A survey of UK university web management: staffing, systems and issues

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Purpose

The purpose of the paper is to summarize the findings of a survey of UK universities about how their web site is managed and resourced, which technologies are in use and what are seen as the main issues and priorities.

Methodology/approach

The paper is based on a web based questionnaire distributed in summer 2006, and which received 104 usable responses from 87 insitutions.

Findings

The survey showed that some web teams were based in IT and some in external relations, yet in both cases the site typically served internal and external audiences. The role of web manager is partly management of resources, time and people, partly about marketing and liaison and partly also concerned with more technical aspects including interface design and HTML. But it is a diverse role with a wide spread of responsibilities. On the whole web teams were relatively small. Three quarters of responding institutions had a CMS, but specific systems in use were diverse. 60% had a portal. There was evidence of increasing use of blogs and wikis. The key driver for the web site is student recruitment, with instituitional reputation and information to stakeholders also being important. The biggest perceived weaknesses were maintaining consistency with devolved content creation and currency of content; lack

of resourcing a key threat while comprehensiveness was a key strength. Current and wished for projects pointed again to the diversity of the sector.

Research implications/limitations

The lack of comparative data and difficulties of interpreting responses to closed questions where respondents could have quite different status (partly reflecting divergent patterns of governance of the web across the sector) create issues with the reliability of the research.

Practical implications

Data about resourcing of web management, technology in use etc at comparable institutions is invaluable for practitioners in their efforts to gain resource in their own context.

Originality/value of paper

The paper adds more systematic, current data to our limited knowledge about how university web sites are managed.

Research paper

Keywords

HEI, web management, WWW, Content Management Systems

Introduction

Universities have come to use the web intensively to provide information and communicate with users and other stakeholders. This web presence is often managed and supported by a team located in a central service department. Generally this is run separately from e-learning. Direct maintenance of much of the content is devolved to departmental web authors, though this creates problems of controlling and standarising content. The university web site is an important institutional activity, increasingly central for student recruitment, but also in providing information for the day to day operations of the university, eg through live access to web enabled databases. Yet to date there has been relatively little substantial or academic research

on the management of university web sites [1]. As the pages of *CWIS* illustrate this is in stark contrast to the amount that has been written about educational applications of the web. Studies from any sector on web site creation as an occupation are few (though there are some useful theoretical contributions in Kotamraju 2002, 2004). This paper presents findings of a web based questionnaire of those working in the area of university web site management, intended to partly fill this gap.

Background

The series of conferences organized by Brian Kelly of UKOLN, the Institutional Web Management Workshops (IWMW) (http://www.ukoln.ac.uk/web-focus/events/workshops/), have been remarkably effective in mobilising practitioners across the sector to debate issues of practice in university web management. Attendance at the conference and reference to the archive of past papers is probably the best way to learn about the technical and management issues in the sector - combined with Kelly's own presentations and now his blog (http://www.ukoln.ac.uk/web-focus/, http://ukwebfocus.wordpress.com/).

For the more systematic study of the sector, a beginning is provided by Armstrong et al.'s (2001) research based on email survey and interviews, undertaken from November 2000 to May 2001. They found "webmasters" [2] to have heavy workloads, with responsibility for the web site being generally only one of several roles: None spent 100% of their time on the web (ibid., p.40). Equally graphic design, and particularly server management as the most specialised areas of the work were likely to be handled by persons outside the functional web team where there was one (ibid., pp.46-49). In terms of education and professional training the web managers studied had diverse backgrounds: From IT, information science and a variety of subject disciplines (ibid., pp.41-2). Commonly their web skills were self taught (ibid., p.42).

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[1] However, Cox (2007) reports on in-depth interviews with 17 web managers; Emmott is also working on a book for Chandos publishing on the web management role.

[2] Defined by them as persons responsible for the main web site of the university. The term is probably not widely used now, because of its overly technical connotations.

In larger institutions there was a dedicated central web team, in smaller ones the work was the responsibility of just one or two people (ibid., pp.46-50). They were often based in marketing or information services, less frequently in registry or central administration. In a few cases the web team was its own department (ibid., p.40). Armstrong et al. also identified variety in the strategic decision making processes between institutions (ibid., p.50). Some institutions had formal strategy documents and some had web management steering groups others did not (ibid., p.51). Interestingly, the main methodological problem acknowledged was that as the role of "webmaster" was organised so differently in different institutions, it was difficult to obtain comparability in interviewing.

We might have expected a much clearer regime of resourcing and governance to have emerged across the sector in the last half decade, but Cox (2007) using interview material from 2004, reveals the continuing diversity of character of this emergent occupational role. Cox explores the divergence of practitioners' backgrounds, occupational trajectories, organisational positions, job roles and status. He also explores the complexity and creativity involved in individuals' construction of coherent and successful occupational identities in such roles. The paper gives a vivid insight into how the web as a dynamic and open technology opens up opportunities for new forms of expertise; but also explores the potential vulnerabilities of such new roles.

But if Cox's study suggests continuing diversity across the sector, the context of working has changed as the web has evolved. Armstrong et al (2001) identified some key forces for change: The growing scale of the web site, convergence of library and computing, the increasing importance of marketing (ibid., pp.52-54), subcontracting of work (generally seen by interviewees as a bad thing) and extension of legal regulation. The major new themes since Armstrong et al.'s work are few but significant. There seems to be an increasing faith in systematic usability testing and certainly a growth in the importance of accessibility compliance as a design consideration. Another key change is the widespread adoption of site management tools, content management systems (CMS) (Browning and Lowndes 2001) and also in larger institutions, portals (Klein 2006). Achievement of serious E-commerce functions should be seen as part of the same process. CMS offer to take the technical

skill out of web publishing, allowing decentralisation of content creation but with continuing control over page design. Portalisation in essence allows silos of information to be maintained separately and integrated at the service level, leaving content providers in ownership of the data. Both CMS and portals reconfigure the relationships between departments and fundamental work processes. By being at the centre of such an initiative the web manager is propelled further into attempting to manage relationships with departmental web authors and senior management, as well as end-user groups and stakeholders. As large scale systems both CMS and portals make large demands on an institution, unlike the previous essentially distributed effort that characterised the web. However, we do not have much systematic data about technologies in use across the sector.

