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Evaluating South African government Web sites: methods, findings and recommendations (Part 2)

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Contents

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1 Introduction

This article and the previous one (Part 1) are reports on research that was conducted on South African government Web sites, with the aim of contributing towards improving the quality and effectiveness of online information and service delivery by the South African government. The first article discussed the need for government Web site assessment, indicated the criteria and evaluation methods selected for the evaluation of the *South Africa Government* Online Web site, described the development of test instruments for this evaluation, presented the main findings for this part of the research, and reached a conclusion on the criteria and methodology followed (Korsten and Bothma 2005).

This article describes the methodology that was followed to conduct an audit of national government Web sites and presents the main findings of this part of the research. This article also makes recommendations about initiatives the South African government could implement in order to improve the quality of government Web publishing.

2 Audit of national government Web sites

2.1 Introduction

As stated in the first article, the findings for the evaluation of *South Africa Government Online* indicated that respondents had a negative perception of the standard of government Web publishing in general, and that these perceptions influenced their perceptions of the *South Africa Government Online* Web site negatively. It was therefore decided to conduct an audit of national government Web sites with the objective to determine if the above-mentioned perceptions could be confirmed, and if there was any similarity between usability problems experienced on government Web sites in general and those identified for *South African Government Online.*

During February and March 2001, one of the authors coordinated a national government Web site audit (South Africa. GCIS 2001) that was conducted by the Government Communications and Information System (GCIS).

2.2 Aim, objectives and scope of the audit

The aim of the audit was to assess the effectiveness of national government Web sites in providing access to government information. The main objectives were to determine to which extent government Web sites:

- contained content that is expected of government Web sites;
- allowed users to access and find information easily; and
- allowed interactivity between the department and the user.

The purpose was not to do an extensive evaluation of Web sites, but to identify issues that influenced usability and to identify information and functionalities that could be added in order to enhance the effectiveness of government Web publishing.

The audit was performed for 26 national government departments. Seven national departments were excluded from the auditing process, because three Web sites had not been officially launched, one Web site was not accessible and three departments did not have a Web presence at the time the audit was conducted.

2.3 Methodology

A list of criteria was compiled against which the Web sites 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. The audit made use of a shortened version of the criteria used for the evaluation of *South Africa Government Online* (Korsten 2002). In the selection process, an attempt was made to select general aspects that influence the usability of government Web sites. In addition, the audit mainly focused on site level issues (such as the home page, information architecture, navigation, search, layout and site-wide design) and did not attempt to identify specific issues pertaining to individual pages or to accessibility.

The criteria were grouped in three broad categories, namely content, information architecture and navigation, and design and layout, and then subsequently under subsidiary headings.

The heuristic evaluation method was followed for the auditing process. The criteria were used in the form of a checklist against which the auditors could check the level of compliance to the 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's Directorate: Research captured these responses, using appropriate software.

Employees of GCIS audited the Web sites during the period 12 February 2001 to 8 March 2001. Each Web site was audited by two auditors to enable a second phase during which the first-round results could be verified. After each audit had been completed, 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 one of the authors, who was not involved in the initial audit.

2.4 Overview of findings

It was clear from the findings of the audit that, although the majority of South African government departments had started to embrace the Internet for information dissemination, government Web sites generally did not conform to the basic principles of good Web site design.

Inadequate information provision as well as lack of currency of Web sites contributed to insufficient access to government online information. Web sites also varied significantly in the extent to which information was made available – there was a disparity with regard to the breadth as well as depth of information. Furthermore, strong emphasis was placed on the presentation of departmental organizational structures and activities, and especially the provision of documents, speeches and media statements, in contrast to the presentation of projects and programmes and value-added features such as FAQs, site maps, indexes and interactivity features. Some government departments started to provide some 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. Factors contributing 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 organization of information across government Web sites contributed to the lack of coherence and unity in the national Web system.

It was interesting to discover that when the findings of the government Web site audit and that of *South Africa Government Online* were compared, the more overarching analysis of the audit returned similar results to that of the more detailed evaluation of *South Africa*

Government Online. The authors thus conclude that South African government Web sites, in general, would in all probability have problems similar to those identified for *South Africa Government Online.* One may also conclude that using a comprehensive and well-planned checklist of usability criteria, developed particularly for government Web sites, may identify many deficiencies and usability problems. However, the authors want 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 Web site, should always be taken into account.

3 Challenges for South African Web publishing

The research demonstrated that much still has to be done to have government Web sites that are professional, usable and 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 Web sites developed by individual government institutions;
- improving the quality and effectiveness of the *South Africa Government Online* Web site as a gateway or portal to online government information; and
- developing and implementing overarching mechanisms in government to ensure co-ordination and a uniform approach to government Web publishing in South Africa.

3.1 Improving Web sites developed by individual government institutions

The findings of the government Web site audit demonstrated that there was a need for government Web sites to improve considerably with regard to content, information architecture, navigation, search and design. The findings indicated that the main challenges for the improvement of South African government Web sites are the following:

- The research indicated that government Web sites did not use the opportunity to disseminate comprehensive information to their audiences optimally. Web sites should become more comprehensive government information repositories, including at least a set of minimum content. In addition, other typical elements of stage one of e-government, that is, 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. Web sites should also provide the public with the facility to transact with government.
- The improvement of the currency of government Web sites should be a priority. As government Web sites 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 Web 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 organized to be suitable for online reading.

