

# Approaches to Managing the Web Site Resource

Craig Standing  
Girija Krishnaswamy

School of Management Information Systems  
Edith Cowan University  
Email: c.standing@ecu.edu.au

## Abstract

*Web sites have taken on strategic importance within large organisations. Despite this, many organisations are still grappling with their on-going management. In this paper we explore the issues surrounding the on-going management of Web sites in large organisations and explore the suitability of alternative management structures and their associated strengths and weaknesses. Six organisations are used to illustrate some of the key issues. Simple, autocratic, styles of Web site management have the advantage of being less time consuming and expensive to manage but are likely to lead to a system which is not organisationally empowering. Bureaucratic and team based approaches try to balance formality with empowerment and participation by the users. The organic management style puts less emphasis on the formality of Web site evolution but is more empowering for staff as an organisational resource. Due to the complex relationship of organisational structure, Web strategy and Web site management policies, organisations need to think carefully about the amount of freedom or bureaucratic processes they put in place if they are to effectively manage this strategic resource.*

## Keywords

Electronic commerce, Web sites, management approaches.

## INTRODUCTION

Many organisational Web sites now consist of hundreds, and in some cases, thousands of pages. These sites are often multi-functional and contain information on a vast range of topics. There is no disputing that the Internet, Intranets and Extranets have taken on strategic significance within many organisations (Lawrence, Corbit, Tidwell, Fisher & Lawrence, 1998).

Web sites evolve through time; extra functionality is added and information is continually being added and updated. As a result the on-going management of Web sites has become an important issue (Fournier, 1998). This paper explores the issues surrounding the on-going management of Web sites as an organisational, customer/client and supplier resource. In particular, the aim is to determine the strategies organisations use to manage their Web resource and analyse their main strengths and weaknesses.

A number of problematic issues are raised in relation to the suitability of commonly used management structures and strategies for Web site management. Six studies of organisations that have large Web sites are used to illustrate the nature of the problems and anomalies that can sometimes arise in large organisations. Finally, appropriate management structures and strategies for Web site management are discussed.

## LITERATURE REVIEW AND CONCEPTUAL FRAMEWORK

The particular focus of this paper is to discuss appropriate strategies for Web site management and the strengths and problems associated with them. Any organization planning to have a Web site must evolve a strategy for effective use of the Web site, whether this is for customers, suppliers, or employees. The organisational structures and management approaches shape and are shaped by the use of the technology (Fulk & De Sanctis, 1995; Walsham, 1993). Indeed, there is some evidence to suggest that inappropriate management approaches can severely reduce the effectiveness of the Web site resource (Newell, Scarborough, Swan, & Hislop, 1999).

Management structures and approaches are a well documented topic of study in the management discipline (Vecchio, Hearn, Southey, 1996; Robbins, Millet, Cacioppe, Waters-Marsh, 1998; Bartol, Martin, Tein, Matthews, 1998). A range of organisational forms and associated management structures have been documented that lie between the extremes of bureaucratic and organic. They include the following structures (Robbins, Millet, Cacioppe, Waters-Marsh, 1998).

**Bureaucratic** - characterised by rules and procedures, hierarchical chain of command, division of labour and specialisation, emphasis on record keeping, centralised decision making.

*Simple* - low degree of departmentalisation, wide spans of control, authority centralised in a single person, and little formalisation.

*Virtual* - highly centralised, little departmentalisation, outsourced major business functions.

*Matrix* - dual lines of authority, combines functional and product departmentalisation.

*Team* - the use of teams as a central device to coordinate work activities, decentralised decision making to the team level, cross-functional, works within a bureaucratic framework.

*Organic* - low horizontal differentiation, adaptable duties, low formalisation, informal communication, decentralised decision authority.

These organisational structures are managed by equivalent management structures and appropriate management styles. Even though these styles are usually viewed as organisational in their scope, this need not necessarily be so. A department or branch could be run along different lines to the rest of the organisation and one resource could be managed in a different way to other resources (Limerick, Cunnington & Crowther, 1993). There is some evidence to suggest that this is the case with the management of some organisational Web sites (Greenberg, 1999). These issues go beyond the more traditional argument in IS of whether to centralise or decentralise the management of the IS function (Jessup & Valacich, 1999).

