



Developing a unified intranet for a metropolitan municipality in South Africa

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1 Introduction

The cost effectiveness of the utilization of Internet technology opened the door for organizations to use the same technology to share information within the organization (Botha 2004). An intranet (or internal Web) is a network architecture designed to serve the internal information needs of an organization using Web (Internet) concepts and tools (see, for example, Cortese 1996). Turban, Rainer and Potter (2005) indicate that an intranet is a private network that uses Internet software and TCP/IP protocols. Defined technically,

intranets are the application of Internet technology (and specifically the World-Wide Web service) for a prescribed community of users (Scheepers and Rose 2001). An intranet is a network designed to serve the internal information needs of an organization (e.g. a municipality), using Internet concepts and tools (Turban, McLean and Wetherbe 2004). The research problem in this research was two-pronged: (a) to investigate some problems associated with intranet development in a selected municipality in South Africa; and (b) to discuss management implications for addressing these identified problems. The research method used was an online survey.

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2 Background to the study

An intranet is an informational tool that empowers organizations to manage in new ways (Hattingh 2000). It promises to nurture individual knowledge and to develop communities. In the public sector, by streamlining processes and facilitating internal communication, intranets can enhance service delivery. Technology allows crucial business processes to be aligned and to be built into an intranet framework (Hattingh 2000). Forrester Research (as cited in Hattingh 2000) indicates that intranets have grown to mirror the morass of the business and departments they support. Too many intranets suffer from unmanaged content and *ad hoc* site development that is generated as the information in organizations increases (Hattingh 2000). Since information management has strategic significance, the manner in which publishers retain ownership and the responsibility for the published information is one of the key factors for success (Curry and Stancich 2000). The basic rules of information management should be applied when planning an intranet.

Generally, although information systems (IS) expenditure is regarded as costly and risky, many IS investments appear to proceed without the use of formal investment appraisal and risk management techniques (Ward 1996). Van der Merwe (2003) notes that tougher economic times are driving organizations to treat information technology (IT) expenditure as investments that are driven by sound business considerations and not by hype. The old argument that it is not necessary to formally justify the investment in IS because it is strategically important to stay 'in business' is being questioned (Wessels 2003).

System justification implies first an evaluation followed by the activity of justification, showing that the IS expenditure is appropriate for the particular business context (Remenyi, Money and Twite 1995). Ward, Taylor and Bond (1996) and Willocks (1996) indicate that this is significantly more difficult to apply when formally justifying an investment in IS. The main reason is that reliable estimates of IS costs and benefits are not always available or easy to obtain (Wessels 2003). This is as a result of the envisaged tangible and intangible benefits, which may be derived. Tangible benefits are those benefits that can be quantified and assigned a monetary value but intangible benefits (e.g. improved service delivery) cannot easily be quantified (Laudon and Laudon 2000). Wessels (2003) reports that some of the techniques used in the justification process are as follows: (a) cost benefit analysis (CBA); (b), return on investment (ROI); (c) discounted cash flow (DCF); (d) payback; and (e) strategic reasons. Ezingard, Irani and Race (1998) report that over half of the organizations that participated in their study did not formally list the benefits of the IT and IS investment but justified the investment as 'an act of faith'.

While many organizations use the traditional cost-benefit analysis as the core of their evaluation, the question is posed whether such an approach for justifying investment is appropriate for all IS projects. More specifically, what approach should be adopted for a project to develop an enterprise-wide intranet for a large organization? While the authors will not attempt to answer this question specifically, this article presents an argument for the

importance of identifying ease of use criteria prior to the commencement of an intranet development project. The original intranet environment in eThekweni Municipality is now described.

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3 eThekweni Municipality's original intranet environment

During the mid-1990s eThekweni Municipality developed departmental intranets. Five out of 40 municipal departments set up their own intranets using various Web technologies. These departmental intranets hosted information specific to the departmental 'owners' and there were some links between them. In the majority of cases, the development of these intranets were initiated in the IT support sections of the municipal departments. The intranet developments were primarily driven by enthusiasts who did not have to enlist managerial support as there were tools and methods available to them at no cost. This meant that in most cases no formal CBA, ROI payback or strategic reasons preceded these developments since the developments were based on the various IT departmental perceptions of how this emerging intranet technology could assist their users to work more productively.

A small-scale 'umbrella' intranet site was also developed for eThekweni Municipality staff and was referred to as 'the corporate intranet'. This site carried (a) links to all other internal Web sites; (b) information across departmental barriers; and (c) information of general interest (e.g. human resources circulars and training course details) for all eThekweni Municipality employees. In this context the term 'umbrella', was used to denote an intranet site for all employees and not a site that applied to a specific department. With developments in intranet technology, it was soon realized that there was a need to harmonize eThekweni Municipality's five intranet Web sites. To obtain an objective view of the existing intranet Web sites, an online employee survey was conducted.

