relevant items were not grouped together.
- The choice of headings or naming conventions for links was often not logical – it was not always clear what was available at specific categories and what was meant by specific headings. Vague headings such as "general information" may have contributed to users not finding important information.
- Deep hierarchical structures were presented, requiring users to click many times before reaching the actual information.
- In cases where sub-sites were available, general categories spanning the whole site did not contain all the information from all those sub-sites.

With the exception of a few sites most government websites were designed with a department-centric focus and were a reflection of the stovepipe nature of government and of the inability to organise information and services around the user. For example, the typical website home page featured media statements and other information about the department, publications and documents of the department, the department's organisational structure and functions, etc. However, the few sites that followed a more topical approach did not implement this approach correctly. It was found that information was often not consistently provided at all the relevant headings and that important information was scattered over the site (e.g. departmental projects, services).

There was no conformity among government websites with regard to their approach to information organisation. For example, speeches and media statements were presented in the following different ways:

- As separate main categories accessible from the home page.
- As one main category accessible from the home page.
- As a secondary category (separately or combined) as part of government documents, accessible from second or third level pages.
- As a secondary category (separately or combined) as part of a category such as *Media*, or *Communication* or something similar.
- Six sites presented speeches and media statements combined in one list, while the rest of the sites provided them as two separate listings.
- There were also differences with regard to the sequence in which speeches and statements were listed. In some instances there was one listing for different years, in other instances different listings for separate years. In some instances listings were chronologically from the latest to the oldest, in other instances from the oldest to the latest.
- There were differences in naming conventions for the same type of information.

Similarly, documents were treated in various ways, e.g. in some cases all types were combined in one listing, in others they were organised according to the type of document (categories varied between sites). A limited number of sites also followed a subject approach.

Another finding was that, in many instances, existing information resources created for media other than the web, were provided on sites without providing guidance to or adding value for the user, or without utilising web design techniques for improved online access.

4.2.2 Ease of navigation

Table 22 provides an overview of the main aspects audited and the results obtained.

In general, government websites did not comply with basic principles for navigation. The absence or inconsistent use of navigation options on the websites often made them difficult to browse and information difficult to find. Of concern was that even one of the most basic principles, “a link from all pages to the home page”, was not applied on as many as eight government websites.

Table 22: Compliance with navigation principles

Principle	Number of sites		
	Yes	Partly	No
Links from all pages to home page	18	5	3
Prominent display of main navigation options	13	7	6
Local links to related content	12	5	9
Absence of dead-end pages	12	2	12
Absence of dead/broken links	9	5	12
Links to higher level index pages	8	9	9
Indexes/tables of content for long pages	7	16	3
Availability of site map and/or site index	5	-	21
Warning statements when links lead to large documents or images	4	6	16
'Previous page'/'next page' links	3	9	14
'Return to top' (long documents)	2	10	14

4.2.3 Search facility

Government websites made use of relatively basic search functionalities. Eighteen websites had a search function covering the whole site. Two of these also allowed for some parts of the site to be searched. Seven websites had no search facility.

The majority of search engines allowed only 'simple' searches, i.e. the search facility did not allow for advanced features such as sorting of results and refinement of searches. Only three websites had more advanced features, albeit not an 'advanced search' in the true sense of the word. Only eight websites allowed for relevance ranking of results.

4.3 Design and layout

The following were identified as the most prominent limitations (number in brackets represents the total of "no" and "partly" answers, i.e. websites that did not comply or only partially complied with stated criteria):

- Documents were not too long, thus not requiring excessive scrolling (23 websites).
- Clear and consistent indication of document formats (19 websites).
- Indication of applicable browsers with which the site could be viewed (18 websites).
- Availability of single document options for files to be printed or downloaded (16 websites).
- Clean and simple screens, not cluttered with too much information (13 websites).
- Organisation of information on screens (13 websites).

The following principles were best adhered to (number in brackets represents the total of "yes" answers):

- pages that fit on a screen of 800 pixels by 600 pixels (22 websites)
- acceptable use of italics, bold, animation, sound or other attention-getting devices (21 sites)
- provision of a way to interact with the webmaster (20)
- acceptable use of backgrounds – not too busy or distracting or making pages difficult to read (20 sites)
- correct use of graphics (16 sites)
- consistent look and feel (15 sites)
- short and simple layout of the home page (14 sites).

In some cases websites used superfluous or inappropriate navigational, organisational and other techniques that did not directly support the purpose or ease of finding information.

Most websites required the use of software such as Adobe Acrobat, and most of these provided users with the facility to download this software. For those users wanting an alternative to printed information on the website, the options were limited.

Some departments included the national Coat of Arms on their websites, but in most cases it was included as an add-on to the existing design and not incorporated into the overall design and visual identity of the site.

5. RECOMMENDATIONS

The audit report (South Africa, GCIS, 2001) acknowledges that the vision of electronic government was becoming a reality with the development of websites by most government departments. It, however, recognises that the realisation of e-government objectives through the medium of websites still has a long way to go, as, with the movement towards e-government, citizens and businesses will increasingly expect electronic services to be flexible, convenient, accessible, fast and efficient.

The report considers that overall, South African government websites were demonstrating a well-meaning and constructive participation in the web and that they displayed certain basic levels of technical competence in web authoring, with some, which rose well above that. It, however, also states that there was clearly a lack of knowledge on some critical points of web design and information design that impacted on the accessibility of information.

In order for government to improve its efficiency, effectiveness and responsiveness, the report (South Africa, GCIS, 2001) identifies some key issues that should be addressed in order to enable government to fully exploit this way of communicating with its citizens and transacting its business:

- Government needs to expand the diversity of resources available through its websites.
- As government sites contained rapidly changing information care should be taken that the most current information is posted as soon as possible after it becomes available. The web should be made the first place to publish information, not the last. Departments need to post information on their websites even before they publish it in other forms.

- Websites should make optimal use of the web as medium.
- Most of the organisational problems could have been avoided by the proper planning of sites in order to develop logical hierarchies.
- Key issues that need attention are improved search engines and the availability of additional navigation aids to help users determine quickly if the information they need is likely to be there, and to locate it. If information is not on the website, assistance should be provided to enable users to identify where it is available.
- Websites should utilise the Internet to its full capability, not simply as a tool for information dissemination, but also as a means to deliver services. Websites must enable citizens and business to interact and transact business with government. Forms for online transactions should be expanded and standardised. It is, however, not good enough to simply build a website with online forms for people to fill out, print and submit into the same bureaucratic system. Online transactions and embracing technology for online monetary transactions should be implemented. Furthermore, government forms should be publicly available and searchable on a national government website.
- The issue of democratic outreach needs to be addressed more prominently on government websites. The ability to communicate with appointed and elected public officials can make a difference between passive information delivery and a site that provides dynamic interaction. Providing contact information such as phone numbers and e-mail is the most basic stage of interactive communication. Digital democracy also includes issues such as discussion forums, online voting, public opinion polling and communication among elected officials and their constituencies. Listservers can provide an effective tool for users interested in similar subjects – it can be used to announce the availability of new or updated information to interested users, while questions and comments can be raised about specific topics.
- In an attempt to make government websites more accessible, simple baseline standards on design, file architecture and information display will make it easier for users to navigate sites and retrieve information.

6. CONCLUSION

It is clear that the majority of government departments have started to embrace the Internet for information dissemination. However, it is evident that in general these websites did not conform to the basic usability principles and principles of good website design, thus confirming the perception of respondents about the quality of government websites overall.

Inadequate and uneven information provision as well as currency of sites contributed to insufficient access to government information. Departments varied significantly in the extent to which information was made available electronically – there was a disparity with regard to the breadth as well as depth of information. Furthermore, strong emphasis was placed on the presentation of departments and their activities, especially the provision of documents, speeches and media statements. Value-added features such as frequently asked questions (FAQs) were limited. Some departments started to provide some of their services online, but departments were still far from becoming true online service providers. Aspects such as currency and authority were also not satisfactory.

An important concern was the lack of ease with which information could be found on government websites, as the aim of government websites should be to contribute to improved access to government information. Factors contributing to this problem spanned over all aspects audited, from information organisation and site navigability, to the design and layout of pages. There was also not a consistent design and organisation of information across government websites. This might have resulted in confusion amongst users and did not give the national web system a feel of coherence and unity.

The audit findings demonstrated South African government websites to have had similar problems than that of the *SA Government Online* website, and also that those problems were on similar or even worse severity levels. *SA Government Online* was thus not unique with regard to unsatisfactory quality and usability problems. The audit findings, together with the findings for the evaluation of *SA Government Online*, demonstrate that there is an urgent need for South African government websites to be improved with regard to content, information architecture, navigation, search, as well as the look and feel thereof.

Furthermore, the audit proved that there was no consistency or conformity between South African government websites as part of a government strategy to assist users to find information that they expect, and to find it easily. It also demonstrated that there was no

clear visual identity for South African government websites to identify them as websites of the same government.

GUIDELINES FOR GOVERNMENT WEBSITES IN SOUTH AFRICA:
As a result of these findings, the author believes that the overall poor quality of and lack of conformity between South African government websites necessitates government to initiate a project aiming at the development of web guidelines and standards and that these should be made available to national and provincial government institutions as a matter of priority. The author believes such an initiative will contribute to improved government websites, in its turn contributing to government's e-government vision for improved dissemination of government information and services by means of the Internet.

The next chapter proposes a model for such a guideline document. The model addresses the importance of quality government websites and of achieving some form of integration or common approach to web publishing in government, and proposes standards, guidelines and best practices for web publishing in South African government institutions.

CHAPTER 10

GUIDELINES FOR GOVERNMENT WEBSITES IN SOUTH AFRICA: A PROPOSED MODEL

1. INTRODUCTION

With the evaluation of the *SA Government Online* website it became evident that many online survey respondents and some user test respondents did not distinguish between the *SA Government Online* website, serving as an entry point to government information, and the respective government sites that it linked to. They expected to find all government information from on the Government Online site, and incompleteness, lack of currency and poor organisation of information on the other government websites also reflected negatively on this website. For example, it is worth noting that 21,1% of motivations provided by respondents in the online survey in relation to the currency of information on *SA Government Online* related to the frequency of updating of the websites of other government departments. In addition, the second largest number of suggestions on how the website could be improved related to government web publishing in the broader sense of the word and not to the *SA Government Online* website as such (see chapter six, paragraph 5.8.2 and table 17). While the *SA Government Online* website thus demonstrated a laudable effort to augment the accessibility of online government information, the perceptions of and the quality of other government websites had a negative effect on the success of *SA Government Online*.

Also, the results of the government website audit (South Africa, CGIS, 2001) made it clear that South African websites did not comply with a broad spectrum of general usability criteria and government website requirements, and that there was no standardised approach for the content, architecture, navigation, and look and feel of South African government websites at the time the audit was conducted.

Furthermore, the South African government had committed itself to a vision for e-government (South Africa, DPSA, 2001:16). An area that should conform to e-government principles is that of government website publishing. Korsten (2001:152) states that a key goal of e-government should be simplifying citizen's access to government, while providing choices and options for interaction. Recommendations to achieve this include expanding the diversity of resources available through websites, ensuring that information on

government websites is more even with regard to the breadth and depth thereof and improving currency. In addition, it is recommended that government develop a whole-of-government approach to ensure consistency, cost-effectiveness, interoperability and transparency within government, amongst which should be standards for ensuring a minimum, common set of content, metadata, electronic publishing and government services.

These findings and recommendations confirm Johnson (1996), Nielsen (1999b) and other authors' view that the usability of government websites suffers if there is not some sort of integration or common approach to web page publishing in the whole of government. According to the Australian strategic framework for the information economy (Australia, NOIE, 1999), a whole-of-government approach will ensure consistency, cost-effectiveness, interoperability and transparency within government. It will also lead to improved quality and accessibility of online government information, help to ensure that online government information and services are provided to a consistently high standard, and that users develop confidence in government websites (Korsten, 2001:173).

The purpose of this chapter is to present a model for South African government website guidelines and standards. The model is based on criteria used for the evaluation of SA *Government Online*, lessons learned during the evaluation thereof, and results of the government website audit performed in 2001. In addition, guidelines developed for other governments were consulted and then modified for the South African situation. The following sources were consulted: *Online information service obligations* (Australia, DCITA, 2001); *Guidelines for Commonwealth information published in electronic formats* (Australia, DFA, 2000); *Australian Government locator service user manual* (Australia, National Archives, 2000); *Better practice in online service delivery* (Australia, NOIE, 2000); *Guide to minimum website standards* (Australia, NOIE, 2001); *Common look and feel for the Internet* (Canada, Treasury Board, 2002a); *Government of Canada Internet guide* (Canada, Treasury Board, 2002b); *Guidelines for designing a government website* (India, MIT, 2000); *Guidelines for the use, management and design of New Zealand public sector websites* (New Zealand, SSC, 2001); *NHS identity guidelines: websites* (United Kingdom, NHS, 2001) and *Guidelines for UK government websites* (United Kingdom, Office of the e-Envoy, 2001).

2. APPROACH FOLLOWED FOR THE PROPOSED MODEL

After studying the government guideline documents (see previous paragraph), the author came to the conclusion that governments approach the extent to which certain issues are prescribed in different ways. For example, the Indian government (India, MIT, 2000), provides a brief document containing government website goals, content requirements (prescribed) with design and scanning advice, as well as advice on the maintenance of the website. The New Zealand guideline document (New Zealand, SSC, 2001) is more comprehensive and includes management issues, minimum content requirements, basic HTML implementation requirements and a mixture of requirements and good practice advice on content, navigation, display of information, and accessibility (text, fonts, tables, graphics). It also contains principles for e-government and advice on purchasing web hosting and design. The Canadian web guidelines (Canada, Treasury Board, 2002b) are the most prescriptive and set specific standards that have to be adhered to. A separate document that provides guidelines and best practices for government websites is also available.

It is the author's belief that, while it is important for each government website to be reflective of the character of its department, South African government web publishing will benefit from a more standardised approach. This will mean that all government websites will have some elements in common in order to create a corporate image for the government and will assist users in navigating government websites and finding information quickly and easily. The approach taken for the proposed guidelines was thus to work towards a balance between government-wide and organisational branding, in order to maintain an appropriate degree of consistency while giving government institutions freedom to develop websites that serve a variety of line-specific functions.

Guidelines and principles that relate directly to government website publishing, and not the broader spectrum of e-government (for example frameworks for gateways, digital TV, smart cards, corporate IT strategy, digital signatures, security, privacy, authentication, etc.) are included in the model. Furthermore, as in the case of the evaluation of the *SA Government Online* website and the government website audit, the guidelines concentrate on content, site architecture and navigation, and overall design aspects, and not on detailed page design or technical accessibility aspects. In addition, management aspects relating to the maintenance of government websites are also included. To put the proposed guidelines within a broader framework of a comprehensive document that should eventually be

developed, additional issues not covered in the model are briefly mentioned in paragraph four.

3. MODEL FOR SOUTH AFRICAN GOVERNMENT WEBSITE GUIDELINES AND STANDARDS

3.1 Planning the website

3.1.1 Introduction

Before a website can be developed, proper planning is vital. Basic aspects that should be considered are discussed in the following paragraphs.

3.1.2 Purpose or aim of the website

A government institution should have a clear purpose for its web initiative to ensure the project's success. The following is necessary to achieve this:

- A clear understanding of how this initiative will fit into the priorities of the South African government in general.
- The website ought to be situated within the context of the government institution. The institutional mandate, mission statement, annual reports and direction statements may be reviewed to do this.
- The expected benefits of the web initiative ought to be stated, e.g. why should the government institution have a website, what will its objectives be, and what value will the web initiative add to the overall institutional framework?

3.1.3 Audience identification

A government institution should know who the core and non-core audiences for its website are. In planning a website, market research should be done and potential audiences consulted.

An understanding of the target audience is important and will determine how the website will be designed and developed. For example:

- The aim of the website will influence the approach of the website, e.g. is the information intended for a younger or older audience?

- The audience's language skills will have a bearing on how the information is structured and on the level content is presented.
- Will the audience comprises mostly one-time users, or mostly repeat visitors? This information will be important in planning both the site structure and the information interface.
- Will users be browsing or will they already know what they want and expect to find it quickly? An efficient user interface should cater both for those who browse and those who want rapid access.
- The audience will determine the likely technical capability of their computers, e.g. what modem speed and browsers they are likely to have.
- Presentation will be influenced by a consideration such as whether the audience will have plug-ins to download information.
- Will the site be enhanced or hindered by the use of presentational graphics? If the audience is primarily concerned with rapid information retrieval, the objective may be better achieved with a well-structured text-only site.
- The design of the website will be affected by all of the above factors.

3.1.4 Identification of content

Suitable content should be identified and created before the website is developed.

The normal procedures for an information audit should be performed to identify information and communication products available in the government institution, e.g. brochures, reports, fact sheets, etc. Literature outside the institution (i.e. relevant material found in other departmental publications and libraries), as well as websites relevant to the institution's web content may also be identified to see what other information is available for possible inclusion.

Each identified information item should be carefully considered with regard to its appropriateness for inclusion on the site. Questions should be asked on the aim of the information and on what the document should achieve – information selected should support the purpose of the website and be useful and effective for the intended audience. Each potential client group has specific expectations that should be considered when selecting information and services for the website. When choosing content, material that both satisfies a clear service objective and is accessible to the intended client groups ought to be considered.

3.1.5 Type of website

Until recently most websites comprised a series of 'static' pages within an HTML structure. While useful for presenting information, this type of site allows for little interactivity and can be slow and expensive to update or restructure. This is especially relevant for sites with large amounts of information, or information that changes frequently.

A more flexible approach is the 'dynamic' site where part, or all of the content, resides in a database. The website itself consists of one or more design templates that define the site's look, along with some programming that describes which categories of information from the database are to be included and where they will appear. When the site is used, the pages that appear in users' browsers are in fact assembled 'on the fly', or in real time, from the templates and relevant information from the database.

The 'dynamic' approach offers opportunities for interactivity and decentralised maintenance and can reduce the production overheads of a website. Users are served only the information that they need at the time, and different role-players can share the responsibility for the information. When considering this option, the following should be kept in mind:

- The method of dynamic publishing should create pages that are accessible to everyone.
- All browsers should be able to read the dynamic pages.
- The system should be simple to administrate and manage
- The syndication of data from specific owners will most probably be required. Content owners will have to become responsible for a particular page or group of pages.

3.2 Content development

3.2.1 Introduction

A crucial element of an effective government website is good content. Government institutions should develop websites with authoritative and up-to-date information that is comprehensive, well written, clear and concise, caters for a wide range of audiences and is easily accessible.

3.2.2 Ensuring a minimum, common set of content

3.2.2.1 Standard

South African government websites should contain a minimum, common set of content. Within the parameters set below, it is for individual institutions to determine how to best organise content with their own audiences in mind. Individual sites may offer enhanced content.

3.2.2.2 Rationale

A minimum set of content on government websites will contribute to information on government websites being more even with regard to the extent to which information is made available (e.g. the depth and breadth thereof) and will ensure that information is readily available online. It aims to establish an expectation for users of what might be found on South African government websites and to contribute to a common look and feel for government websites.

3.2.2.3 Implementation requirements and guidelines

The following main information categories should be available, and the same language should be used for labelling main categories.

(a) Main categories and information required

- About [the institution]. This category should provide an overview or introduction to the government institution and should include the following information:
 - Minister responsible for the institution with his/her profile, responsibilities and contact information (telephone, fax, physical address, postal address, e-mail).
 - General contact information for the government institution (telephone and fax numbers, physical and postal address, and e-mail for general enquiries).
 - Head of government institution (name and title).
 - Organisational mission, vision, aims and objectives.
 - Organisation structure.
 - Responsibilities, aims and objectives of units and divisions within an institution (down to at least director level). Contact names for officials responsible for

specific functions, if it is not the head of the division, and their contact information should be included, as well as photographs of at least the senior officials.

