

Discovery:
Chief Information Officer (CIO) site
and
UB Information Technology (UBIT) site
Business needs

TABLE OF CONTENTS

Executive Summary..... 3

Part I: Stakeholder Needs Analysis 4

 Purpose of Site 4

 Business Needs..... 4

 Target Audiences..... 6

 Desired Outcomes..... 7

 Positioning..... 7

 Success Measurements..... 8

Part II: External Benchmarking 9

 Best practices 9

Part III: Current Situation Analysis 20

 Current Situational Analysis: CIO Site 20

 Current Situational Analysis: UBIT 21

Part IV: Recommendations 24

Appendix: Stakeholders 26

Appendix: Additional Best Practices 27

Appendix: Content Audit Outcomes 41

Appendix: UBIT & CIO Discovery Team..... 42

Appendix: Works Cited 43

Appendix: Sites Reviewed 45

EXECUTIVE SUMMARY

CIO

The CIO site reflects current initiatives and interests of the CIO. Content includes IT projects and initiatives, IT leadership and its business, and supporting research and IT trends in higher education.

The CIO site is currently directed to local and peer IT leadership. Within the site, audiences are concerned with learning about the organization (projects, initiatives, etc). Because much of the content can be characterized as “building trust and credibility,” it should be more directly available to UBIT site audiences to help establish context and credibility for the UBIT site.

The primary business needs for the CIO site include:

- Communication: organizational structure, governance issues, strategic vision, planning, policies, project updates, reporting to UB leadership
- Coordinating committee/project team work

UBIT

The approximately 700 pages in the UBIT site represent many, but not all, centrally- provided IT services. Most of these are services supported by the CIT Help Desk. Some service pages are updated regularly; the [New Student guidance](#) content is a good example. More often, content is reviewed when a problem arises or a new service is implemented that highlights problems in older content. This site does not reference any services, projects, or initiatives that are provided by other than the CIO, hindering customers who don't understand the hierarchy of IT service provision at UB.

The target audiences for the UBIT site include the entire gamut of university community members. The leading task for most UBIT customers is seeking a solution.

The primary business needs for the UBIT site include:

- Comprehensive content
- Customer-focused organization
- Integrated in the UB brand
- Content designed for integration into student portal or shared service desk knowledgebase

Best Practices

We leveraged expert research to identify design patterns and best practices applicable to the UBIT and CIO sites. University and commercial sites were evaluated for best practices guidance and examples. These best practices form the basis for our recommendation of a unified, cohesive, comprehensive, and customer-focused IT presence.

PART I: STAKEHOLDER NEEDS ANALYSIS

PURPOSE OF SITE

CIO

The CIO site paints a picture of IT usage on campus, our vision, where we are right now, what is important to us, how IT supports the overall goals of UB 2020 and where our place is in the overall higher ed community. The CIO site serves a very specific leadership audience with information about ongoing projects, initiatives, governance, policy, and organizational data.

UBIT

The UBIT site is geared to onboarding new members of the UB community to our complex IT environment as well as caring for the needs of our current UB community members through providing guided self-help IT support content, access to a broad range of on-line IT services, providing a path to other services provided by the units that report to the CIO, and announcements about supported products and services.

BUSINESS NEEDS

CIO

The CIO office needs to focus on the following:

- Perception building (the vision, the strengths, how we stack up to our peers)
- Compass: current and future directions/projects
- Serving the needs of UB leadership
 - Dashboard (what are we working on, where are we with our projects)
 - Gateway to IT tools, services, facts, policies
 - Information on governance, policy, and organizational data

The CIO site needs to focus on the some of the same principles outlined below: customer focused, branded, having performance measurement standards in place.

UBIT

Key stakeholders identified seven business needs critical to the improvement of the UBIT site. The site must be *comprehensive* in content, *customer-focused*, *integrated* campus-wide, and UB *branded*. Customer's *perception* should be ease of use and quality of service. The site should become a channel for *open and transparent* communication with our customers. Finally, regular *performance measurement* should be employed to assess and improve the site.

- **Primary**
 - **Comprehensive:** dynamic and current, centralized, one-stop gateway to all IT needs. Content should be useful, complete, and accurate; **inclusive of all IT services, both central and distributed.**
 - **Customer-focused:** site should be organized to accommodate the needs of our different audience groups. **Content needs to be customer-centric with audience-specific views in the language of our customers.** A strong information scent in content should guide customers to correct IT solutions.
 - **Branded:** site should be clearly integrated with UB's web presence.
 - **Integrated:** site content should be available for syndication to student portal. Integration with the shared service desk and its knowledgebase.

- **Secondary**
 - **Customer perception:** improved customer perception of IT is desired. Site should be perceived as **easy-to-use, high quality, and complete.**
 - **Open and transparent communication:** content about organization projects, initiatives, goals, should be integrated into the site. Customers should be encouraged to communicate with UBIT in ways that embrace their experience.
 - **Performance measurement:** regular, deliberate, and informed metrics should be employed to evaluate performance of the site and content within pages. Site improvements should be driven by data assessment. Indirect (log analysis, Google Analytics, Clickheat) and direct (usability testing) methods should be employed.

- **Long-term goals**
 - Comprehensive
 - Integrated
 - Improved customer perception
 - Open and transparent communication
 - Performance measurement

- **Short-term goals**
 - Customer-focused
 - Branded

TARGET AUDIENCES

CIO

Primary

- Peer IT leaders
- UB Leaders and Senior Administrators
- External influencers/funding sources or sources of potential funding, i.e., foundations, government agencies, legislators

Secondary

- IT professionals
- Potential IT professionals

Audience Segments

- Pulse takers
Use this site as a dashboard for progress, messages and what is in the center of UB's radar screen as well as a foreshadow of where we are going next. Most of UB Leaders/Senior Communicators fall into this category as well as External Influencers, Peer IT leaders and potential staff members.
 - How does UB handle DMCA take-down notices?
 - How is IT at UB organized?
 - What's the status of the Shared Service Desk project?
 - What are we doing to promote green computing?

UBIT

Primary

- UB's community of users: students, faculty, and staff
- UB's community of "supporters": IT professionals

Secondary

- Former users with occasional needs: retirees, alumni
- Extended community members with short-term needs: parents, library guests, conference attendees

Audience Segments

Please note that the segments might have laypeople and professional cuts to them.

- Solution seeker
 - Has a problem, needs to find a solution
 - I'm not getting my email
 - What software can my students use?
 - What's the dc++ hub at UB?
 - How do I get my Xbox to work in the residence hall?
 - I've cleaned my computer, please re-connect me.
 - The microphone in my classroom is broken.
- Invested customer
 - Wants to let IT know how it's doing, share advice
 - The last Alert notice was confusing.
 - How about replacing the printer in Clinton? It always seems to be broken.

DESIRED OUTCOMES

CIO

The site would fulfill the information quest that the user came seeking, and during the process, build/reinforce the perception that UB is a leader in the higher ed technology field, its robust and relevant IT projects are strategically important to the university strategically.