So while we know something about how university web sites are managed, there is a potential interest, among practitioners and researchers, for more systematic data on the staffing and resourcing of the university web site, on technologies in use and perceptions about the priorities and outlook for the web presence. In response to this need the authors undertook the survey reported in this paper.

Methods

The survey took the form of a web based questionnaire, first advertised on a number of jiscmail (www.jiscmail.ac.uk) e-mail lists (listservs) in August 2006 and hosted on BOS (Bristol Online Surveys) (https://survey.bristol.ac.uk/). The full text of the questionnaire is reproduced as an appendix below. The e-mail lists included ones for IT specialists, web specialists and managers and PR/marketing professionals, because it was felt potential respondents might see themselves as fitting into any of these areas. After initial responses were received during August, non-responding institutions were contacted by finding a direct email (preferably of a named individual) through their web site. Finally, the questionnaire was then readvertised in mid October.

The questionnaire received 138 responses. Of these 5 were discounted because they contained no data. Another 4 were excluded because respondents had filled out the form twice. Other responses not analysed were from non UK institutions (4), non-HEIs (7) and departmental web managers (14). Leaving a total of 104 responses for

analysis. Of the 104 responses used, a number were multiple returns from the same institution, so 87 different HEIs returned a response or responses. Since there are 164 institutions in the UK plus 45 small HEIs, this was a reasonable response rate overall, particularly given that the questionnaire was long, with 51 questions, many of which had multiple parts. It probably took a minimum of 30 minutes to complete. In general, respondents gave very full responses including on sensitive areas such as on budgets or acknowledging weaknesses of the web site, so we feel that the data can be treated as reliable.

Nevertheless, studying which institutions responded there may be a bias towards larger institutions. Thus 13 of the 19 Russell group universities gave one or more responses (around 70%) whereas less than 50% (14/30) of "new, post 92 universities" (CMS group) did. Looking regionally 4 out of the main 9 Welsh institutions responded; only 8 out of 19 Scottish ones[3]. The smaller HEIs also seem to be underrepresented. So there was a patchiness to the response that should lead us to treat the results with some caution; it probably under-represents the point of view of those with the least resources.

The questions were derived from the researchers' knowledge of the sector and previous research (including the work cited above and van der Walt and van Brakel's (2000) webmaster's task analysis). They were piloted with two respondents.

On the opening page of the survey the authors stated that it was

> aimed at those who have primary responsibility for their institutional web presence. We recognise that responsibility is often shared - eg between marketing and IT departments - and therefore appreciate that it may be logical for several people from the same institution to complete the survey.

Broadly, we expected only one person per institution to fill in the questionnaire but saw that several people could reasonably claim a substantial influence over its direction, eg a manager in marketing by virtue of control of front facing content and an IT manager because he controlled the servers, accessible templates or an intranet. It might be, for some reason, filled out by one of the web team or by a senior manager

[3] Data on the names of institutions and group memberships was taken from HERO, www.hero.ac.uk.

who had oversight of someone in a web management role. As has been suggested in practice, our experience is that control of the web is quite dispersed, so getting a clear picture is difficult for many institutions.

Another problem that the researchers tried to anticipate in the wording of questions were ambiguities in terminology that potentially reduced the comparability of the data. For example, practitioners often refer loosely to the notion of a web team. However, we have observed the term used to refer not just to a functional team of specialists but also to a number of support roles in the IT department, but who were not organized as a functional team as such. It is also sometimes used to refer to all the departmental web authors organized in a committee structure. It is difficult to be sure about comparability of data from a survey where terminology is not settled. Given the variety of the ways the web is organized comparability of experience on any particular question is difficult to attain.

It is also problematic that we lack both comparative data with another country for this specific role in HE, or with equivalent roles in another sector or even in general administration or IT in UK HE. This makes it difficult to interpret some of the data, eg the predominance of graduates and the wide spread of disciplinary backgrounds. This seems to mirror the multi-valent quality of the web itself, but may be common to most roles in university administration.

Findings

Staffing

One of the main aims of the survey was to look at the roles of those who have a primary responsibility for the web and the character of the people who fill those roles.

Of the 104 usable responses, 50 (48%) were completed by people located in an a marketing, communications or external relations department (hereafter referred to as external relations). The rest were in IT or Information Services (combined IT/library service), apart from a handful of others (4) who were in organizational locations that could not be interpreted from the data. It had been expected that there would be a disproportionate response from IT departments, given the strength of collaboration via

IWMW, which does seem to have an IT emphasis. Having said this, being located in external relations does not make a person a marketing person (Cox 2007). Certainly though this figure alone points to the continuing uncertainty about where in the organization web most logically sits, though the range of locations has narrowed to two options.

35 of the respondents were female (34%; 1 respondent declined to answer the question). Of all surveyed people in external relations departments (50 of the 104 usable responses) 20 were women, ie 40% of the total; around 30% of respondents in IS locations were women. Thus it is not simply the case that all the women were clustered in external relations, as might have been expected. In so far as managing a web site could be seen as an IT job a third is a relatively balanced gender distribution, global statistics for the industry suggest a 25:75 ratio - lower in professional roles (Webster 2005). Yet as should already be apparent web management, though it will generally involve a lot of IT knowledge, is not simply an IT role, plus the web is on the softer end of IT. This may reflect that part of the barrier to women entering IT is to do with institutional culture and lack of transparency of HR policy (Webster 2005), whereas Universities generally have very clear anti-discrimination policies.

Of all respondents about 40% were 25-35 years old, a third 36-45. There was no noticeable difference in the age distribution among men and women. Of all respondents only 5 did not have a degree. This may reflect the context of work, ie academia as much as the requirements of the job role. Although a reasonable number of respondents had either a degree in computing (a quarter) or marketing/business, most respondents did not have a directly relevant degree. This is not really surprising given the newness of the web and we do not have any comparative data. There was a divergence in respondents' experience of their the current role, with 70 having between 1-5 years experience, but 9 individuals had 10 or more years.

Membership of professional bodies was relatively low, with only a third of respondents saying that they were a member of any professional body. The greatest number of those who did belonged to marketing professional bodies (CIM etc), followed by IT (including BCS). Two were members of web specific bodies; three of teaching related associations and there were a handful of CILIP members.

