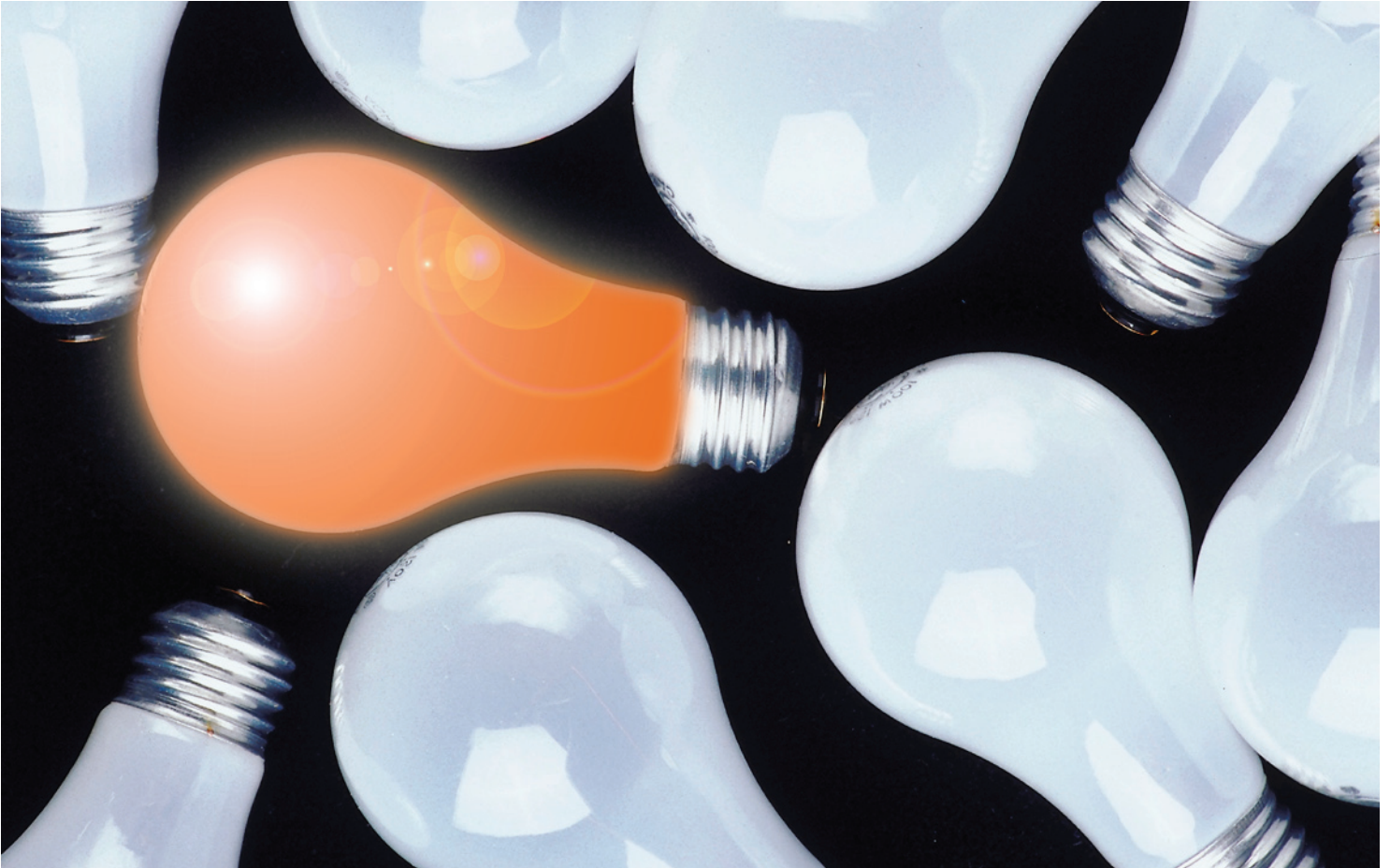


Guide to Creating Website Information Architecture and Content



Office of Communications, Princeton University | 2008 | Version 2.2

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Preface

This document provides strategies to help you logically organize your website and prepare appropriate content. The document is formatted in a way that allows you to start at the section most appropriate to where you are in the website development process. It does not need to be read cover to cover.