UBIT

Easily navigate to the information that fulfills the users' needs. Be able to easily contact a resource that will be able to fulfill the users' needs.

POSITIONING

CIO

This is the portal into the backchannel of IT: the place where observers can lift the hood and see the inner workings, satisfy their information needs about why, how, and what IT is doing.

Discovery: UBIT & CIO

UBIT

Customers perceive the site as *the* starting place to find the solutions/information that they seek for IT questions/needs.

SUCCESS MEASUREMENTS

CIO

- Increased invitations to present info at conferences
- UB Leadership asking better questions of/being more involved with IT decision-making

UBIT

- Pulse taking (were you satisfied with this answer)
- Feedback (analyzing what type of site feedback you got and seeing a change in the focus)
- Reduction of help desk queries (along with parallel growth of traffic to like answer pages)
- Increase of DIRECT service requests (e.g. more people finding services and requesting help, rather than going through third parties)
- Increase of service usage (e.g. more filters used)

A website support team should develop specific performance measures in concert with measurement needs identified by stakeholders.

PART II: EXTERNAL BENCHMARKING

BEST PRACTICES

Branding

Site branding

Brand is more than just a logo and a tagline. Customers need to know where they are and whether they can trust that place to provide something important and unique. (*The Design of Sites*, 366)

Up-front value proposition

The value proposition is a site advertisement that must persuasively articulate your company's uniqueness. Place the value proposition next to your logo on the homepage for quick scanning and maximum exposure. (*The Design of Sites*, 277; *Homepage Usability*, guidelines 2 and 3)



Serving the Yale community with technology

Example: Yale Information Technology Services

Detail: in banner

URL: <http://www.yale.edu/its/>

Aligns with: branding



Example: Computing.msu.edu

Detail: in banner

URL: <http://computing.msu.edu/>

Aligns with: branding

Communication

About us

Collect background information in About Us page. These pages should help people learn more about who you are, what you do, and why they can trust you. Include things like an organizational profile, contact information, disclaimers and legal information, customers and partners, and employment opportunities. (*The Design of Sites*, 391; *Homepage Usability*, guidelines 8 and 9)

Example: Yale University Information Technology Services

Detail: whole page

URL: <http://www.yale.edu/its/about/>

Aligns with: open and transparent communication, seamless integration of CIO material

Feedback

Encourage customer feedback on site content, projects, plans, et cetera, through a variety of means. Clearly specify where the feedback will go (customer service, help desk, webmaster) and let customers know if/when they should expect a response. (*Homepage Usability*, guideline 13)

Example: University of Maryland Office of Information Technology

URL: <http://www.oit.umd.edu/services/ratingtool/index.html>

Aligns with: customer-focused

Integrated, single source

Integrate information about the organization's projects, goals, mission, staff, and leadership into the site. (*Homepage Usability*, guideline 11)

Example: Johns Hopkins Information Technology

Detail: in top nav bar, right side nav, and main content portion

URL: <http://it.jhu.edu/>

Aligns with: open and transparent communication

Example: University of Minnesota, Office of Information Technology

Detail: "Partners & Projects" navigation box on left

URL: <http://www.oit.umn.edu/>

Aligns with: open and transparent communication, comprehensive

Open forums

Open forums for discussing issues, problem solving, discussing ideas. These often site help pages within the site and point to useful outside pages. Members have a rating system that qualifies their expertise.

Example: Apple Discussions

URL: <http://discussions.apple.com/index.jspa>

Aligns with: open and transparent communication, comprehensive

Status updates

Provide regular updates about initiatives and projects.

Example: Kansas University Information Technology

URL: <http://www.technology.ku.edu/projects/updates.shtml>

Aligns with: open and transparent communication, comprehensive

Example: University of Minnesota, Office of Information Technology

URL: <http://www.oit.umn.edu/partners-projects/projects/index.htm>

Aligns with: open and transparent communication, comprehensive

Service status

Provide a clear, obvious, and easy to understand means for customers to find out about the status of services. Service status should clearly differentiate between planned changes, unplanned outages, long-term plans, et cetera. Include a mechanism for reporting suspected problems not yet identified in the current service status view. Status reports should speak to the customer impact in familiar language.

Example: MIT Information Services and Technology news

URL: <http://3down.mit.edu/3down/>

Aligns with: open and transparent communication, comprehensive, customer focused

Example: University of Minnesota, Office of Information Technology

URL: <https://systemstatus.umn.edu/view/Main/WebHome?showall=on>

Aligns with: open and transparent communication, comprehensive, customer focused

Customer-preferred channels

Use customer-preferred channels for communicating about the organization, updates about the site, news and updates about service status. Make announcements available via email, RSS, Twitter, text messaging, and other customer-preferred channels.

Example: North Carolina State University OIT Twitter feed

Detail: customers can follow multiple updates about OIT services

URL: http://twitter.com/ncsu_oit

Aligns with: open and transparent communication, customer-focused

Example: MIT Information Services and Technology news

Detail: RSS feeds; segmented content

URL: <http://web.mit.edu/ist/news/index.html>

Aligns with: open and transparent communication, customer-focused

Bi-directional communication

“Rate this article”, blog-style comments, “suggest a link”, and other bi-directional tools allow customers to add value to your content. Ratings can be used to recommend articles to customers.

[Discuss this article](#) [Send](#) [Print](#)

Article rating

81 people have rated this article.
Click on a star to add your rating.

Discussion
There are 18 [comments](#) about this article. Here is a comment from The Dude:

“How will I know if/when I'm connected to the network besides the connected message and lock in the tool bar? Is there a test website only assessable on the network used for verification/troubleshooting?”

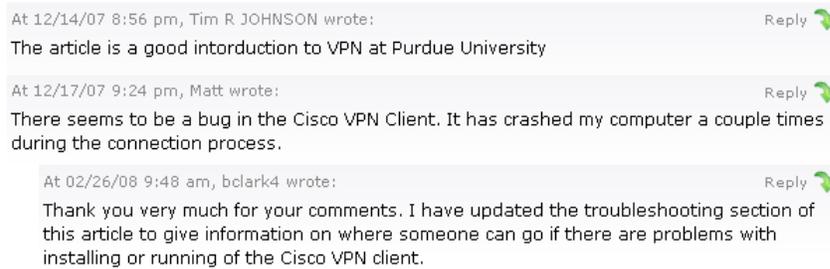
Example: Information Technology at Purdue University

Detail: Article rating, comments, recommendations based on rating

URL: <http://help.itap.purdue.edu/viewarticle.php?articleid=1767&refid=5>

Aligns with: open and transparent communication, customer-focused

Discovery: UBIT & CIO

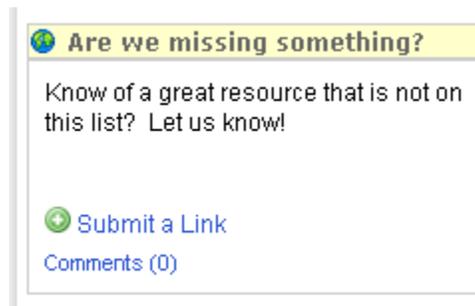


Example: Information Technology at Purdue University

Detail: Comments on a popular article; staff replies inline with comments

URL: <http://help.itap.purdue.edu/comments.php?articleid=2495>

Aligns with: open and transparent communication, customer-focused



Example: University of Iowa Libraries

Detail: Suggest a link

URL: <http://guides.lib.uiowa.edu/pdas>

Aligns with: open and transparent communication, customer-focused

Content

Comprehensive content

Customers don't understand the distinction between services provided by a central organization and those from a department. Document all IT services, if only to provide a link from the one-stop gateway to the departmental service.