### The Bureaucratic IS Resource

The IS function in organisations is often managed in a bureaucratic manner. According to Weber (1947), a perfect bureaucracy possesses a number of characteristics such as rules and procedures and hierarchies of control. The IS function or resource is examined below in the light of Weber's characteristics of bureaucracy.

- 1) *Rules and procedures* - information systems are designed with policies and procedures to help clarify the effective use of the system.
- 2) *Hierarchies of control and authority* - additions and developments in organisational information systems require users to raise the issues with user management and if deemed acceptable are then raised with the IS department. Depending on the scale of the project it may need senior user management and senior IT management approval.

- 3) *Division of labour and expertise* - the IT/IS developments are carried out by experts in the field and as such there is a dependence on expertise and an adherence to a strict division of labour.
- 4) *Impersonality* - the IS department can use language and technical expertise to remain detached from user departments (Standing, 1998).
- 5) *Competence* - changes to the information systems are made on the basis of technical competence and expertise.
- 6) *Record keeping* - is a large part of developing, maintaining and managing information systems.

Weber suggested that bureaucracy was the best administrative form for the rational pursuit of organisational goals. However, as previously mentioned, alternative organisational structures and management styles exist. Some organisations, which require a more entrepreneurial and creative environment have decided upon a more organic structure. It has been recognised that there are advantages and disadvantages associated with bureaucracies (Vecchio, Hearn, Southey, 1996). Table 1 examines the pluses and minuses of a bureaucratic approach for Web site management.

Pluses of bureaucracy	Pluses in relation to Web site management strategy	Minuses of bureaucracy	Minuses in relation to Web site management strategy
Control	The management of the Web site is clearly visible and the Web site can be aligned to organisational goals.	Barriers to change	The decision making process (committees) becomes so protracted the Web site is not kept up to date and does not evolve.
Order	The Web site is easier to manage and use because it is clearly structured.	Reduced employee satisfaction	Staff do not feel 'owners' of the site and content. They become alienated from participating.
Efficiency	It leads to an effective use of organisational resources and personnel.	Reduced discretion	Risks (experiments) are not taken and the potential rewards not realised.
Stability	The Web site can be used to support organisational goals and support the status quo.	Red tape	The rules, procedures and approval mechanisms are so involved they act as a disincentive to staff to update and develop the Web site.
Rule by reason	That rational argument within the organisation determines the strategy, functionality, content and design of the Web site.	Power seeking	The staff responsible for the Web management strategy see themselves as owners of the site and do not encourage participation in its development and evolution.

Table 1: The Pluses and Minuses of a Bureaucratic Approach to Web Site Management

## METHODOLOGY

A multiple case study approach (de Vaus, 1995; Yin, 1994) has been undertaken to examine Web sites and to identify a set of strengths and weaknesses associated with each strategy. The key research questions in relation to the study are:

- What types of management approaches are being used to manage organisational Web sites?
- How effective are the management approaches that are being used?

Six organisations were chosen that own strategically significant, multi-functional Web sites. Firstly, the person in each organisation who had the most knowledge about their Web development and management was approached. An interview was conducted with each person. The interviews lasted on average forty-five minutes and were carried out on the

organisations' premises during work hours. A series of open-ended questions were asked that covered the key areas of:

- Historical development of the Web site;
- The group that had the responsibility for Web site development;
- The development and contents of the Web site strategy;
- The management structure of the Web strategy team;
- The process and procedures used in the development process (levels of bureaucracy);
- The composition of any Web strategy/development teams;
- Responsibilities for Web content and design;
- Organisational structure;
- Perception of satisfaction with Web management approaches.

Discussions with managers, Webmasters and various users, both internal users and external customers, were carried out in each organisation to determine the perceived main strengths and weaknesses with the Web site management approach. In addition to the interviews, the organisations' Web sites were analysed for structure, functionality, content and design.