Following the techniques outlined in this document can speed the development process for your information architecture, content and design and help you to avoid revisions later. These strategies can be used regardless of the technology selected to build or host your site. It's important to note that, while you have much freedom in shaping your site, the University has certain website standards and requirements that you must incorporate. These can be found on page 30 of this document.

Campus site building support

You may have received this document because you are building a site using the University's Roxen Content Management System (CMS) templates. The Roxen CMS allows non-technical users to update text and images easily and without needing any computer programming skills.

To help departments take advantage of the Roxen CMS, several standard template designs have been developed and are available at no charge to any department or office representatives who attend a Roxen CMS training class (www.princeton.edu/training). Having developed your information architecture and content with this document, you will be able to make an informed choice in the selection of a template design and identify any custom features you may need. (Fees may apply to customized features.)

While employees are not required to use the University's system, they are encouraged to do so for several reasons, including:

- The Roxen CMS is a University-supported enterprise system. Consequently, no licensing fees are passed on to your office or department.
- The Office of Information Technology (OIT) is committed to supporting this platform and offers free technical support for standard (non-customized) features.
- Sites created with the Roxen CMS are hosted on servers owned and supported by OIT and are protected by emergency backup systems.
- Updates to the Roxen CMS are automatically distributed.
- University-created templates are compliant with the federal accessibility standards described in Section 508 of the Rehabilitation Act of 1998 and incorporate many features that enhance usability.

OIT's New Media Center can customize features or build your site from start to finish in Roxen (fees may apply). For departments choosing to use an external vendor, the New Media Center can help ensure that the site can be integrated into the University's system. To discuss the specific needs of your project, contact the center's staff at (609) 258-6073 or roxen@princeton.edu.

The publications team of the Office of Communications also is available to assist you with your Web and print needs (fees may apply). To discuss your project, contact Laurel Cantor at (609) 258-5734 or lmcantor@princeton.edu.

The Office of Communications' Web team focuses on the University's core site and other University initiatives that have been assigned to our office. To discuss these topics or to have the Office of Communications provide feedback on your site, contact Tom Bartus at (609) 258-7720 or tbartus@princeton.edu.

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The best websites are created with a keen understanding of visitors' interests, needs and expectations. Text, visual design, organization and navigation should all work together to allow visitors to find key information and complete critical tasks quickly and easily.