One problem, however, with interpreting this demographic data was the comparability of people who filled in the questionnaire. There are several ways into this question. Only 5 /104 respondents saw the web site they were responsible for as only for external users, only 1 only for internal users (ie an intranet). So nearly all the sites were intended for both audiences. This establishes that universities tend not to have a very clear division between intranet and front facing web, so whether respondents were located in external relations or IT they were concerned with meeting the needs of both audiences.

Yet, looking at job titles of usable responses, there was far from standardisation around "web manager". Only 13 had that job title; another 16 had a title such as "web services manager" ie which included the words, but qualified them with other terms. Other common titles were web editor and coordinator. However, at least 26 respondents (going by job title) appeared to be either quite senior managers in IT (11) or marketing (15) eg Head of Learning and Teaching services or Head of External Relations (not actual examples for reasons of confidentiality). This does not invalidate their responses on issues or systems in use (so long as one understands that one is reading responses from a diverse group of people); but we should not really include their input when we consider such matters as work activities.

Of course, job titles are not necessarily a very good guide to what people actually do. Question 13 offered respondents a list of activities for each of which they were asked "how often it required their time": never, sometimes or frequently. This was used to look at typical work activities. By scoring never as 0, sometimes as 1 and frequently as 2 we could calculate a ratio for each individual for each activity and averages across the whole group. A score nearer to 2 indicates that people were concerned with the activity a lot; a score nearer to 0 suggested a lack of involvement.

	non seniors (77 people)	seniors
Liaison	1.86	1.44
Interface design, usability, accessibility	1.84	1.60
Project Management	1.74	1.48
Planning	1.67	1.64
Supervision	1.51	1.46
HTML	1.50	0.56
Marketing	1.49	1.71
Policy	1.47	1.56
Troubleshooting	1.45	0.92

	non seniors (77 people)	seniors
Information Management	1.42	1.20
Writing for web	1.40	1.28
Graphic design	1.37	1.44
Business processes etc	1.34	1.32
Documentation	1.23	1.17
System choice	1.17	1.24
Search engines	1.13	1.04
R&D	1.05	0.84
Training	1.04	0.84
Legal issues	0.96	1.28
Non-web	0.96	1.58
Programming etc	0.96	0.44
elearning	0.76	0.92
Networking etc	0.60	0.64

Table 1 Activities requiring attention/time reported by seniors and non-seniors

Table 1 reports figures from non-senior and senior respondents. The highest ranked activities for non-seniors give us a feel for the character of the job: liaison, interface design plus project management, planning and supersvision. Not surprisingly seniors spent much more involved in non-web activities, far less in coding and HTML. Marketing and legal issues were much more important.

	females (33 people)	males
Interface design, usability, accessibility	1.79	0.75
Liaison	1.74	1.77
Planning	1.65	1.67
Project Management	1.64	0.67
Marketing	1.56	0.51
Graphic design	1.53	1.32
Writing for web	1.53	1.29
Information Management	1.50	1.30
Policy	1.50	1.49
Supervision	1.41	0.52
Documentation	1.26	0.17
Troubleshooting	1.21	0.36
Non-web	1.15	1.07
Business processes etc	1.12	1.43
Legal issues	1.00	1.06
System choice	0.97	1.29
Search engines	0.91	1.20
Training	0.91	1.03
HTML	0.91	1.45
R&D	0.85	1.07
elearning	0.59	0.90
Programming etc	0.53	0.99
Networking etc	0.35	0.74

Table 2 Activities requiring attention/time reported by females and males

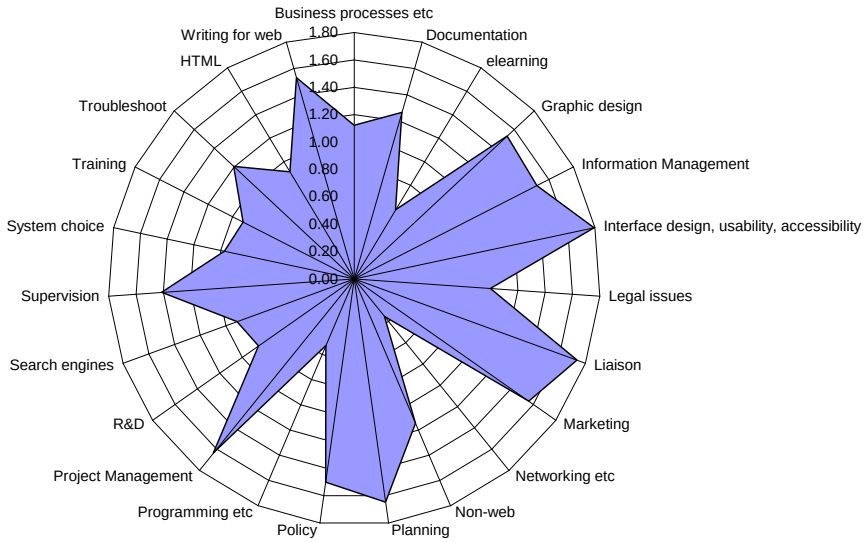

Figure 1 Activities requiring attention/time reported by female respondents

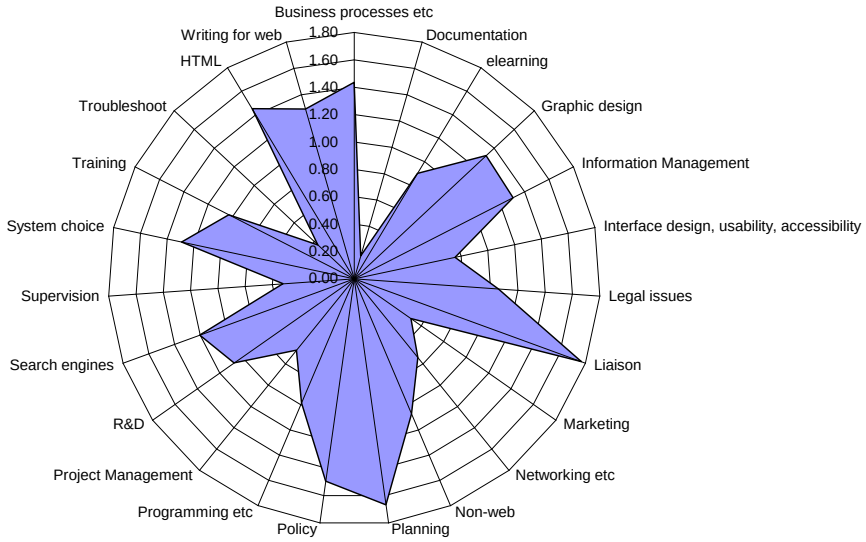

Figure 2 Activities requiring attention/time reported by male respondents

Table 2 and figures 1 and 2 represent differences in the role by gender of respondents. It suggests a significant gender divide. Females are more involved than males in interface design, project management, marketing and supervision. Coding and systems choice and search engine related activities are more mentioned by males.