- Details of the government institution's budget.
 - Legislative mandate, history.
 - Recruitment policies, procedures and information, and vacancies in the institution with the necessary forms to apply for these posts.
 - Membership and terms of reference of advisory groups and statutory bodies.
- Speeches & media statements. This section should include speeches, media statements and similar public information emanating from the institution as well as the relevant Ministry. Speeches by senior officials, at least down to deputy director-general level should be included. Information in this category may comprise media statements, press notices, media alerts, institutional announcements, ministerial announcements, speeches, interviews, announcement of new government initiatives, etc.
 - Policy and legislation. Policy statements and legislation such as Acts, Bills or regulations for which the institution has the lead responsibility, or a link to a site that contains these documents in full should be included. Draft formats of these documents should also be provided, as well as Bills before Parliament.
 - Documents & publications, including
 - annual reports
 - strategic plans
 - portfolio budget statements
 - consultation documents
 - speeches by the director-general (DG) or officials, or similar documents outlining the direction of the government institution
 - research reports and statistical information
 - publications issued by the institution
 - newsletters
 - documents to be submitted to parliament.

Publications for sale need not be made available online, but their availability should be indicated.

- News & events. This section should highlight important institutional events and dates relating to the specific government institution. A co-ordinator's name and contact information for each event should be provided so that users may get more information if interested.
- Services. This category should include
 - directories of services offered for different audiences (when relevant)
 - contact information for specific services (this need not be named individuals, but could be generic)
 - forms to apply for these services and guidelines on how to complete them.
- Programmes or projects. Name of programme, purpose and description of programme and programme contact details (name, title, phone number, address, e-mail).
- Links to related sites. Links to websites publishing information related to the government institution should be available. A minimum requirement is a link to the *SA Government Online* website. For further guidelines, see paragraph 3.2.2.3b.

The general rule is that all material published for the information of the public at large should be available on government websites. This includes not only high level documents such as Acts and consultation documents, but also service-based information.

(b) Selection of links to other sites

Users will often need information that is held by other government institutions. Therefore, government websites should link to relevant information on other sites, government as well as private or voluntary sectors. A general principle is that institutions should not duplicate information on other sites for which they do not have authoring responsibilities, as they may risk the simultaneous publication of conflicting versions of the same information.

The following principles should be observed:

- Links to other government institutions (national, provincial and local levels) and other external sites should be available.
- Links to external sites should be relevant to the institution or its work.
- Links should be to specific pages on other sites, not just to the home page.
- Notice should be given when a link will take users to external sites.

- As a general rule South African government sites should not directly link to commercial sites. It may contain biased content and it would be unfair to link to one commercial site and not its competitors.

The paragraph 3.2.2 on the legal requirements for data elements

The creation of a link to a non-government site may raise legal issues depending on the way it is achieved. When another website is opened while the user remains in the government website, it may constitute an infringement of intellectual property rights. There is also a possible liability where a non-obvious link is provided to another site and the user thinks he/she is still in the government website. To avoid these situations, it is advisable to obtain advance permission from the website to which the link will be made and to open the new site in another browser window.

(c) Information from other sites

Where government websites include information that is the responsibility of other institutions or organisations, the text should be cleared with them, and recognition given to such institution or organisation.

3.2.3 Minimum home page requirements

3.2.3.1 Standard

The home pages of South African government sites should contain the following minimum information or links:

- name of government institution
- SA Coat of Arms
- search facility (or a link to a search facility)
- list of new information posted on the site (or a link to a next level page containing a listing of new information)
- links to
 - the main categories of information as applicable to the specific institution
 - a *Contact Us* page
 - a site map and/or index
 - a *FAQ* page
 - the *SA Government Online* website
 - information about the site
 - a feedback facility to assist with queries/comments about the website

- o a content disclaimer
- o a copyright statement.

See paragraph 3.3.2 for the layout requirements for these elements.

3.2.3.2 *Rationale*

A minimum set of links or information on the home page will contribute to a common look and feel for South African government websites. As it consolidates common functions across sites, users will know what to expect.

3.2.3.3 *Implementation requirements and guidelines*

The following guidelines will help to standardise the elements on the home page and the types of information that should be available from the home page.

(a) Name of government institution

The home page should contain the full name of the government institution as well as the acronym thereof if it is generally known and recognised. It is not necessary to use the full name of the institution on the other pages of the website, but the acronym should be used in close proximity to the Coat of Arms.

(b) Coat of Arms

South African government websites should include the National Coat of Arms. The particular standard can be found in paragraph 3.4.2.

(c) Search

This button links to a search page that should enable users to search for information on any particular subject on the specific website. Alternatively, a simple search facility may be made available directly on the home page. If an advanced search is provided on the site, a link to this facility should then be provided from the home page. For guidelines on search see paragraph 3.3.5.

(d) List of new information posted on the website

The listing of new information posted on the site may be provided directly on the home page. Alternatively, a link to a page containing this listing may be provided. The latter provides for more flexibility to, for example, categorise the announcements and to keep them on the site for a longer period of time.

(e) Main categories

The home page should have links to all the main categories of information, represented by the institutional menu bar. See paragraph 3.3.3 for the standard for the institutional menu bar.

(f) Contact Us

This page provides a means for users to send electronic mail or to utilise other means of communicating with the organisation. The following interactive communication services ought to be provided to users:

- an e-mail or online form to contact the institution about the website itself
- contact information for enquiries or comments about the specific government institution, its programmes and activities (preferably telephone and fax numbers, as well as an e-mail address)
- an opportunity to request specific information to be sent regularly to users (subscription services)
- an opportunity to comment on policy documents, proposed legislation or consultative documents
- contact information for specific services rendered by the government institution.

It is best to avoid bucket e-mail addresses (one e-mail address for all enquiries), as it may be difficult to administer. Service standards should be provided to users so that they understand the process and know what to expect, e.g. response time for service delivery.

In addition, government institutions may also include discussion forums on their websites. This will allow users to make comments in a structured way. Two types of discussion groups may be considered:

- Open discussion groups. This type is open to everyone and therefore needs a high level of moderation and content control. A problem of an open discussion group is that some users may add topics that have no relevance to the discussion group, while others may add topics that can be offensive and libellous. Both of these should be removed immediately as their inclusion will reflect badly on the organisation.
- Closed discussion groups. These are closed, using a user name and password. The moderator selects the participants and has complete control of this group. One drawback is that a valuable contribution could be lost to the discussion as some users are excluded.

Guidelines on the maintenance of online communication are presented in paragraph 3.5.3.

(g) Site Map/Index

This button links to a page or pages containing a site map and/or alphabetic index of products and services on the site. These options will give users tools to understand how the information on the website is organised.

A site map should provide a visual representation of the website. Users may initially find this the quickest way of finding information, as it will orientate them to a website's structure. Site maps are particularly useful for large sites, where users may know what they are looking for, but are unable to find it. It should not only be in a graphic format, a text option should be available too.

(h) Frequently asked questions (FAQs)

This button links to a page containing frequently asked questions on the specific government institution or website.

This section should contain real questions with detailed answers. The practice should not be to add every question received from clients or users, as users may find it difficult to find the appropriate FAQ – focus should be on the frequently asked aspect. To assist users to find the information, FAQs may be grouped in categories. The search engine may also be set up to search only on the FAQ questions and answers.

(i) SA Government Online

This button provides a direct link to the *SA Government Online* website at <http://www.gov.za>.

(j) About the site

This button links to a page containing information on the site's purpose, intended audience and other information assisting users to use the website. This page should provide a description of the type of content available, a description of formats that are available throughout the site, a link to technical help for problems with the website or for users with problems accessing information on the website, site specific help information, as well as links to the government institution's general help page. It could contain tips on searching for information or navigating the site, a list of acronyms used on the site and other helpful information.

(k) Feedback facility to assist with questions or comments about the website

This link should provide quick access to a form and/or contact information to enable users to ask questions, report problems and to make comments on the website.

(l) Content disclaimer

Public sector websites should not generally contain disclaimers about content. There is no more reason to include a general disclaimer on a website than there will be to do so in respect of equivalent hard copy material. A government institution should keep material on its website accurate and up to date, and clearly indicate the archival nature of information when old information is present.

The increased accessibility of material published on a website might, however, in some instances more readily suggest that a disclaimer is appropriate. An assessment of whether a content disclaimer is needed can only be made on a case-by-case basis. The accuracy of the material, the source of the material and the projected use of and reliance on the material should be considered.

In cases where information originating outside of government is made available on a public sector website, it may be a good practice to include a disclaimer along the following lines:

The following information [specific document] is provided for convenience as part of the service we offer at this website. However, the [institution name] cannot accept any liability for its accuracy or content. Users who rely on this information do so at their own risk. (Adapted from the UK web guidelines, Office of the e-Envoy, 2001.)

Where a website links to non-government sites, a suitable disclaimer should also be available, e.g.: [Institution name] is not responsible for the content or reliability of linked websites and does not necessarily endorse the views expressed within them. Listing shall not be taken as endorsement of any kind. [Institution name] cannot guarantee that these links will work all of the time and has no control over the availability of the linked sites or pages. (Adapted from the New Zealand web guidelines, SSC, 2001.)

(m) Copyright statement

Information created by government institutions is subject to copyright. However, when wide dissemination is acceptable or desirable, dissemination subject to acknowledgement of source should be encouraged.

Copyright statements can be phrased in the following way: © [Institution] [Year of publication to current year, e.g. 1994-2002], linking to a statement such as: Material featured on this website is subject to copyright protection unless otherwise indicated. Material may be reproduced free of charge in any format or media without requiring permission. This is subject to the material being reproduced accurately and not in a derogatory manner or misleading context. Where the material is being published or issued to others, the sources and copyright status should be acknowledged. The permission to reproduce copyrighted material does not include material that is identified as being the copyright of a third party. Authorisation to reproduce such material should be obtained from the copyright holders concerned. (Adapted from the New Zealand web guidelines, SSC, 2001.)

3.2.4 Language

Websites should be prepared in such a way that all potential users, regardless of their educational background and sophistication can utilise it. The content, language and readability should be user-friendly and understandable for all people.

While English is tacitly recognised as the 'official' language of the World Wide Web, it is recommended that national identity information be provided in all official languages, and that messages to particular community groups be prepared in English, together with at least two relevant official languages.

3.2.5 Currency and timeliness

3.2.5.1 Standard

South African government institutions should ensure that any information (non-commercial) released to the public in printed form is available online at the same time.

South African government web pages should have a date indicator to signify the currency of the content. Currency indicators should be displayed as yyyy-mm-dd and use one of the following labels: Date published, Date modified, or Last updated.

It will be useful to use the standard date indicator at the bottom of pages to signify that users have reached the end of any web page.

3.2.5.2 Rationale

In general, government websites contain rapidly changing information. Users are increasingly expecting that information be made available online on its release. In addition, as government websites are increasingly used to obtain accurate and up-to-date information for personal, professional and research purposes, it is important that South African government institutions provide clear indications of the currency of information on their websites.

3.2.6 Writing for the web

Government communications should be clear and concise, honest and open. Web managers are advised to choose language that follows the values and principles of the South African government and the particular government institution. Particular care should be taken to avoid jargon, acronyms and over-technical language. Web content should also be easily readable. It is good practice to develop a consistent house style, covering the use of upper and lower case lettering, use of abbreviations, etc.

3.2.6.1 General content

The following guidelines should be observed:

(a) Writing style

- Each page should be able to stand on its own, as it may be viewed without reference to relevant pages. Each page should be limited to one concept or idea.
- Newspaper style should be used, starting with the most important information and then moving to the least important information (inverted pyramid style).
- Information should be chunked so that it is appropriate for screen-by-screen viewing.
- Short sentences should be used. Sentences should be limited to one key idea and should be kept short – newspaper prose written in TV and radio style works well.
- Ideas should be organised from one paragraph to the next to get a smooth and logical flow.
- Paragraphs should be limited to no more than four sentences – use half the text that would be used in a print product, then edit again.
- Bulleted or numbered lists should be used to provide a lot of information in a concise manner.
- Typographical elements such as bold, caps and italics are recommended.
- Readability levels should be appropriate for the specific users of the site.

(b) Grammar

- If possible, the reader should be addressed personally, e.g. words like “you” and “us”.
- Plain English should be used – simple, everyday words.
- The following should be avoided:
 - clichés and jargon
 - passive voice – active voice should rather be used
 - acronyms – if possible, terms should be written out and should acronyms be used, a glossary should be provided
 - unnecessary words of degree, e.g. “very”, “quite”, “somewhat”, etc.
 - spelling and grammar mistakes.
- It is recommended that a spell checker be used as a first step to avoid mistakes. All documents should then be professionally edited before and after it is posted online.

(c) Punctuation

For easier on-screen reading, it is recommended to

- minimise punctuation and avoid using colons and semicolons
- reduce prepositions and conjunctions
- avoid using full stops after headings.

3.2.6.2 *Microcontent*

Microcontent is the short bits of text guiding users or giving them a quick overview of a page. The following general guidelines are presented for writing microcontent:

- Self-explanatory page titles, headings and sub-headings should be used. It should have meaning out of context, and the meaning should be clear from the user's perspective.
- Microcontent should be kept short and simple. Good microcontent should simply clarify information and provide direction.

Brief guidelines for the basic categories of microcontent are as follows:

- Page titles. Title tags are tags that enable users to see the title of a page. They are valuable for internal management, user navigation and search engine positioning. It will also be the page identifier to use when a page is bookmarked by a user. As a general rule, title tags should be included on every page. Page titles should be optimised for quick scanning, but should still be long enough to convey meaning. It is therefore advisable that page titles not be longer than 60 characters and ideally not be under 30 characters. Page titles should incorporate the name of the government institution or website and should form a concise, plainly worded summary of the page contents. A set syntax describing the government institution and the page content or main message of the page, for example [Name of institution] – About – Find Us – map, should be used.
- Headings and sub-headings. These should be informative. Each document should be given a clear, concise heading at the top. This should then be followed by subheadings of different sizes and weight to help users to understand the construction of the document at a glance. Headings should be in lower case, except for the initial capitalisation of the first word. This will aid readability.

- Link titles. Meaningful words or phrases should be used for links that direct or inform users. Links should be clear, descriptive and precise. Link text should match the title of the page it links to. Link titles should be kept short and should ideally not exceed three words.
- Alt text. As few words as possible should be used, but it should be clear and precise.
- Captions used for photographs, images or graphics should be kept short, ideally 10 words or less.

3.2.6.3 Summaries

It is good practice to include a summary of a document at the beginning of the text or page, directly under the document heading. This will allow users to identify if the document is relevant and it will be used by search engines.

A summary should

- cover the purpose of the document and the main points covered by the text
- contain as many keywords as possible
- not be more than forty to fifty words.

3.2.6.4 Print publications and the web

Websites differ from print, and thus print material should be adapted to the format and style of the web. Ways to do this include:

(a) Scanning or re-keying information

If data only exists in hard copy, scanning or re-keying are the only options. While re-keying sounds more time intensive, it is worth considering as scanning often involves a lengthy quality control process. Data often needs to be styled, formatted and proof-read for scanning errors. However, re-keying is a one-step process where data is keyed directly into the required format using the preferred stylesheet.

(b) Conversion of existing data

Where data is already in electronic format, conversion to another electronic format may be necessary. This can sometimes be a tedious and time-consuming process. It is sometimes possible to convert desktop publishing packages to word processing packages, but often much of the styling and formatting can get lost, and should thus be corrected.

(c) Adapting existing text

In many cases existing text will require some adaptation for the electronic environment. The following may be considered:

- reviewing the accuracy and relevance of information in existing documents for a different audience
- repositioning existing documents for online reading by editing and rewriting it
- restructuring or chunking of information
- adding hyperlinks to external references
- preparing a summary for the first page, also including navigation links leading to more in-depth information and a printable version
- removing page numbers.

The text of government documents such as reports to ministers, legislation or case studies usually cannot be reworked. For successful usage of the material online, the emphasis will thus be on structure, organisation and inclusion of navigation aids.

(d) Adapting graphics for the web

Graphics from electronic files created originally for print publications may need adaptation to be usable on web pages. The image resolution will probably need to be minimised, the file sizes made smaller and the images converted in order to be read by web browsers.

3.2.7 Advertising on government websites

3.2.7.1 *Standard*

There should not be endorsement or advertising of commercial products on South African government websites. The exception is when a commercial product is required to view or

listen to an item on the website. It is then acceptable to use the product image with a hypertext link to more information on it.

When government institutions have significant input into a commercial event, this event may be promoted and a link provided to a commercial website where the user can get more information or register.

3.2.7.2 *Rationale*

Care should be taken to avoid any implication of endorsement of products or services, unless reporting on a formal, transparent process.

3.2.8 Structuring information

How content is structured and displayed is as important as the content itself. Without a solid and logical organisational backbone, a website will not function well, even if the content is accurate and well written.

A website should have a logical organisational structure or architecture for presenting information. The purpose of this architecture is to help users to use sites by functioning as a 'map'. A good architecture will provide order and help users to find information. This section provides advice on how to organise content effectively.

3.2.8.1 *Planning an information architecture*

(a) Information audit

Before content can be organised, an inventory should be made of the information and communication products. This is discussed in paragraph 3.1.4.

(b) Dividing information into logical units

After information is identified, the first step is to divide the information into logical units. Short, uniformly organised blocks of information are particularly suited to electronic presentation, because few web users spend time reading long passages of information on web pages. Blocks of information lend itself to hypertext links and concise blocks of information are better suited to the computer screen. It is therefore recommended that

information be broken down into logical and digestible parts and to organise it in chunks that share a consistent organisational scheme.

However, subdividing information too much may fragment information too much and will frustrate users who wish to read or print the complete text. A useful rule of thumb is a maximum of five A4 pages for a block of electronic information.

The creation of text blocks should remain flexible and consistent with common sense, logical organisation, and the convenience of the user. The nature of the content should suggest the best way to sub-divide and organise information. There will be times when it is better to provide long documents as integrated units of information. Although blocks of information in online documents should usually be kept short, it makes little sense to arbitrarily divide a long document. This is particularly relevant when users should be able to print or save the document in one step.

Information should be grouped into clearly defined areas. It is preferable to duplicate links to information rather than to confuse users with similar information in more than one area of the site.

(c) Establishing a hierarchy of importance

To develop a site structure, the potential content that was identified during the inventory phase should be prioritised by identifying what information the public will request most often, what information supports the government institution's programmes, and what information is largely static and archival.

Once a logical set of priorities is determined, the main information categories should be identified. Thereafter an outline per section can be developed. This outline will look like an organisation chart. The hierarchy should be built from the most important or most general concepts, down to the most specific or optional topics. Ways to make the most useful information easily and quickly accessible should be considered. The main navigation menu (institutional menu) should be designed to perform 'larger' navigation functions than the lower level menus. Mixing these functions will confuse users. The website should be viewed as an inverted tree – the higher upwards, the larger the branches.

Decisions will have to be taken on the number of levels the website should have. The normal best practice is to provide information in the fewest possible steps. However, with

larger sites containing larger volumes of content, more than one level of navigation will probably have to be included. A balance between the two possible approaches will have to be found: a flat approach where many navigation choices provide access to information in few steps, or a deep approach where fewer choices at the outset provide access to information in more steps and with an increasingly narrowing focus. The first option provides quick access to specific content but may present a confusing number of choices. The second option requires more 'clicks' and allows users to make increasingly informed decisions based on narrowing options. A useful rule of thumb is to ensure that users get to the information they require with no more than three clicks from the home page.

It should be kept in mind that the structure does not have to fit a hierarchy as dictated by the subjects covered by the website, but should be user focussed. For example, if users are interested in particular information that logically fits within the information hierarchy a few steps below the home page, the hierarchy may be flattened to ensure that this information is available at a higher level.

(d) Determining relationships

Relationships between information blocks should be determined and decisions taken on what blocks should be interlinked.

3.2.8.2 Principles

A key principle is to organise information in commonly recognised ways. Because online information is complex, it should be determined which conventions will make sense to the users of the site. The web architecture should give users a familiar or intuitive way to browse the site. It should not force the user to interpret the plan, but should be obvious and transparent.