- Most government Web sites 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 Web site 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 Web sites. Forms should be available for this interaction.
- Government departments will have to manage their Web sites as they do any other strategic resource. According to the Canadian government's Internet guide (Canada. Treasury Board 2002) a dedicated and skilled team to create, maintain and operate the Web initiative is critical to its success. 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.

3.2 Improving the quality and the effectiveness of the *South Africa Government Online* Web site as a gateway or portal to online government information

The goal of the *South Africa Government Online* Web site 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 Web site 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 Web site returned markedly lower satisfaction levels or less positive results. The authors believe that it should be an important priority to improve the aspects that rated less positively in order to meet the high expectations for the Web site and to match the aspects that rated positively.

The research demonstrated that government faces the following challenges in optimizing the concept of one-stop delivery to include all the needs and interests of all potential audiences.

- Korsten (2001:157) states that the *South Africa Government Online* Web site 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, *South Africa 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 Web site 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, *South Africa Government Online* carried links to information on government Web sites 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 Web sites and then to replicate these on the *South Africa Government Online* Web site. Government should re-evaluate the role of the Web site with regard to linking and/or carrying information content itself. It is the view of the authors that the prime strategy for the Web site should be to create easy access to all online government information, and that the Web site should additionally carry 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 met continuously. More frequent updates are important for attracting traffic to the Web site.

As suggested for all government Web sites in the previous paragraph, improved management practices should also be implemented for the daily maintenance and updating of *South Africa 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 Web site reflects up-to-date and accurate information, content providers must make changes regularly. 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. T here should also be an editorial board – to ensure that content is presented consistently on the Web site, 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 Web site will make it difficult for all updates to be handled by one or two people. It is therefore 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 organization'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 Web site, for example 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 search and access information on all government Web sites quickly. 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 Web site 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-organized 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. For users to effectively deal with the large number of South African government institutions, the Web site also needs to be organized by function of the service. The Web site might, for example, follow an approach where common services are clustered together and/or according to the government clusters. The authors want to re-iterate the sentiment of Atkinson and Ulevich (2000:18) that 'a portal needs to be more than simply a mega-link to government Web sites. Rather, it needs to completely bypass agency stovepipe organization and be organized by information and type of interaction'. 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, scroll through the subsequent listing of sites and look for the agency and branch of interest.

- The Web site 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 organizational contacts for a specific government service. Additional features may be considered to assist users to form a mental model of the Web site and to improve their understanding of the structure thereof, for example a site map, alphabetical index and other organizatonal 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 *South Africa Government Online* Web site.

- After implementation of the new Web site 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 2002), this step is a crucial part of creating, launching and maintaining a successful Web 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 Web site 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 2002), the authors recommend 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 Web site in print and electronic media, is also recommended.

- A factor that marred positive perceptions of the Web site was inconsistency in various aspects of the Web site. The authors are of the opinion that many aspects criticized 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, standardized 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 Web site, 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 Web site 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 Web site's user population for a considerable time to come.

It is important to remember that a Web site 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 Web site. 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 organization and design of a Web site and the reliability of content.

What is important is that a logical cohesion is achieved between all 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 Web site should determine the best approach with regard to the content, information architecture, navigation, search and aesthetic appeal.

South Africa 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* Web site, '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'.

3.3 Developing and implementing overarching mechanisms in government

Improving government Web sites requires more from government than just the application of technology and improving Web sites 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 Web sites. The authors believe that 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 Web site 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 Web sites to assist users to find information. The authors believe that many of the problems identified during the evaluation of *South Africa Government Online* and the audit of government Web sites 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 Web sites holds

enormous challenges. To guide new and inexperienced Web developers and to ensure that government Web sites 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 Web site, through content development, planning an information architecture and navigation scheme, to the professional design of a Web site. A model for such a guideline document is presented in Korsten (2002).

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 among 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 Web sites 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 Web sites. The Dublin Core standard is the leading international standard for online resource recovery (Australia. National Archives 2000), and might be applied in a resource description 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 2002).
- Government should propose a set of government services for electronic delivery by identifying commonly requested government services and prioritizing 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 cognizance 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 organizations 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 Web sites 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 Web sites 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 Web sites truly meet public needs is also controlled by the extent to which the public has access. Universal access to government Web sites 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 Web sites, 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 how citizen's experience government and can contribute towards an improvement in their general well-being (Korsten 2001:206).

The authors believe 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.

4 Conclusion

Government information is an important resource that should be managed strategically – government has an obligation to make information available easily, widely and equitably and 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 Web sites should be utilized 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 Web sites 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 Web sites should convey a more consistent and unified message, thematic feel and structure, and government image and branding. Furthermore, the *South Africa Government Online* Web site 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 Web sites.

Formal policies in relation to Web publishing did not exist at the time this research was conducted. The authors, however, believe that this research may contribute to government Web sites 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 Web sites, and

may be used as a consistent standard for developing and measuring Web sites. The criteria also provide a foundation for further development of criteria to assess South African government Web sites.

The authors also believe that this research provides a platform for the development of Web site norms, standards and guidelines for the South African government. The model referred to above 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 Web sites and to ensure that government Web sites are consistent, effective, accessible and usable. The research described in this study therefore has the potential to maximize the public benefits to be derived from using the Web as a government information channel.

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