

Requirements Gathering in Implementing a Web Presence: A study of an Australian Local Government Implementation

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ABSTRACT: *The Internet, including the World Wide Web and electronic commerce, is transforming the nature of economies and communities globally. The fundamentals of these changes are impacting on industry, communities and governments alike. Today national, state and local area governments are actively pursuing the Internet in an aggressive manner. In Australia local governments authorities (LGA) are beginning to use the Internet as a new tool for the dissemination of information and delivery of services to the communities they represent. The effectiveness of the Internet as a tool for dissemination of information and delivery of services into local communities by local governments has yet to be evaluated.*

This paper provides a retrospective review of a web implementation project in a rural region of Victoria, in light of current development in the use of Internet applications by local governments nationally. It attempts to make some observations on the process employed and the results achieved. From this research there are a number of more general recommendations that can be made. These address the development of a Web site and the ongoing resources required in the maintenance of the site.

Keywords: electronic commerce, requirements engineering, system design.

BACKGROUND

It is generally agreed that one of the most important technological developments in recent years has been the convergence of Information Technology and Communications (IT&C). Indeed, the Internet, including the World Wide Web and e-commerce, are transforming the nature of economies and communities globally. These changes are impacting on industry, communities and governments alike. Today national and state governments are under pressure to develop and implement strategic policies encompassing the potential of the Internet opportunities.

However, for any IT&C project to be properly justified it must deliver measurable benefits. Benefits such as improvements in current management and business processes, expanded business opportunities, enhanced competitive strengths etc. A direct focus on user needs is a key elements in measuring success of web sites (DeConti, 1998). So consultation is critical to ensure that web sites provide what customers, or in the case of local government, community members, want and need (Lawrence et al, 1998; Kalakota and Whinston, 1996). But many businesses and government bodies fail to consult with their real stakeholders on web site design (Lawrence et. al, 1998).

The City involved in this research is a leader and innovator in the use of information systems and technology with in the community and in local government circles in general. The City is also well on its way to the 'paperless office', using Document Approval Management System (DAMS), which allows documents to be scanned in and mailed electronically to individuals or departments reducing storage and handling costs.

AIM OF THIS PAPER

The aim of this paper is to investigate the processes involved in the establishment of an individual City's Web site, to investigate the rationale for the establishment of the Web site and to evaluate the site against the community need for services. We wished to determine to what extent the responsible City officers were aware of the opportunities offered by an Internet presence at the time the project was initiated. We also wished to know whether they understood what services could be delivered over the Web, and how the on going cost of an Internet presence would be justified.

OPPORTUNITIES AND CONSTRAINTS FOR LOCAL GOVERNMENT

With the open architecture of the Internet and WWW, electronic commerce has evolved from the earlier and restrictive EDI format, to an increasingly dynamic and competitive environment (Chin, 1998; Kalakota and Whinston, 1996; Hoffman et. al., 1999). Today electronic commerce over the Internet is predominantly associated with the buying and selling of information, products and services via computer networks (Nath et. al., 1998, Field, 1999; Kalakota and Whinston, 1996).

However, research has shown that organisations stand to gain substantial benefits through changes to business processes within the value chain (Chin, 1998; DeConti, 1998; Lawrence et. al., 1998; Hoffman et. al., 1999; Kalakota and Whinston, 1996; Heerman, 1998; Field, 1999; Burgess and Cooper, 1999; Banaghan et. al, 1998 Watson et. al., 2000; Keen and Lamp, 1997). Improving the value chain by cutting out the middleman and improving the level of collaboration between business partners and customers delivers a more cost effective and more efficient operation (Fink, 1998).

Local governments deliver services and information, if not products, to their communities. So for local government like industry in general the Internet offers alternative forms of information distribution and new opportunities. But to be sustainable any benefits must be tangible and improve upon current management and business processes. Stakeholders such as suppliers, employees, government agencies, and the public at large all stand to benefit from the implementation of electronic commerce. Indeed unless broad benefits can be demonstrated for a number of stakeholders the uptake will be patchy and the achievements temporary.