A logical site organisation will allow users to make successful predictions about where to find things. Consistent ways of grouping, ordering, labelling and graphically arranging information allow users to apply their knowledge of pages already visited to pages that they are not familiar with.

Users should be provided with various options to discover the site's structure and resources and to find their way around the website. In practice, this may mean that the

website offers users the ability to search and browse the site, and that it provides a site map and/or tables of content.

3.3 Navigation and search

3.3.1 Introduction

A logical and consistent navigation system is key to improved access. Users will not continue to use a site if it is not easy to navigate. The navigation scheme of a website should give users a coherent means of finding information, remind users where they are within the site's structure, and help users who arrive at the site without having gone through the home page.

To bring about a more coherent approach to websites and to make government sites more easily accessible, South African government websites should follow similar formats and layout with regard to main navigation functions.

This section provides standards and guidelines to be considered when planning and developing the navigation format and layout of South African government website pages, as well as navigation guidelines that government developers could follow in order to facilitate easy movement within a site. As with the other sections, there are specific requirements that ought to be observed. However, there is enough flexibility within these requirements to allow for a website that is distinct, yet which maintains its visual identity with other South African government websites.

3.3.2 Core navigation elements

3.3.2.1 Standard

Government websites should include common navigation options, placed at the top of every web page, to facilitate navigation through and between South African government websites. These navigation options should be available as text navigation. The menu options should include Home (on all pages but the home page), Contact Us, Site Map and/or Index, FAQs, Search, and SA Government Online (except for the *SA Government Online* website) and should appear in this order. These navigation options should appear on all HTML pages. In the case of downloadable versions of documents that are non-

HTML, such as doc, rtf, PDF, txt and wpd, the implementation of the menu bar is not required.

Every document should include footer information that displays links to facilitate navigation. The following elements are recommended: About the site, a content disclaimer, a copyright statement and an e-mail address and/or form for assistance with enquiries or comments about the website. Furthermore, at least the main pages of the website should contain the URL of the website. In addition to the standard elements, publication information on the website should include the date of publishing and the document's version number where relevant. The footer details may be separated from other information by being placed in a frame or by some other visual method.

The core navigation elements are discussed in paragraph 3.2.3.3

3.3.2.2 Rationale

Consistent use of core navigation elements will facilitate navigation and will consolidate common functions across South African government websites.

3.3.3 Institutional menu bar

3.3.3.1 Standard

All South African government websites should have an institutional menu. The institutional menu should be consistently placed on sites. Institutions are free to choose the colour, number of buttons and content of their menu bar, but the design and size should match that of the common menu and be placed directly below it.

3.3.3.2 Rationale

A standard format and location for the primary institutional menu will facilitate common look and feel navigation objectives.

3.3.3.3 Implementation requirements and guidelines

The number of buttons and choice of terminology should provide for the particular government institution's specific situation. Each website will need to adopt terminology that

reflects its specific programmes and services, yet some degree of standardisation should be applied, as there is some similarity in content of government institutions. It is therefore suggested that the following elements be included where relevant: What's New (on home page), Home (on pages other than the home page), About [name of institution], Speeches & media statements, Policy & legislation, Documents & publications, News & events, Services, Projects and Links.

Terminology used on menu buttons should ensure that it is clear to users that may not be familiar with the terminology used internally to reflect programmes and services of the particular government institution.

Additional secondary menu systems may be developed as required, e.g. when institutions have many websites or many levels of content. The secondary menu will typically contain links that are more content specific, such as institutional sub-sites, programme and service areas, or lengthy content files. Such a menu should be displayed in the left column of content pages. A more graphic or visual approach than that of the main navigation may be used, but it should visually complement the overall web page layout.

3.3.4 Navigation practices

Information and services on websites will only be useful if users can find it. The navigation on government websites should thus be clear and easy to use. Guidelines and best practices for navigation on South African government websites are presented in the following paragraphs.

3.3.4.1 General linking practices

The following guidelines are relevant for government websites:

- Every page on the website should have a link to the home page.
- The main navigation menu (common menu) and institutional menu should be available from the home page.
- The main sections of the website should be accessible within one click from the home page.
- The National Coat of Arms should be included on each page and should always link to the home page.
- A link to the general liability disclaimer should be available on all pages, since it is possible that the site may otherwise be accessed without viewing the disclaimer.

- Links to download third party add-ins (e.g. Adobe Acrobat) should be provided.
- Navigation tools should be clear and large enough to be easily read and selected.
- 'Under construction' should rather not be used on government websites. It may be annoying for users to follow a link only to find this message. An incomplete section should not be on the site. Navigation that may lead to this incomplete section should be disabled until the section has been completed.
- There should be no broken links on the site. Links should be checked regularly. It is recommended that a mechanism be included on the site for users to report broken links.
- The site should offer constant visual and functional confirmation of the user's whereabouts in the site.
- There should be no dead-end pages (pages without links) on the website. Every web page should contain at least one link to the highest level. This is because web pages often appear with no preamble. Users follow links directly to sub-section pages deep within the hierarchy of websites and thus may never see the home page or other introductory information in the site. If pages do not contain links back up in the hierarchy to the home page or to main pages, users are essentially locked out of access to the rest of the website.

3.3.4.2 *Linking to other websites*

Links should be relevant to the business of the government institution and may be sorted into categories to allow users to easily choose the link they want. When linking to a non-government website it should be made clear that the information provided is the responsibility of the external source and not that of the referring site. When linking to other sites, text around the link should make it clear that the user is about to leave the specific website. The new site should also be opened in another browser window.

3.3.4.3 *Graphic navigation*

The following are guidelines for implementation:

- When the website uses graphic buttons for navigation the site should be easy to use when these graphics are not viewed. They should have clear labels or embedded text as well as alt tags.

- When graphic buttons are used, specific values to both the 'width' and 'height' attributes within the image tag should be used. This will help the browser to display the page correctly on the screen.
- It is important that graphic navigation buttons are not too large – the largest area possible should be given to display the document – and file sizes of graphics should be minimised.
- Avoid hyperlinking elements such as icons, photographs, images, image maps or other graphic devices, unless their purpose is clear and they are critical to the site. The Coat of Arms displayed on all pages is excluded from this requirement, as it should link to the home page.
- Images should not be used for bullet points. It is recommended that the bullet styles available in HTML rather be used.
- Graphic navigation may distract users from their purpose and from the site-wide navigation system. Using a text navigation area at the very top of the page will complement graphic navigation. Simple text gives more precise information and ultimately serves as a better navigation aid.

3.3.4.4 *Hyperlinked text*

The excessive use of links embedded within body text should be avoided, as it may be distracting and may reduce the legibility of the document. Rather organise necessary links in one area of the document and provide some context to their function. Links in text should also not duplicate the function of the menu. Furthermore, presenting hyperlinks in different visual styles should be avoided – rather use colour and underlining. Other typographical methods, e.g. italics, bold, caps or a different font will reduce legibility and should thus also be avoided.

3.3.4.5 *Language for navigation*

It is recommended that short, common terms for navigation menus be used and that acronyms and abbreviations that may be unknown to the users be avoided. The language used should be clear, direct, plain and unambiguous.

3.3.4.6 Long documents

It is not practical to put a long document on the web as one HTML file, as long documents requiring scrolling are difficult to read. Furthermore, a user visiting the website may not have accessed the document from the first page, since a link from another site or a search engine may have brought him to e.g. page six of a 20-page document. The maximum web page length recommended is the equivalent of five A4 printed pages.

If long HTML documents are to be presented, an alternative to breaking it up in many small files is to divide it into a small number of large files. The length of the document and its internal structure will determine the number of files. It should then be given an internal navigation structure. This normally involves creating a table of contents at the beginning, hyperlinked to each main section heading or to important subsection headings.

The following practices are relevant:

- Each section of a document should be accessible from another section.
- It should always be possible to access the contents page of the document.
- Each of the sections contained within the document should include a 'back to top' link to enable users to quickly return to the top of the displayed page.
- A link should be provided to take the user to the next or previous part of the document to enable the user to navigate through the document in sequence. The following methods are commonly used on the Internet:
 - an arrow, icon or miniature document or an open door with an arrow pointing to it
 - the word 'next' or the numeral of the following part in hyperlinked text
 - a button that reads 'next page', 'continue' or 'more'.

The preferred way for South African government websites is one of the last two options, but with the wording 'continue to [name of chapter/section]', or 'back to [name of chapter/section]'.

- A parallel link should be provided to a separate file that contains the full-length document. The document could be in PDF format. This will allow users to print the file in its entirety or download it to their hard drives in just one step.

In general, shorter web pages are preferred for

- home pages
- menu or navigation pages
- documents to be browsed online

- pages with large or multiple graphics.

3.3.4.7 *Consistent navigation system*

Consistency should be achieved throughout the website. The primary navigation system should simplify the website as much of possible. Inconsistency distracts from the functioning of the system. By providing a consistent and predictable set of navigation options, the user is given a sense of the information structure, and the logic and order of the content is made visually explicit. It will also reinforce the user's sense of context within the site.

The development of a primary site with sub-sites may be considered to solve organisational difficulties, but different structures on different sub-sites may still distract or confuse users.

3.3.5 Search

The search functionality should be effective. The main criteria for a search function are that it must be easy to use, provide accurate and concise results, and clearly explain the search parameters used by the search engine.

Consideration should be given to providing quick (simple) as well as advanced search facilities. A simple search will allow users to quickly enter search terms and should allow the search to be further refined after users have seen the results. An advanced search will allow users to define their initial search against specific search criteria, normally including searches on metadata fields. It should allow users to further refine the search after they have seen the results.

Detailed help should be provided on how to search the information on the website with examples of how to conduct a simple and an advanced search. Links may also be provided to general search engines.

Good practices for the display of results include:

- Providing information about the total successful results.
- Displaying 10 results per page as a default, and providing users with the option of viewing more or fewer results.

- Displaying enough descriptive information for the user to understand if the result is worth pursuing. This may mean displaying the URL, the title of the document, a short description, or the search terms in context.
- Allowing the user to toggle between a short and longer description.
- Displaying relevant search parameters.
- Allowing the user to do another search (simple or advanced), by providing both options (usually at the bottom of the search page).
- Providing the option to refine search results by running an additional search on the results of the first.
- Removing any duplicate results prior to displaying thereof.
- Implementing a relevance system that indicates the relevance of the document to the search terms.
- Indicating to the user when no results are obtained, and providing further options to pursue.

3.4 Design and layout

3.4.1 Introduction

This section discusses the visual appearance of South African government websites. The visual elements of the website should assist users to understand the function and purpose of the website. Design should not be used to entertain, but to make the website more informative and professional. It should not distract users from the content.

3.4.2 Visual identity – use of the Coat of Arms

3.4.2.1 Standard

In line with government standards on corporate identity South African government websites should display the National Coat of Arms, using high quality reproductions in terms of accuracy, colour and resolution. The following are guidelines in this regard:

- The Coat of Arms should appear in the upper left display of content pages and be accompanied by the name of the government institution.
- The Coat of Arms should be displayed in its correct proportions. Disfigurement thereof is not permitted.

- Only colour, black-and-white or grey scale renditions of the Coat of Arms should be used. When used in colour, an attempt should be made to match the original colours as closely as possible.

3.4.2.2 *Rationale*

The display of the Coat of Arms establishes a corporate identity and consistent branding for South African government websites. It will ensure that any page of any site will be easily identified as belonging to the government and will indicate that a South African government institution has provided the information. Visual identity will also give greater coherence to the government's presence on the Internet.

3.4.3 **Design guidelines and principles**

3.4.3.1 *Common look and feel*

The graphic design should support the navigation scheme and not confuse users or create a new identity. The visual theme should complement the South African government identity. Web developers should take care not to dilute this identity by stylising the institution's name or other design elements, as this will distract from the common look and feel for South African government websites.

3.4.3.2 *Consistency*

The design should be simple and consistent. Consistency should include visual themes, layout, graphic elements, typographic style, the use of symbols and measurement specification. It is recommended that templates providing for the common look and feel be developed.

3.4.3.3 *Balance between graphic elements and text*

Design elements should be carefully chosen to add meaning, clarification or context. The types of graphic elements on the site should be limited – a few well-chosen graphics placed strategically will help users focus on the content. Limiting graphics will also reduce download time. Animation, scrolling text and meaningless graphics, logos, symbols and icons should be avoided – they may make websites busy and distract from the content.

However, vast expanses of text will also be difficult for users to negotiate. Web pages should therefore be designed with visual elements to help users read and navigate the site. Strategically placed lines or graphic elements may for example be used to break a long document into manageable portions.

3.4.3.4 *White space*

While many consider white space as wasted space, it is an important part of web design and should be used to create a professional presentation.

3.4.3.5 *Design for print*

A website should be designed to allow users to both read documents online and to print them. Pages should be designed and built so that they can be legibly printed out on standard printers. Long documents, divided for online reading, should also be made available, e.g. in PDF format for printing purposes.

3.4.3.6 *Online forms*

Forms are a simple way in which structured feedback by users can be facilitated. They may vary from a simple suggestion to complex user feedback forms.

While all forms for public use should be provided online, they can be provided in a number of ways, including

- forms that can be printed, completed by hand and then posted to the government institution
- forms that can be completed online, printed and posted
- forms that can be completed online and submitted electronically.

Cost, the complexity of the form, the nature and size of the user group, authentication and security may influence decisions about the most appropriate online formats. Any one form may also be presented in multiple formats.

There may be circumstances where it will be inappropriate to provide a form online or to provide it as a download. When it is not possible to provide online access, information on alternative ways of obtaining and completing the form should be provided.

General guidelines for the design of online forms are as follows:

- Forms should be designed so that only necessary information is collected. Care should be taken not to require information where there is no operational need for this information. At the same time it is important to collect sufficient information. It is suggested that the forms used online include both a required area where information must be entered and an optional area where other information may be entered.
- Where possible, forms should resemble the design of the paper-based form.
- It is recommended legal forms be presented in PDF format.
- Form design should be consistent throughout the government institution's website.
- Online forms should be easy to understand and use. Layout of controls and entry fields should be simple.
- Forms should contain clear, meaningful explanations or labels associated with fields and controls.
- Drop-down lists should be provided to help users enter information in pre-defined fields. An option should be provided for entering values that are not in these drop-down lists.
- Clear instructions should be provided on how to complete and submit forms.
- Telephone or e-mail contact details should be provided for users who may have difficulty completing a form.
- Users should be provided with the option to save and print completed forms.
- Users should be prompted when essential information was not entered into forms.
- It should be clear to users that forms have been sent successfully.
- It should be clear whether a response would be provided. If a response is to be provided an indication should be given as to when the response may be forthcoming.
- Alternative methods of contact should be provided.
- Appropriate measures should be in place to ensure that information provided in forms is secure. Security levels should be adequate to protect user privacy.
- Clear statements about procedures for handling personal data should be available.
- There should be server-side verification and validation of data entry.

3.4.3.7 Site covers

(a) Standard

Site covers or splash pages should not be used on South African government websites.

(b) Rationale

Although this technique may be appealing it has limited use and creates difficulties for search engine registration, usually because these websites tend to contain little text. Furthermore, where they do not automatically redirect, they waste users' time, as they have to make an additional click to be able to view the content options available to them.

3.4.4 Layout and screen display

3.4.4.1 Cascading style sheets (CSS) and tables

(a) Standard

South African government websites should incorporate Cascading Style Sheets (CSS) or similarly sized tables to achieve consistent presentation of content.

(b) Rationale

While web technologies offer opportunities for creativity, there are benefits in the standardisation of some design elements on a site. CSS allow templates to be created, thus allowing the easy authoring of web pages by non-professional designers and consistent and professional relationships between all elements on each web page. CSS also allow designers to create pages that look the same in different screen resolutions and browsers without the need for tables, and to separate page content from document style commands.

(c) Implementation guidelines and best practices – CSS

The following style sheet techniques could be used to control layout and presentation:

- using style sheets for text formatting
- using style sheets rather than invisible or transparent images to force layout
- using style sheets instead of deprecated presentation elements and attributes that control visual presentation.

Cascading Style Sheets should be used only when the CSS techniques are known to have adequate browser support. Many CSS commands, especially for font effects, simple margins, etc., are well supported by graphical browsers from version 4 onwards.

(d) Implementation guidelines and best practices – tables

To ensure that pages remain usable, it is important to use tables correctly. The following practices are recommended:

- Tabular information should be clearly labelled and easy to follow.
- Tabular information should be displayed in a consistent way within the site.
- Avoid using tables to arrange text documents in columns.
- The number of columns should be kept to a minimum.
- Nested tables should be avoided and only used if there is no alternative.
- Tables should work across different browsers.
- When a fixed width table is used, it should not exceed 600 pixels to avoid horizontal scrolling. Table width should be set up using the '%' value rather than a fixed pixel value. The table will then scale to the user's displayable area and avoid left to right scrolling.
- Never omit 'Ending' tags.
- Avoid background images in tables. It is not supported in older browsers and may decrease readability. Background colours in tables should not detract from the legibility of the content. It may also not be supported by all browsers.
- All tables should contain summary information.

3.4.4.2 *Frames*

(a) Standard

Frames should be avoided on South African government sites and should only be used as an alternative format. If frames are used, a 'no frames' alternative should be supplied for the entire site and access to it should be clearly visible on the home page.

(b) Rationale

Frames split the page into two or more sections that are identified separately by the browser. When registering a framed page with a search engine, or bookmarking it or printing it, some browsers will recognise the frames themselves but will not display the content from all sections of the page. Frames present problems when trying to ensure that organisational identification and common look and feel elements remain attached to content when located through search engines.

There are also copyright implications for sites that open external links in a frame. It may be construed that such a site is displaying the linked content as its own when it displays the link in a frame that belongs to the referring site.

3.4.4.3 *Display format*

Documents should be designed for an optimum screen display format of 800 x 600 pixels. Where the size and format of the content exceeds this size, a notice should be provided to tell users how they could adjust their screen size to accommodate non-standard formats such as tables, maps, etc.

3.4.4.4 *File formats*

(a) Standard

The primary file format for information delivery should be HTML. Any other format may be employed as alternative. PDF on its own should be used for presenting legal documents such as Bills and the gazettes, and may also be used for presenting complete documents for printing purposes.

(b) Rationale

HTML is the primary source of data on the web, is the easiest to produce and is understood by all web browsers. PDF formats are preferred for legal documents, as they retain all of the formatting, type styles and illustrative images.

(c) Implementation

There will be occasions when HTML is not suitable, e.g. documents or publications that are large or complex, when using multiple column text, or when presenting many graphics and detailed tabular information. PDF and other formats, such as rtf, txt, doc may then be included as alternative files. When PDF is used, it should be at least version 4, since accessibility add-ons were improved with this version. Where large files are unavoidable, such as with major reports in a word processing file, compressed versions should be provided. A link to a downloadable version of a suitable decompression utility should be provided.

3.4.5 Text readability

3.4.5.1 Text elements

Typography choices can enhance or distract from the overall visual appeal of the site. Since most information on the website will be in text format, it is imperative that text is laid out well and is clearly legible. Although user display preferences in individual browsers have ultimate control over text presentation and fonts are displayed as coded only when browsers are set to the default preference, there are benefits in consistent font presentation.

The following guidelines are relevant to achieve this:

- As a general rule, body text should be black on a white background, but the text should always be a contrasting colour to the background. Since white text may not print, it should be avoided.
- Text should be static and should not flash (this does not apply to words that are presented in a graphics format). The Marquee and Blink tags should not be used.
- Do not rely on text colour for providing meaning in text, as users can select their own colours for the display of the text.
- A simple, efficient typographic style should be adopted and then maintained throughout the website. The number of heading levels should be limited and complicated numbering systems avoided.
- Bold and italics should be used sparingly and all caps should be avoided.
- Underlined text should be avoided, as it can easily be confused with a hyperlink. Rather use bold in its place.
- The suggested font family for South African government websites is Arial/Helvetica
- To facilitate easy scanning and a mental model of the websites hierarchy and structure, font sizes should be limited to a single size for headers, and a single size for body text. To make hierarchical distinctions, other font features such as bold and italics could be used.
- As users may override specified base settings, navigation should not be dependent on viewing a particular type-face or font size.