	People in external relations (50 people)	Others
Graphic design	1.86	0.68
Policy	1.82	1.28
Information Management	1.76	1.75
Legal issues	1.66	0.66
Project Management	1.62	1.17
Troubleshooting	1.60	1.72
Networking etc	1.60	1.15
Training	1.44	0.50
Non-web	1.42	1.57
Marketing	1.26	1.47
Documentation	1.24	0.98
Liaison	1.22	0.19
Interface design, usability, accessibility	1.16	1.49
Programming etc	1.16	1.38
elearning	1.12	1.51
Writing for web	1.08	1.00
Search engines	1.04	1.17
HTML	0.94	1.42
R&D	0.88	1.09
System choice	0.86	1.13
Business processes etc	0.62	1.04
Planning	0.42	1.15
Supervision	0.36	0.85

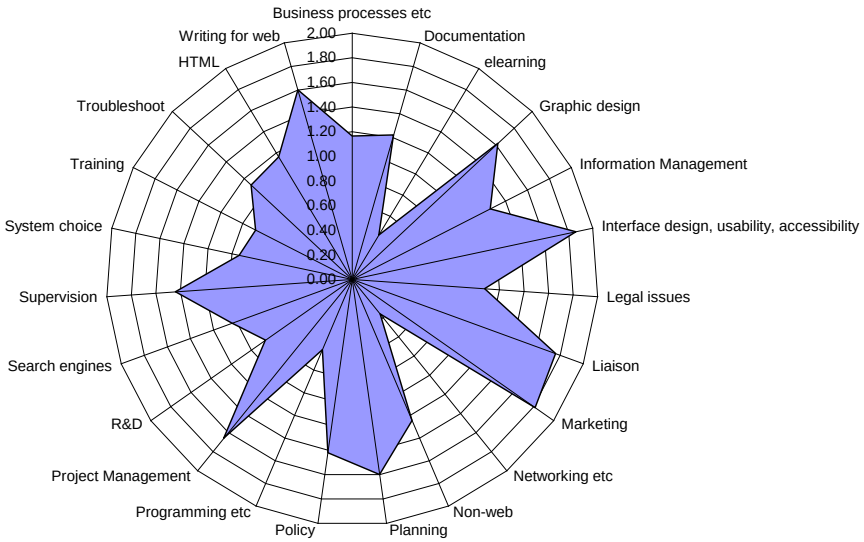

Figure 3 Activities requiring attention/time reported by respondents in external relations

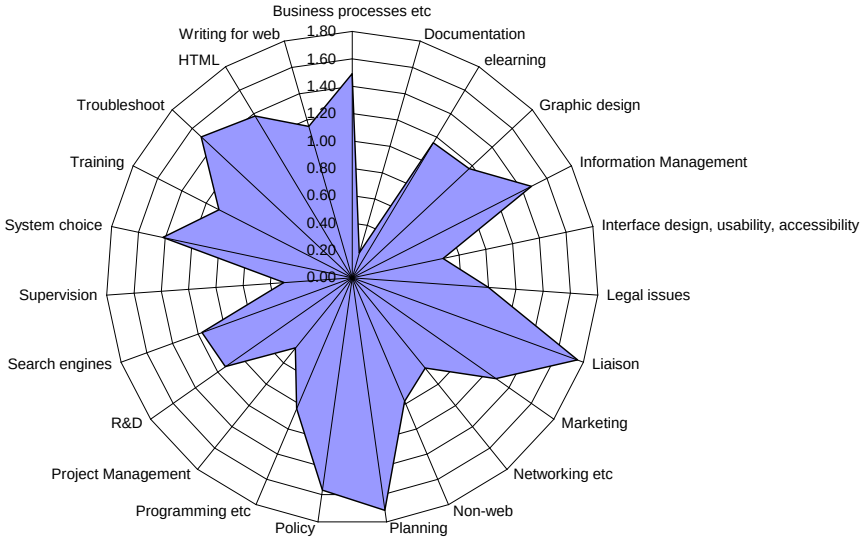

Figure 4 Activities requiring attention/time reported by people in other departments

Table 3 and Figures 3 and 4 represent signfiicant differences in the character of activity between those in external relations and those working elsewhere (ie overwelmingly computing or information services). The pattern is largely what one would expect with more emphasis on graphic design, training and legal issues in external relations, more IT related activities where the respondent was in IS.

Overall, reviewing the results of question 13 one is struck by the diversity of the roles of respondents.

A question of abiding interest among practitioners is how many people work on the web in central services, perhaps as a "web team", as a measure of resourcing. Table 4 below reports responses to question 37, "how many staff report to you directly?", excluding the "seniors" data, on the grounds that these people were probably managing a number of teams. These figures are quite low, pointing to "web managers" directly supervising relatively few staff, in general.

Table 4 Staff reporting directly to respondents, excluding seniors

Staff reporting		
None	9	9%
1	26	25%
2	14	13%
3	12	12%
4	4	4%
5	4	4%
6	5	5%
7	0	0%
>7	4	4%
	78 responses	

Questions 28 and 29 inquired into funding.