There is more to a successful Web site than the graphics chosen for its initial implementation. Many local governments are already successfully engaging in electronic commerce by providing on-line information services to their community, such as downloadable documents and on-line payments (see Boon, Hewett & Parker, 2000, for a detailed analysis of this). Longer term success depends not only on the provision of tools and appropriate business processes to maintain the information presented, but also on the willingness of organisations to adapt in an evolving environment (Forrest et. al., 1996; Small and Arnone, 1999; Nath et. al., 1998; Hoffman et. al., 1999; Quelch and Klien, 1996; Cockburn and Wilson, 1996).

Governments at all levels realise that the growth of Internet usage is impacting not only how information is presented to the public, but also how business is conducted between government agencies, with suppliers and with the general public (DeConti, 1998). To be motivated to interact over the Internet customers of government require value-added factors from the Web sites developed. But, many businesses and government bodies fail to consult with their customers or constituents on Web site design Gartner Group research indicates that an many as 90 per cent of companies created their Web sites without ever asking what their customers want (Lawrence et. al, 1998).

RESEARCH UNDERTAKEN

An internal document review was conducted to gain a better understanding of the City internal processes relating to their Web site development. We examined the Web project tender documents to establish the defined objectives of the project. In order to build a framework of client needs against which we could compare the final established site we examined the log of community service requests maintained at the City's customer service desk over the prior year. Finally a series of interviews were used to understand the conception of the idea, and the processes leading the development launch of the Web site. The Interviews were also used to uncover the original objectives, to be compared with the outcomes of the Web site project. In essence we asked the City's key directors and managers what they knew of the use of the Internet and why they were pursuing an Internet presence.

THE REVIEW OF INTERNAL DOCUMENTS

A review of the tender documents provided a retrospective look at how an organisation made its choices. These documents also provided background detail of relevance in interpreting the material gathered in the interviews and gave us an insight into the internal operations of the City. The request for tender submissions was limited in specifications, and lacked evidence of rigorous internal and external requirements gathering. There were no statements covering such issues as: ease of use; relevant information; and, ease of maintenance. It was assumed that the chosen tenderer would "naturally" address these issues.

An analysis of the log of community service requests gave us an insight into what departments are being accessed by the community. The twelve-month summary of the survey sheets (from October 1998 to September 1999) was used to build an understanding of service inquiries by department and business unit. A total of 71035 inquires were catalogued in the twelve months between October 1998 and September 1999.

We summarised the inquiries in order to give us an insight into what departments or services were most frequently requested. We were also able to classify the way the community inquiries come about – phone or service desk etc. (For a detailed summary of the inquiries recorded see Diagram 1 in the Working paper Boon & Hewett, 2000.) From this we were able to project how the Web site might help the City and identify, those departments that would benefit most from delivery of information or services over the Internet.

We felt that if a clear link between the objectives in establishing the site, as evidenced by the requirements detailed in the tender documents, and the community's needs and wants could be shown then the requirements gathering approach used could be commended. During our work it became clear that this link was not evident.

THE INTERVIEW PROCESS

Thirteen (13) directors and managers were identified as relevant for our needs because they held positions of influence over, or were involved in projects similar to the Web site implementation, because they were involved in internal policy meetings or because they were on various boards and planning committees. Of these ten (10) were successfully interviewed. The interviews lasted from 15 minutes to 45 minutes following a set number of questions that were broken into three sections.

All interviews were conducted at the participants work place approximately four months after the official launch of the Web site. Therefore it was possible that some of the responses were influenced by the practical outcome of the project. Every effort was taken to minimise this impact in the interview process. We made it clear that our aim was to map the processes that led up to the establishment of the City's Internet presence.

The questions used were designed to determine level of involvement, understanding and perceptions of the Web site project. The semi-structured approach we adopted permitted the interviewer to extend the boundaries of the questions and to tease out imprecise answers. (See Appendix 1 in the working paper Boon & Hewett, 2000, for more detail on the questions used.)