3.4.5 Graphics, images and animation

3.4.5.2 Use of colour

(a) Standard

South African government websites should only use standard 256 web-safe colours for website elements such as menu bars, hyperlinks, navigation aids, text, background and simple graphic components. Images and photographs are excluded from this requirement.

(b) Rationale

Web-safe colours ensure compatibility with the full range of browsers and platforms available. Applying the 256 web-safe colours will ensure a high level of display accuracy across platforms and systems.

(c) Implementation guidelines and best practices

Colour choices may hamper the functioning of a website. While users may control elements to suit their needs, complementary colour schemes with sufficient contrast will avoid problems for people with visual and perceptual disabilities. The following guidelines will help to achieve this goal:

- Background colours should contrast with text colour. Black text on a white or cream coloured background will always work.
- The use of red and green together should be avoided.
- The use of background graphics should not impede the legibility of the website.
- Strong background colours should be avoided, as it makes text difficult to read.

3.4.5.3 Backgrounds

Background colours should be a single, solid colour from the web-safe colour palette. The use of patterns, images or textures for the background ought to be avoided. There should be a contrast between the text colour and the background colour to avoid any blurring on the screen. Should textures be used, care should be taken that easy reading of screen content is not impeded.

3.4.6 Graphics, images and animation

Images can give structure and colour and can be used for decorative and illustrative purposes. Their implementation should be carefully planned so that they increase the effectiveness of the website and not hinder users' access to information. The sensible use of graphics will establish the government institution's identity on the web and will help illustrate and clarify content.

The following guidelines apply:

- It is recommended that government sites minimise the use of imagery.
- Recommended image formats are gif (for images) and jpg/jpeg (for photographic images).
- Avoid using images to convey textual information. However, when text is used as part of an image, it is important to ensure that it is clear and that the font colour contrasts with the background colour. When using a small font, ensure the anti-aliasing is disabled to avoid blurred text.
- When a background texture image is used, any images overlaying the background should have a transparent surround.
- Where visual images are used, they should be as small as possible to facilitate rapid delivery via any end user technology. File sizes of single images should ideally be kept under 30KB.
- Large images should be represented by a small thumbnail, hyperlinked to the larger image.
- Where larger images are needed, warnings and file sizes should be displayed, and a thumbnail image preferably used.
- Any image conveying information or linking to other areas should have an alternative text description thereof. An alt attribute and value should thus be used.
- Large images should not be used on the home page.
- Large, complex images (e.g. pie charts or bar charts) cannot reasonably be described with the alt attribute. In these cases the image should link to an HTML page with the relevant data.
- The website should be usable with the graphics turned off.

Animation or scrolling text and images should be used sparingly. When used, it should add value to a page and not distract attention from the contents of a page. When there is any doubt about the value of an animated or scrolling text or image, it should be removed from the site. When used, it should not loop indefinitely and should be kept to as small a file size

as possible. In addition, it should not self-activate, but rather be user-controlled (thus both activation and de-activation should be dependent on specific requests from the user). Text equivalents should be provided via alt text or longdesc tags.

3.5 Managing the website

3.5.1 Introduction

A common mistake by many government institutions is to focus on the development of a website and to overlook the necessity of ongoing administration and maintenance. Publishing the website is not a once-off project, as the medium is interactive. Continuous improvement is expected. The web publisher has to keep on top of fresh information, of new websites to link to, of data on usage patterns and of client preferences, and of direct client feedback. After the implementation of a new website it will be important to manage and maintain the site to ensure that standards are continuously met. This will entail issues discussed in the following paragraphs.

3.5.2 Maintaining website content

Maintaining content involves having sound management practices. Naturally, different types of sites demand different levels of maintenance. When a site contains only generic corporate information that changes rarely, the ongoing updating functions will be limited. However, a site containing rapidly changing information requires a focused and sustained effort and dedicated resources will be needed to effect ongoing changes.

3.5.2.1 Adding new content

Criteria have to be developed for new pages to be included. Before adding new content, consider questions such as:

- Is there a client group that needs the information?
- Does the content add value to the site?
- Is the information accurate, reliable, up-to-date, complete and credible?
- Is the content written for the web?
- Is the content written with a clear purpose?
- Does the content fit into the existing website architecture?
- How will the success of the new content be measured?

3.5.2.2 *Updating content*

Content on websites should be regularly updated and maintained. The following practices may be followed:

- Content should be reviewed and reread regularly.
- It should be determined upfront what information needs to be updated and how often it should be updated. Measures and procedures to ensure regular updates and ongoing improvements should be implemented.
- Older documents should include links to more recent documents, so that users can find information on recent developments.
- Only current information should be displayed. Obsolete content should be removed and replaced with current information. However, removing a content page should be carefully considered, as other sites may have linked to that page, or users may have bookmarked the page.
- The *What's New* section of the website should be updated regularly, as many users may go to this section first and may not return to the site if the information is outdated.
- Each entry in the *What's New* section should be dated to enable users to determine the currency thereof.
- The site map should be updated when new sections are added on the website.
- The list of acronyms (if available) should be updated when new content is added on the site.

3.5.2.3 *Link checking*

An important aspect of website maintenance is link checking. As one has little control over documents on other websites, it is difficult to know if a document linked to is still available. Checking and correcting links will make the site more useful and will enhance the credibility thereof. Hyperlinks should be checked regularly and outdated links should be deleted or replaced. There are a number of software packages available that can automate this task and provide a printed report for any broken links.

3.5.2.4 *Archiving content*

If old content is still useful, it should be kept on the website. The website should then be modified to enable users to quickly find old content through links. Old content can be valuable because it may have historical interest, provide background information and a richer texture for the website, or may be of interest even if it is not new. When old

information is carried on the website, version control should form an important aspect of content management

Old content can be integrated through

- linking new information with archived content to give background context
- maintaining current links in archived files
- putting links to recent information on older pages.

3.5.3 Maintaining interactivity tools and online communication

An important part of site maintenance will be interactivity tool maintenance. Web users have come to expect quick responses to online requests for information or help, subscription for online services and online orders. It is also good practice to thank users who provide online feedback with an e-mail response. To ensure users that their messages have been received, systems can be set up to send immediate automatic replies, but it should be followed up with individual replies.

Discussion groups may be volatile and may place a government institution in the role of publisher in the case of a defamation action. Discussion groups will thus have to be managed and moderated well. The level of moderation is relevant to the quality of the service and to the requirement of ensuring that content is not unlawful.

The minimum level of moderation will entail a disclaimer distancing the host from the opinions and comments posted. It is, however, recommended to clearly state and enforce rules for posting. An 'Acceptable Use Policy' should be published alongside the discussion group, disallowing defamatory, libellous, sexist, or otherwise offensive language. Postings should be read frequently (at least once a day) and postings contravening these rules promptly deleted. The maximum level of moderation requires users to submit contributions in advance so that the website managers can read them before they are posted on the website.

In the case of permanent chat rooms, it is desirable that users become members before they may contribute. This makes it possible to bar users for contravening rules. These chat rooms should be monitored frequently. Temporary or special chat rooms may have a higher profile, since they may feature prominent officials responding to questions and comments. In these cases, it is recommended that questions be submitted to the interviewee before being published on the website.

3.5.4 Metadata

3.5.4.1 Standard

It is recommended that government institutions create descriptions of their key online information resources and services in the form of metadata records. The Dublin Core standard is the leading international metadata standard for online resources recovery.

3.5.4.2 Rationale

Web-based government information should be organised with the long-term goal of ensuring accessibility, reliability, visibility and interoperability* (among government institutions) of content. Metadata can be used to identify, describe and locate web information and to help users find it through search engines.

Users should be able to readily locate information and services without needing to understand how government and government information is structured. Most indexed information catalogued by Internet search engines is retrieved using search programmes that explore the World Wide Web by categorising the information contained in them. It will therefore be beneficial to users if government could implement a standardised information tagging system. Systematic application of an agreed upon metadata standard on government websites will enable the development of a seamless interface to government.

3.5.4.3 Implementation requirements and guidelines

South African government websites should include the following minimum metatags in document headers for description of web resources: creator, publisher, title, subject, description, date, identifier, and format.

The following descriptions are derived from the *Australian Government Locator Service User Manual* (Australia, National Archives, 2000):

- Creator is the name of the organisation or person responsible for the content of the resource. This field will be used to find resources according to the creator of those resources, for example John Smith or Department of Education. The name of a person, the name of an organisation, information on how to contact the creator (position, phone

or fax number, street or postal address) or an e-mail address for the creator should be included.

- Publisher is the name of the entity responsible for making the information available or who owns the information. This field will be used to find resources under the control of a particular government institution. The name of the government institution, information on how to contact the entity making the resource available, (e.g. position, phone and fax number, street or postal address) or an e-mail address for the institution making the resource available should be provided.
- Title is the name given to the resource. This field will be used when users know the title of the resource or words forming part of the title of the resource.
- Subject is the subject or topic of the resource that describes the content of the resource, e.g. tax, health. This field will be used to find resources related to a specific topic.
- Description is a textual description of the content and/or purpose of the document. It allows searching based on words and phrases describing the information. It will be used to display a summary of the content.
- Date is the date on which the resource was created or became available in its current form. This field allows users to search for resources created or modified on, before or after a certain date. The date format should be yyyy-mm-dd, e.g. 1999-01-15.
- Identifier is a unique identifier for the page being catalogued. It will mostly be a URL.
- Format is the data format of the resource, e.g. HTML. This element allows a search to be restricted to resources in a specific digital format. It also allows users to decide if a resource is worth accessing. This element should also be used to describe the size of an electronic resource.

When additional metadata elements are required, additional Dublin Core elements may be used as a starting point, i.e. source, coverage, audience, mandate, type, language, format, date modified. Domain specific metadata elements may then be developed.

Metadata should be added to at least the home page and main category pages. However, it is preferable that the following pages also include metadata:

- entry points to specific online services and indexes
- pages that provide actual online services to the public
- information in high demand by users
- major entry points, indexes and menus for a range of closely related topics, programmes and policies
- major formal publications (e.g. annual reports, public policy documents, corporate strategic plans)
- media statements and speeches
- information about government institutions, their services and activities.

3.5.5 Domain names

3.5.5.1 Standard

Domain names should consist of a name or acronym that represents the institution's primary purpose. The following convention should be followed: <http://www.name.gov.za>, where 'name' represents the name or acronym for the institution, e.g. <http://www.gcis.gov.za>.

3.5.5.2 Rationale

The single domain name seeks to establish a similar identifier for the South African government on the Internet. Furthermore, websites are important for marketing, promotion and information delivery. A common domain name will enhance government identity, presence and visibility.

3.5.5.3 Implementation guidelines

The State Information Technology Agency (SITA) is responsible for the registration of South African government sub-domain names. Online registration can be done on its website, available at <http://www.sita.org.za>.

3.5.6 Evaluation of the website

Often the design strategy used to create websites becomes outdated and insufficient to support changing goals and the increasing number of resources added. In addition, developments in information technology may result in a website evolving to a point where the technology or design no longer meets requirements and developments.

Because of this evolvement, regular assessment of user needs, the website's goals and its ability to meet these goals are required. Government websites should be reviewed twice a year, or at least once a year and redesigned if necessary. Often, websites with fast developing content need to be redesigned annually.

Websites may be evaluated using a variety of methods, including the following:

- The analysis of feedback provided via phone, e-mail or the feedback form provided on the site.
- The collection and monitoring of website statistics. There is software to monitor usage patterns and what information real users are mostly interested in, i.e. paths used by users to find information, pages most often used, how long users spend in particular pages, who uses the site most, page impressions, unique visits, successful requests, unsuccessful requests, most frequently visited pages, least frequently visited pages, top entry pages, top referring sites. There is also software that identifies accessibility problems. These can provide some information on usability of a site but not nearly as much as testing with users.
- User testing. User testing of sites with individuals or groups of users can be very effective and can provide useful information upon which effective modifications can be made to the website. User testing can generally be done with minimal resources.
- Expert evaluation. This method involves an evaluation of a website by a person skilled in usability and user interface design. Experts base their evaluation on their knowledge of design principles, standards and ergonomics.
- Heuristic review. A website is evaluated by inspecting the user interface and assessing it against a set of usability criteria and principles.

- Usability walk-through. This method is used to gather early feedback about the usability of a design. It involves a facilitator leading a group of participants step by step through a design concept using screen mock-ups (either paper or electronic).

4.1 Introduction

- Interviews. Structured interviews can be conducted with users.
- Survey. An online survey may be useful in providing feedback on how users perceive a site. It should assess users' views on the accuracy, reliability, accessibility, ease-of-use and content quality of the site, and get ideas for improvement. A disadvantage is that they can introduce bias.
- Focus group testing. This technique can be used to assess user needs and feelings both before the interface design and after implementation. A focus group usually comprises six to nine users, with a moderator who keeps the group focussed on issues related to the user interface.
- Design process tests. These can either be
 - low-fidelity tests, used at the beginning of the process
 - medium-fidelity tests, done before the back-end functionality is added
 - online tests, done after the front-end and most of the back-end functionalities are complete.
- Wire frame testing. This comprises simple HTML models or paper models of a proposed website. Its primary purpose is to identify the navigation scheme of the website and to verify the information layout and design blueprint. It can be used to improve taxonomy, nomenclature and location of content and navigation aids within the site.

4.2 Content aspects

3.5.7 Search engine registration

In order to be found and indexed by search engines government websites should be registered with them. This is achieved by visiting the home page of the search engine, where there will be a link to add the URL of the site (or individual page). An overview of search engines can be found at <http://howto.yahoo.com/chapters/2/1.html>. A list of major and minor search engines can be found at <http://www.yahoo.com/Business and Economy/Companies/Internet Services/Search and Navigation/>.

4. ADDITIONAL ASPECTS THAT SHOULD BE INCLUDED IN THE GUIDELINE DOCUMENT

4.1 Introduction

As stated in paragraph two, this model does not provide for all aspects that may be included in a final document for use by South African government institutions. Additional aspects contained in the government guideline documents consulted, and which should ideally form part of the final guideline document are briefly mentioned in the remainder of this chapter.

4.2 Introductory section of the guideline document

The introductory chapter of the guideline document should include aspects such as

- the advantages of an effective web presence
- a statement on the purpose of the guideline document
- a statement on the intended audience, e.g. is the document relevant for national government departments, provincial legislatures and departments, local government statutory bodies, etc. (Canada, Treasury Board, 2002b)
- the purpose and role of the guidelines, as well as advantages of such guidelines
- the scope of the guideline document (Canada, Treasury Board, 2002b)
- implementation requirements
- authorship and maintenance of the document
- contact information for feedback on the content of the document
- the date and version of the document.

4.3 Content aspects

4.3.1 Implementation schedule

This section could state how the implementation of the common information set will be phased in. For example, all new information falling into this framework may be made available from a set date. Departments can then determine the appropriateness of existing documents to be made available at a next target date.

As government may not be able to implement all services in the short term, the introduction of online services may be phased in. Advice may be provided on identifying a candidate set of government services suitable for electronic delivery that may be implemented first, and on longer-term plans.

4.3.2 Interactivity tools

A more comprehensive explanation of all interactivity tools that could be used on government websites ought to be included in the document to provide information on what technology is available, what it can do, what it can be used for, and on how to implement and manage it.

4.4 Graphic design

It may be of value to provide a link to a page with the different renditions of the Coat of Arms that are allowed on South African government websites. Similarly, a sample of the common menu bar could be provided. Government web developers can then download these without having to worry whether the quality of the images comply with the requirements for government websites.

4.5 Equal access

While the model contains some accessibility guidelines, the final or a separate document should discuss more comprehensively the issue of making information accessible to those with disabilities or with technological constraints, and the provision of information to facilitate access to the Internet (Australia, DFA, 2000; Australia, NOIE, 2001). The guidelines should be based on the *Web content accessibility guidelines* that were devised by the World Wide Web Consortium (W3C). These guidelines provide a series of checkpoints to ensure that websites are accessible. The guidelines are available at www.w3.org/tr/wai-webcontent.

4.6 Managing the website

In addition to the issues mentioned in the model, the chapter on the management of government websites could also contain guidelines on the issues mentioned in the following section.

4.6.1 Role-players in the strategic and operational management of the website

This section should contain information on the role-players that should be involved in the strategic and operational management of the website. An outline should be provided of each group's role and responsibilities in the development as well as the maintenance of the website (Australia, DFA, 2000; United Kingdom, Office of the e-Envoy, 2001). Skills and knowledge required for the responsibilities of these role-players could be described (Canada, Treasury Board, 2002b). Information that will assist government institutions to identify the cost of human resources for the web initiative could also be provided.

4.6.2 IT considerations

One section could be devoted to helping government institutions identify and plan for possible IT resources and other IT considerations related to the web initiative. Aspects that could be covered include information formats (text and images), web capabilities and limitations, website services, hosting, programming, content management, browser plug-ins, scripting methods to add a degree of interactivity and style to a web page, hardware, software and telecommunications.

4.6.3 Purchasing web hosting and design

This section should include contracting and tender advice, advice on how to purchase web design services (design, content provision, maintenance), and advice on purchasing services from Internet service providers (ISPs).

4.6.4 Evaluating the website

The model currently mentions the need for continuous evaluation of a website, and also briefly refers to different methods to conduct this. A separate guideline document can be compiled to provide more detailed advice on these methods.

4.6.5 Marketing

Part of the management process is to help people find the website. This section could provide suggestions on how to bring traffic to the website, such as developing targeted e-mail lists, writing articles for publications, conducting marketing campaigns, buying large mailing lists or developing a listserv. Online promotion includes registering the URL of the

website on appropriate meta-index sites, registering the site with non-South African search engines, and by identifying sites that might want to create pointers to the site.

4.6.6 Record-keeping and archiving

Digital information on a government website is a government record and needs to be managed properly. Departments should have a legal obligation regarding the proper retention and disposal of web-based records (Mahoney, 1998:18). To ensure efficient, accountable and cost-effective government, the guideline document should include guidelines on how to keep full and accurate records of data, transactions and activities in a form that ensures the reliability and accessibility of those records for as long as they are required (Australia, NOIE, 2001; Australia, DFA, 2000).

4.6.7 Version control

The guideline document should contain guidelines on the management of different versions of web information and websites.

4.6.8 File management

Information should be provided on the disadvantages of large file sizes and guidelines provided on acceptable file sizes. Guidelines of file naming conventions and practices will also help government institutions with the general housekeeping of the file structure and that file store infrastructure does not hinder the development and expansion of a site (United Kingdom, Office of the e-Envoy, 2001).

4.6.9 Documentation

The need to document each element of the website construction should be highlighted and guidelines provided on what this documentation should entail (United Kingdom, Office of the e-Envoy, 2001).

4.6.10 General network maintenance

This section should focus on the general network maintenance necessary to provide a reliable online service. This includes monitoring and ensuring that the network, software and hardware that support the website are secure, reliable and efficient; developing back-

up and mirroring solutions; site availability; planning for network downtime; ensuring that content is transferred securely from client browsers to the server; efficiency of website resources; considering options for virtual hosting; web server software and extensions; monitoring server performance; and creating useful and informative error messages for the user.

4.6.11 Contingency planning

The guidelines should emphasise the need for and provide guidelines for the development of a contingency plan for a sudden increase in hits, or for times when the government institution needs to carry fast developing stories.

4.7 Authentication, security and privacy

4.7.1 Authentication

Government institutions should consider whether their websites require authentication technologies. Some websites may only require simple authentication techniques such as the use of logins and passwords. For more complex services that involve data interchange or financial transactions, websites will generally use Public Key Infrastructure (PKI) technology or authentication (Australia, NOIE, 2001; Korsten, 2001:86). The final guideline document may provide guidelines in this regard.