Example: Yale ITS Email page

Detail: information about central, medical, and YaleConnect email in one place

URL: <http://www.yale.edu/its/email/>

Aligns with: comprehensive, customer-focused

Provide information scent

The text labels should provide information scent indicating whether people are nearing the content they're looking for. Information scent is the perceived proximity to desired information, delivered by cues such as text, link names, images, headings, grouping, page layout, and previous pages seen. ([Information scent: helping people find the content they want](#))

Discovery: UBIT & CIO

Example: MIT Information Services and Technology

Detail: information is visually and topically grouped; strong clues about link destination

URL: <http://web.mit.edu/ist/topics/email/index.html>

Aligns with: comprehensive, customer-focused

Emphasize the site's top high-priority tasks

Your homepage should offer users a clear starting point for the main one to four tasks they'll undertake when visiting your site. ([Home Page Design Guidelines](#); *Homepage Usability*, guideline 4)

Example: MIT Information Services and Technology

URL: <http://web.mit.edu/ist/>

Aligns with: customer-focused, comprehensive

Example: University of Notre Dame Office of Information Technology

URL: <http://oit.nd.edu/>

Aligns with: customer-focused, comprehensive

Organization

Browsable content

Organize content in several ways, in categories that make sense to your customers and in the intuitive ways that they think about doing their tasks. Build navigation tools and cues that let customers know where they are, where they can go, and how to get back. Build each page with its own reading hierarchy so that customers can scan it quickly. (*The Design of Sites*, 221)

Example: University of Notre Dame Office of Information Technology

URL: <http://oit.nd.edu/>

Aligns with: comprehensive, customer-focused

Multiple ways to navigate

To ensure that visitors complete their goals, place search and browse navigation tools at the top and start of the page. Position next-step navigation tools toward the top, but opposite the start, as well as at bottom. Always include navigation tools that relate and promote so that customers find things that they might otherwise miss, but position these tools farther down the page. (*The Design of Sites*, 216)

Example: MIT Information Services and Technology

URL: <http://web.mit.edu/ist/index.html>

Aligns with: customer-focused, comprehensive

Example: Penn State Information Technology Services student page

URL: <http://its.psu.edu/students/>

Aligns with: customer-focused, comprehensive

Hierarchical organization

Build a hierarchy of categories with input from customers or from experts known for good communication skills in the subject area. Use descriptive category names that are distinctive from one another. Use techniques such as card sorting to develop the categories and labels, and use techniques like category identification and category description to test. Repeat items in multiple categories where it makes sense. Keep the maximum number of subcategories per category below 50, and avoid generic terms like miscellaneous. (*The Design of Sites*, 226)

Email

Log in to Email (web), Client Settings, SPAM, Forwarding, Vacation Message, Change Email Password, Activate Your Account: Employees, Activate Your Account: Students, Enable Cookies, Email List Requests, more

Passwords

Changes/Forgotten, Email Account, UMassD Logon, UMassD Logon Password Rules, VPN, MeetingMaker, COIN, PeopleSoft, myCourses (Online Courses), FTP Account, more

Network Access

Wireless Network, VPN Set Up, Registering

Example: UMass Dartmouth CIT

URL: <http://www.umassd.edu/cits/>

Aligns with: customer-focused, comprehensive

Services

IT Service Center: Faculty and Staff, IT Service Center: Students, Catalog of Services, Alphabetical List of Services, IT Classrooms and Labs, FAQs, UMassD Logon, Licensed Software, iClickers, more

Instructional Resources

Instructional Development, IT Learning Spaces, myCourses, iClickers, Faculty Instructional Laptop Program, Mobile Computing Lending Program (MCLP), more

Training

FASTRAC, Applications, PeopleSoft,

SERVICES AT-A-GLANCE

Google Apps for Students

Gmail, SPAM, LISTSERV, Forwarding, Auto-Reply, Calendar, Docs & Spreadsheets, More...

Exchange Email & Calendaring for Faculty/Staff

OWA, Setup, Smartphones, University Holidays, Sharing & Access Rights, Global Address List, Resources, Quotas, Forwarding, Vacation/Auto-Reply, SPAM, LISTSERV, More...

Security

Stay Secure , Protect Sensitive Numbers, Free Antivirus & Antispyware , Identity Theft, More...

Course Management

Concourse, Courseware, More...

Shared File Space

WebFile, NetFile, NDAccess, H/I Drives, More...

Example: Notre Dame OIT

URL: <http://oit.nd.edu/>

Aligns with: customer-focused, comprehensive

Popularity-based organization

Some customers want to see which content or products are the most popular. But without clear labels indicating how the content was rated and over what period, popularity lists are useless. Build lists of popular content from customer usage, customer ratings, or acquired outside lists. Label each list with a descriptive title that indicates what was rated and over what period. (*The Design of Sites*, 241)

Most Popular Links



Webmail **carmen** More Students

[Buckeye Link](#) [View Class Schedule](#) [Future Students](#)

[View Grades](#) [Colleges, Schools and Departments](#)

[Statement of Account/Pay Fees](#) [Office of Student Financial Aid](#)

More: [+](#) Top 20, [+](#) Top 40

Example: Ohio State University

Detail: tag cloud of popular links on the home page

URL: <http://www.osu.edu/>

Aligns with: customer-focused

Top user questions

1. [How to Configure Wireless Internet Access at MU](#)
2. [How to Configure Windows XP for MizzouWireless](#)
3. [How To Set up MizzouWireless on the iPhone or iPod Touch](#)
4. [How to Configure Windows Vista for MizzouWireless](#)
5. [How To Connect to](#)

Example: University of Missouri, Division of Information Technology

Detail: “Top user questions” on right

URL: <http://doit.missouri.edu/>

Aligns with: customer-focused



Most popular articles

- 002495** How do I install the Cisco VPN Client on my Windows XP/Vista computer?
- 000367** How do I map my Career Account home directory in Windows XP?
- 003447** Why can't I access myPurdue?
- 000689** How do I reset my Purdue Career Account password?
- 000515** How do I map my Career Account (H: drive) in Mac OS X?