Table 5 Funding

Highest level of funding reported -	£630,000
Lowest level of funding reported	£25,000
Mean funding	£174,952
Mean non-staff funding	£59,352
Mean staff funding	£115,601

Highest ratio of non-staff to staff	3
Lowest ratio of non-staff to staff	0
Mean ratio	0.5495

These figures were based on 25 out of the 104 responses where a figure for both staff and non-staff budget has been provided, and excludes responses where it is believed that budgets relate to more than web (eg where budgets are very large eg millions). It may be as significant that 16 respondents explicitly stated that they had no budget, suggesting a continuing lack of formalisation of the web role.

We also asked for a response on how much effort was put into certain activities, expressed in Full Time Equivalent.

Table 6 Processes with one or more FTEs dedicated to them (according to all usable responses)

41.y. Web site/page production	52	50%
41.j. Graphic design	39	38%
41.s. Support	37	36%
41.q. Server configuration (web server, access/authentication, search engine, etc)	36	35%
41.t. Template production	33	32%
41.e. Consultancy/advice and guidance	31	30%
41.u. Training and/or coaching	29	28%
41.f. Content/information auditing	27	26%
41.k. Information architecture design	26	25%
41.n. Processing complaints, feedback and/or queries	24	23%
41.o. Rich media (flash, video, audio, etc) production	20	19%
41.r. Spelling and/or grammar checking	20	19%
41.b. Advertising	18	17%
41.c. Appraisal of team members	17	16%
41.i. File management	17	16%
41.w. User needs analysis	17	16%
41.z. Other	17	16%
41.a. Accessibility and usability testing	15	14%
41.v. Usage analysis	15	14%
41.x. Web search engine submission	14	13%
41.g. Domain name registration and management	13	13%
41.d. Availability testing	12	12%
41.l. Link checking	12	12%
41.p. Rights management	12	12%
41.m. Moderation (blogs, wikis, discussion forums, etc)	10	10%
41.h. Establishing and maintaining reciprocal links	7	7%

Table 6 shows in rank order, from all the 103 usable responses (1 person failed to record any responses to the question), how many respondents said that 1 or more FTE

effort were employed on the listed activities. Thus, 50% said that 1 or more FTE of effort was put into web site production; about a third had this level of resourcing for graphic design, producing templates, server configuration, support and/or consultancy; only 10 spent that level of effort on moderation. All the figures are quite low, thus all but one activity and even graphics, server maintenance or training tend to have less than an equivalent of a whole person of resource in most institutions.

Table 7 lists the top results for activities for which no staff time at all was allocated. Thus nearly 60% of institutions had no one with responsibility for moderating user contributed content.

Table 7 Processes with no amount of time dedicated to them

41.m. Moderation (blogs, wikis, discussion forums, etc)	59	57%
41.p. Rights management	46	44%
41.h. Establishing and maintaining reciprocal links	43	41%
41.b. Advertising	42	40%
41.x. Web search engine submission	34	33%
41.d. Availability testing	33	32%
41.o. Rich media (flash, video, audio, etc) production	30	29%
41.g. Domain name registration and management	24	23%
41.i. File management	19	18%
41.q. Server configuration (web server, access/authentication, search engine, etc)	18	17%
41.r. Spelling and/or grammar checking	18	17%
41.j. Graphic design	14	13%

Systems

A number of questions (42-7) related to the adoption of particular technologies. This section summarises the more interesting results. Probably the most discussed issue in web management in the last 5 years has been the adoption of Content Management Systems. IWMW has seen a series of debates about whether to develop a system in-house, adapt an open source system or license a commercial solution. Of the 87 institutions that replied to the survey, 68 (about 3/4) appeared to have a CMS. In fact, a third had more than one CMS. As the 2006 OSS survey also found (Cornelius 2006) what is striking is the range of systems deployed, with no really dominant systems in use. This is in marked contrast to systems like Student Record Systems or Virtual

Learning Environments where a few systems do dominate the sectoral marketplace (Klein 2006). About 25% of CMS are stated to be homemade.

Table 8 Content Management Systems

CMS		
Home made	18	(25%)
Plone/zope	8	
Reddot	5	
Shado	4	
Terminal 4	4	
Oracle	3	
Rhythmyx	2	
Collage serena	2	
Typo 3	2	
Luminus	2	
Wordpresss	2	
Mediasurface	2	
Polopoly	2	
Not stated	4	
Others (mentioned only once)	11	(html:mason, activedition,immediacy, microsoft, sharepoint, communique, blackboard, hyperwave, hypercontent, teamsite, consentis)
Total	71	

It should be noted, however, that of the 15 institutions for which there was more than one person who gave a response, 7 showed disagreement about their adoption of CMS. For example, in several cases one respondent said there were several CMS, while another claimed there was none. This is quite surprising. It does not necessarily cast doubt on the overall accuracy of the responses, it may indicate differences of perception of what a CMS is (for example, is html: mason a true CMS?) or differing visibility of technologies in different parts of an institution.

Of the 87 responding institutions 51 (59%) said that they did have a portal in place. Oracle, blackboard and MS sharepoint were the most commonly mentioned technologies. Only 4 mentioned the open source uportal; another 4 said their system was developed in-house.

There has been considerable interest across the sector in Web2.0 technologies and the questionnaire asked about the deployment of blogs and wikis. Of 87 responding institutions 32 (a third) were using a blogging tool. 6 were using more than one tool. The commonest referenced blog tool was WordPress. Slightly more institutions, 36 or about 40% of institutions, were using a wiki; 6 were using more than one. The

commonest mentioned wikis was mediawiki (11); others were confluence, tikiwiki, openwiki, dokuwiki, zwiki, moin moin (2), twiki, jspwiki, phpwiki. Two each mentioned using tools associated with blackboard or moodle. This seems to suggest further take up since the OSS survey (Cornelius 2006). No data was gathered on the scale or purpose of deployment.

Issues and attitudes

Many of the questions in the survey related to perceptions of key issues relating to the running of the university site. These were open ended questions, so there is a potential for inaccuracy and subjectivity in our categorisation of points which were made by respondents typically in a very summary form. However the broad patterns are quite interesting.

Question 30 asked respondents to list their "3 top drivers for the production and provision of your web presence" this is represented in Table 9, with answers clustered around particular themes.