### **Interview 1: Edith Cowan University**

University Web sites, unlike commercial organisations' Web sites fall into a category of their own. This is clear from the following statement taken from the University strategic plan:

*.... the University will plan for faculty, staff, students, alumni and the public to be able to transact all necessary business, exchange and obtain information, and work collaboratively from their offices, classrooms, and residences, through a dependable, responsive integrated voice-video-data network which transcends the limits of time and distance and supports worldwide access.*

The University has a decentralised system of Web site management and administration. Various faculties, schools and the administrative divisions of the University create, revise and update their Web pages and upload them into the different servers. The organic unity of the site is overseen by the Webmaster (not part of the IT division) in consultation with senior officials of the University, although this is done via a loosely coordinated approach. In reality they have little involvement with the distributed Web site activities. Thus at present, the classical elements of bureaucracy do not seem to prevail in the design and management of the Web site. There is significant flexibility and freedom for individuals within the organisation to develop and add Web pages to the site. This along with the training opportunities in Web design tools made available to academic and non-academic staff members contribute to the process of site building. There is little central regulation and evaluation of individual, School and Faculty Web pages at present.

Internet, Intranet and Extranet technologies are undergoing tremendous changes and acquiring increasing capabilities. This partly explains, along with the rapid evolution of the site, the less regulated approach being used. The University is in the process of organising three different functional groups: a Web management group, a Web content group, and a Web systems group. This is intended to create an effective Web site management strategy.

The current Web site management approach at present appears organic in nature. The main evidence to substantiate this statement is as follows:

- There are few rules and procedures in place.
- There is no deep hierarchy of control and authority.
- There is little division of labour. Any one can develop and a Web page to the site.
- The informal approach is in contrast to the bureaucratic mechanisms that are in place for many of the other processes within the organisation.

Users of the site, both staff and students, felt empowered by being able to add, interact, and amend the site in various ways. This has led to the site becoming a "*living organism*" (user). The down side of this is that the Webmaster team feels unable to control the growth and development of the site in terms of standards in relation to content and design.

## **Interview 2: Joondalup City Council**

Joondalup is a new city in Western Australia. Joondalup City Council is responsible for such functions as: urban design, waste management, roadwork construction and maintenance, parks and landscaping, health, leisure and community services. The Joondalup City Council Web site was launched as a trial service in 1994 but had very limited functionality. It was developed by the Information Services Division but was taken over and expanded by Library Information Services in January of 1996. The Web site includes:

- Databases to manage and display information on job opportunities, community information and local events.
- Information on Council minutes and agendas.
- Feedback options.
- Intranet that includes manuals and policies, staff telephone numbers, etc.
- Web applications such as an On-line inter-Library loans system.

In the development of the Web site there has been no overall strategy articulated. The Library services Webmaster works with Departments across the Council who propose ideas for the site and so the development has evolved in a bottom-up fashion. The Departments are responsible for the content which is passed on by the managers of the Departments and the Webmaster works on the design aspects to try achieve a uniform look and feel to the site. The Webmaster does not drive the overall Web site development but is in charge almost by accident. Historically, the Library Services developed their own site but were then asked to take on extra projects on behalf of other Departments. Hence, there isn't a meta-development team forming policies and procedures for the site. In fact, the Webmaster acts as a "gatekeeper" from a design perspective but has little knowledge or interest in content. He is the only one that can add or amend pages and in his words the Council is "*paranoid about the image portrayed to the public*" (user). For larger projects representative user teams are used for the duration of the project.

The lack of strategy has meant the site has progressed in a rather ad-hoc fashion, some Departments taking the opportunity to put information and functions on the Web via the Webmaster with others having hardly a Web presence. There are elements of bureaucracy in the running of the site but it could be best described as an ad-hocracy with a design gatekeeper and the user managers responsible for content. The Library Services "Ownership" of the site substantiates the view that there is a lack of top-down strategy with the potential of a "*bun fight for ownership*" (Webmaster) if the Webmaster left. As a Local Government Council it conforms to a bureaucratic organisational type and structure with a strong emphasis on procedures, accountability to the rate payers, and hierarchical employee structure.