Example: Information Technology at Purdue

Detail: “Most popular articles” on right

URL: <http://help.itap.purdue.edu/viewarticle.php?articleid=1767&refid=5>

Aligns with: customer-focused

Site map

Finding specific information in a site can sometimes be difficult, especially if it's not obvious where to start looking. As a backup to site navigation and search, create a site map page that contains links to all the features offered on the site, and organize the page to serve the needs of all types of visitors equally. Keep the site map page simple -- containing only text and HTML -- so that it loads quickly. Use a grid layout to keep as many links visible as possible, and place most of the content above the fold. Organize the page using a suitable hierarchy, with categories to separate links for different functions, visitors, or types of content. Link the categories to category pages for quick access to general content. Include a link to the site map from the header or footer of every page. ([Site Map Usability](#); *The Design of Site*, 752; [Yahoo Design Pattern Library: Alphanumeric Filter Links](#))

Example: University of Texas Austin ITS

Detail: Three views: category, name, audience

URL: <http://www.utexas.edu/its/services/>

Aligns with: customer-focused, comprehensive

Page layout

Consistent sidebars of related content

Finding related content on a page can be frustrating. Make the location of sidebars consistent by using a grid layout and page templates. Also determine the maximum length for sidebars so that the page layout will be balanced. (*The Design of Sites*, 657)

Example: Yale ITS

URL: <http://www.yale.edu/its/help/>

Aligns with: customer-focused

Example: University of Pittsburgh IT

URL: <http://technology.pitt.edu/portal/setup-portal.html>

Aligns with: customer-focused

Mobile screen sizing

Small screens are harder to read than larger ones, and web sites can be much more difficult to use on small-screen mobile devices because of their page layout. When making a site available to mobile visitors, adding a mobile style sheet is the quickest way to reorganize each page, putting the most important content and navigation above the fold to make it easy to find and to minimize scrolling. Make sure the primary content is above the fold. (*The Design of Sites*, 794)

PART III: CURRENT SITUATION ANALYSIS

CURRENT SITUATIONAL ANALYSIS: CIO SITE

The CIO site reflects current initiatives and interests of the CIO. It is up-to-date and is regularly maintained. There are about 200 pages in this site, excluding the virtual addresses, www.itpolicies.buffalo.edu and computersecurity.buffalo.edu.

Content Audit

Many pages in this site are not internal; links are to other sites in the CIO organization, other sites at the university and other universities and vendors. External links are not indicated as external and some external links were broken when audited. Some pages are very dense, for example [Environmental Stewardship and Green Computing](#), and don't have navigational hints. Some how-to technology pages are out of alignment with the business need such as the [web conferencing pages](#). There are also areas where advice is offered, for example, power management in personal computers, which will not reach the end-users. Other best practices for links, such as single instances of same link/page and scent-of-information context are sometimes not observed. The nature and organization of the content on the CIO site would benefit greatly from a finer focus.

Current Support Plan

The CIO's administrative staffs edit content and maintain the site. One staff member contributes 0.1 FTE as the subject matter expert for content aligned with the business needs and for site maintenance. A part-time graduate student contributes ~10 hours/week (when available) for site maintenance. No software is used to maintain the site. There is no communication plan in play for IT that informs decisions about content selection and there is no workflow to facilitate placement of content on CIO, UBIT or elsewhere.

Performance

No performance metrics have been collected for this site. Future access will be measured and we may see an upturn in usage when the site is focused and targeted. Metrics will be employed to determine if our target audiences are being reached and satisfied.

Strengths and Weaknesses

Strengths

- Up-to-date information
- Reviews of relevant studies

Weaknesses

- No overall communication plan

Discovery: UBIT & CIO

- Some content not aligned with business needs
- Dense content without navigational hints
- Linking practices
- No workflow for content management between CIO and UBIT
- No subject matter expert for non-aligned content plan

CURRENT SITUATIONAL ANALYSIS: UBIT

This site is comprised of ~700 pages, some of which are regularly visited and others rarely. Some IT services undergo updates on a regular basis, for example [New Student guidance](#). High visibility content like this is up-to-date. Other content tends to be reviewed when a problem arises or a new service is implemented that has a tangential relationship. Only central IT services supported by the CIT Help Desk are included in content at this time. Because of the dense contextual linking, it is often easy to get lost in the site or lose the relevance of the information being reviewed.

The “entry” to the site is not set up to create that balance between “let me task” and “tell me what I should know while I am on my way to task”.

Content Audit

Some pages have been marked for deletion and 60 pages were purged during audit. The audit pointed out a lack of consistency in design and instructional format. As new content has been added, older content has not been reviewed and aligned with more web-mature styles. The majority of remediation needed is editing that reflects an understanding of how users scan information. The site has a lay audience and an IT professional audience; often the information is not positioned to serve discrete communities.

Current Support Plan

Of the 700 pages in the site, 175 pages have active subject matter experts who proactively request content changes when needed, request news items about their subject areas, and participate in site usage discussions. These content areas include software, public computing services, and new student guidance. The subject matter experts are service team leaders who collaborate with site maintenance staff. Three staff members participate in site maintenance for a total of 0.8 FTE.

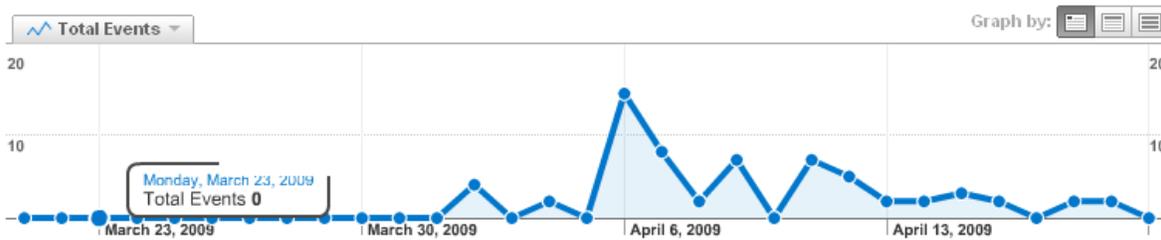
Performance

Several analysis tools are available to assess site performance but insufficient staff resources exist for a quality assurance program. As a result, tools like Clickheat and Google Analytics are used in only the most cursory ways. Clickheat, for instance, has been used to visually identify where users are clicking on the New Student and Software pages:

Discovery: UBIT & CIO



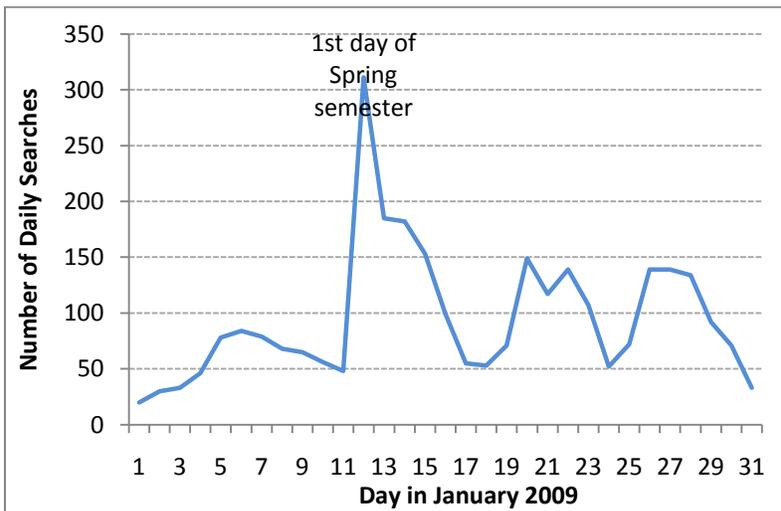
Similarly, tracking has been enabled on videos within the New Student page to track how many students start the video, stop it, when they pause it, and how many times the video plays to completion. The following graph shows how many times the first video (about accounts) has played to completion:



This event sent 31 unique actions via 10 cities

Each page has a question in the footer: Did this page answer your question? Responses are directed to the Help Desk if the customer requests contact. Feedback is copied to all the site stakeholders. Missing information or page focus is occasionally identified via this feedback.

Review of searches in January 2009 did not highlight single keywords. The high volume of searches at the start of the semester is consistent with our experience. Many keywords are departments or services not in technology, for example library or bookstore.



Site Strengths and Weaknesses

Strengths

- Accurate, up-to-date IT information
- User feedback opportunity
- URLs are usually intuitive
- Dreamweaver managed

Neutral

- [UB Alert](#) notices are available, but may not be user-centric messages for separate audiences
- The [scoreboard](#) contains some key performance metrics (e.g. Help Desk), but this area is not focused nor offers much context
- Template is used

Weaknesses

- Site navigation bar not task oriented
- Missing content from some central IT departments (e.g. phones)
- No integration with the distributed IT community services/information
- Not written for search engines
- Missing some content (e.g. security)
- No About Us information
- No workflow for managing content overlap between CIO and UBIT
- Reactive updates
- Most of the pages do not have subject matter experts
- Home page is underutilized for promoting messaging, information and services
- Design inconsistent
- Writing style needs to address 2 audiences needs
- Accountability without authority

PART IV: RECOMMENDATIONS

We propose one or more strategies to achieve each of the identified business needs. Integrating the CIO and UBIT sites in content development and maintenance is essential whether or not a single IT portal is created, so the recommendations for both sites are combined here.

The recommended strategies need resources to implement and sustain them beyond what we are able to maintain today. Establishing a menu of services/features with associated costs is the next step to improving the CIO/UBIT web presence.

Business Need

Strategy

Core competency

- Develop and implement an IT communication strategy
- Use best practices in content development and management
- Establish an IT web advisory team

Comprehensive

- Create a technology portal that integrates CIO and UBIT content
- Central IT and distributed IT information
- Establish expiration or review dates for all content
- Implement a workflow that promotes participation of subject matter experts to create accurate content
- Bring IT projects and initiatives into view for all IT constituents
- Transfer non-aligned content to appropriate sites

Customer-focused

- Navigation and organization in alignment with best practice standards
- Create site views that align with target audiences
- Institute a style guide that promotes user-centric messaging
- Make changes based on date-driven decisions
- Assure all content is effectively searchable

Branded

- Adopt an identity that clearly indicates that we are aligned with UB and how
- Adopt an identity that promotes UB
- Assure site/UB identity carried throughout site

Content for integration

- Write content for re-use; include re-use in style guide
- Prepare for integration with Shared Service Desk and new “MyUB”

Customer perception

- Implement workflow that is supported by best practices to achieve best outcomes
- Solicit customer feedback about the site
- Perform usability tests

Open and transparent communication

- Create welcoming communication paths for IT fans
- Welcome critical feedback
- Create a plan with resources to support open and transparent communication

Performance Measurement

- Identify performance and maintenance standards for content creation
- Schedule regular assessment of content

APPENDIX: STAKEHOLDERS

Interviewees: CIO

- [Elias Eldayrie: Associate Vice President & Chief Information Officer](#)
- [Sandra Peters: IT Policy Officer, Office of the Chief Information Officer](#)

Interviewees: UBIT

The UBIT stakeholders are members of the CIO senior leadership team in the Enterprise IT Service group. All but one member of this group was interviewed:

- [Mark Deuell: Director of Operational Support Services](#)
- [Saira Hasnain: Director of Enterprise Infrastructure Services](#)
- [Richard Lesniak: Director of Academic Services Department](#)
- [Matt Stock: Manager of Enterprise Research Computing Services](#)

In addition, the Central Help Desk Manager was interviewed:

- [Mark Ferguson: Manager of CIT Help Desk](#)

Interview Questions

1. What are the business objectives, in your mind, of the UBIT site?
2. Please identify the key decision makers for the UBIT website.
3. What aspects of the current UBIT (CIO) site work well and why are they successful?
4. What aspects of the current UBIT (CIO) site are unsuccessful and why do you think that is?
5. If you can, please identify websites similar in function to the UBIT (CIO) site. What works? What doesn't? Whose do you admire the most? Why?
6. What key performance indicators would you suggest to measure the success of the UBIT (CIO) site?
7. Who are the different types of customers who use the UBIT (CIO) website?
8. How will our customers use the UBIT (CIO) site?
9. Why will customers choose the UBIT (CIO) site over other alternatives?
10. How do our customers perceive the current UBIT (CIO) site?
11. How would you like customers to perceive the new UBIT (CIO) site?
12. Are there specific technologies (Flash, Ajax, video, social media, etc) that you wish to see used in the new UBIT (CIO) site? Can you suggest how they might be used to enhance the customer's experience?

APPENDIX: ADDITIONAL BEST PRACTICES

Site accessibility

People with audio, visual, motor, or cognitive disabilities find it difficult to use web sites that are not explicitly designed with their accessibility in mind. In designing a web site, keep in mind accessibility for people with audio, visual, motor, and cognitive disabilities. Make the navigation and content both understandable and usable by employing good layout, clean visual design, straightforward text descriptions for all images and links, and alternative text-based formats for rich multimedia. Use features built into HTML that simplify accessibility. (*The Design of Sites*, 251)

Example: MIT IST

URL: <http://web.mit.edu/ist/accessibility.html>

Aligns with: customer-focused

Write for search engines

It is difficult to find a page on a list of search engine results if it is too far down the list. Making a page appear toward the top of any search requires writing content in customized ways. (*The Design of Sites*, 324)

- Write distinctive titles for every page
- Use familiar words ([Use Old Words When Writing for Findability](#))
- Write keyword-filled descriptive text near the top of each page
- Target keyphrases rather than single keywords
- Use longer words and plurals
- Focus on a few specific keyphrases for each web page
- Use <meta> tags
- Make your site accessible to web crawlers: the same kinds of barriers that stop people with impaired vision also stop web crawlers.
- Avoid rigging the system with bogus keywords and text -- this approach is often counterproductive