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4 Survey of intranets, results and discussion

During mid-2003 a survey was conducted among eThekweni Municipality employees using the Perseus Internet survey product. The aim of this survey was to better understand employee information needs and their perceptions of the existing eThekweni Municipality intranets. An e-mail was sent to eThekweni Municipality employees who had a GroupWise account, inviting them to participate in the online survey. Employees answered questions online and the Perseus software program collected the data and tabulated the results in report format.

During the survey period, approximately 3000 employees had intranet access. At the conclusion of the survey period, 274 responses (a 9% response rate) were received. While this response rate is considered too low for empirical results, it was felt that the data could serve as a useful insight for drawing general conclusions.

Of the respondents who participated in the online survey, 14% indicated that they did not use an intranet. An analysis of the respondents' answers, as to why they did not use an intranet, was made. The analysis of their reasons is given in Table 1.

Table 1 Analysis of respondents' reasons why they did not use an intranet

Respondents' reasons for not using an Intranet	Percentage (%) of respondents
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I don't have access to a computer with the intranet on it	15,7%
I have access to the intranet but I don't have time to use it	15,7%
I don't like using the intranet	15,7%
Other, please state	52,9%

From Table 1, more than half (52.9%) of respondents gave a clear indication that a lack of knowledge about the nature and the organization of information on the intranet resulted in their not using the intranet. Other reasons given included a lack of training and a lack of time to find out how the intranet worked. The apparent divisions between departments was cited as a barrier to use. One respondent who participated in the survey stated 'I only appear to have access to service unit sites and little else – perhaps I'm not sufficiently aware of how to use it extensively'.

By developing a unified intranet, these divisions can be overcome. Hattingh (2000) suggests that information from different departments in an organizational structure can be combined into one framework for the organizational boundaries to become invisible to the user. Interdisciplinary decision-making is thereby encouraged.

From Table 1, of the 15.7% respondents who indicated that 'I don't like using the intranet', a further analysis of their responses is reflected in Table 2.

Table 2 Analysis of respondents' reasons for 'I don't like using the intranet'

Respondents' reasons for not using an intranet	Percentage (%) of respondents
I can never find what I want	6,2%
I don't understand it	3,3%
I don't need it	0,7%
Other, please state	6,2%

From Table 2, the reasons for 'Other, please state' suggest that the information provided on the intranet was either not of interest, not correctly focused or was difficult to access. Hattingh (2000) suggests that mere access to or availability of information is not sufficient but that having the right information at the right time in the right format is essential. It is important to keep information up to date (Botha 2004). When respondents were surveyed regarding the availability of requested information on the existing intranets, an analysis of their responses was made and it is reflected in Table 3.

Table 3 Analysis of respondents' responses regarding the availability of requested information

Availability of requested information	Percentage (%) of respondents
Some of it is available	51,5%
Yes, it is available	24,8%
Some of it is out of date	19,7%
No, it is not available	8,0%
Don't know	4,7%

From Table 3, a generalization is that access to existing information is problematic. When the respondents surveyed were provided with a list of information available on the intranet, two respondents indicated 'You see, I didn't even know all these things were on the intranet!'.

Another respondent suggested 'What about having an index relating to subject matter in addition to departmental?' A third response was 'There is so much information out there. Could you please provide an [sic] Subject Index and/or facility to Search for what we want?'. These comments tend to suggest three problem areas: the absence of (a) user training for some employees; (b) the absence a unified intranet with an overarching search function and navigation; and (c) the absence of current and reliable information on that intranet.

Table 4 Analysis of respondents' suggestions for inclusion in a future intranet

Suggestion	Percentage (%) of respondents
Find decision circulars	59,5%
Find out about procedures, for example issuing a tender or a request for proposal	47,1%
Check the lunch menu at the canteen	37,6%
Check the weather	36,1%
Check thrift fund information	33,6%
Book meetings with other staff electronically	32,8%
Share documents	31,8%
Book venues and conference rooms electronically	30,7%
Participate in newsgroups with other staff. See and amend project plans, timelines and project progress reports	26,3%
Chatrooms with colleagues	25,9%
Hold meetings by videoconferencing	19,3%
Operate personal and shared things-to-do lists	17,9%
Other, please state	13,5%

Many respondents surveyed gave suggestions on what they would like to see included in a future intranet for eThekwini Municipality. An analysis of these suggestions is reflected in Table 4.