4.7.2 Privacy

Guidelines in the handling of personal information should set out general rules for collecting, storing, using and disclosing personal information. They should also contain rules for individual access and correction of personal information (Australia, NOIE, 2001; Australia, DFA, 2000). These guidelines could be contained in a separate guideline document.

4.7.3 Security

Security guidelines should give direction to government institutions with regard to the security implications of their websites and to ensure that they are properly protected (Australia, NOIE, 2001). These guidelines should form part of security guidelines and standards for South African electronic communications.

4.8 Main role-players in government web publishing

The guideline document should provide information about the various role-players involved in website publishing in government, e.g. GCIS, SITA, and DPSSA. Roles and responsibilities of role-players and relevant names and contact information should be provided.

4.9 Checklists

Checklists could be included for use by government web authors to ensure that they comply with the guidelines set out for government websites, e.g. for website content, home pages, structuring content, writing style, formatting, navigation, search, metadata, visual identity, graphic design, readability, formats, etc.

4.10 Additional material

The guideline document could provide additional source material on web publishing (e.g. accessibility guidelines on the WWW3 Consortium's website, use of CSS, guidelines for using colour, HTML guidelines, etc. Government web developers may use these for further reference.

4.11 Table of content and index

To simplify access to the guideline document it should contain a table of contents, a glossary of terms and an alphabetical index.

5. SUMMARY AND CONCLUSION

The evaluation of *SA Government Online* and the audit of South African government websites made it evident that these websites need to improve on all aspects of website design, from the comprehensiveness and currency of content, through to architecture, navigation, search and look and feel. It is the author's belief that many of these problems could have been avoided if government web developers had guidelines available to assist them in planning and developing their sites. This belief is confirmed by the fact that the need for government web guidelines and standards is recognised world-wide by leading e-government countries such as Australia, New Zealand, the UK and Canada.

CHAPTER 11

This chapter presented a model for South African government website guidelines and standards. As government websites did not conform to all spectrums of usability criteria mentioned in the previous paragraph, the guidelines encompass all these areas. The author is also of the opinion that government websites can be improved when better planning and management practices are implemented. Website management aspects are thus also included in the model.

The purpose of the guidelines is to ensure that government websites comply with basic usability principles and principles for good web design, and to ensure that South African government websites follow a more standardised approach. The ultimate objective is to assist government web developers in developing professional websites – websites that contribute to the dissemination of government information and services to the public in a comprehensive and coherent way and that make it easy to find information on them.

It is of paramount importance that concept web guidelines are consulted and negotiated with the broad spectrum of role-players involved in government web publishing. This will contribute towards them taking ownership of the final document, making the implementation thereof less problematic.

CHAPTER 11

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

1. INTRODUCTION

Governments have a responsibility to keep their citizens informed on its policies, programmes and services. To communicate effectively and to make government information accessible, governments have to use every opportunity to disseminate information, using delivery media and technology as effectively and efficiently as possible. The South African government embarked on a number of initiatives with regard to the electronic dissemination of information, one of which is the development of government websites. At the time of this research, there were 36 national and provincial government websites, while the *SA Government Online* website was developed to serve as a gateway or entry point to the information on these sites.

The main objective of this research, as defined in chapter one, was to contribute towards improving the quality and usability of government websites to enhance the effectiveness of online information and service delivery by the South African government. To reach this broad objective, the research assessed the effectiveness and usability of the *SA Government Online* website in detail, and South African national government websites in more general terms with the aim of identifying issues that the government will have to address to improve the effectiveness and usability of these websites, so to ensure that they contribute optimally to online information and service delivery.

This chapter provides a summary of the research methodology used to evaluate the websites and of the main findings of the evaluations. The author also makes recommendations about aspects government could attend to in order to improve the quality of government web publishing in South Africa. Lastly, some areas for further research within the area of this thesis are identified.

2. EVALUATION OF SA GOVERNMENT ONLINE

2.1 Evaluation methodology

The development of a methodology to collect relevant data concerning the usability of the *SA Government Online* website and users' attitudes towards it, was done in three phases: the identification of assessment criteria against which the website could be measured, the selection of suitable evaluation methods, and the development of test instruments for data collection.

The selection of assessment criteria was done by firstly identifying general criteria for the evaluation of websites. These were edited, synthesised and consolidated, ultimately resulting in a criteria list of five broad categories and 17 sub-categories. Thereafter, the author identified guidelines and principles relevant for government websites and for portal websites. This process resulted in a general framework for the electronic dissemination of information and for government web publishing within which the website could be evaluated.

The general criteria demonstrate that the crucial element of an effective web presence is content that is comprehensive, current, of high quality and authoritative, that is well written, caters for the need of a wide range of audiences, and which fulfils the publishing institution's communication and information dissemination objectives. Furthermore, the criteria demonstrate that good website content should be enhanced by developing a site that is easy to use, offers easy and intuitive movement through the site, and where information is easy to find through both browsing and searching behaviour of users. Lastly, the criteria provide guidelines for achieving a visually attractive look and feel that does not distract from the content, but enhances information and service delivery through visual and functional continuity, graphic design and typography, and a careful systematic approach to page design. Requirements for government websites encompass specific requirements for content to be available, for sites to be convenient and easy to use and to be aesthetically pleasing. Another important aspect that emerged was the need for a 'whole-of-government' approach to any government's web publishing effort, and the importance of such an approach for improving the efficiency and quality of government websites overall.

While the author attempted to provide a comprehensive overview of guidelines, it is important to realise that a single website will not necessarily have to conform to each of

them, as the purpose, audience, content and approach for sites differ. A good website will be a combination of good practices that will work for that particular website.

The research indicated that the criteria and guidelines represented a comprehensive and workable list suitable to address the research objectives. They offer in the first instance a model for good usability principles for the development of any website, and this list (or a shortened version thereof) can be used as a checklist against which a website may be measured to determine its compliance with general usability requirements. In the second instance, the guidelines for government websites as presented in chapter five provide a framework against which government websites may be developed and measured, and are a particularly valuable guide for content and some of the architectural issues that should be addressed on government websites.

After selecting the criteria, the evaluation methods were identified, selected and developed. The goal was to assess if the website complied with content requirements, to determine whether users could find the information they required, which aspects of the interface were good and which were bad, where the major difficulties were, and how the design could be improved. To ensure comprehensive data gathering on the effectiveness and the usability of the website, multiple methods were chosen. The intention was for the methods to supplement each other, so that their advantages and disadvantages could complement each other. The test instruments were based on the criteria and guidelines identified during the first step. The evaluation methods chosen were a heuristic evaluation by experts, a critical evaluation of the website by the author, user testing and an online survey.

The research indicated that the four methodologies used were generally successful for the purpose of this research. The combination of heuristic evaluation methods with the user test and the online survey provided comprehensive findings with regard to all criteria considered, identified major problems with the interface as experienced by 'real users', and provided valuable insights with regard to users' perceptions of the website. Since all four methods revealed most of the deficiencies of the website, there were definite areas where the findings of the respective evaluation methods confirmed each other. However, in some cases findings reflected the view of one or some of the respondents or evaluators, or one or some of the evaluation methods. Most of these aspects are relevant concerns and deficiencies, and, together with the issues identified by two or more evaluation methods, should be regarded as aspects that ought to be considered for the improvement of the website.

2.2 Findings for the evaluation of SA Government Online

The evaluation was conducted during the period 14 August – 16 September 2000. The findings indicated that many aspects of the website were satisfactory and that in the whole, the website fulfilled its purpose. However, the findings also revealed that the website did not conform to various usability criteria and to expectations for government websites in each of the broad areas of usability criteria applied, and that the website did not sufficiently provide users with a mechanism to optimally find all the information they needed.

Important aspects identified for improvement were comprehensiveness and currency. The findings revealed that both the breadth and the depth of information were not satisfactory and that the currency of the site did not meet expectations. The handling of the *What's New* feature on the website was also strongly criticised.

The findings further revealed that important aspects contributing to difficulty of finding information were illogical organisation of information, fragmented presentation of information, and because the site did not optimally provide access structures according to users' mental models of information organisation. This resulted in information that was hidden and difficult to find, and in users not finding information where they expected to find it. The findings demonstrated that the organisation structure also had an effect on the overall navigation structure of the website, as an illogical and inconsistent organisational approach will necessarily influence the navigation approach and consistency thereof.

The research indicated that the search mechanism played a prominent role in those users who normally preferred to search not finding the information they needed. The difficulty of finding information could also be attributed to the situation where users, because they found the search engine difficult to use, were compelled to browse to find information that would under normal circumstances be more logical to search. Lastly, design aspects were generally satisfactory, but findings showed that attention would have to be given to developing a clear and simple interface.

3. AUDIT OF NATIONAL GOVERNMENT WEBSITES

The findings for the evaluation of *SA Government Online* indicated that respondents had a negative perception of the standard of government web publishing in general. There was a need for provincial and national government websites to have a more standardised approach towards content, navigation, design and options of finding information.

During February/March 2001 the author co-ordinated a national government website audit (South Africa, GCIS, 2001) with the objective of investigating the validity of above-mentioned perceptions. The audit made use of a shortened version of the criteria used for the evaluation of *SA Government Online*, and was conducted by means of the heuristic evaluation method. The purpose was not do a comprehensive evaluation of all deficiencies on all government websites, but to make a general assessment of their effectiveness in providing access to government information, to determine the general problems experienced with government websites, and to determine if these conformed to that found for the *SA Government Online* website. The audit was therefore not conducted in the same level of detail, but was a more overarching overview of the status of government websites.

It was clear from the findings that although the majority of South African government departments had started to embrace the Internet for information dissemination, government websites generally did not conform to the basic principles of good website design.

Inadequate and uneven information provision as well as lack of currency of websites contributed to insufficient access to government online information. Websites also varied significantly in the extent to which information was made available – there was a disparity with regard to the breadth as well as the depth of information. Furthermore, strong emphasis was placed on the presentation of departmental organisational structures and activities, in contrast to the presentation of projects and programmes and value-added features such as FAQs, site maps, indexes, interactivity features, etc. Some government departments had started to provide their services online, but they were still far from becoming true online service providers at the time of the audit.

Another important concern was the difficulty users experienced in finding information. Contributing factors to this included all aspects audited, from the unavailability and lack of currency of information, poorly planned information architecture and navigation schemes, to the design and layout of pages. The lack of consistent design and organisation of information across government websites contributed to the lack of coherence and unity in the national web system.

It was interesting to find that when the findings of the government website audit and that of *SA Government Online* were compared, the more overarching analysis of the audit returned similar results to that of the more detailed evaluation of *SA Government Online*. The author thus concludes that South African government websites in general would in all

probability have problems similar to those identified for *SA Government Online*. One may also conclude that using a comprehensive and well-thought out checklist of usability criteria developed particularly for government websites may identify many deficiencies and usability problems. However, the author wants to stress that this should always be complemented with other evaluation methods, the choice of which will depend on the specific purpose of the evaluation and the stage of the usability engineering life-cycle. The advice of Nielsen (1993:165), that testing real users is the best way to determine usability of a website should always be taken into account.

4. CHALLENGES FOR SOUTH AFRICAN GOVERNMENT WEB PUBLISHING

The research demonstrated that much still has to be done to have government websites that are professional, usable, effective and which are effectively sustained. It also demonstrated that the challenge to improve South African government web publishing falls into three broad groupings of activities, namely

- improving the content, architecture, navigation and design of websites developed by individual government institutions
- improving the quality and effectiveness of the *SA Government Online* website as a gateway or portal to online government information
- developing and implementing overarching mechanisms in government to ensure co-ordination and a uniform approach to government web publishing in South Africa.

4.1 Improving websites developed by individual government institutions

The findings of the government website audit demonstrated that there was a need for government websites to improve considerably with regard to the content, information architecture, navigation, search and the design thereof. The findings indicated that the main challenges for the improvement of South African government websites are the following:

- The research indicated that government websites did not optimally use the opportunity to disseminate comprehensive information to their audiences. Websites should become more comprehensive government information repositories, including at least the minimum content as suggested in chapter 10, as well as any other information emanating from government institutions. In addition, other typical elements of stage one of e-government – information publishing – such as providing information on services provided by government, contacts for further assistance, and electronic encyclopaedias to reduce the number of telephone calls to employees, should be readily available.

Government must become more responsive to the public's needs by providing as many as possible of its services online. Websites should also provide the public with the facility to transact with government.

- The improvement of the currency of government websites should be a priority. As government websites contain rapidly changing information, care should be taken so that the most current information is posted as soon as possible after it becomes available – the web should be made the first place to publish information, not the last. Outdated material should be removed, and government institutions should make better use of the opportunity to post government news and comments, and government's reaction to key issues relevant to the institution.
- Government sites should rely less on the posting of official documents and media statements and make optimal use of the web as medium. Existing documents should be re-written for the web and the writing style should be more informal and suited to the Internet. Long documents must be organised to be suitable for online reading.
- Most government websites should be improved to make content easier to find and to reflect the needs of the audience rather than the departmental structure. Furthermore, one of the major problems with regard to navigation, clicking through too many layers of the website before finding information, should be improved by making sub-categories more transparent to users.
- Technology should be exploited to ensure democratic outreach and to comply with the requirement of two-way communication between government and the public. The ability to communicate with appointed and elected officials may make the difference between passive information delivery and a site that provides dynamic interaction. Digital democracy in various forms should be extended and made more prominent on government websites, and forms should be available for this interaction.
- Government departments will have to manage their websites as they do any other strategic resource. According to the Canadian government's Internet guide (Canada, Treasury Board, 2000b) a dedicated and skilled team to create, maintain and operate the web initiative is critical to the success thereof. This team should carry the initiative from the planning stage to the implementation, evaluation and maintenance stages, and should draw on the expertise and enthusiasm of a broad cross-section of the institution's members. Ideally such a team will include a project manager, staff from

corporate communications, information management and information technology, content providers to write and approve material, and staff to maintain the newly published content.

- New and present web developers will have to attain the skills and expertise in the subject domain, HTML, XML and related web technologies, graphic design and usability.

4.2 Improving the quality and the effectiveness of the SA Government Online website as a gateway or portal to online government information

The goal of the *SA Government Online* website as official entry point to South African government information on the Internet should be to provide a wide range of government information in such a way that is easily accessible to users. Although the evaluation findings indicated that the website achieved this goal to a great extent and that it contained many positive features contributing to the overall accessibility of online government information, it also pointed to issues of concern, as certain aspects of the website returned markedly lower satisfaction levels or less positive results. The author believes that it should be an important priority to improve the aspects that rated less positively in order to meet the high expectations for the website and to match the aspects that rated positively.

The research demonstrated that government faces the following challenges in optimising the concept of one-stop delivery to include all the needs and interests of all potential audiences.

- The author stated in 2001 (Korsten, 2001:157) that the *SA Government Online* website was developed by the GCIS as an individual 'bottom-up' attempt when the department saw the opportunity for making government information available over the web. Government will have to review the way this project is being managed and co-ordinated to ensure that a 'top-to-bottom' approach is being followed and that there is optimal co-ordination between departments and government bodies to ensure that it is comprehensive and up to date.
- When all government information and services are online, the spectrum of information and services will be substantial. As the official entry gateway, *SA Government Online* should form an essential part of government's strategy for providing comprehensive access to all online information and services. This means that the website will have to

- be enlarged to provide access to government information and services not provided at the time of the research.
- At the time of the evaluation *SA Government Online* carried links to information on government websites as well as content itself. The latter caused duplication of information available on other sites. This resulted in inaccurate information, as it is difficult to keep track of all the changes made on government sites and then to replicate these on the *SA Government Online* site. Government should re-evaluate the role of the website with regard to linking and/or carrying information content itself. It is the view of the author that the prime strategy for the website should be to create easy access to all online government information, and that the website should carry the value-added content that is not the direct line-function responsibility of a specific government department.
- During the evaluation it became clear that the expectation for current material was not always met. The web developers will have to ensure that currency standards and expectations are continuously met. More frequent updates are important for attracting traffic to the website.

As suggested for all government websites in the previous paragraph, improved management practices should also be implemented for the daily maintenance and updating of *SA Government Online*. Criteria for the inclusion of new pages will have to be developed so that they meet quality and usability requirements. Furthermore, establishing the accuracy of all posted information requires that it be approved at multiple levels, but for timely content delivery the approval process should be short and easy to implement. To ensure that the website reflects up-to-date and accurate information, content providers must regularly make changes. Material must be displayed only when it is current, and must be removed when it becomes out of date. It is recommended that each page or related group of pages on the site have a content owner. This person or unit should have an ongoing responsibility for ensuring the currency and accuracy of the information on those pages and for testing changes and updates before they are implemented. There should also be an editorial board – to ensure that content is presented consistently on the website, that priorities for changing or adding content to the site are set, to identify useful links to new or changed content, and to ensure that policies and standards governing web use are consistently applied.

- The size of the website will make it difficult for all updates to flow through one or two people. It is thus recommended that an effective content management solution that properly addresses the requirements for this site's functionality, size and scope be acquired. According to McClusky-Moore (2000) the right solution can provide the scalability, flexibility, and interoperability necessary to meet future site requirements, save time and money and improve communication. In addition to timeliness, the content management solution should control cost and address the quality of content, consistency of site design usability, and interoperability with the developing organisation's other business systems.
- The search engine should offer users enhanced searching capabilities. It should provide for simple and advanced searches, for more options for constructing and redefining queries, for clustering of results, and for scoped searches on particular sections of the website, e.g. contact information. It should also be simpler and easy to use for both experienced and inexperienced users. In addition, the search mechanism should be extended to allow users to quickly search and access information on all government websites. Providing such a facility will allow users to find information they need regardless of which government institution produced it. Easy-to-follow instructions for conducting effective searches need to accompany this feature.
- While it is recommended that the search engine be improved, it will be as important to provide optimally for browsing behaviour. From observations of user behaviour it is clear that one cannot rely only on search as a mechanism to lead users to information. The redeveloped website should continue to allow for browsing, but should implement improved access methods. To optimally serve as a one-stop access point for all government information and services it should be re-organised to make it easier to find the information and services of all government institutions, even when the name of the department or government body is not known. In order for users to effectively deal with the large number of South African government institutions, the website also needs to be organised by function of the service. The website might for example follow an approach where common services are clustered together, and/or according to the government clusters. The author wants to re-iterate the sentiment of Atkinson & Ulevich (2000:18) that "a portal needs to be more than simply a mega-link to government websites. Rather, it needs to completely bypass agency stovepipe organization and be organized by information and type of interaction" (Atkinson & Ulevich, 2000:18). Furthermore, a user may want to locate the page of a specific agency or branch of government, but not know exactly what the agency is called. According to Lutkenhaus (2000) it is easier in

these cases to use an index, scrolling through the subsequent listing of sites, looking for the agency and branch of interest.

- The website should also include value-added features so that users may find overarching government information more easily. Among these features are FAQs and the syndication of data from various content owners to a central database or databases. An example of last mentioned is a searchable database of telephone and e-mail contact information for government officials in various departments that allow users to look up organisational contacts for a specific government service. Additional features may be considered to assist users to form a mental model of the website and to improve their understanding of the structure thereof, for example a site map, alphabetical index and other organisational and navigational tools. These will assist users to find information easily and quickly. In addition, the development of metadata in support of the integration of information should be implemented on the *SA Government Online* website.
- After implementation of the new website it will have to be continuously monitored to ensure that it conforms to standards and in order to improve it. According to the Canadian web guidelines (Canada, Treasury Board, 2002b), this step is a crucial part of creating, launching, and maintaining a successful site, since it “lets you see how well you have planned your initiative and presented information and services to your clients”. Continuous evaluation must also ensure that the website is in step with developments in information technology and with users’ IT resources, as well as with as many users as possible (Clausen, 1999:85).

User needs should be reviewed continuously and should be met. In line with the Canadian Internet guide (Canada, Treasury Board, 2002b), the author recommends periodic client surveys of the site to be used to assess users’ views on the accuracy, reliability, accessibility, ease-of-use, and content quality of the site and to get ideas for improvement. Monitoring Internet user and discussion groups pertinent to the institution’s business, as well as coverage of the institution’s website in print and electronic media is also recommended.