Questions relating to opportunities presented by the Web

It was clear that most of the interviewees did not know of a central IT&C strategy. Interviewees gave several suggestions each to the question asking 'what is the current strategy' reflecting the diversity of opinions. Three interviewees declared they were not aware of any strategy being in place. Only one person identified the need for the City to clearly document a strategy to keep developing the Web site as the details and needs change. (For a more detailed analysis of the interview responses see tables 1 through 8 in the Working paper Boon & Hewett 2000.)

As the interviews were conducted it became apparent that most of the interviewees did not have a significant involvement in the project and not all the questions posed could readily be answered. Most staff became aware of the Web site project or involved in it during the latter stages of the development cycle. There was a lack of time to prepare departmental information to be presented on the Web site project team. One department stated that there was a clear lack of direction and such a rush to provide information, that old information from brochures was provided.

There was a lack of internal understanding of the rationale used by the City to justify the development of the Web site. Communications (ie 'delivery of information') was the most popular reason given for the City to develop a Web site. But there was a general diversity of ideas proposed and this reflects the lack of any strategic plan or central mission or vision on IT&C within the City. Two interviewees suggested that the City had to progress with the community. They felt that the City needed to be seen to be progressive thus the initial goal was to have a Web presence that could be developed, as budgets permitted and demand dictated.

Questions relating to evolution of the Web Site

Local governments are always under pressure to provide transparency in the provision of information to the community. Therefore it is not surprising to see that all the interviewees stated that the needs and wants of local business and community is best delivered in provision of information.

Most of the interviewees were keen for the Web site to continue and evolve, albeit more cautiously and with a greater level of planning and cross-departmental involvement. But it was clear that the lack of community use dampens enthusiasm. The usefulness of on-line document lodgement was questioned, because out of 700 building applications lodged in the three months following the launch of the Web site only 1 was lodged via the Internet. This may demonstrate either that the community is still not fully aware of the City's Web facilities or that the community has not reached a point of Internet usage needed for it to be called an on-line community.

The majority of interviewees believed that the Web site would become a central point of access for the community improving information flow both to and from the City. The maintenance of information was seen as an important issue but, there was a lack of awareness of what departments or functions would be responsible for the maintenance of the Web site. And, seven (7) departments indicated that they did not have plans for the maintenance of information on the Web site pages. There also appeared to be a lack of motivation to become involved and no procedures in place to simplify the task with most people indicating that they were waiting for another department to contact and motivate them into action.

THE INTERVIEW FINDINGS

It was clear that the development of the City's Web site was not undertaken following a consensus vision shared by all departments. There was no rigorous data gathering to determine what the City or community required in relation to the dissemination of information or delivery of services over the World Wide Web.

However, while there was little understanding of any formal goals for the Web project, there was a consistent understanding that the maintenance of relevant information was critical to the success of the Web page, especially where it was used primarily as a communications tool. But we could find no clear plans covering the on going maintenance of the site once established. Other researchers have shown that success of a Web site depends in the long-term on resources allocated to maintaining the sites relevance (Forrest, Pope and Murphy, 1996).

Some of the other interesting findings were that City directors and managers displayed:

- a limited understanding of the IT&C strategy in place;
- a poor understanding of the Web project until three months prior to the launch;
- a belief that the best potential for the Web site was 'delivery of information to the community and business alike';
- a feeling that the Web site was an important resource that could deliver increased department exposure;
- a belief that the City IT department would approach them for input; but
- no clear strategy for individual departmental presence on the Web.

THE WEB DEVELOPMENT PROCESS

Our investigations revealed that only three people were aware of any timetable for the development and implementation of the Web site. The main timetable goal was to have the Web site ready on the same day the community Web site was being launched. Once the decision was taken to proceed and the appropriate internal processes (finance and approval) were satisfied, the project was initiated. However, no tangible benefits were documented in the approval process.

The analysis of the interviews the tender process indicate that the main factor driving the City to develop a Web page was the rapid development of the community Web project. There was only minimal understanding of what the Web site might achieve for the City and next to no understanding of the minimum design criteria that should be followed.

Organisations must consider four dimensions when developing a Web sites — how will Web browsers be attracted to the site; how will those attracted be kept on the site; how to motivate those attracted to use the site (eg make purchases); and how to encourage them to return to the site and/or freely distribute your URL to others (Small and Arnone, 1999). No understanding of these issues was evident from our investigations. Further, it was evident that prior to the tender process the City had not performed any detailed analysis of what was actually required and how the Web site might be used.