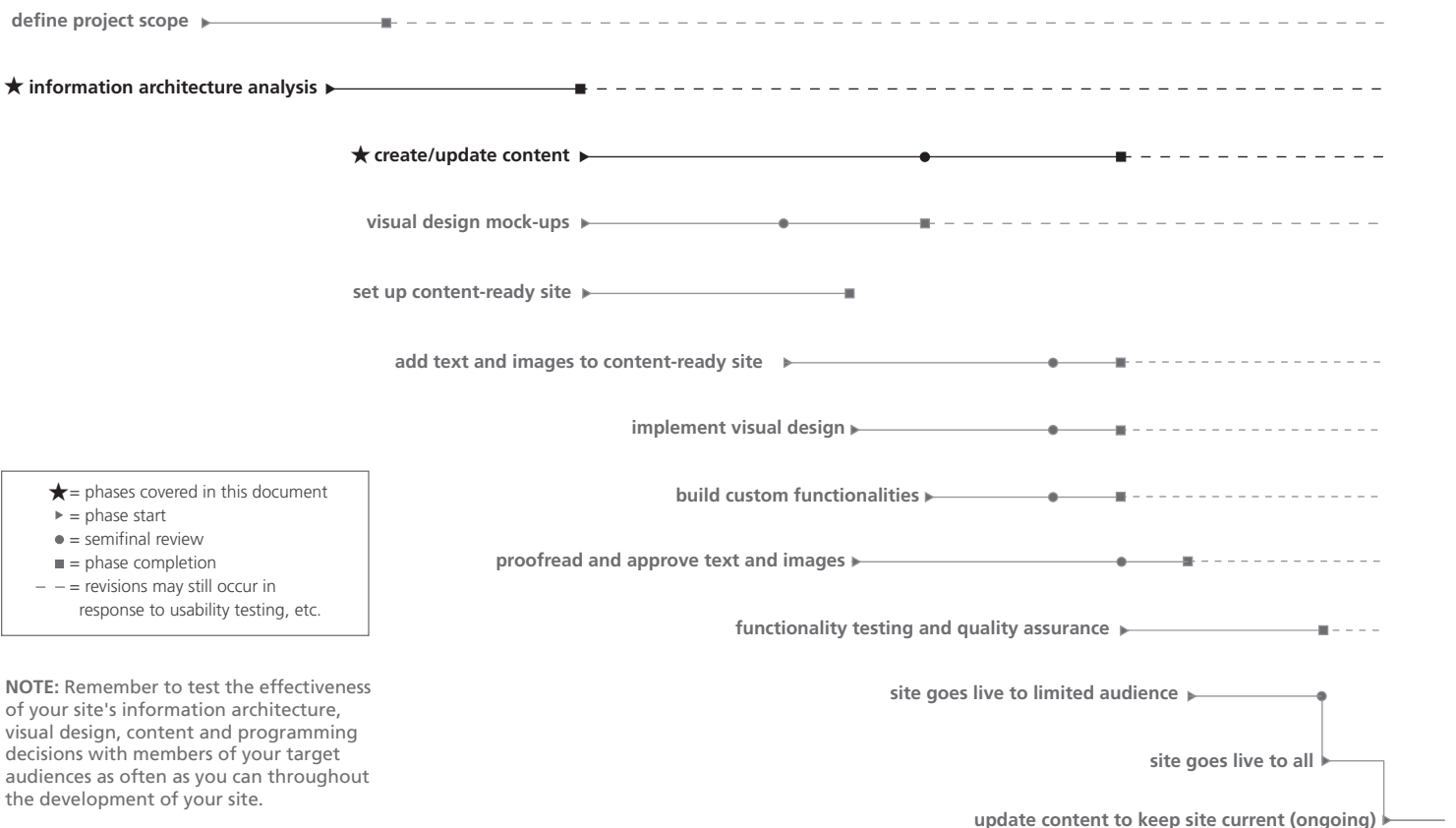
Below is an illustration of the phases of website development. As you can see, many of the phases may run simultaneously. Since the scope of each project is unique, it is hard to say how long the entire development process will take. However, you may use the diagram below to get a sense of the proportional amounts of time for each phase. Even the smallest, simplest site — e.g., using an existing template with no special functional features — typically takes a team at least a month to develop and implement.

This document focuses on the steps for creating effective site organization and navigation, also known as information architecture or IA. You also will find guidelines for writing content, sections on IA standards and University website requirements, a pre-launch check list and a glossary.

You will need to work with visual designers, writers and technical staff to help you through the other phases of development — defining the project scope, writing the content, creating or modifying the visual design and building the site. Because your website will be a highly visible medium for your message, you will need to be sure that everyone involved in the creation of your site keeps the issues of usability, accessibility and University website requirements in mind throughout development. To this end, you can utilize the University requirements section and the site launch checklist at the end of this document to help your team incorporate these essential elements.

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Sample illustration of a website development timeline



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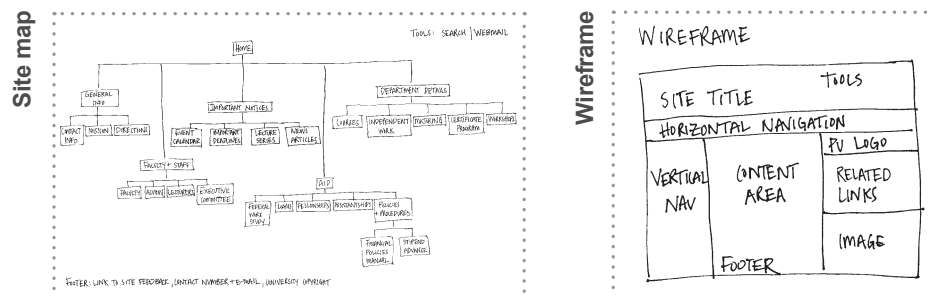
/ What's next?