The views of the users on the success and usefulness of the site vary between being really quite happy with the Internet and Intranet to those that say it is not of much use. Overall, it is perceived as a resource for accessing documents but is not viewed as an empowering addition to the organisational information infrastructure.

## **Interview 3: ABC Broadcasting Company**

ABC Online is one of the most visited Australian Web sites. Australian Broadcasting Corporation's Web site has over fifty thousand Web pages. ABC Online is a multimedia site, with live audio streaming, audio files and occasional video streaming. ABC Online had a humble beginning in 1995, and evolved out of the meeting of all stakeholders in the organization. The guiding principles and policies of the site organization, development and management evolved in the first meeting (the 'Online Style Council').

Functionally, ABC Online has a collection of diverse autonomous Web sites, each with its own editorial integrity. The co-ordination and development of the site rests with the internal Multimedia Unit. The management of the site is decentralized in nature, with Web developers responsible for their particular site. The overall design is visualized by the multimedia team which sets the design standards. Well defined criteria regulate the process of uploading contents into the site and automated systems are in place to facilitate the process. Though the organization could be broadly termed bureaucratic, with several layers of authority, there is scope for autonomy. Because of the high frequency with which the contents have to be updated, emphasis is on acting quickly, and at times autonomously.

The Management strategy can best be described as a team based approach. The Multimedia Unit acts as a team to oversee the on-going development of the Web site but each unit has a team to develop its own portion of the ABC's site. The company as a whole has a team based approach to management, although there are strong elements of traditional bureaucratic style within the organisation.

#### **Interview 4: Wescomm Pty Ltd**

WesComm Pty Ltd is a medium sized software development and consulting business. Its Web site provides information about the services and products that are offered. The Web site started two years ago as an intranet and then was developed further for customers and potential customers. The Web site started as an organisational initiative but the Web programmer has the most responsibility for its development. All updates are carried out in-house. There is no organisational team to oversee its development but there are guidelines for content and design of Web pages. Content can be proposed by anyone in the organisation but the Web programmer checks the design and content and then the Marketing manager approves it. It is then forwarded to the General Manager for approval.

The organisation was described by the interviewee as closely resembling the organic model, however, the management of the Web site is actually quite bureaucratic in nature. The Web strategy is not mentioned as part of the business strategic plan and is developing on a needs basis rather than adhering to a well documented plan. The organisation most closely resembles the organic type of structure which contrasts with the approach used to manage the Web site. The users are happy with the site for restricted uses but do not feel empowered it.

#### **Interview 5: Curtin University**

Curtin University has over forty thousand pages in its Web site. There is an executive strategy for the Web site that is focused on improving service to students and the image of the University. This executive Web strategy does not appear to be integrated with the University strategic plan.

The management of the Web site' content and design has been tightened up as people were not adhering to the guidelines. There is a style guide and all Web pages are checked for style by the Webmaster. However, personal Web pages are not checked for compliance. The Executive Committee gives directions on Web development as far as content and

functionality are concerned. Generally, there is some autonomy for individuals to develop Web pages but beyond that there are strict guidelines to follow. The University structure is hierarchical and bureaucratic in nature. The users make great use of the site but find the procedures tedious and on occasions they are put off adding to the site because of the standards that have to be adhered to. The Webmaster team prefers stricter controls on content and design. The University management is satisfied with the role the Web site is playing in the University.

#### **Interview 6: Web Strategy Resources (Small Business)**

Web Strategy Resources is a small (15 Employees) consulting firm specialising in Web business strategies. Their list of services include:

Preparation of Web business plans;

Project Management of Web site design, development and implementation;

Usability testing;

Web site promotional strategies and implementation.