THE CITY WEB SITE FEATURES

The City's Web site is in the upper 40% of Australian LGA Web sites (see Boon, Hewett & Parker, 2000 for the analysis of 222 Australian LGA sites). It has a number of unique features such as downloadable documents and on-line news update, but in the main the City's Web site provides very basic information on services and departments. We identified significant differences between what might have been achieved and what was delivered. Further analysing the City site against those around Australia clearly supports the "me too" theory of site design.

The interviews with the directors and managers of the City revealed that they perceived the provision of information on council services (by department or overall) as a strategic element for the success of the City Web site. Yet it appears that due to the lack of direction and consultation old information from brochures was used in developing the site. Clearly this approach was chosen to speed up the Web site

development and implementation but selecting existing brochure based details has reduced the relevance of the Web site to the community.

THE FINDINGS FOR THE CITY

From the interview findings the dissemination of information was perceived as the most significant benefit the Web site could bestow to the City and local community. The internal customer survey sheets revealed that six departments stood out as candidates for effective and efficient delivery of information and services over the Web sites. No effort was made to address this in the site developed because the Web site developed for the council did not have sufficient requirements gathering effort behind it to determine what services and information could be best delivered via their Web site.

The City Web site as developed by the selected contractor delivered more than simple information display. Indeed as indicated above as an LGA site it was classified ahead of over 60% of Australian LGAs. But the site lacks the dynamism required to see it grow and develop. The interview findings support this with many interviewees unaware of what the next step is in the Web development process.

Originally the Web site project was undertaken in order for the City to remain in parallel with the local communities Internet development path. In the ensuing rush to establish a Web site there was inadequate internal consultation and requirements gathering. The lack of forethought has also resulted in a lack of internal control and only minimal maintenance resources being allocated in an ongoing sense. Thus the Web site has stagnated since the launch date (30th March, 1999).

There appeared to be no central IT&C strategy embracing Web development and department heads were unaware of how best to use the Web site for their department's benefits. Most departments were waiting on another department to be assigned the task to maintain and encourage the use of the Web site, and Internet, internally. Yet, most agreed that the Web could provide substantial benefits internally and to the community with its ongoing development, albeit more cautiously and with more planning, consultation, and requirements gathering.

Our analysis reveals that the City needs to focus on the development of a vision for the future of the Web site that is understood and shared between departments. The vision should align itself to key council strategies to ensure uniformity of service delivery. Once the vision is in place a comprehensive plan can be developed to deliver on the vision in an agreed time scale. Further, a central coordinating body (or person) should be made responsible for maintaining not only the Web site, but also the level of interaction between departments and the Web site. This is critical in ensuring that the Web site does not remain static and has relevance to the broader community today and tomorrow, and genuine benefits can be delivered to all stakeholders.

MORE GENERAL FINDINGS

From this research there are a number of more general observations that can be made. These address the development of a Web site and the ongoing, resources required in the maintenance of the site.

Justification presented for the development of a Web site too often follows the "me too" principle. Intangible benefits are most often cited in support of development proposals. So it becomes difficult to complete a useful post implementation review. All too often the result of this will be that the most vital aspect of a web presence, ongoing maintenance to ensure continuity and consistency, is not formally pursued.

The major task then for an organisation —community, business or government — contemplating the establishment of a Web site is an extensive analysis of what is required by the organisation's stakeholders. That is, an appropriate requirements engineering exercise must be undertaken to ensure that the Web site delivers benefits and adds value to service and information delivery.

The establishment of a Web project needs to be treated like any more traditional IT&C project. Before a Web site is considered or further development is undertaken on an existing Web site seven key questions should be asked:

- 1 With whom are we trying to communicate?
- 2 What are we trying to communicate to those groups?
- 3 How can we best communicate this information?
- 4 Where is the information or data to be obtained?
- 5 How current and relevant is the information or data we have?
- 6 How are we going to maintain the information or data and how often?
- 7 What internal processes need to be implemented to maintain the site into the future?

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