What is information architecture (IA)?

Information architecture (IA) refers to the structure or organization of your website. It describes the ways in which the different pages of your site relate to one another and ensures information is organized in a consistent and predictable way on each page. It involves steps such as:

- assessing existing and needed content,
- organizing the pages,
- providing clues to help use the site efficiently, and
- developing navigational structure.¹

Through the process of developing your IA, you will create a site map of your content and will develop a wireframe sketch that your designers and developers will use as a guide for building your site (see below). The following pages include exercises that will help you to create these elements.



See pages 19 and 24 for enlarged views of the site map and wireframe above.

Why do I need information architecture?

A well-organized site will help your users find key information quickly. It also will make the experience of using your website more coherent, intuitive and satisfying.

Additionally, intuitively organized information architecture will help to ensure that all of the phases of your website development run smoothly and efficiently. In fact, it can prevent time-consuming and costly alterations to your visual design and site development by identifying required features, the number and location of navigational links and the placement of content early in the process.

If your site is being built in a content management system that allows editors to add their own pages, the site may grow quickly, sometimes in confusing ways. However, if you have planned your organizational structure well, you will be able to easily identify the most appropriate/intuitive location for this additional information.

Who should work on the information architecture?

In addition to the person or group of people whom you appoint to lead the IA development process, it is essential that you involve your key stakeholders, site users and content owners.

¹ *Designing Web Sites that Work: Usability for the Web* (Tom Brink, 2002)

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How do I create great information architecture?

Step 1. Defining key stakeholders' goals

In this first step, you need to clarify the key stakeholders' goals; these drive the project. Key stakeholders are the people who set the tone and overall objectives of a website and give required approvals at various stages of the site's development. Defining their goals includes identifying the target audiences, determining the purpose of the site and establishing the functional requirements. You can start by asking the following questions:

Who are the principal audiences with whom your key stakeholders want to communicate? Be specific.

Examples: freshmen, international student applicants, graduate students, alumni, faculty, academic support staff, all campus users, news media, external vendors.

Ask them to prioritize these audiences in the following way:

- Primary: The audiences that will be your site's main focus. You will optimize the site for them.
- Secondary: Audiences that are important, but not critical.

What are the key stakeholders' expectations in creating or redesigning this site?

Examples: making the site more intuitive/easier to use, explaining what you do, explaining the services you offer, gathering visitor feedback, attracting or serving new audiences, reducing the number of phoned-in requests for assistance, boosting the number of applications from target groups or regions, increasing attendance at events, building a sense of community.

What specific functional requirements do the key stakeholders want included in this site?

Examples: including a search tool, providing self-service options, having downloadable PDFs or interactive forms, having an events calendar, enabling people to sign up for events or apply online, having an intranet for internal communications purposes.

Sample illustration of target audiences and key stakeholder goals

EXAMPLE: PROGRAM ON THE STUDY OF HUGE MANATEES		
TARGET AUDIENCES	GOALS	FUNCTIONAL REQUIREMENTS
PRIMARY: UNDERGRAD APPLICANTS, CURRENT STUDENTS	TO TELL PEOPLE WHAT WE OFFER—CLASSES, EVENTS, ETC.; TO ATTRACT MORE STUDENTS TO OUR PROGRAM; TO REDUCE TELEPHONE INQUIRIES	TO HAVE A DOWNLOADABLE CERTIFICATE APPLICATION FORM; TO HAVE A "SEARCH THIS SITE" FUNCTION
SECONDARY: FACULTY, ADMIN, PARENTS		

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Step 2. Identifying your users' goals and expectations

Hard as it is to imagine, pretend you know nothing about your office and you are a visitor who is searching for information on your department's website. Where do you start? What would be easy and direct?

The ultimate goal of effective Web design is to arrange your site so that it anticipates your users' needs and expectations (we cannot stress this enough). To accomplish this you must arrange and label information the way your target audience expects to see it.