Table 9 Drivers

Driver	**Frequency of mention**
Recruitment	64
Reputation	
Institutional reputation, brand and external communication	21
Research reputation	9
International Reputation	5
Communication and information	
Internal communication	11
Information	16
Retain students / student information	5
Staff information	3
Other	
Services	9
Business	7
Access & usability	8
Learning & teaching	6
Innovation	2
Staff recruitment/ new departments	2
Fund raising and alumni	2
Integration	1
Widening participation	1
Governance, eg FOI	1

Missing	136

What stood out here was that, firstly, recruitment of students is key; more than one respondent replied to the question "recruitment, recruitment, recruitment". Broad institutional reputation, when combined specifically to research and international reputation scored highly. Information provsion in general, combined with specifically information for students and staff was also mentioned frequently. Note the low scoring of learning and teaching, reflecting the division between the web for marketing or information and the web for learning, as such.

Question 20 asked respondents to comment on what were the top 3 strengths of their site (yielding a possible 312 responses, of which 34 were missing). An analysis of the answers points to the top criteria as summarized below in Table 10.

Table 10 "Strengths of your web presence"

Strength	Number of mentions
Comprehensiveness	40
Accessibity	26
Structure and navigation	19
Attractiveness	17
Usability, clear, simple to use	17
CMS-based	17
Consistency	16
Sales	13
Currency	11
Identity	11
Quality	8
Focus	8
Local Search	8
Robust	7
Frequent use	6
Workflow; Flexibility; Devolved character	4
SEO; Diversity; e-learning; Customer focus; Ease of publication; Interactivity; Communication	3
Buy-in; Team; Bilingualism; Control is local: Portalisation; Expert database	2
Innovativeness; Freshness; Accuracy; Evolving; Traffic Information; For staff recruitment; Personalisation; Ubiquity; Speed of download	1

So respondents felt that the strength was in the scope of content. Accessibility was also a key strength. Aspects of navigation and ease of use also scored highly. It is interesting that infrequently mentioned responses included: interaction, communication, diversity, customer focus, accuracy, personalisation.

Question 21 asked respondents about weaknesses in the web presence.

Table 11 "Weaknesses of your web presence"

Weakness	Number of mentions
Consistency	
Lack control / problems with departmental sites	42
Lack of brand / consistency	22
Content	
Issues of currency / accuracy	28
Too much content	14
Lack of depth	5
Visual design poor	17
Texty, lack rich media	7
Lack of functionality/ interactivity	12
Lack of flexibility	1
Language unsuitable for web	3
Duplication not reuse	4
Structure and presentation	
Navigation / architecture poor	37
Search features inadequate	6
Lack of usability	3
Lack of accessibility	2
Standards compliance	1
Others	
Lack suitable tools / adequate CMS	16
Lack of speed / robustness / suitability of servers	3
Too many audiences / lack of engagement with audiences	11
Lack of integration	3

Table 11 represents the response to the question where it was understood in terms of attributes of the site (the main way the question was interpreted) and excluding the few responses that focussed on weaknesses of resourcing or senior management support, ie enabling conditions (for which see Table 12). A key perceived problem was poor or inconsistent presentation, especially in devolved content. Currency of content was also seen as a key issue. There were more complaints of too much content than lack of depth. Poor visual design or lack of interactivity / multimedia was also common. Problems in navigation or underlying architecture was another area of complaint. Perhaps surprisingly on by 2 responses mentioned continued accessibility problems; only 1 failure to comply with standards.

Whereas weaknesses focussed on defects of the web site, Question 23 asked respondents about perceived threats and this was interpreted more in terms of

institutional or coxtextual issues that were responsible for such weakness. The answers are represented in Table 12.

Table 12 "Threats to your web presence"

Perceived threats	Frequency of mention	Percentage of 104 responses
Lack of resources / investment	49	47%
Web authors lack of care or lack of central control	41	39%
Senior management or lack of strategy	27	26%
Quality issues with content	17	16%
Culture and local politics, siloing of information	13	13%
Competition from other universities	11	11%
Security	7	7%
Technology being used poor, not robust or not integrated	7	
Size and complexity of site make it unmanageable	7	
Rapidly changing IT	6	6%
CMS (not having one or unsatisfactory design/cost)	6	
Lack of technical support; Information architecture; Customer expectations	4	
Standards, changing or inappropriateness of; Excessive marketing focus	3	
Brand weakness/ changes; Search engine ranking ; Lack of understanding of young people / ignoring feedback; Lack of integration of underlying business processes	2	
Competition from other web sites; Legislation; Lack of personalisation; Expected to solve organisational problems; Legal vulnerabilities, Difficulties of usage measurement; Excessive technical focus; Outsourcing; School web filtering impairing access	1	
Missing replies	87	

Given that the 104 respondents could give 3 replies each, there could have been a potential 312 suggestions. Sometimes people's responses all fell in one category, but this was a small minority. Thus it is fair to say that nearly half of respondents listed lack of resources/investment as one of their 3 replies. This was often linked to lack of management buy in/strategy. Lack of control over web authors was another key issue, especially as siloing of information was also mentioned. Security was mentioned surprisingly frequently. In some ways it is the problems which are mentioned infrequently that are most interesting. For example, outsourcing though often talked of as a problem, was only mentioned by one person. Only 3 persons mentioned excessive marketing focus; one person excessive technical focus. Quality of technology or IT support were mentioned, but again not very frequently. Interestingly,

while 11 persons mentioned competition from other university sites, only one person mentioned general competition from other types of web site.

Question 48, asked about the main issues that respondents faced. The top 5 issues (first figure is the number of responses; second is the percentage of all 244 responses) were:

- Resources - - (Quantity) 16 (6.6)
- Staff - - (Quantity) 11 (11.1)
- Management - - (Sponsorship) 9 (14.8)
- Content - - (Supply) 7 (17.6)
- Funding - - (Quantity) 7 (20.5)
- Innovation - Editorial 6 (22.9)

Thus, management sponsorship is third and accounts for nearly 15% of all issues.

Current and desired projects

Our final questions were orientated towards current projects and future plans. Respondents were asked to list 3 top projects they were currently working on (Q.50). About 66 of possible responses (20%) were missing (eg where people listed less than 3 options). Perhaps not surprisingly the most frequent answers related to redesign of the web site or part of it or CMS choice/implementation. 21 responses were about portals or personalisation, 8 more mentioned an intranet. Just 15 of all the responses related to Web2.0 type services, such as blogs, RSS, video, SMS, web services. There were a wide range of other responses - so a few mentions of things like Document management, Photo libraries, e-portfolios or the authentication infrastructure. Again one is struck by the creative diversity across the sector.