- A factor that marred positive perceptions of the website was inconsistency in various aspects of the website. The author is of the opinion that many aspects criticised in this regard were as a result of oversights by the web developers. It is therefore

recommended that the redevelopment of the site be done according to a pre-determined, standardised style.

- According to Carton (1998:22), the convergence of a rapidly growing, inexperienced audience and government interest, together with faster computers and new technologies, will result in the web a few years from now looking differently from what we have today. When redeveloping and improving the website, this will have to be kept in mind. The evaluation was done on the premise that the user population of the site consisted of people with at least some Internet exposure. However, in future the website will also have to provide for inexperienced users and users in rural areas, as it can be expected that they will form an important part of the website's user population for a considerable time to come.

It is important to remember that a website is a complex combination of various aspects and that the right relationship between different web design aspects will contribute to a successful and usable site for all relevant users. Providing quality content should be the ultimate objective of this website. It must always be kept in mind that the presentation might distract from the content when not done correctly, for example when aspects such as confusing navigation and information architecture are present on a site, or when excessive graphics make it difficult for users to pay attention to the content. There must be a positive correlation between the organisation and design of a website and the reliability of content. When considering proposals offered here and in chapter eight, it is important to bear in mind that they need not be implemented exactly as suggested. What is important is that a logical cohesion is achieved between the aspects that are implemented. According to Gordon (2000), the end solution often reflects a compromise between all site concerns. Management and strategic decisions about the purpose and audience of the website should determine the best approach with regard to the content, information architecture, navigation, search and aesthetic appeal.

SA Government Online should be one of the centerpieces of the South African government's e-government strategy. Eventually, the site should be, as Hosking (2000) requires for the *New Zealand Government Online* website, "the one people will want to go to if they want to interact with government, be it a policy document or to get a dog license".

4.3 Developing and implementing overarching mechanisms in government

Improving government websites requires more from government than just the application of technology and improving websites on an individual basis. Providing government information and services online is a challenge that faces not only individual government institutions and web developers, but also government as a whole. Government will have to develop an integrated approach to web development within the broader framework of its e-government initiatives and create an environment conducive to the development and implementation of quality websites. Initiatives in this regard may include the following:

- Policies and strategies for electronic information dissemination, for an integrated information technology infrastructure, for integrated information and technology management, and for improving access to new technologies – including access mechanisms and electronic service delivery channels – should be developed and implemented. In addition, policies and strategies will have to take a government-wide perspective on managing government information and will require adopting coherent and compatible information policies in support of better decision-making and better and co-ordinated service delivery.
- While it is important for each government website to reflect the character of its department, South African web publishing would benefit from a more standardised approach. There is a need for some level of consistency and conformity between South African government websites to assist users to find information. The author believes that many of the problems identified during the evaluation of *SA Government Online* and the audit of government websites could have been avoided if web developers had guidelines to assist them in planning and developing their sites.

Creating a common look and feel for an extended family of websites holds enormous challenges. To guide new and inexperienced web developers, and to ensure that government websites develop a feel of coherence and unity, criteria and guidelines for government web publishing should be made available to government web developers. This could be effected by compiling a comprehensive web guideline document which provides minimum standards and which guides web developers in all aspects of web development, from proper management of a website, through content development, planning an information architecture and navigation scheme, to the professional design of a website. A model for such a guideline document is presented in chapter ten.

Government should be in a position to enforce standards and requirements on government departments and bodies. However, to gain maximum benefit, the standards and requirements should be kept to a minimum and reflect key areas on which consensus has been reached. It is also vital that concept guidelines are consulted and negotiated amongst the broad spectrum of role-players involved in government web publishing, especially in areas where guidelines and standards are specified. This will contribute to them taking ownership of the final guidelines, making implementation thereof less problematic. In addition, government websites should be evaluated or audited against these standards and guidelines on a continuous basis. The e-government office should appoint institutions responsible for this.

- It is important for a government to have an effective identification system for information assets. An important initiative should be the development of a metadata framework for South African government websites. The Dublin Core standard is the leading international standard for online resource recovery (Australia, National Archives, 2000), and might be applied in a resource discovery framework (RDF). Among the key benefits of using a systematic way of assigning and structuring metadata are that it enables search engines to find relevant documents, it provides identifying information, and it provides a list of what information government holds. It also contributes to consistency and interoperability (Canada, Treasury Board, 2002b).

Government institutions may also consider metadata tagging offline resources, which will then be available for searches. In this way all the services and information of that institution can be identified and discovered in the online environment.

- Government should identify a candidate set of government services for electronic delivery by identifying commonly requested government services and prioritising those to be implemented first. Thereafter the rest of the services can be implemented online. Government should also ensure that planning and implementation of public service delivery mechanisms (Batho Pele) (South Africa, DPSA, 1997) take cognisance of developments in information and web technologies, so that online service delivery may optimally serve the public. As and when new and improved services are developed, they should immediately be reflected as part of electronic service delivery activities.
- To optimally provide e-services in a secure and safe environment and to optimally establish user confidence, government needs to address the aspects of privacy, security and authenticity of its web servers.

- A skills audit should be conducted within government institutions to determine the capacity and skills needed for web development. Overarching mechanisms should then be put in place for web developers and other staff to be trained, and/or to acquire professional organisations to outsource these functions to. Guidelines should be developed with regard to the human resources and skills needed for web development, and on how to brief and manage a consultant.
- The value and importance of professional and effective websites for the dissemination of government information and services should not only be conveyed to government communicators and web developers, but also to senior managers in all government institutions, so that they can ensure that websites are managed properly and that adequate human and other resources are allocated.
- Government web publishing could benefit from the implementation of a web committee under the auspices of the e-government office. Such a body could constitute an official channel of co-ordination and communication and also act as initiating and monitoring body for web norms and standards within government. Other issues that could be co-ordinated by such a body include capacity building and training, regular 'user-group' meetings and the management of one or more discussion groups where government web developers can discuss issues of mutual interest.
- The extent to which government websites truly meet public needs is also controlled by the extent to which the public has access. Citizens and businesses in rural municipalities, for example, are still finding Internet access beyond their budget and, in some cases, expertise. Universal access to government websites is a necessary requirement towards ensuring equity of access to online government information and services. To optimally provide online information and services to all potential audiences, and to ensure that everyone will benefit from government websites, government will have to build on initiatives already being taken in the telecommunications field to promote universal access. If approached carefully and strategically, it can be part of identifying and driving fundamental changes that could improve citizen's experiences of government and can contribute towards an improvement in their general well-being (Korsten, 2001:206).

The author believes that the implementation of above-mentioned initiatives will ensure consistency, cost-effectiveness, interoperability and transparency within government, will

lead to improved accessibility of online government information, and will help ensure that online government information and services are provided at a consistently high standard, thereby contributing to users developing confidence in government's web publishing effort.

5. SUGGESTIONS FOR FURTHER RESEARCH

To utilise the full potential of e-government, the South African government should take full advantage of Internet and web technology for online information dissemination and service delivery. The following research can be considered to support government in reaching this goal:

- Information dissemination requires knowledge of users, potential users and stakeholders. Research should be conducted to gain insight into the needs of citizens and other audiences with regard to information and services, also by means of the web, and about the common needs of certain kinds of users. Research needs to be conducted not only amongst the audience that was relevant for this research (see chapter one, paragraph 3.2), but also amongst potential and future audiences, i.e. the broader spectrum of the South African population – including inexperienced Internet users and illiterate people without direct Internet access and who may use MPCCs or intermediaries to access the Internet.
- Research about the level of support for online service delivery is necessary. Studies that identify specific benefits resulting from web-based services and that produce metrics that can measure those benefits should be conducted.
- Government should initiate a government-wide skills audit to determine the level of web development skills and training in government. This can be used for planning a government-wide initiative to ensure that government institutions acquire or make use of professional and knowledgeable project managers and web developers.
- Individual government websites should be evaluated continuously in order to improve them in step with user needs and the development of new information technologies. On-going government-wide assessment of government websites should thus be conducted to determine their strengths and weaknesses and to recommend improvements so that these sites can better meet user needs.

- On-going research about good website principles and new web technologies should be conducted. The continuous evaluation and study of the websites of leading e-government countries will have to form part of this research. The government web guideline document should be adapted accordingly to ensure that it reflects the latest developments, and the e-government office or web forum should communicate these to all government web developers.
- Research is necessary to determine the optimal use and application of technologies for the dynamic updating and management of websites built on the fly from data in databases. In addition, the use of XML and related technologies should be researched to determine the optimal use and application thereof for government websites.
- Research should be done on metadata applicable for government websites, with the purpose to develop a customised metadata scheme for South African government websites.
- Methodologies to evaluate websites should be studied continuously to ensure that government web assessments are done by means of the most professional and workable methodologies. Further research may also be done with regard to the best methodology for each phase of the web usability engineering lifecycle and with regard to the combination of methodologies that will provide the best results.

6. CONCLUSION

Government information is an important resource that should be managed strategically – government has an obligation to make information available easily, widely and equitably, increasingly also in electronic format. The South African government has committed itself to a vision for e-government, and government web publishing is a key area that must conform to e-government principles. Government websites should be utilised as a tool to disseminate information and services, to communicate policies and programmes to a wide range of audiences, and should be a public relations tool to reach citizens, the media, and foreigners, including tourists and investors.

The research clearly indicated that South African government websites did not optimally fulfil above-mentioned purpose at the time of the research, and that they should be improved to address the needs of a wider audience, to communicate government news, policies, projects, programmes and events, and to provide a tool for interaction between

government and the citizen. Government websites should convey a more consistent and unified message, thematic feel and structure, and government image and branding. Furthermore, the *SA Government Online* website should ensure a user-friendly entry point that promotes virtual access to all online government information clustered according to the needs of the audience, regardless of the institution. This requires that the South African government develop an overarching Internet strategy and policy to ensure that it meets the requirements for e-government and for professional, usable and effective websites.

Formal policies in relation to web publishing did not exist at the time this research was conducted. The author, however, believes that this research may contribute to government websites conforming to broad government communication strategies, to the development of such policies, and to the improvement of government information dissemination. The selected criteria may have universal applicability for government and other websites, and may be used as a consistent standard for developing and measuring websites. The criteria also provide a foundation for further development of criteria to assess South African government websites.

The author also believes that this research provides a platform for the development of website norms, standards and guidelines for the South African government. The model developed by the author may be used for further consultation between government role-players, and eventually develop into a comprehensive set of norms and standards for government web publishing in South Africa. The ultimate aim is to provide government web developers with good web development practices, to ensure that government develop a corporate image and branding for all its websites, and to ensure that government websites are consistent, effective, accessible and usable. The research described in this study thus has the potential to maximise the public benefits to be derived from using the web as a government information channel.

EVALUATION OF SA GOVERNMENT ONLINE

A. NOTES TO THE EVALUATOR

The SA Government Online web site is available at the URL: <http://www.gov.za>

1. Aim of evaluation

The evaluation forms part of a comprehensive evaluation of the SA Government Online web site, which is being done to serve as a framework for improving and responding to internet users. The evaluation aims to provide answers to the following questions:

Does the information content on the web site **ANNEXURE A**

• "Full" level of (i) structured information

EVALUATION GUIDE FOR EXPERT EVALUATORS

• "Full" level of (ii) dynamic (updating) information

Does the web site reflect what they need to?

• Do other internet users find the web site easy to use and usable?

• Does the web site support both browsing and searching navigation of the site, both in the "present" and in the "future"?

The objective is to get answers on whether users can find the information they require from the web site and whether they can find what they need to. The evaluation will also assess the user experience and whether the user interface is being experienced with the site. The user interface is not regarded as the level usability (from page information architecture to whether users can find, process, understand and use the information they require).

2. Aim of the SA Government Online web site

At the launch of the web site, Quthobu Mouton, Chief Deputy President of SAU indicated that the web site would ensure that government would be accessible to the people and that it would be a "virtual democratic open-door policy of government. The introduction of the web site was a first step towards developing a comprehensive government home page, government has created a mechanism through which the information from government departments, provinces and other government bodies is accessible through a one-stop gateway. The site enables users to get a comprehensive picture of information available on government web sites and to quickly navigate the vast information that is available in government".

3. How to do the evaluation

1. This web site aims to be a portal to SA government information. In addition to content on the server itself, it also links to information on other government servers. The evaluation should be done only for information and data contained on the gov.za server, and not for information on other government web sites. However, any to which information on these web sites can be accessed from the gov.za web site is applicable (e.g. age of content, requirements for a portal site for SA government information).

2. The evaluation should be done according to the attached semi-structured evaluation guide. Please evaluate the web site according to the categories presented in the attached guide.

EVALUATION OF SA GOVERNMENT ONLINE

A. NOTES TO THE EVALUATOR

The SA Government Online web site is available at the URL: <http://www.gov.za/>

1. Aim of evaluation

This evaluation forms part of a comprehensive evaluation of the SA Government Online web site, which is being done to serve as a framework for improving and redesigning it. Amongst others, the evaluation aims to provide answers to the following questions:

Does the information content on the web site

- fulfil users' needs for government information;
- comply with government's obligation and policy towards information provision?
- comply with web site criteria regarding information coverage?

Do users find the information they require?

- To which extent does the web site comply with usability criteria?
- Does the web site support both browsing and searching behaviour of users, and if so, to what extent?

The objective is to get answers on whether users can find the information they require, how they use the web site and tackle everyday tasks, which aspects of the interface work well and which not, and what problems and difficulties are being experienced with the interface. Usability will be assessed with regard to site level usability (home page, information architecture, navigation, search, linking strategy, design and overall writing style).

2. Aim of the SA Government Online web site

At the launch of the web site, Thabo Mbeki (then Deputy President of SA) remarked that the web site would ensure that government would be accessible to the people and that it would form part of the democratic open-door policy of government. The introduction of the web site states that "by developing a comprehensive government home page, government has created a mechanism by which the information from government departments, provinces and other government bodies is accessible through a one-stop gateway. This will enable users to get a comprehensive overview of information available on government web sites and to quickly navigate the vast information resources available in government".

3. How to do the evaluation

- i. This web site aims to be a **portal** to SA government information. In addition to content carried on the server itself, it also links to information on other government servers. **The evaluation should be done only for information and links contained on the gov.za server**, and not for information on other government web sites. However, the way in which information on these web sites can be reached from the government site is applicable (i.e. how it complies to requirements for a portal site for SA government information).
- ii. The evaluation should be done according to the attached **semi-structured evaluation guide**. Please evaluate the web site according to the categories presented in the evaluation guide,

and also consider any additional usability principles that come to mind - the criteria provided within each category are intended as a guideline to ensure a common understanding thereof. You should not limit yourself to cover these criteria only.

Please describe the **potential problems you envisage** inexperienced and less experienced users may encounter while using the web site. **Comments and suggestions** on how to improve usability errors will also be appreciated.

- iii. If necessary, the experimenter will discuss the completed evaluation with you after you completed the evaluation guide, to ensure that she properly understands the responses.

We appreciate your time and contribution!

For further information, please contact Hilda Korsten at:
 Tel: 083 4562087 or
 E-mail: hilda@gcis.pwv.gov.za

B. EVALUATION GUIDE FOR SA GOVERNMENT ONLINE

EVALUATOR INFORMATION:

Name: _____

E-mail: _____

Institution: _____

Designation/Field of work: _____

Years experience in web site design and/or evaluation: _____

EVALUATION OF WEB SITE

The SA Government Online web site is available at the URL: <http://www.gov.za/>

Note: Criteria provided within each category are intended as a guideline to ensure a common understanding thereof. Please do not limit yourself to cover these criteria only. Comments and suggestions on how to improve usability errors will also be appreciated.

1. CONTENT

This issue refers to the information content carried on the web site and the choice of sites linked to.

1.1 Orientation to web site

(e.g. statement on scope, target group and/or purpose of web site; statements/descriptions at specific sections of the web site; copyright and disclaimer if applicable; etc.)

1.2 Authority

(e.g. is it clear who is responsible for the web site and that it is the official government site of SA? Is information about the responsible organisation readily available? Indication of authors of documents where applicable; indication of the origin of sources/documents where applicable (e.g. bibliographies); reliability of information; reference to documents being available in other formats; choice of URL; etc.)

1.3 Scope of information/comprehensiveness of web site

(e.g. availability of all the information one expects to find on the web site: breadth and depth of information covered; substantiveness of information; appropriateness of links made to sources on other web sites; etc.)

1.4 Currency

(e.g. frequency of updating; availability of the most current information, (i.e. is the material included in the updates the most current information available?); indication of when the web site was created, last updated and of update frequency; validity of older information i.e. is there outdated information or information that has a limited period of use?); dead links; etc.)

1.5 Objectivity

(e.g. biases; balanced content; etc.)

	▲
	▼

1.6 Writing and editorial style

(e.g. general writing style and literary composition; quality of grammar, spelling and typing; concise writing style; page length; prominence of important information; handling of microcontent (i.e. headings and page titles); etc.)

	▲
	▼

1.7 Any other comments on the content of the web site

	▲
	▼

2. INFORMATION ARCHITECTURE/ORGANISATIONAL STRUCTURE

This issue refers to the information architecture of the web site itself as well as how it leads the user to other SA government information on the Internet.

2.1 The web site as a portal/gateway/entry point to SA government information on the Internet

(e.g. does the web site enable users to get an overview of information available on government web sites? Does the web site make information on government web sites easily accessible and enable users to easily navigate information available in government (irrespective on which server or web site it is located)?)

	▲
	▼

2.2 Organisational structure

(e.g. the home page as a conceptual space leading to information on the web site; organisational

scheme and hierarchies; layer depth; chunking of information (is information broken down into logical and digestible parts?); etc.)

2.3 Any other comments on the information architecture of the web site

3. NAVIGATION AND SEARCH

3.1 Site navigation

(e.g. is it easy is to navigate and browse the web site; choice and purpose of links; grouping, visibility and labelling of links; consistency in navigation options; additional navigational aids or organisational methods; single document options for printing or downloading; sense of context or understanding of position within the web site at any given time; etc.)

3.2 Search mechanism

(e.g. ease of use; flexibility of retrieval/search options; effectiveness of information retrieval - precision and recall; relevance ranking and weighting; control/manipulation of results; sorting; refinement of searches; etc.)

3.3 Any other comments on the navigability and/or search mechanism of the web site

4 DESIGN AND LAYOUT

4.1 General impression

(e.g. originality and creativity in the visual design and layout; is the design and layout visually pleasing; general look and feel; does the design and style enhance information delivery and aid navigation; etc.)

4.2 Design and layout

(e.g. balance; stylistic unity and consistency; grouping of information on screens; simplicity/complexity of design; graphical distractions; use of tables; use of frames; etc.)

4.3 Text readability and visibility

(e.g. fonts; case; justification and spacing; emphasis; colours and backgrounds; textures; etc.)

4.4 Graphics, images and animation

(e.g. contribution to clarity and usability of information; large graphics; distracting animation; alternate ways of presenting pages; etc.)

GENERAL ASSESSMENT AND REMARKS

5.1 Overall rating

Very good Good Neither good nor poor Poor Very Poor

4.5 Interaction/use of forms

4.6 Any other comments on the design/layout/presentation of information/aesthetic aspects of the web site

THANK YOU VERY MUCH FOR YOUR PARTICIPATION

5. MISCELLANEOUS

5.1 Purpose and audience

(e.g. does the web site fit the purpose thereof; is the web site appropriate for its intended audience; does it have a understanding of the user's needs; etc.)

5.2 Any other aspects not covered in the guideline that you want to comment on

6. GENERAL ASSESSMENT AND REMARKS

6.1 Overall rating

Very good Good Neither good nor poor Poor Very Poor

6.2 General comments

THANK YOU VERY MUCH FOR YOUR PARTICIPATION!

ANNEXURE B: USER TEST

EVALUATION OF GOVERNMENT ONLINE

NOTES TO THE USER

This evaluation forms part of a comprehensive evaluation of the SA Government Online website. Your contribution will help us to improve the website and therefore the information delivery by government.