Too frequently creators organize their sites to mirror the structure of their department or office rather than according to users' needs. Relying solely on a staff organizational chart to explain whom to contact for what presumes that the visitor already knows each staff member's responsibilities. If the visitor does not already know who is in charge, then they are forced to read through all of the staff biographies to figure out whom to contact. Instead, you might consider adding a grouping to the site that explains areas of responsibility by topic, and then include key contact information within these groupings.

To truly understand your users' goals and expectations, you should find a wide sampling of users who are members of your target audiences and interview them (see interview questions on page 11). This will enable you to determine their goals and expectations directly.

If you cannot conduct interviews, you can still use the questions on page 11 to help you consider the characteristics and needs of your users. If only one or two users are available to interview, their feedback can help represent your broader audience. However, you will want to imagine the characteristics and goals of additional users to have a good sampling to refer to later.

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Activity: Conducting user interviews and creating data sheets¹

Interviews can help you understand users and what they come to your site to find. Interviewing users helps you to filter out your personal habits and focus instead on the behaviors and motivations of your target audiences.

In Step 1, you prioritized the target audiences of the site. While a strong preference should be given to your primary target audience, you should select a variety of interviewees from each of your audiences to get a reliable sampling of visitor behaviors and characteristics.

If you cannot conduct interviews, you can still use the questions below to help you imagine the characteristics and needs of your users. Interviewing seven to 10 users (real and/or imagined) is usually sufficient to represent the majority of relevant user traits and goals.

First, collect general information about each of your interviewees. Below are examples of the kinds of information you might want to gather. You may not need to gather all of this information as some elements may not be relevant to your project.

Name • Profession/Role (e.g., faculty, administrator, reporter, student) • Location • Geographic profile (including if he/she comes from a suburb or a city) • Education • Interests/sports/hobbies • Family type (e.g., single/married, number of children, number of children in college) • Financial aid needs • Type of computer the individual uses to access information (desktop, laptop, PDA, cell phone) • Web browsers the individual uses • Type of Internet connection the individual has (dial-up, cable, etc.)

Second, find out about the interviewee's goals upon visiting your site:

What does the individual really want to accomplish? • What type of information does the individual seek? • Does the individual need certain areas of the site to be secure (e.g., entering financial and personal data)? What impression does the individual want to have upon exiting the site?

If you are redesigning an existing site, you should ask these additional questions:

What does the individual like about the existing site? What frustrates the individual in the current site? Is the content written in a way that the individual understands?

Now, create data sheets for your interview findings:

Once you have completed this exercise, you will need to create data sheets (see the illustration on the next page) for each of the interviews. Data sheets are active tools. They build a common understanding of users' objectives and remind the development team — at each stage of the process — to consider these needs. The data sheets can include a photo or drawing to represent your user, and a sampling of key information to remind you about his or her goals, needs and interests.

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¹ "Persona Creation and Usage Toolkit" (George Olsen)

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Sample illustration of a user data sheet



NAME: CHRIS SMITH

LOCATION: RICHBORO, PA (SUBURBS)

INTERESTS: MUSIC (CELLO), VOLUNTEERING,
VOLLEYBALL

FAMILY: 1 YOUNGER BROTHER, 1 PARENT
HOUSEHOLD

COMPUTER: MAC

CONNECTION SPEED: DIAL-UP, 56 K

GOALS: TO FIND INFO ON FINANCIAL
AID + SPORTS AND DOWNLOAD
APPLICATIONS

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Step 3. Defining your site's content areas

Defining your content areas will help you to develop your navigational structure.

This step is best done in a group of three to five people so that each person can represent the profiles from one or two of your user data sheets.

First, analyze the content you already have — either in print or on the Web — and decide which pieces should be added to your new site, updated or discarded. Keep or update only the content that will be useful to your users.

Next, list all of the content areas that your users will want to find on your site. The ideal way to do this is to ask a wide sampling of actual users (who are members of your target audiences) what they will be seeking (see “Conducting user interviews and creating data sheets” on page 11). If you do not have access to actual users, you will need to imagine what they will want to find on your site. Once you've done this, you may need to set aside any user goals that are not practical to include in the scope of your project. Also, you may need to add items your key stakeholders want to include.