Table 13 Current projects

Project	**Frequency of mention**	

Redesign/maintenance	54	
CMS	37	(17%)
Portal	18	(12%)
Topical sites	13	
MLE; Intranet	8	
Student blogs; Video; Technical eg servers	7	
E-commerce/online enrolment; Database driven prospectus	6	
Course database	5	
Wikis; Alumni service; Statistical analysis	4	
Personalisation; Podcasts; Forums; Search engine; Web authors; Staff directory / publications database; Staffing / organisational position	3	
Customer Relationship Management; Web services; International recruitment; Photo library; Strategy; Databases; Relationships; Authentication infrastructure; Document management	2	
RSS; SMS; Gaming; Tours; E-portfolios; Project management systems; Inquiry management; Xforms; RAE submission	1	
Unclear	4	
Explicitly said they had none	4	
Missing responses	66	

Projecting further into the future respondents were also asked "What are the 3 most exciting projects you most yearn to initiate?" (Q51, the last question). The response rate was relatively low, with 27 respondents offering no response. The table below sets out responses. Blogs, wikis, mashups figure quite prominently.

Table 14 Projects "you most yearn to initiate"

Project	**Frequencey of Mentions**
Site redesign	16
CMS	15

Portal	11
Blogs	10
Interactivity	8
Video	7
Wikis; Personalized prospectus; News	5
Searching; CRM; Intranet; Staffing; Tours, SMS site/ M-learning	4
Podcast; Web author support; Integration; Identity management; Expert database;Print material via web	3
Forums; Increased bandwidth; e-commerce; Service quality; Hosting etc	2
Mash-up; Commercialisation of software; Games; Advanced authoring tools; Social networkng; Creative commons; Transactions online; Personalisation; Reduction of content; .NET; Fees registry; Life long learning; Mangement dashboard; e-learning; International content; Student work showcase; Document management; Online enrolment; Particular content; Staff development database; Calendar tool; Photo library; Subscription areas; Statistics; Central usage of data	1

Conclusions

This paper has begun to fill a gap in the literature on university web site management with some more systematic data. It will be interesting to see how responses change over time, when the questionnaire is repeated in future years, as planned. It should be possible to raise response rates from less well resourced institutions and the number and wording of questions can be honed. We believe that there is a lot of scope for comparative studies, eg with university web managers in the US or Europe, or web management in other sectors.

More broadly, it seems to the current authors that the area of web management opens up some fascinating areas of future research, for example:

- Patterns of system adoption - most obviously CMS, but increasingly portal technology and Web2.0 technologies

- Case studies about the choice, implementation and post implementation management of CMS and other campus wide technologies - seen from both practical and critical perspectives. For the latter promising approaches are prefigured in Cornford and Pollock's work (2002) and could be pursued in directions laid out in the special issues in 2005 and 2006 of *Journal of Strategic Information Systems* "Understanding the Contextual Influences on Enterprise System Design, Implementation, Use and Evaluation".

- Relations between the centre and distributed departmental web editors. Some very early observations on this are captured in Hine (2001).

- The discursive structuring of the university web presence (see Boardman 2005, McAvinia and Oliver 2004 for some interesting initial work).

- Development of occupational niches, particularly in such a gendered domain, eg with external relations, in general, employing far more women than men, and IT having the reverse pattern. Studies of UK learning technologists (Oliver 2002, Oliver et al. 2004, Land 2004) and Barley and Kunda's (2004) ICT contractors do offer some points of comparison and methodological models for such qualitative studies.

[6134 words]

Bibliography

Armstrong, C., Edkins, J., Lonsdale, R., Urquhart, C., Wheatley, A. and Yeoman, A., (2001), *HEINUS: Higher Education Institutions Network Usage Study*. Available at: http://www.dil.aber.ac.uk/dils/research/heinus/HEINUS.pdf [accessed 23.12.06].

Barley, S. R. and Kunda, G., (2004), *Gurus, hired guns, and warm bodies: Itinerant experts in a knowledge economy*, Princeton University Press, Princeton.

Boardman, M., (2005), *The language of websites*, Routledge Keegan Paul, London.

Browning, P. and Lowndes, M., (2001), *JISC TechWatch Report: Content Management Systems*, JISC, < http://www.jisc.ac.uk/uploaded_documents/tsw_01-02.pdf >, [accessed 23.12.06].

Cornelius, B. (2006), Open Source Systems Watch Survey 2006: Report < http://www.oss-watch.ac.uk/studies/survey2006/survey2006report.pdf> [accessed 23.12.06]

Cornford, J. and Pollock, N. (2002), *Putting the university online : information, technology and organizational change*, Open University Press, Buckingham.

Cox, A. (2007), "The power and vulnerability of the 'new professional': Web management in UK universities", *Program* Vol. 41 No. 2, pp.148-79.

Emmott, S. (forthcoming), *Web Management in Practice: The Web Manager's Guide*, Chandos.

Hine, C. (2001), "Ideas of audience in World Wide Web design: the meaning of a mouse click", *Information, Communication and Society* Vol. 4 No. 2, pp.182-198.

Klein, Y. (2006), Portal implementation in UK higher education institutions: a comparative analysis, in Cox, A. (Ed.) *Portals: people, processes and technology*, Facet, London, pp.167-187.

Kotamraju, N. P. (2002), "Keeping up: Web design skill and the reinvented worker", *Information, Communication and Society*, Vol. 5 No. 1, pp. 1-26.

Kotamraju, N. P. (2004), "Art versus code: The gendered evolution of web design skills", in: Howard, P. N. and Jones, S., (Eds.) *Society Online: The Internet In Context*, Sage, London, pp.189-200.

Land, R. (2004), *Educational Development: Discourse, Identity and Practice*, Open University Press, Maidenhead.

McAvinia, C. and Oliver, M., (2004). *Are they receiving us - and how would we know? Towards a methodology for evaluating university web sites*, paper presented at Association of Internet Researchers, Brighton, 19-22 September.