Inverted-pyramid writing style

Writing for the web is different from writing for print, primarily because people don't read online -- they scan the content. "On the average Web page, users have time to read at most 28% of the words during an average visit; 20% is more likely." ([How Little Do Users Read?](#)) If a site's writing is not quick and easy to grasp, it is usually not read. Have a fully-developed style guide for web content. (*The Design of Sites*, 332)

- Create a concise but descriptive headline

- Continue with the most important points in the blurb or lead ([Blah-Blah Text: Keep, Cut, or Kill?](#))
- Provide clear, concise calls to action
- Highlight keywords
- Keep content short (Nielsen: [Long vs. Short Articles as Content Strategy](#))
- Keep paragraphs short
- Use subheadings to break up content
- Use list formatting when possible
- Avoid using all capitals for titles
- Keep layout and formatting to a minimum ([Fancy Formatting, Fancy Words...](#))
- Avoid hype
- Show numbers as numerals

Example: University of Pittsburgh Information Technology
URL: <http://technology.pitt.edu/email-accounts/email.html>
Aligns with: customer-focused

Passive voice for web headings

Active voice is best for most Web content, but using passive voice can let you front-load important keywords in headings, blurbs, and lead sentences. This enhances scannability and thus SEO effectiveness. ([Passive Voice is Redeemed for Web Headings](#))

Distinctive HTML titles

Create distinct names for each page, even if the pages are generated from page templates. Consider using the site's organizational hierarchy as the basis for titles that describe the categories and subcategories on each page. (*The Design of Sites*, 343)

Limit HTML title length

Limit HTML titles to no more than seven or eight words and fewer than 64 total characters. Longer titles are less scannable, especially in bookmark lists, and will not display correctly in many applications. Include keywords and keyphrases the title element. (*Homepage Usability*, guideline 76)

Limit styling

Limit font styles and other text formatting, such as sizes, colors, and so forth on the page because over-designed text can actually detract from the meaning of the words. If text elements look too much like graphics, users tend to overlook them. (*Homepage Usability*, guideline 63)

Example: University of Pittsburgh IT
URL: <http://technology.pitt.edu/software/faculty-computing-program.html>

Discovery: UBIT & CIO

Aligns with: customer-focused

Plan for emergency content

Have a plan for handling critical content on your website in the event of an emergency. In an actual emergency, there won't be time to come up with alternative versions of your homepage. (*Homepage Usability*, guideline 94)

Dates and times for time-sensitive information only

It's not necessary to show the day of the week, but if you do, only do so if it is from the current week. (*Homepage Usability*, guideline 105)

Last updated

Show users the time the content was last updated. Clearly indicate this with a phrase such as "Updated <date, time>." (*Homepage Usability*, guideline 106)

Last modified: Tuesday, 24-Feb-2009 14:49:50 EST. (jj)

Example: Yale ITS

URL: <http://www.yale.edu/its/email/>

Aligns with: customer-focused

Technical problems

If the website is down or important parts of the website are not operational, show it clearly on the homepage. Provide an estimate of how long it will take to correct the problem -- not just "try again later," but a specific time. Inform users about alternatives that might be available while service is down. (*Homepage Usability*, guideline 93)

Embedded links

Embed links within a text passage to allow more free-form exploration. Use descriptive, longer link names to let customers know where the links will take them. Keep the number of embedded links per page low, so as not to overwhelm readers. Use floating windows for some embedded links, to provide additional information while maintaining the context and to keep visitors from jumping to other pages. (*The Design of Sites*, 701)

You must connect to the UNIX Timesharing Service using [SSH \(secure shell\)](#) and [SFTP \(secure file transfer protocol\)](#). SSH enables you to securely log in to a remote computer and SFTP allows you to transfer files securely between two computers. If you use Web authoring software, you must publish files using SFTP.

Example: University of Pittsburgh IT

URL: <http://technology.pitt.edu/network-web/unix-timesharing.html>

Aligns with: customer-focused

External links

Most sites have links to other websites. These external links need to be treated in a special manner so that customers understand that they lead to other websites that are not managed by the current website. Let your customers know that they're about to be sent to an external side by explicitly marking each link, or by putting external links in a well-marked area on your page. Use pop-up windows for external links only when the context of your site must be maintained so that customers don't lose their place in a process. (*The Design of Sites*, 705; *Homepage Usability*, guideline 39)

 Get Adobe® Flash® player

Example: IBM

URL: http://www-03.ibm.com/industries/financialservices/us/banking/index.html?cm_re=masthead-business-ind-banking

Aligns with: customer-focused

Descriptive, longer link names

Text hyperlinks must be made predictable and understandable in terms of the web pages to which they link. Otherwise, when browsing, customers will repeatedly follow links, arrive at something that doesn't interest them, and continually "pogo" back and forth in frustration. (*The Design of Sites*, 709)

- Provide links with information scent ([Four Bad Web Designs](#))
- Nanocontent (first 11 characters/two words) needs to be good enough that users will sniff the most promising links in full ([First 2 Words...](#))
- Generic terms make poor link names
- Longer link names improve site accessibility
- Longer link names make a page easier to skim
- Summarize the linked page with a few choice words
- Use familiar language; avoid jargon
- Differentiate or eliminate links that have similar names
- Separate links that word-wrap

Example: University of Pittsburgh IT

URL: <http://technology.pitt.edu/network-web/site-hosting.html>

Aligns with: customer-focused

Obvious links

It's not always clear which bits of text are clickable links. (*The Design of Sites*, 714)

- Avoid using blue text for anything other than web links ([Visualizing Links](#))
- Avoid underlining anything other than web links
- Change the color of visited links ([Change the Color of Visited Links](#))
- Make links more attractive by using different font sizes and styles
- Use the <title> attribute with text links
- Avoid using colors associated with color deficiency

Familiar language

Unfamiliar terms and link names make understanding and navigating a web site difficult. Use customer-focused language. Label sections and categories according to the value they hold for the customer, not according to what they do for your organization. (*The Design of Sites*, 719)

Avoid Within-Page Links

On the Web, users have a clear mental model for a hypertext link: it should bring up a new page. Within-page links violate this model and thus cause confusion. ([Avoid Within-Page Links](#))

Customer-focused language

Label sections and categories according to the value they hold for the customer, not according to what they do for your company. Don't use clever phrases and marketing lingo that make people work too hard to figure out what you're saying. Every time you make users ponder the meaning behind vague and cutesy phrases, you risk alienating or losing them altogether. Users quickly lose patience when they must click through a link just to figure out what it means. (*Homepage Usability*, guideline 17)

Don't use invented words

Don't use made-up words for category navigation choices. Categories need to be immediately differentiable from each other -- if users don't understand your made-up terminology, it will be impossible for them to differentiate categories. (*Homepage Usability*, guidelines 19 and 44)

Write for reuse

Users often see online content out of context and read it with different goals than you envisioned. While you can't predict all such goals, you can plan for multiple uses of your text. Content syndicated from a CMS will be presented devoid its original context,

anticipate presentation of the content without the greater context of the original use.