The “Content area brainstorming” activity on the next page is an exercise that can help you to further define the content areas of your site.

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Activity: Content area brainstorming¹

In the previous step you began to shape the content of your site by determining your users' goals. However, it is important that you "dig deeper" into the offerings of your office/department to make sure that you include all of the specific items that your users might need to find. For example, a user may want to be able to find an annual lecture that your department sponsors. So, instead of simply having a page on your site that describes the particular lecture, you may want to include pages that discuss all of the lectures or events you offer.

This activity will help you compile the important content areas for your site. The activity works well in a small group of three to five people who each can represent the profiles from one or two of your user data sheets. One person will act as the facilitator and will guide the group through this exercise. If you are working on this activity by yourself, just imagine yourself representing the information on each of the data sheets in turn.

- A. The facilitator writes out the key stakeholder goals and target audiences in a place that is visible to the group.
- B. The user data sheets are put in a place that is visible to the group.
- C. Each member of the group chooses a data sheet. More than one person can represent the same data sheet if there aren't enough to go around, but all of the data sheets need to be represented by at least one person.
- D. Everyone in the group gets blank paper and takes a few minutes to write down three important questions their user will ask when visiting the site.
- E. Now each person should give his/her paper (with three questions written on it) to the person on his/her right.
- F. Using the new sheet, add three additional important questions to the list. Don't repeat questions you already have written down.
- G. Continue passing the papers to the right and adding three more questions for a few rounds, or until it appears that all of the important questions have been listed.
- H. The facilitator should then compile the questions and combine those that are essentially the same.
- I. Once this is done, it may be necessary to set aside any questions that are not practical to include in the scope of your project. Also, it may be necessary to add items that are important to your key stakeholders, but did not surface in this exercise.
- J. The facilitator should reword each of the questions into a one- to three-word content area heading.

Examples of rewording questions into subject headings include:

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¹ *Bridging Cultures Conference Tutorial: Card-Sorting and Cluster Analysis for Information Architecture Design* (Larry Wood, 2005)

- “Whom do I contact to sign up for a workshop?” might become “Contact Info.”
- “What does your office/department do?” might become “Mission” or “Services.”
- “How do I get to your office?” might become “Directions.”
- “Is your department sponsoring any upcoming events?” might become “Calendar.”

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Step 4. Organizing the content areas

In this step, you will organize the content areas compiled in the brainstorming activity (in Step 3) into groups of similar or related topics. These groups will be given temporary names that later will be refined to become your navigational menu items.

This activity will help you group and label your content areas so that your navigation will be more intuitive for users.

Before beginning, it may be helpful to review the main structure and section titles of a similar kind of site that you find easy to use. You can use this site as a guide as you are organizing your site's content and navigation.

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Activity: Grouping content¹

- A. Write each of your content areas from the brainstorming activity in Step 3 on separate sticky notes.
- B. Sort the sticky notes with similar subjects into groups. These groups will form the basis for your site's main navigation.
- C. Keep the number of groups to a minimum. Generally, navigational items are more easily scanned and remembered when they are kept to six or fewer².
- D. Give each of these groups a temporary name. You will refine these names later.
- E. Place the sticky notes together in their groups on a big sheet of paper (see the illustration "Sample of content groupings" on the following page).
- F. Take out any duplicate items so that you don't end up with two pages that contain the same information. If multiple sections need the same information, choose a location for the information to exist and link to it when necessary. For example, if you have a list of staff contact numbers and you would like it to be accessible from both your "About Us" and your "People" sections, you can place it under "About Us" and link to it from "People." This will prevent confusion for your site visitors and will prevent you from having to update the information in two places. Of course, linking between pages will happen later in your process when you begin creating your pages, but make a list of important links now so you don't forget.
- G. Items that you would like to appear on every page of your site can be placed in a footer or a toolbar. A footer often includes items like the date the site was last updated, the University copyright statement, a link to site feedback, a contact phone number or an address. A link to the University's search, access to WebMail or access to an intranet are examples of items a toolbar can contain. However, it's best if the items in a toolbar are kept to a maximum of five to prevent visual clutter.
- H. If content areas can be placed on the same Web page, combine them and come up with a new name for the subject of this page. For example, "Program Overview" and "Our Mission" can probably be combined into one page titled, "Who We Are."
- I. Now, see if the subjects within each main grouping can be combined into subcategories (see the illustration "Sample of subcategory grouping" on the following page). Create temporary names for any subcategories.