The Web site was developed as a resource for clients, potential clients and the general public. The aim of the site is to highlight the consulting services of the company. It is also used as a research tool by the company as it includes a large number of Web strategy articles. The Web site was developed in March 1999 and contains sixty pages of content which were incrementally added. The site was developed in-house with the content being strictly regulated by the Webmaster who is the only employee with permission to add to amend the site. There are no committees to decide on content although employees can make recommendations and propose content. The business owner autocratically makes the final decision. The company has a simple organisational structure which is in line with the approach used to manage the Web site. Other employees find the site useful as a report and information source but are not empowered by it. The site is perceived by the owners of the organisation as being successful and therefore the same management strategy is likely to continue.

## **DISCUSSION**

The organisations that have been examined can be classified as using *simple*, *organic*, *bureaucratic* and *team/network* management strategies in relation to their Web site management (table 2). The City Council Web site is managed rather like a small business where the webmaster has centralised authority and a wide span of control. This approximates most closely to the *simple structure* which works within the overall Council bureaucracy. Web Strategy Resources also employed a simple management approach. Decentralised decision making and low formality characterise the Edith Cowan University Web site management approach which contrasts with the largely bureaucratic structure of the organisation. The ABC is characterised by the use of a meta-development team working with semi-autonomous teams in departments. The other two organisations are most closely aligned to the bureaucratic model.

Management Structure	Structural Characteristics	Edith Cowan	Joondalup Council	Web Strategy Resources	Curtin University	WesCom Ltd	ABC
Type of Organisation		University	Council	Small Business	University	Medium size Business	Broadcasting Company
Simple	low degree of departmentalisation		No	Yes			
	wide spans of control		Yes	Yes			
	authority centralised in a single person		Yes	Yes			
	little formalisation		Some formality	Autocratic			
Matrix	dual lines of authority						
	combines functional and product departmentalisation						
Virtual	highly centralised						
	little departmentalisation						
	outsourced major business functions						
Team - network	the use of teams as a central device to coordinate work activities						Yes
	decentralised decision making to the team level						Yes
	cross-functional						Yes
	works within a bureaucratic framework						Yes
Organic	low horizontal differentiation	Yes					
	adaptable duties	Yes					
	low formalisation	Yes					
	informal communication	Yes					
	decentralised decision authority	Yes					
Bureaucracy	Rigid hierarchical relationships				Partly	Yes	
	Fixed duties				Yes	Yes	
	High formalisation				Partly	Yes	
	Formalised communication channels				Yes	Yes	
	Centralised decision authority				Partly	Yes	

Table 2: Web Site Management Strategies Used by the Six Organisations



There are advantages and disadvantages attached to each Web site management approach. Through discussions with the Webmaster, managers and various users, both internal and external customers the main strengths and weaknesses with each approach have been identified. The great benefit of the organic approach with the University Web site is that it is useful for keeping the site up to date and for responding quickly to change. The down side is the lack of adherence to design and content standards which may impact on organisational image.

The Joondalup City Council approach has worked effectively in the past when the Web site has been relatively small. As the Web site grows and Departments make greater demands the situation may become unsustainable for the Webmaster (gatekeeper) who for historical reasons has taken on the entire responsibility for the management of the site. Certain Departments lack a Web presence. There is no real organisational strategy or meta-development team to encourage them to be part of the Web development. For Web Strategy Resources the simple (autocratic) approach is effective from a management perspective and works because it is a small business where the size of the site is relatively small.

The team/network approach at the ABC appears to bring both degrees of autonomy and regulation together in a collaborative way. The meta-development team operates within a bureaucratic organisational framework which enables fast responsiveness but also provides standards to protect company image.

The bureaucratic approach has the key advantage of adherence to standards to protect organisational image. However, this can lead to slow responsiveness for changes and less creativity in the uses and development of the resource.