Oliver, M., Sharpe, R., Duggleby, J., Jennings, D. and Kay, D., (2004), *Accrediting learning technologists: A review of the literature, schemes and programmes*. < http://www.ucl.ac.uk/epd/alt-accreditation/Initial_review.doc >, [accessed 12.12.06].

Oliver, M. (2002), "'What do learning technologists do?", *Innovations in Education and Teaching International*, Vol. 39 No. 4, pp. 245-252.

van der Walt, P. W. and van Brakel, P. A. (2000), "'Task analysis of the webmaster: Results of an empirical study", *Aslib Proceedings*, Vol. 52 No. 1, pp.20-38.

Webster, J. (2005). *Women in IT professions: corporate structures, masculine cultures*, paper presented to 3rd European Symposium on Gender and ICT, Available online: http://ict.open.ac.uk/gender/papers/webster.doc (Last accessed 02 December 2006).

Appendix : the questionnaire

1. Full name

2. Job title(s)

3. Institution

4. Department

5. Sector

6. Country

7. Email address

8. Contact telephone number

9. Age

10. Gender

11. How many years have you been managing and/or leading your institution's web presence?

12. Has your job title changed during this time?

12.a. If 'Yes', how many times?

13. Which of the following require "'your'" attention/time?

- 13.a. Business processes, portals, e-commerce
- 13.b. Documentation
- 13.c. E-learning
- 13.d. Graphic design (and multimedia)
- 13.e. Information management, taxonomies, metadata
- 13.f. Interface design, navigation, usability, accessibility
- 13.g. Legal issues
- 13.h. Liaison, encompassng relations with web authors
- 13.i. Marketing
- 13.j. Networking, server maintenance and reporting (including logs)
- 13.k. Non-web
- 13.l. Planning

13.m. Policy
13.n. Programming (eg cgi scripts), database connectivity
13.o. Project management
13.p. R&D
13.q. Search engine
13.r. Staff supervision
13.s. System choice, implementation
13.t. Training
13.u. Troubleshooting
13.v. Web mark up (HTML, CSS, Javascript), standardisation
13.w. Writing for web, content creation

14. Are you a graduate?

14.a. If 'Yes', please list your subject(s) here.

14.b. If 'No', what was your background?

15. Are you a member of any professional bodies?

15.a. If 'Yes', please list the professional bodies here.

16. What is the main URL for your web presence?

17. When did your web presence come into existence?

18. What is the composition of your web presence? Select all that apply.

19. Who is the web presence provided for?

19.a. If you selected 'Internal users' and/or 'External users', please list these here.

20. What are the top 3 '"strengths"' of your web presence?

21. What are the top 3 '"weaknesses"' of your web presence?

22. In your opinion, what are the top 3 '"opportunities"' for your web presence?

23. In your opinion, what are the top 3 '"threats"' to your web presence?

24. Which committees/groups steer and regulate your web presence?

25. Who sets the direction for your web presence and how is this communicated?

26. What percent of your objectives come from the following? Strategic plans Operational plans Ad...

26.a. Strategic plans
26.b. Operational plans
26.c. Ad hoc from senior management
26.d. Ad hoc from your team
26.e. Ad hoc from others involved in production and provision
26.f. Ad hoc from users
26.g. Others

27. Which senior staff do you have access to? (ie you can contact them directly for formal or informal...

28. What is your annual '"non-staff"' budget?

29. What is your annual '"staff"' budget?

30. List the top 3 '"drivers"' for the production and provision of your web presence.

31. List the top 3 '"resistors"' for the production and provision of your web presence.

32. Is production and provision of your web presence centralised (ie a core team), devolved (ie...

33. How many staff are involved in the production and provision of your web presence in total?

34. In terms of the coordination of the staff involved in the production and provision of your web...

34.a. Individual(s) under one manager
34.b. Individual(s) under multiple managers
34.c. Single team(s) under one manager
34.d. Single team(s) under multiple managers
34.e. Multiple team(s) under one manager

35. How is coordination facilitated? Select all that apply.

36. Who do you report to?

37. How many staff report to you directly?

37.a. If you have staff reporting to you, please list their job titles below.

38. Do any of your reports have reports themselves?

38.a. If 'Yes', how many have reports themselves?

39. Do you use internal suppliers?

40. Do you use external suppliers?

41. What amount of time (expressed in terms of one full time member of staff or 'full time equivalent'...

41.a. Accessibility and usability testing
41.b. Advertising
41.c. Appraisal of team members
41.d. Availability testing
41.e. Consultancy/advice and guidance
41.f. Content/information auditing
41.g. Domain name registration and management
41.h. Establishing and maintaining reciprocal links
41.i. File management
41.j. Graphic design
41.k. Information architecture design
41.l. Link checking
41.m. Moderation (blogs, wikis, discussion forums, etc)
41.n. Processing complaints, feedback and/or queries
41.o. Rich media (flash, video, audio, etc) production
41.p. Rights management
41.q. Server configuration (web server, access/authentication, search engine, etc)
41.r. Spelling and/or grammar checking
41.s. Support
41.t. Template production
41.u. Training and/or coaching
41.v. Usage analysis
41.w. User needs analysis
41.x. Web search engine submission
41.y. Web site/page production
41.z. Other

42. Do you use one or more CMSs?

42.a. If 'Yes - one' or 'Yes - more than one', please list.

43. Do you use one or more web authoring applications with FTP, WEBDAV, or other method of transfer?

43.a. If 'Yes - one' or 'Yes - more than one', please list.

44. Do you use one or more wiki systems?

44.a. If 'Yes - one' or 'Yes - more than one', please list.

45. Do you use one or more blog systems?

45.a. If 'Yes - one' or 'Yes - more than one', please list.

46. Do you use one or more portal systems?

46.a. If 'Yes - one' or 'Yes - more than one', please list.

47. Which servers do you use?

48. What are the top 3 '"issues"' you face at present in terms of the production and provision of...

49. What are the top 3 '"risks"' you face at present in terms of the production and provision of your...

50. What are the top 3 '"projects"' you're managing or leading at present in terms of the production...

51. What are the 3 most exciting projects you most yearn to initiate?