You will be requested to find specific information on the website as per the test questions. While looking for the required information, we will appreciate it if you could note the what you are doing and why.

Please note! You are not looking for the right or wrong answers right or wrong. There is also no right or wrong way to look for the required information. It is only really how you use the site to find the desired information, with the aim of making it as easy as possible for others.

ANNEXURE B
USER TEST QUESTIONNAIRE

After using the website, you will be asked to complete a short questionnaire to help us evaluate the website.

USE THE SA GOVERNMENT ONLINE WEBSITE TO FIND THE FOLLOWING INFORMATION

The website can be found at <http://www.gov.za>

Question 1

- (a) Please give your impression of the website
- (b) Find a specific speech that will be provided, you will period on the website.

Question 2

Who is the President of South Africa? And Deputy President?

Question 3

- (a) Find the Act relating to nuclear energy (Act No. 45 of 1999) and insert
- (b) Name government documents and reports which cover transport issues from 1997 – 2000.

Question 4

- (a) Find all the made statements made by Minister Asrial.
- (b) Find the oldest speech on the site made by Minister Asrial.

ANNEXURE B: USER TEST

EVALUATION OF GOVERNMENT ONLINE

NOTES TO THE USER

This evaluation forms part of a comprehensive evaluation of the SA Government Online website. Your contribution will help us to improve the website and thereby also information delivery by government.

You will be requested to find specific information on the website or perform a specific task. While looking for the required information, we will appreciate it if you could describe what you are doing and why.

Please note! We are not testing whether you get the answers right or wrong. There is also no right or wrong way to look for the required information! We are only looking how people use the site to find the desired information, with the aim of making it as easy as possible in future.

After using the website, you will be asked to complete a short questionnaire to tell us what you think of the website.

USE THE SA GOVERNMENT ONLINE WEBSITE TO FIND THE FOLLOWING INFORMATION

The website can be found at <http://www.gov.za>.

Question 1

- (a) Please give your impression of the home page.
- (b) Find a specific speech (title will be provided) that was posted on the website today.

Question 2

Who is the President of South Africa? And Deputy President?

Question 3

- (a) Find the Act relating to nuclear energy (Act No. 46 of 1999) and open it.
- (b) Name government documents and reports which cover transport issues from 1997 – 2000.

Question 4

- (a) Find all the media statements made by Minister Asmal.
- (b) Find the oldest speech on this site made by Minister Asmal.

Question 5

What is South Africa's national animal?

Question 6

- (a) Who is South Africa's Minister of Foreign Affairs?
- (b) What would you expect to find when selecting 'Portfolio List'?

Question 7

- (a) Find the profile of President Mbeki.
- (b) What is Mankahlana's position in the Presidency?

Question 8

- (a) When is Youth Day celebrated in South Africa?
- (b) What do you think you will find when you select 'Back to index'?

Question 9

- (a) Find the website of the South African Parliament.
- (b) And that of the Commission for Gender Equality.
- (c) And that of a government department with demographical statistics on South Africa.
- (d) You need information about the departments of the Western Cape Provincial Government. Find a website with this information.

Question 10

How is the media regulated in South Africa?

Question 11

You need the addresses and telephone numbers of all deputy ministers, ministers, provincial premiers, as well as South African representatives in foreign countries.

Question 12

Find the profiles of all ministers, deputy ministers and provincial premiers (you need the information as quickly as possible).

Question 13

- (a) Where on the website will you look for the Government Gazette?
- (b) Where on the website will you expect to find a listing of government services to the public?

Question 14

You want to know which posts are available in the Public Service.

Question 15

- (a) Find the act relating to nuclear energy (Act No. 46 of 1999). Please make use of the search mechanism.
- (b) Find all the media statements made by Minister Asmal. Please make use of the search mechanism.
- (c) Find media statements made by Minister Asmal as from 1 May 2000 and sort it from old to new.
- (d) Find all information on the site concerning health issues.

Question 16

Where on the website do you expect to find the Constitution of South Africa?

Please complete the online questionnaire

Please give feedback on what you think about the site

THANK YOU VERY MUCH FOR YOUR PARTICIPATION!

GOVERNMENT ONLINE WEB SITE SURVEY

We appreciate your participation in this brief survey. The questionnaire should not take more than 10 minutes to complete. Your comments will help us to improve our online services in the future.

A summary of the results of the survey will be published on the web site.

ANNEXURE C

ONLINE QUESTIONNAIRE

1. USE OF WEB SITE

1.1 How often do you visit the Government website?

- Daily
- Weekly
- 1-2 times a month
- Four
- Very poor
- Uncertain/don't know

2.1 Please indicate your satisfaction with the coverage of information on the web site in the range of categories, covering as far as possible within the individual categories.

- Very satisfied
- Satisfied
- Neither satisfied nor dissatisfied
- Dissatisfied
- Very dissatisfied
- Uncertain/don't know

GOVERNMENT ONLINE WEB SITE SURVEY

We appreciate your participation in this brief survey. The questionnaire should not take more than 10 minutes to complete. Your comments will help us to improve our site and our service to users.

A summary of the results of this survey will be published on the web site.

Please complete the questionnaire only after using the web site. If you have not yet used the site, please return to the home page by using your browser's BACK function.

To complete the questionnaire, please select one of the responses provided or type in your response. Use the mouse or TAB key to move between the fields (**do not use the Enter key**). After completing the questionnaire, please click on the SUBMIT button at the bottom of this page to submit your response.

Fields marked with an asterisk (*) are required.

A. USE OF WEB SITE

1. What is your **overall rating** of the Government Online web site? (*)

- Very good
- Good
- Neither good nor poor
- Poor
- Very poor
- Uncertain/don't know

2.1 Please indicate your satisfaction/dissatisfaction with the **coverage of information** on the web site (i.e. the range of categories, coverage of information within the individual categories) (*)

- Very satisfied
- Satisfied
- Neither satisfied nor dissatisfied
- Dissatisfied
- Very dissatisfied
- Uncertain/don't know

2.2 Is there any additional information that you would like on the web site?

3.1 Please indicate your satisfaction/dissatisfaction with the **currency** of the web site (i.e. is it updated frequently enough; availability of the most current information) (*)

- Very satisfied
- Satisfied
- Neither satisfied nor dissatisfied
- Dissatisfied
- Very dissatisfied
- Uncertain/don't know

3.2 Please motivate your answer

4. Please indicate your satisfaction/dissatisfaction with the **accuracy of information** on this web site (*)

- Very satisfied
 - Satisfied
 - Neither satisfied nor dissatisfied
 - Dissatisfied
 - Very dissatisfied
 - Uncertain/don't know
-

5.1 Please indicate your satisfaction/dissatisfaction with the **home page** (*)

- Very satisfied
- Satisfied
- Neither satisfied nor dissatisfied

- Dissatisfied
- Very dissatisfied
- Uncertain/don't know

5.2 Please provide suggestions on how to improve the home page

6.1 Please rate the **organisation of information** on this web site (*)

- Very good
- Good
- Neither good nor poor
- Poor
- Very poor
- Uncertain/don't know

6.2 Please motivate your answer

7.1 Please indicate whether you find it easy/difficult to **find information** on this web site (*)

- Very easy
- Easy
- Neither easy nor difficult
- Difficult
- Very difficult
- Uncertain/don't know

7.2 Please motivate your answer

▲

▼

8.1 Please indicate how easy/difficult you find it to **navigate** this web site (i.e. to move from page to page, link to link, item to item without getting lost or confused) (*)

- Very easy
- Easy
- Neither easy nor difficult
- Difficult
- Very difficult
- Uncertain/don't know

8.2 Please motivate your answer

▲

▼

9.1 Which of the following **methods** do you use on this web site to **find the information** you need? (more than one answer possible)

- Browse through menu structure
 - Search page
 - Events section
 - What's New section
 - Bookmarked specific pages
 - Other (please specify) _____
-

10.1 Please indicate how easy/difficult you find it to **use the search mechanism** (*)

- Very easy
- Easy
- Neither easy nor difficult
- Difficult

- Very difficult
- Uncertain/don't know

10.2 Please motivate your answer

11.1 Please rate the **effectiveness of the search mechanism** (i.e. do you get the information want?) (*)

- Very effective
- Effective
- Neither effective nor ineffective
- Ineffective
- Very ineffective
- Uncertain/don't know

11.2 Please motivate your answer

12.1 Please rate the **visual aspects/look and feel/graphical layout** of this web site (fonts; caps; colours; icons; use of graphics; backgrounds and textures; consistent design; logo)? (*)

- Very good
- Good
- Neither good nor poor
- Poor
- Very poor
- Uncertain/don't know

12.2 Please motivate your answer

4 times a month
 5 - 6 times a month
 more than 6 times a month

13. Do you have **any further suggestions** on how this web site can be improved?

B. DEMOGRAPHIC INFORMATION

14. In which age group do you fall? (*)

- 18 or younger
 19 - 24 years
 25 - 34 years
 35 - 49 years
 50 - 64 years
 65 years or more

15. Please indicate your main field of work (Please select one) (*)

Government/Parastatal

If other please specify:

16. From which country are you? (*)

- South Africa
 Other (Please specify)

17. How often do you use this web site? (*)

- I am a first time visitor

- Less than once a month
 - 1 - 4 times a month
 - 5 - 8 times a month
 - More than 8 times a month
-

18. How did you find out about this site? (*)

- Links from another site
 - Search engine (e.g. Yahoo, Alta Vista etc.)
 - Word of mouth (friend, colleague)
 - Newspaper, magazine
 - Other (please specify) _____
-

Thank you for your participation!

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ANNEXURE D

GOVERNMENT WEBSITES AUDITED

- Department of Agriculture
- Department of Arts, Culture, Science and Technology
- Department of Communications
- Department of Constitutional Services
- Department of Defence
- Department of Education
- Department of Environmental Affairs
- Department of Health
- Department of Home Affairs
- Department of Justice and Constitutional Development
- Department of Labour
- Department of Land and Agricultural Development
- Department of Minerals and Energy
- Department of National Defence
- Department of Public Works
- Department of Rural and Human Settlements Development
- Department of Social Development
- Department of Transport
- Department of Water Affairs and Forestry

ANNEXURE D

GOVERNMENT WEBSITES AUDITED

ANNEXURE D

GOVERNMENT WEBSITES AUDITED

- Department of Agriculture
- Department of Arts, Culture, Science and Technology
- Department of Communications
- Department of Correctional Services
- Department of Defence
- Department of Education
- Department of Environmental Affairs and Tourism
- Government Communication and Information System
- Department of Housing
- Independent Complaints Directorate
- Department of Justice and Constitutional Development
- Department of Labour
- Department of Land Affairs
- Department of Minerals and Energy
- National Treasury
- Department of Provincial and Local Government
- Department of Public Enterprises
- Department of Public Service and Administration
- Department of Public Works
- SA Police Service
- SA Revenue Service
- Department of Social Development
- Statistics South Africa
- Department of Trade and Industry
- Department of Transport
- Department of Water Affairs and Forestry

LIST OF SOURCES CONSULTED

- Africa Policy Information Center. 1996. *Africa on the Internet – starting points for policy information*. [Online]. Available: <http://www.igc.apc.org/apic/bp/inet.html> [Cited 2 February 2000].
- Alexander, M. J. & Tate, M. A. 1997. *Teaching critical evaluation skills for world wide web resources*. [Online]. Available: <http://www2.widener.edu/Wolfgram-Memorial-webeval.htm> [Cited 26 March 2000].
- Alschuler, L. 1998. *Making your web site accessible*. [Online]. Available: <http://www.zdnet.com/devhead/stories/articles/0,4413,1600180,00.html> [Cited 26 March 2000].
- Amoako, K. Y. 1997. African Statistics Day, 18 November 1996, and African Development Day, 19 November 1996. *Meta-info Bulletin*, 6(1):17-20.
- Atkinson, R. D. & Ulevich, J. 2000. *Digital government. The next step to reengineering the federal government*. Report by the Progressive Policy Institute Technology & New Economy Project. Washington, March 2000.
- Australia. DCITA (Department of Communications, Information Technology and the Arts). 2001. *Online information service obligations*. [Online]. Available: <http://www.dcita.gov.au/infoaccess/oiso> [Cited 24 April 2002].
- Australia. DFA (Department of Finance and Administration). 2000. *Guidelines for Commonwealth information published in electronic formats*. [Online]. Available: http://www.dcita.gov.au/infoaccess/electronic_formats.html [Cited 5 August 2000].
- Australia. National Archives. 2000. *Australian government locator service user manual*. [Online]. Available: <http://www.govonline.gov.au/projects/standards/agls.htm> [Cited 7 May 2002].
- Australia. NOIE (The National Office for the Information Economy). 1999. *A strategic framework for the information economy. Identifying priorities for action*. [Online]. Available: http://www.noie.gov.au/projects/information_economy/strategic_framework/dec98_strategy.htm [Cited 20 February 2001].

Australia. NOIE (The National Office for the Information Economy). 2000. *Better practice in online service delivery*. [Online]. Available:
http://www.govonline.gov.au/projects/strategy/better_practice/index.htm [Cited 24 May 2002].

Australia. NOIE (The National Office for the Information Economy). 2001. *Guide to minimum website standards*. [Online]. Available:
http://www.govonline.gov.au/projects/strategy/The_Guide_to_Minimum_Web_Site_Standards/index.htm [Cited 7 May 2002].

Beachboard, J. C., McClure, C. R. & Bertot, J. C. 1997. A critique of federal telecommunications policy initiative relating to universal service and open access to the national information infrastructure. *Government Information Quarterly*, 14(1):11-26.

Beck, S. 1997. *Evaluation criteria. The good, the bad & the ugly: or, why it's a good idea to evaluate web sources*. [Online]. Available:
<http://lib.nmsu.edu/staff/susabeck/evalcrit.html> [Cited 26 March 2000].

Berinstein, P. 1995. Government information online: the founding fathers get wired. *NFAIS Newsletter*, 37(8):85-86.

Bevan, N. 1995. *Human-computer interaction standards*. In: Proceedings of the 6th International Conference on Human Computer Interaction, Yokohama, July 1995. Anzai & Ogawa (eds), Elsevier.

Bevan, N. 1998. *Usability issues in web site design*. Proceedings of UPA '98, Washington DC, 22-26 June 1998. [Online]. Available:
<http://www.npl.co.uk/npl/sections/us> [Cited 7 June 2000].

Bevan, N. 2000. *Getting started with user centred design*. [Online]. Available:
<http://www.usability.serco.com/trump/ucdstart/index.html> [Cited 8 July 2000].

Bevan, N., Kirakowski, J. & Maissel, J. 1991. *What is usability?* In: Proceedings of the 4th International Conference on HCI, Stuttgart, September 1991.

Blount, S. n.d. *The problem with portals*. [Online]. Available:
http://www.ebizquadrant.com/e_commerceblount_1.html [Cited 7 September 2000].

- Bouwman, H. & Nouwens, J. 1999. Governments as electronic publishers? The Dutch case. *Government Information Quarterly*, 16(1):29-45.
- Brandt, D. S. 1996. *Evaluating information on the Internet*. [Online]. Available: <http://thorplus.lib.purdue.edu/~techman/evaluate.htm> [Cited 26 March 2000].
- Brooks, K. 1998. New marketing in a new world. *Marketplace*, 27 July, 1998:31.
- Caldow, J. 1999. *The quest for electronic government: a defining vision*. Institute for Electronic Government, IBM Corporation.
- Canada. 1997. *Information Highway Advisory Council Report. Preparing Canada for a digital world*. [Online]. Available: <http://strategis.ic.ca/SSG/ih01650e.html> [Cited 23 November 2000].
- Canada. CIO (Information Office). 2000. *Qualitative pre-test of the Canada Information Office web site*. [Online]. Available: http://www.cio-bic.gc.ca/report/pretest/pretest_e.html [Cited 31 October 2000].
- Canada. Treasury Board. 2002a. *Common look and feel for the Internet*. [Online]. Available: http://www.cio-dpi.gc.ca/clf-upe/index_asp [Cited 2 April 2002].
- Canada. Treasury Board. 2002b. *Government of Canada Internet guide*. [Online]. Available: http://www.cio-dpi.gc.ca/ig-gi/index_e.asp [Cited 2 April 2002].
- Carton, S. 1998. Make sure your information is valuable. *Marketplace*, 19 October, 1998:22.
- Caywood, C. 1999. *Library selection criteria for WWW resources*. [Online]. Available: <http://www6.pilot.infi.net/~carolyn/criteria.html> [Cited 6 March 2000].
- Chowdhury, G. G. 1999. The Internet and information retrieval research: a brief review. *Journal of Documentation*, 55(2):209-225.
- Christian, E. J. 1994. Helping the public find information. The U.S. Government locator service. *Journal of Government Information*, 21(4):305-314.

- Ciolek, T. M. 1996. *The six quests for the electronic grail: current approaches to information quality in WWW resources*. [Online]. Available: <http://www.ciolek.com.PAPERS/QUEST/Quest6.html> [Cited 6 March 2000].
- Clausen, H. 1999. Evaluation of library web sites: the Danish case. *The Electronic Library*, 17(2):83-87.
- Clyde, L. A. 1996. The library as information provider: the home page. *The Electronic Library*, 14(6):549-558.
- Comtask. 1996. *Communications 2000. A vision for government communications in South Africa*. Final report. Pretoria, October 1996.
- Cooper, T. 1998. Review of U.S. Department of Commerce web site. *Government Information Quarterly*, 15(1):144-147.
- Copping, P. & Lewis, P. 1999. *CITU portal feasibility study, 29 June 1999*. [Online]. Available: <http://www.iagchampions.gov.uk/portals/portals.htm> [Cited 7 September 2000].
- Crabtree, S. 2000a. *The challenges of online surveys. Everything old is new again*. [Online]. Available: <http://www.gallup.com/poll/managing/mr000724.asp> [Cited 26 July 2000].
- Crabtree, S. 2000b. *Untangling the web*. [Online]. Available: <http://www.gallup.com/Poll/Managing/mr000717.asp> [Cited 26 July 2000].
- Cullen, R. & Houghton, C. 2000. Democracy online: an assessment of New Zealand government web sites. *Government Information Quarterly*, 17(3):243-267.
- Curry, J. 1997. Finding local government information on the web. *Government Information in Canada*, 4(1). [Online]. Available: <http://www.usask.ca/library/gic/v4n1/curry.html> [Cited 1 February 1998].
- Descy, D. E. 1999. *Evaluating Internet based information*. [Online]. Available: <http://www.lme.mankato.msus.edu/class/629/cred.html> [Cited 6 March 2000].
- Edelman, D. 1999. Review of Gov.search, U.S. National Technical Information Service and Northern Light Technology LLC. *Government Information Quarterly*, 16(4):377-378.

- Eschenfelder, K. R., Beachboard, J. C., McClure, C. R. & Wyman, S. K. 1997. Assessing federal government websites. *Government Information Quarterly*, 14(2):173-189.
- Farrel, M. 1998. Review of U.S. Department of Agriculture web site. *Government Information Quarterly*, 15(1):143-144.
- Farrel, M. P., Davis, R., Dosset, R. & Baldwin, G. 1996. Electronic initiatives of the federal depository library program. *Journal of Government Information*, 23(4):393-401.
- Firestone, J. M. 1999. *White Paper No. Thirteen. Defining the enterprise information portal*. [Online]. Available: <http://www.dkms.com/EIPDEF.html> [Cited 7 September 2000].
- Fleming, J. 1998. *Designing for users*. [Online]. Available: <http://webreview.com/pub/web98east/21/webnav3.html> [Cited 4 April 2000].
- Fouché, B., James, T. & Riley, P. 1998. *Utilising information technology to enhance the services of the State Library and other official publication depositories: a preliminary study*. Pretoria, September 1998.
- Gahran, A. 1998. *Writing for the web and creating effective online content*. Interview with J. S. Rhodes on 20 October 1998. [Online]. Available: <http://webworld.com/interviews/gahran.html> [Cited 14 April 2000].
- Gordon, S. 2000. *User testing. How to plan, execute and report on a usability evaluation*. [Online]. Available: <http://www.builder.com/Graphics/Evaluation/> [Cited 4 May 2000].
- Grassian, E. 1998. *Thinking critically about discipline-based world wide web resources*. [Online]. Available: <http://www.library.ucla.edu/libraries/college/instruct/web/discp.htm> [Cited 6 March 2000].
- Gravois, J. 1998. Announcing the GIQ homepage on the world wide web. *Government Information Quarterly*, 15(1):129-138.
- Gray, T. A. 2000. *How to search the web. A guide to search tools*. [Online]. Available: <http://daphne.palomar.edu/TGSEARCH/> [Cited 7 March 2000].