From Table 4, the information that can be made available via the intranet ranges from very structured (e.g. decision circulars) to unstructured (e.g. chatrooms with colleagues). Hattingh (2000) suggests that structured data can be added by using 'forms' while threaded discussions, chat sessions and shared whiteboards extend computer functionality to support unstructured processes. The intranet has the ability to move beyond previous physical, functional and management style boundaries and to generate and add value to information and processes.

In summary, some of the key findings from this online survey indicated the following:

- Eighty-four per cent of respondents surveyed used one of the (five) intranets.
- Employees who did not use the intranet did so because they either did not understand how to use it (3,3% of respondents surveyed) or could not find what was needed (6,2%) (Table 2). There must be ease of navigation to important information (Botha 2004).
- English and Zulu are the two main languages spoken in eThekwini Municipality. Of the employees surveyed, 82,0% indicated that they felt that there was no need for a parallel Zulu intranet. However, it is probable that a very significant percentage of eThekwini Municipality employees who do not use the intranet or do not have access to IT, use Zulu as their main language. This group did not participate in the online survey.
- The information most commonly searched for related to the HR department.

- Of the respondents surveyed, 24,8% indicated that they found the information they were looking for, 51,5% indicated that they found some of the information needed, 8,0% could not find the information needed and 19,7% indicated that some of the information they found was out of date (Table 3).
- The most respondents (59,5%) requested that a new feature for decision circulars (these are circulars notifying employees of management decisions on various issues) be published/posted to the intranet (Table 4). The whole concept of the Internet revolves around the provision of a wide variety of useful information (Botha 2004).

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5 Management implications

Advances in technological development have led to a flood of information and are creating a dynamic environment that is constantly transforming the ways employees do things. Successful municipalities recognize the strategic value of managing their information resources to support efficiency and effectiveness and the ability to adapt to a changing environment. Marchand (1982) suggests that the purpose of information management is to promote the organization's effectiveness and efficiency by enhancing its capabilities to cope with the demands of its dynamic **internal** and external environments. In this dynamic changing environment and for strategic reasons, an urgent need arose for eThekwini Municipality to develop a unified intranet.

In a municipality, information is multi-disciplinary, operational or strategic and structured and unstructured. The management thereof is interdisciplinary, cuts across departments and brings together IT and systems (information carriers) and information techniques (content skills) to enhance and direct the information assets to the advantage of the organization (Hattingh 2000). From the results, 15,7% of employees surveyed indicated that they do not like using the intranet (Table 2) and 25,7% of employees surveyed indicated that either some of the requested information is out of date or not available (Table 4). Based on these survey findings, it was felt by the authors that the following five factors are crucial for the redesign and improvement of eThekwini Municipality's intranet:

- A unified Web site with a simple and clear navigation structure sitting on a single server – this was the most important reason;
- breadcrumbs and dropdowns to aid Web site navigation;
- an improved search function and the ability to flag important Web pages in search results;
- a content management system that facilitates the assignment of keywords to pages and folders (this forms part of an improved search function); and
- alphabetic placing of items in lists and dropdowns in order to facilitate ease of information retrieval.

Beyond these five technical user interface improvements, the management of complex and large volumes of content for diverse target audiences, who are operating within departmental silos and using information from different sources, is emerging as an important success factor for the municipal intranet.

Design criteria will encourage ease of use of the intranet by eThekwini Municipality employees. A unified intranet for eThekwini Municipality will support a single solution for organizing, searching and retrieving significant volumes of information from various applications, formats and sources. There is a need to look from the outside in to further determine what content and functionality will benefit users most and how this information will further assist eThekwini Municipality's operational efficiency. However, technology is

not a guarantee for successful information management. Hattingh (2000) notes that an 'intranet is only as good as its content, which is a result of factors other than technology'.

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6 Conclusion

Intranets utilize Internet and World-Wide Web technologies to conduct internal communication and collaboration activities within an organization and provide some level of integration and access. During April 2005 a new unified eThekweni Municipality intranet site was launched. This new enterprise-wide intranet Web site uses OpenSource software and the Plone Content Management System (PCMS). All content previously held in the five departmental intranets was migrated to PCMS and thereafter all departmental intranets were closed down.

Research is now needed to gauge the extent to which the identified ease-of-use criteria were successful for the new unified intranet and whether the intranet's content is useful to eThekweni Municipality employees in terms of improved decision making by adding value to information, day-to-day activities and processes within eThekweni Municipality. Both intangible and tangible benefits may be derived. Such research will be useful to other organizations embarking on similar intranet development projects.

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