When the organisational structures are compared with the Web site management approaches it can be seen that the two are not always the same (table 3). The Web site resource is perceived as being sufficiently different to other resources and hence requires a specialised management approach. However, there is no one way of managing the resource as it depends on the objectives of the organisation. For example, Edith Cowan University have a bureaucratic organisational form but have an organic approach to managing their Web site resources. WesComm are more organic in organisational structure but manage their Web site in a bureaucratic style. Each organisation has different objectives in relation to the Web site and hence different styles of management. These findings confirm the approach of managing each strategic resource according to its specialised requirements that some organisations are adopting (Limerick, Cunningham & Crowther, 1993). Interestingly, each organisation chose the same management approach for both the Internet and Intranet components of their Web sites preferring not to have a more relaxed approach for the Intranet.

Organisation	Organisational Structure	Web Site Management Approach	
		Internet	Intranet
Edith Cowan University	Bureaucratic	Organic	Organic
Joondalup Council	Bureaucratic	Simple	Simple
ABC	Team Based	Team Based	Team Based
Curtin University	Bureaucratic	Bureaucratic	Bureaucratic
WesComm Ltd	Organic	Bureaucratic	Bureaucratic
Web Strategy Resources	Simple	Simple	Simple

Table 3: Comparison of Organisational and Web Site Management Strategies

## **Success of Web Site Management Strategies**

It is not a suitable approach to attempt to quantify the success of each Web site management strategy. Simple measures such as hit rates cannot tell us the effectiveness of the management strategies. Success in this context is best viewed as:

*"Achieved when an information system is perceived to be successful by the stakeholders and other observers."* (Myers, 1995).

It is more relevant to try and determine how the strategies influence organisation effectiveness in terms of the Web site resource so that organisations questioning their current management strategy can be aware of the implications, both strengths and weaknesses, of alternative methods.

The simple management approach is effective in maintaining the integrity of the system and preserving the organisational image both internally and externally. It is effective from a time and management perspective in small businesses that do not have the resources to dedicate to team meetings and training of all staff so that they can add to the site. Of course the simple approach does not act as an empowering resource for employees because they do not feel a sense of ownership of the Web site and are less likely to contribute to its development and evolution.

The bureaucratic and team approach try to take a middle line in terms of satisfying organisational standards and image and providing a flexible and effective resource for employees. The organic management strategy appears to empower users and creates a sense of ownership but Web administrators (and the organisation) feel the tension of creating this environment whilst trying to preserve standards and organisational image.

## **Issues for Practitioners**

Practitioners must be aware that a conscious decision must be made on how the Web resource will be managed. The organisation must decide what can be gained by adopting a particular management approach in relation to their Web resource. It does not necessarily have to be the same style that is used across the organisation generally or for other resources. Team based approaches appear to work for the ABC which has clearly defined business units but have to be aligned to organisational standards. The bureaucratic approach requires effort to police and may deter innovative uses of the Web but would probably be most suitable for a conservative organisation that is very concerned about the image it portrays.

The simple form of management structure where most or all authority is vested in one individual is perhaps a low cost structure to follow and may be suitable for a small organisation with few resources to dedicate to Web site evolution. However, there are inherent dangers with this model. It places a great deal of responsibility on one person. In a larger organisation the Web strategy should be managed as an organisational resource. The organic approach can be useful for encouraging innovative uses of the Web and can work effectively where there are constant changes required to the content. Consistency of design and appropriateness of content can become an issue. Where a company's image is the overriding issue this is perhaps not the best strategy to adopt.

## **Issues for Academics**

The management of Web sites as a resource raises some interesting issues for researchers. Although the IS resource or function is largely run along bureaucratic lines there are a number of ways that a Web resource can be managed effectively. Further research in this area could explore the relationships between the organisational structure, the goals of the Web

strategy, the authority/freedom dichotomy, and Web site management strategies. It is hoped this will lead to models of Web site management that will be useful to organisations coming to terms with this relatively recent addition to their information infrastructure.

## CONCLUSIONS

The six organisations studied provided four different methods of managing their Web resources. There are strengths and weaknesses associated with each method. Although a bureaucratic style of management may seem rational and accountable, alternative methods have their merits. New organisational forms require new management approaches. New organisational resources, in this case, Web sites, require careful thought and consideration in the selection of effective management structures and procedures.

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