- Greenfield, R. 1995. Electronic government. *NFAIS Newsletter*, 37(8):85-87.
- Gurn, R. M. 1995. *Measuring information providers on the Internet*. [Online]. Available: <http://freenet.buffalo.edu/~ac110/mip.html> [Cited 6 March 2000].
- Harfoush, N. & Wild, K. 1994. *National Information Management Project, South Africa. Report of the Preparatory Mission*. Johannesburg, May 1994.
- Harris, R. 1997. *Evaluating Internet research sources*. [Online]. Available: http://www.sccu.edu/faculty/R_Harris/evalu8it.htm [Cited 7 March 2000].
- Heron, P. 1993. Discussion forum: equity in public access to government information. *Government Information Quarterly*, 10(3):301-304.
- Heron, P. 1998. Government on the web: a comparison between the United States and New Zealand. *Government Information Quarterly*, 15(4):419-443.
- Heron, P. & McClure, C. R. 1993. Electronic U.S. government information: policy issues and directions. *Annual Review of Information Science and Technology*, 28:49-89.
- Hosking, R. 2000. *E-files: NZGO readies for e-government*. [Online]. Available: <http://www.idg.co.nz> [Cited 27 November 2000].
- Hull, T. J. & Adams, M. O. 1995. Electronic communications for reference services: a case study. *Government Information Quarterly*, 12(3):297-308.
- IBM. 1997a. *HCI guidelines*. [Online]. Available: <http://www.ibm.com/ibm/hci/guidelines/design/html>. [Cited 2 May 2000].
- IBM. 1997b. *IBM web guidelines*. [Online]. Available: <http://www.ibm.com/ibm/hci/guidelines/web/html> [Cited 2 May 2000].
- IBM eCMS website. n.d. *Portals*. [Online]. Available: <http://solutions.ibm.com/portal.htm> [Cited 7 September 2000].
- India. MIT (Ministry of Information Technology). 2000. *Guidelines for designing a government website*. [Online]. Available: <http://www.mit.gov.in> [Cited 10 May 2002].

- Instone, K. 1999. *User test your web site: an introduction to usability testing*. [Online]. Available: <http://instone.org/howtotest/introduction.html> [Cited 9 May 2000].
- Johnson, J. 1996. Government web pages: the lights are on but nobody is home. *The Electronic Library*, 14(2):149-155.
- Jones, D. J. 1995. Florida's response to serving citizens in the information age. *Journal of Government Information*, 22(1):13-22.
- Kelly, B. 1997. The evolution of web protocols. *Journal of Documentation*, 55(1):71-81.
- Kirk, E. 2000. *Evaluating information found on the Internet*. [Online]. Available: <http://milton.mse.jhu.edu:8001/research/education/net.html> [Cited 7 March 2000].
- Kopak, R. W. & Cherry, J. M. 1998. Bibliographic displays and web catalogues: user evaluations of three prototype displays. *The Electronic Library*, 16(5):309-323.
- Korsten, H. 2001. *E-government for South Africa. An evaluation of strategies for online government information dissemination, service delivery and business operations in the new information economy*. MA dissertation. University of Pretoria. South Africa.
- Lederer, N. 1999. *How to evaluate a web page*. [Online]. Available: <http://manta.library.colostate.edu/howto/evalweb.html> [Cited 7 March 2000].
- Levergood, B. 1998. Review of U.S. Census Bureau web site: the official statistics web site. *Government Information Quarterly*, 15(1):147-151.
- Levine, R. 1995. *Guide to web style*. [Online]. Available: [http://www.sun.../Printing_Version.html;\\$sessionid\\$2PBY1BYAAA3U3AMTA00E45](http://www.sun.../Printing_Version.html;$sessionid$2PBY1BYAAA3U3AMTA00E45) [Cited 2 May 2000].
- Lowey, K. 2000. *My University Portals FAQ v1.0*. [Online]. Available: http://www.usak.ca/web_project/uwebd/portals_faq.html [Cited 7 September 2000].

Lutkenhaus, R. 2000. Piper resources state and local government on the net. *Electronic Resources Review*, 4(9). [Online]. Available: <http://www.emerald-library.com> [Cited 19 September 2000].

Lynch, P. J. & Horton, S. 1997. *Yale C/AIM web style guide*. [Online]. Available: <http://info.med.yale.edu/caim/manual/> [Cited 2 May 2000].

Macleod, M. 1994. Usability: practical methods for testing and improvement. In: Proceedings of the Norwegian Computer Society Software Conference, Norway, 1 - 4 Feb 1994.

Mahoney, D. P. 1998. The federal depository program in transition: a perspective at the turn of a century. *Government Information Quarterly*, 15(1):13-26.

Maxwell, B. 1995. Gateways to state and government information on the Internet. *Database*, 18(6):25-31.

Mazereeuw, R. 2000. Government by the web. *Netlife Magazine.com*, July/Aug 2000:33-37.

Mbeki, T. M. 1995a. *Opening address to the conference of government communicators*. Waenhuiskrans, August 1995.

Mbeki, T. M. 1995b. *Speech at the G7 meeting on the Information Society*. Brussels, February 1995.

Mbeki, T. M. 1999. *Speech at the launch of the South African government website*. Pretoria, January 1999.

McConnell, B. W. 1996. New wine in old wineskins. U.S. government information in a networked world. *Journal of Government Information*, 23(3):217-225.

McClusky-Moore, N. 2000. Untangling web content management. *Internet design magazine*, 18 April 2000. [Online]. Available: http://idm.internet.com/articles/200004/im_04_18_00a.html [Cited 3 Augustus 2000].

McMahon, T. E. 1999a. Review of National Archives and Records Administration Web Site. *Government Information Quarterly*, 16(2):190-193.

- McMahon, T. E. 1999b. Review of National Library of Medicine web site. *Government Information Quarterly*, 16(1):81-83.
- Morkes, J. & Nielsen, J. 1997. *Concise, scannable, and objective: how to write for the web*. [Online]. Available: <http://www.useit.com/papers/webwriting/writing.html> [Cited 4 April 2000].
- Murthy, M. R. 1997. *W-SDA. The web-site design audit*. [Online]. Available: http://www.eng.buffalo.edu/ramam_m/au_fr.html [Cited 25 April 2000].
- Neale, W. & McCombe, C. 1997. *Designing usable & visually appealing web sites*. [Online]. Available: <http://www.acm.org/sigchi/chi97/proceedings/tutorial/wn.htm> [Cited 9 May 2000].
- New Zealand. SSC (State Services Commission). 2001. *Guidelines for the use, management and design of New Zealand public sector websites*. [Online]. Available: <http://www.e-government.gov.nz/docs/web-guidelines-v1/> [Cited 7 May 2002].
- Nielsen, J. 1993. *Usability Engineering*. London: Academic Press.
- Nielsen, J. 1994a. *Guerilla HCI: Using discount usability engineering to penetrate the intimidation barrier*. [Online]. Available: http://www.useit.com/papers/guerilla_hci.html [Cited 2 February 2000].
- Nielsen, J. 1994b. *Report from a 1994 web usability study*. [Online]. Available: http://www.useit.com/papers/1994_web_usability_report.html [Cited 29 February 2000].
- Nielsen, J. 1996a. *Marginalia of web design*. [Online]. Available: <http://www.useit.com/alertbox/9611.html> [Cited 14 April 2000].
- Nielsen, J. 1996b. *The rise of the sub-site*. [Online]. Available: <http://www.useit.com/alertbox/9609.html> [Cited 9 February 2000].
- Nielsen, J. 1996c. *Top ten mistakes in web design*. [Online]. Available: <http://www.useit.com/alertbox/9605.html> [Cited 9 February 2000].
- Nielsen, J. 1996d. *Why frames suck (most of the time)*. [Online]. Available: <http://www.useit.com/alertbox/9612.html> [Cited 9 February 2000].

Nielsen, J. 1997a. *Changes in web usability since 1994*. [Online]. Available: <http://www.useit.com/alertbox/9712a.html> [Cited 9 February 2000].

Nielsen, J. 1997b. *How readers read on the web*. [Online]. Available: <http://www.useit.com/alertbox/9710a.html> [Cited 16 February 2000].

Nielsen, J. 1997c. *Search and you may find*. [Online]. Available: <http://www.useit.com/alertbox/9707b.html> [Cited 9 February 2000].

Nielsen, J. 1998a. *Cost of user testing a website*. [Online]. Available: <http://www.useit.com/alertbox/980503.html> [Cited 9 February 2000].

Nielsen, J. 1998b. *Impact of data quality on the web user experience*. [Online]. Available: <http://www.useit.com/alertbox/980712.html> [Cited 16 February 2000].

Nielsen, J. 1998c. *The web usage paradox: why do people use something this bad?* [Online]. Available: <http://www.useit.com/alertbox/980809.html> [Cited 16 February 2000].

Nielsen, J. 1999a. *Collecting feedback from users of an archive (reader challenge)*. [Online]. Available: <http://www.useit.com/alertbox/990110.html> [Cited 16 February 2000].

Nielsen, J. 1999b. *Content integration*. [Online]. Available: <http://www.useit.com/alertbox/990627.html> [Cited 2 February 2000].

Nielsen, J. 1999c. *Intranet portals: The corporate information infrastructure*. [Online]. Available: <http://www.useit.com/alertbox/990627.html> [Cited 16 February 2000].

Nielsen, J. 1999d. *Prioritize: good content bubbles to the top*. [Online]. Available: <http://www.useit.com/alertbox/990627.html> [Cited 9 February 2000].

Nielsen, J. 1999e. *The top ten new mistakes of web design*. [Online]. Available: <http://www.useit.com/alertbox/990530.html> [Cited 16 February 2000].

Nielsen, J. 1999f. *Users first: cheap usability tests*. [Online]. Available: <http://www.zdnet.com/devhead/stories/articles/0,4413,2224316,00.html> [Cited 9 May 2000].

- Nielsen, J. 1999g. *Users first: survey your users*. [Online]. Available: <http://www.zdnet.com/devhead/stories/articles/0,4413,2211547,00.html> [Cited 9 February 2000].
- Nielsen, J. 1999h. *Users first: web usability: why and how*. [Online]. Available: <http://www.zdnet.com/devhead/stories/articles/0,4413,2137664,00.html> [Cited 9 February 2000].
- Nielsen, J. 1999i. *Voodoo usability*. [Online]. Available: <http://www.useit.com/alertbox/991212.html> [Cited 9 February 2000].
- Nielsen, J. 2000a. *Is navigation useful?* [Online]. Available: <http://www.useit.com/alertbox/20000109.html> [Cited 2 February 2000].
- Nielsen, J. 2000b. *Novice vs. expert users*. [Online]. Available: <http://www.useit.com/alertbox/20000319.html> [Cited 9 February 2000].
- Nielsen, J. 2000c. *Why you only need to test with 5 users*. [Online]. Available: <http://www.useit.com/alertbox/20000319.html>. [Cited 14 April 2000].
- Nilsen, K. 1996. Government information policy in Canada. *Government Information Quarterly*, 11(2):91-207.
- Norem, M. 1998. *Evaluating Internet sites – quick guide*. [Online]. Available: <http://wwwnhc.nhmccd.edu/public/lrc/research/selectsources.html> [Cited 7 March 2000].
- Notess, G. R. 1999. Government information on the Internet. *Government Information Quarterly*, 16(3):302-303.
- Patterson, S. 1997. *Evaluating and citing Internet resources*. [Online]. Available: <http://www.udmercy.edu/htmls/academics/library/webpage> [Cited 9 March 2000].
- Patterson, S., Wendt, A. & Schroeder, R. 1997. *Evaluating information on the Internet*. [Online]. Available: <http://www.udmercy.edu/htmls/academics/library/evaluati> [Cited 9 March 2000].
- Piontek, S. & Garlock, K. 1995. Creating a world wide web resource collection. *Collection Building*, 14(3):12-18.

- Pollock, A. & Hockley, A. 1997. What's wrong with Internet searching. *D-Lib Magazine*, March 1997. [Online]. Available: <http://www.dlib.org/dlib/march97/bt/03pollock.html> [Cited 29 February 2000].
- Preece, J. (ed). 1993. *A guide to usability*. Human factors in computing. Harlow: Addison-Wesley.
- Ratzan, L. 1994. The Internet Cafe. Exchange and connection on the Internet. *Wilson Library Bulletin*, March 1994.
- Rettig, J. 1996. Beyond "cool". Analog models for reviewing digital resources. *Online*, Sep 1996. [Online]. Available: <http://www.online.com/onlinemag/SeptOL/rettig9.html> [Cited 6 March 2000].
- Rettig, J. & LaGuardia, C. 1999. Beyond "beyond cool". Reviewing web resources. *Online*, 23(4):51-55.
- Richmond, B. 1997. Ten C's for evaluating Internet resources. [Online]. Available: <http://www.uwec.edu/Admin/Library/10cs.html> [Cited 6 March 2000].
- Rosenfeld, L. 1998. Is less really more? [Online]. Available: <http://webreview.com/wr/pub/98/10/02/arch/index.html> [Cited 14 April 2000].
- Rosenfeld, L. 1999. Information architecture revealed. Interview with J. S. Rhodes, 24 May 1999. [Online]. Available: <http://webworld.com/interviews/rosenfeld.html> [Cited 14 April 2000].
- Russel, L. 1997. Review of United States Information Agency (USIA) website. *Government Information Quarterly*, 14(4):415-418.
- SA Government Online website. 2000. [Online]. Available: <http://www.gov.za> [Cited August 2000].
- Schrock, K. 1998. *Guide for educators: critical evaluation surveys*. [Online]. Available: <http://www.lib.vt.edu/research/libinst/evalbiblio.html> [Cited 14 February 2000].

- Serco. 1999a. *User centred design*. [Online]. Available: <http://www.usability.serco.com/trump/ucdstart/index.html> [Cited 26 April 2000].
- Serco. 1999b. *Web design*. [Online]. Available: <http://www.usability.serco.com/nonframe/web.html> [Cited 26 April 2000].
- Sergerie, V. 1997a. *Canadian governments on-line*. [Online]. Available: <http://www.intergov.gc.ca/docs/fed/bia/bia5e/html> [Cited 19 December 1997].
- Sergerie, V. 1997b. *New Internet site provides easy way for computer users to find government information*. [Online]. Available: <http://www.intergov.gc.ca/docs/fed/bia/bia13e.html> [Cited 19 December 1997].
- Sheehy, H. M. 1997. A community closer to its citizens: the European Union's use of the Internet. *Government Information Quarterly*, 14(2):117-142.
- Shneiderman, B. 1997. *Designing information-abundant web sites: issues and recommendations*. [Online]. Available: <http://ijhs.open.ac.uk/shneiderman/shneiderman-nf.html> [Cited 4 April 2000].
- Shuler, J. A. & Cornwell, G. 1998. Federal depository libraries: challenges and opportunities for the 21st century. *Government Information Quarterly*, 15(1):11-12.
- Skov, A. 1998. Internet quality. Separating the wheat from the chaff. *Database*, 21(4):38-40.
- Smith, A. G. 1997. Testing the surf: criteria for evaluating Internet information resources. *Public-access computer systems review*, 8(3). [Online]. Available: <http://info.lib.uh.edu/pr/v8/n3/smit8n3.html> [Cited 7 March 2000].
- SOSIG website. n.d. *Quality selection criteria for subject gateways*. [Online]. Available: <http://sosig.ac.uk/desire/qindex.html> [Cited 16 March 2000].
- South Africa. DPSA (Department of Public Service and Administration). 1997. *White Paper on transforming public service delivery*. [Online]. Available: <http://www.dpsa.gov.za/docs/policy/white-papers/transform.html> [Cited 30 June 2000].
- South Africa. DPSA (Department of Public Service and Administration). 2001. Electronic

government, the digital future. A public service IT policy framework. [Online]. Available: <http://www.dpsa.gov.za/docs/policy/IT.PDF> [Cited 9 April 2001].

South Africa. GCIS. (Government Communication and Information System). 2001. *Audit of government web sites*. February/March 2001. Unpublished.

South Africa. Parliament. 1994. *White Paper on reconstruction and development*. Cape Town: Government Printer.

South Africa. Parliament. 1996a. *Constitution of the Republic of South Africa*. Cape Town: Government Printer.

South Africa. Parliament. 1996b. *Telecommunications Act, Act No: 103 of 1996*. Cape Town: Government Printer.

South Africa. Parliament. 1997. *Legal Deposit Act, Act No. 54 of 1997*. Cape Town: Government Printer.

South Africa. Parliament. 1998. *State Information Technology Agency Bill (B96B-98)*. Cape Town: Government Printer.

South Africa. Parliament. 1999. *Broadcasting Act, Act No. 4 of 1999*. Cape Town: Government Printer.

South Africa. Parliament. 2000. *Promotion of Access to Information Act, Act No. 2 of 2000*. Cape Town: Government Printer.

South Africa. President's Office. 1998. *Developing a culture of good governance. Report of the Presidential Review Commission on the reform and transition of the public service in South Africa*. [Online]. Available: <http://www.gov.za/reports/prcpart1.htm> [Cited 30 June 2000].

Spool, J. 1998. *Web site usability: the big picture*. [Online]. Available: <http://webreview.com/wr/pub/web98east/23/spoolx.html> [Cited 4 April 2000].

Story, D. 1999. *Usability checklist for site developers*. [Online]. Available: <http://webreview.com/pub/1999/10/15/usability/index.html> [Cited 25 April 2000].

Stowers, G. N. L. 1999. Becoming cyberactive: state and local governments on the world wide web. *Government Information Quarterly*, 16(2):111-127.

Stratford, J. S. & Stratford, J. 1996. 1996 election resources on the Internet. *Journal of Government Information*, 23(3):359-364.

Sullivan, T. 1997. *The usable web*. [Online]. Available: <http://www.pantos.oreg/atw/usable.html> [Cited 4 April 2002].

Suno, D. 1996. *Designing large-scale web sites. A visual design methodology*: Wiley.

Thornton, K. R. 1997. *Rethinking government*. IBM United Kingdom Limited.

Tillman, H. N. 2000. *Evaluating quality on the net*. [Online]. Available: <http://www.tiac.net/users/hope/findqual.html> [Cited 7 March 2000].

United Kingdom. NHS (National Health Services). 2001. *NHS identity guidelines: websites*. [Online]. Available: <http://www.doh.gov.uk/nhsidentity/websites.htm> [Cited 25 April 2002].

United Kingdom. Office of the e-Envoy. 2001. *Guidelines for UK government websites. Draft*. [Online]. Available: http://www.e-envoy.gov.uk/publications/guidelines_index.htm [Cited 7 May 2002].

United Nations Economic and Social Council. 1996. Africa's Information Society initiative: an action framework to build Africa's information and communication infrastructure, April 1996.

US EPA Region 2 Library. 1996. *Nine elements of web style*. [Online]. Available: <http://www.bluehighways.com/style.htm> [Cited 6 March 2000].

Welinske, J. 1998. Developing HTML help. *PC Magazine*, April 1998:107-109.

Wilkenson, G. L., Oliver, K. M., & Bennet, L. T. 1997. *Evaluating the quality of Internet information sources*. [Online]. Available: <http://itech1.coe.uga.edu/Faculty/GWilkenson/webeval.html> [Cited 6 March 2000].