([Write for reuse](#))

Clear forms

Choose label names carefully, using familiar language and abbreviations, and then test those labels. Place labels beside, above, or below input boxes, but make sure the labels are visually associated with their fields. Help people input data that needs to be specially formatted by automatically skipping from field to field or formatting the data for them. Keep forms short, or split longer forms into multiple pages with a progress bar, or into clear sections on one page. Provide simple instructions, as well as examples that clear when the customer types. Reduce the amount of typing required of customers by using predictive input. Provide intelligent error handling by reloading the page with all information intact, by calling out problems at the top of the page, and by providing instructions next to each problem. (*The Design of Sites*, 601)

Example: Yale ITS email restore request

URL: http://www.yale.edu/its/forms/restore_request_form.html

Aligns with: customer-focused

Navigation on form pages

Use minimal global navigation on form pages. Eliminate navigation elements that aren't required to fill out online forms, but do provide a link out of the form process -- especially in the case of a multi-step process. Providing only essential navigation elements can help customers to stay focused while ensuring that they still have a way to leave the form page. (*Deliver First Class Websites*, 130)

Example: Amazon.com

URL: https://www.amazon.com/gp/sign-in.html?ie=UTF8&email=&disableCorpSignUp=&path=%2Fgp%2Fyourstore&redirectProtocol=&mode=&useRedirectOnSuccess=1&query=signIn%3D1%26action%3Dsign-out%26useRedirectOnSuccess%3D1%26path%3D%2Fgp%2Fyourstore%26ref_%3Dpd_irl_gw_r&pageAction=%2Fgp%2Fyourstore

Aligns with: customer-focused

Preventing errors

Customers will make errors and generate erroneous data when faced with online forms that have little structure, include no formatting directions, and are not designed to account for errors from the start. Provide hints about what kind of text input you expect from your customers. Provide fields showing formatting, provide sample values in the fields, or provide explanatory text. Whenever it is simple to do so, allow flexible formatting and have

the computer determine the correct format. Also make clear which fields are required and which are optional so customers will not have to guess. (*The Design of Sites*, 723)

What is your e-mail address?

My e-mail address is

Do you have an Amazon.com password?

No, I am a new customer.

Yes, I have a password:

Sign in using our secure server 

[Forgot your password? Click here](#)

[Has your e-mail address changed since your last order?](#)

Example: Amazon.com

URL: <https://www.amazon.com/gp/flex/sign-in/select.html>

Aligns with: customer-focused, perception

Meaningful error messages

When customers make mistakes, they need to be gently informed of the problem and how to recover gracefully, or the error condition may persist. Provide meaningful error messages in familiar language without assigning blame and without trivializing the problem with humor. State the severity of the problem and provide steps that customers can take to recover. Display the error message near the problem area, and highlight it to make it stand out visually. (*The Design of Sites*, 727)



Example: Amazon.com

URL: <https://www.amazon.com/gp/flex/sign-in/select.html>

Aligns with: customer-focused, perception

Navigation bar

Customers need to be able to reach the most important parts of your web site in a structured, organized way that is easy to understand and use. Coordinate top level and second level navigation in a navigation bar along the top and/or left side of each web page. Use text, or both icons and text, as links inside the navigation bar. (*The Design of Sites*, 682)



Example: Notre Dame OIT

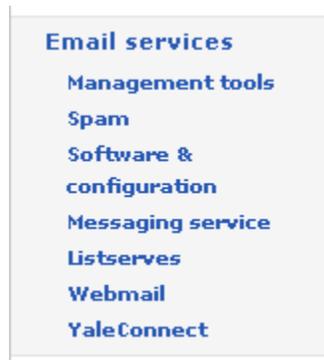
URL: <http://oit.nd.edu/>

Aligns with: customer-focused, comprehensive

Discovery: UBIT & CIO

Left-justify navigation menu text

Users scan lists by moving their eyes rapidly down the left edge. Menu items that are right-aligned make scanning more difficult. ([Right-Justified Navigation Menus Impede Scanability](#))



Example: Yale ITS

URL: <http://www.yale.edu/its/email/>

Aligns with: customer-focused

Location bread crumbs

Customers can get lost easily on web sites, losing track of where they are in relation to other pages on the site. Provide bread crumb links that show how to get from the homepage to the current page and back. Use a string of back links and separate them by a "pointing" (>) character. ([Breadcrumb Navigation Increasingly Useful](#); *The Design of Sites*, 698; [Yahoo Design Pattern Library: Breadcrumbs](#))

[Home](#) > [Email & Accounts](#) > [Email](#)

Example: University of Pittsburgh Information Technology

URL: <http://technology.pitt.edu/email-accounts/email.html>

Aligns with: customer-focused

User-centered URLs

Base your user-friendly directory structure on your content's information architecture. ([User-centered URL design](#))

- Use conventional practice to create guessable, user-friendly, consistent directory names.
- Keep filenames and directory names as short as possible
- Avoid mixed-case
- Limit underscores, hyphens, and periods
- Avoid special characters

- Hide filenames as much as possible

Example: Yale ITS Email page

URL: <http://www.yale.edu/its/email/>

Aligns with: customer-focused, comprehensive

Jump menus

Providing copious navigation links to key site areas can make large sites easier to use, but too many links on a page can be overwhelming. Create a jump menu to provide a large navigation menu without using an excessive amount of screen real estate. Use standard organizing options, such as subject categories or task-based organization, when creating your list of menu options. Include a title for the jump menu to inform customers of its purpose. Create menu options horizontally and vertically using a grid-based layout, and make sure that the menu options are immediately identifiable as links. ([Mega Drop-Down Navigation Menus Work Well](#); *The Design of Sites*, 744)

Homepage portal

The homepage of a web site is the portal through which most visitors pass. A homepage must seduce visitors while simultaneously balancing many issues, including branding, navigation, content, and the ability to download quickly. On your homepage portal, establish and reinforce the value of your site with a strong, clearly stated promise that is fulfilled on every page of the site. Dedicate 95 percent of the area and links above the fold to the visitor groups that comprise 95 percent of the total visitor population. Keep the remaining area and links for visitor groups that make up the remaining 5 percent. Use additional links in the footer of the homepage to make explicit links for each group, including those in the 5 percent category. Build a homepage layout that provides strong cues to define navigation and content, and that downloads quickly. Test your homepage design to ensure that you have created the right look and feel. (*The Design of Sites*, 268)

- The homepage is typically the single most-visited page, because the deep entry points are scattered across a vast number of interior pages.
- The homepage is the orienteering point for visitors who arrive through deep links and then decide to explore the site further. ([Reduce Bounce Rates](#))

Example: Yale ITS

URL: <http://www.yale.edu/its/>

Aligns with: comprehensive, customer-focused

Page templates

A site that is not consistent from page to page is difficult for customers to navigate and hard for site managers to maintain. Use a grid layout to help define a global template that includes the basic navigation elements, major content areas, and any areas for related

content. For each kind of page, define an individual template that specifies content size limits for images and text. Each individual template should use the global template as part of its structure. (*The Design of Sites*, 284)

Place important content in scan area

Heatmaps reveal that users almost never look at anything that looks like an advertisement, whether or not it's actually an ad. Three examples cover a range of user engagement with the content: quick scanning, partial reading, and thorough reading. Scanning is more common than reading, but users will sometimes dig into an article if they really care about it. ([Banner Blindness](#))

Example: Yale ITS Email page

URL: <http://www.yale.edu/its/email/>

Aligns with: customer-focused

Printable pages

Create a printer-friendly page template by using a style sheet that removes frames, additional columns, navigation bars, and sidebars. Join content split across multiple pages, and label the printable page with the page title, author, and url. Finally, be sure that the main content is not placed within an HTML table, because tables can cause serious printing problems. (*The Design of Sites*, 339)

Example: Yale ITS

URL: <http://www.yale.edu/its>

Aligns with: customer-focused

Above the fold

Customers often miss navigation elements and content if they have to scroll down to see them. Make sure that the most important material is at the top of each page of your website, easily visible and easily accessible. Test the page to see how it looks on various screen sizes and to make sure that the important navigation elements and content are always visible. (*The Design of Sites*, 637)

- Emphasize the highest priority tasks so that users have a clear starting point.
- Offer users direct access to high priority tasks on the homepage.

Example: University of Texas Austin ITS

URL: <http://www.utexas.edu/its/help/>

Aligns with: customer-focused

Clear first reads

How can a web page be designed with a single unifying focus when so many visual elements are competing for attention? Use a first read to give each page a unifying focus

on the most important message, and to emphasize the most important element of that page. Use color, size, font, weight, and position and to differentiate and highlight the first read. Design for lower resolution displays, and test your first reads with your customers to see if they're effective. (*The Design of Sites*, 641)

Example: Kansas University Information Technology

URL: <http://www.technology.ku.edu/>

Aligns with: customer-focused

Example: Computing.msu.edu

URL: <http://computing.msu.edu/>

Aligns with: customer-focused

Example: University of Minnesota, Office of Information Technology

URL: <http://www.oit.umn.edu/>

Aligns with: customer-focused

Page not found

Sometimes customers click on links, type in URLs, or have bookmarks for pages that no longer exist, resulting in the dreaded "Page not found" error message. Create a custom Page not found web page that makes it easy for customers to browse or search for the content they were expecting to find. ([The Perfect 404](#); [Error Message Guidelines](#); *The Design of Sites*, 731)

Search

Straightforward search forms

Search forms are often ineffective because they require too much precision. Avoid boolean searches and exact matches. Compensate for the use of different terms to mean the same thing. (*The Design of Sites*, 666; *Homepage Usability*, guideline 50)

Search on homepage

Give users an input box on the homepage to enter search queries. Users expect and look for an input box with a button next to it. If they don't see it, they often assume the site doesn't have a search feature. (*Homepage Usability*, guideline 47)

Example: University of Pittsburgh IT

URL: <http://technology.pitt.edu/>

Aligns with: customer-focused

Wide enough search box

Discovery: UBIT & CIO

Input boxes should be wide enough for users to see and edit standard queries on the site. Allow enough space for at least 25 characters in the font used by most of the users -- even better to allow for 30 characters. (*Homepage Usability*, guideline 48)

Example: University of Pittsburgh IT

URL: <http://technology.pitt.edu/>

Aligns with: customer-focused

Use a "Search" button

Don't label the search area with a heading; instead use a "Search" button to the right of the box. (*Homepage Usability*, 49)



Example: UBIT

URL: <http://ubit.buffalo.edu>

Aligns with: customer-focused

APPENDIX: CONTENT AUDIT OUTCOMES

<https://prv-sharepoint.pn.buffalo.edu/Web-Content-Initiative/Shared%20Documents/Forms/Priority%20View.aspx?RootFolder=%2fWeb%2dContent%2dInitiative%2fShared%20Documents%2fmStoner%2fCIO%20Discovery%20Materials%2fCIO%20Content%20Audits&FolderCTID=&View=%7bFAAEF9A7%2d0202%2d4F04%2d87E9%2dBAA077C676E1%7d>

APPENDIX: UBIT & CIO DISCOVERY TEAM

- David Anderson, Team Lead, Academic Services, Computing & Information Technology
- Linda Kingsbury, Service Team Leader, Academic Services, Computing & Information Technology

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Discovery: UBIT & CIO

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APPENDIX: SITES REVIEWED

Amazon.com (<http://www.amazon.com>)
Binghamton University (<http://www2.binghamton.edu/>)
Brown University (<http://www.brown.edu/>)
Canisius College (<http://www.canisius.edu/>)
Colorado State University (<http://www.colostate.edu/>)
Computing.msu.edu (<http://computing.msu.edu/>)
Cornell University (<http://www.cornell.edu/>)
Dell (<http://www.dell.com>)
Duke University (<http://www.duke.edu/>)
Florida State University (<http://www.fsu.edu/>)
Georgia Institute of Technology (<http://www.gatech.edu/>)
Harvard University (<http://www.harvard.edu/>)
Hewlett Packard (<http://www.hp.com>)
IBM (<http://www.ibm.com>)
Information Technology at Purdue University (<http://help.itap.purdue.edu/>)
Indiana University (<http://www.indiana.edu/>)
Indiana University Bloomington (<http://www.iub.edu/>)
Iowa State University (<http://www.iastate.edu/>)
Johns Hopkins Information Technology (<http://it.jhu.edu/>)
Kansas University Information Technology (<http://www.technology.ku.edu/>)
Louisiana State University (<http://www.lsu.edu/>)
MIT Information Services and Technology (<http://web.mit.edu/ist/>)
Michigan State University (<http://www.msu.edu/>)
New York University (<http://www.nyu.edu/>)
North Carolina State University (<http://www.ncsu.edu/>)
Ohio State University (<http://www.osu.edu/>)
Oregon State University (<http://oregonstate.edu/>)
Penn State Information Technology Services (<http://its.psu.edu/>)
Princeton University (<http://www.princeton.edu>)
Rochester Institute of Technology (<http://www.rit.edu/>)
Rutgers University (<http://www.rutgers.edu/>)
St. John Fisher College (<http://www.sjfc.edu/>)
Stanford University (<http://www.stanford.edu/>)
Stony Brook University (<http://www.sunysb.edu/>)
SUNY Geneseo (<http://www.geneseo.edu/>)
Syracuse University (<http://www.syr.edu/>)
Texas A&M University (<http://www.tamu.edu/>)
Tulane University (<http://tulane.edu/>)
University at Albany (<http://www.albany.edu/>)
University at Buffalo Information Technology (<http://ubit.buffalo.edu>)
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