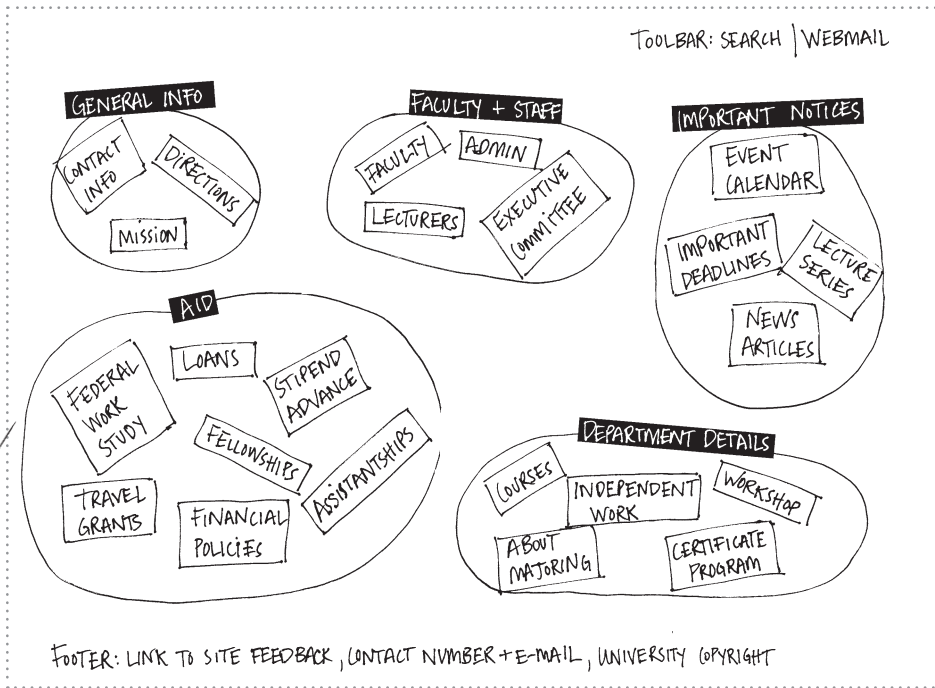
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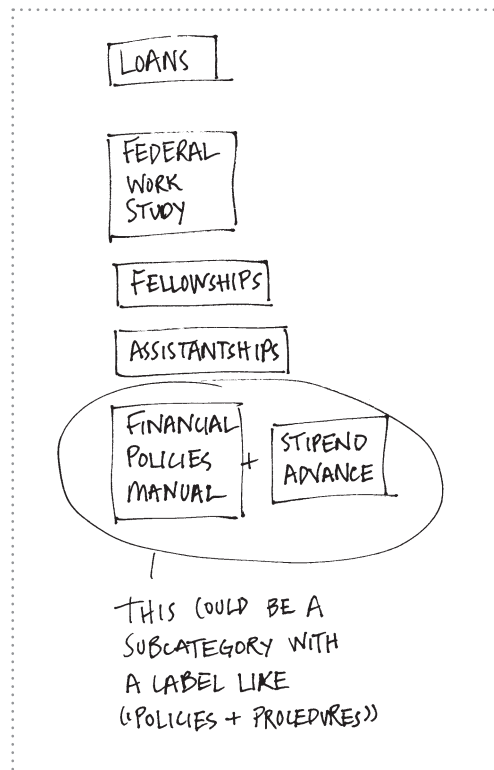
¹ *Bridging Cultures Conference Tutorial: Card-Sorting and Cluster Analysis for Information Architecture Design* (Larry Wood, 2005)

² "The Magical Number Seven, Plus or Minus Two: Some Limits on Our Capacity for Processing Information" (George A. Miller, 1956)

Sample of content groupings



Sample of subcategory grouping



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Step 5. Creating the site map

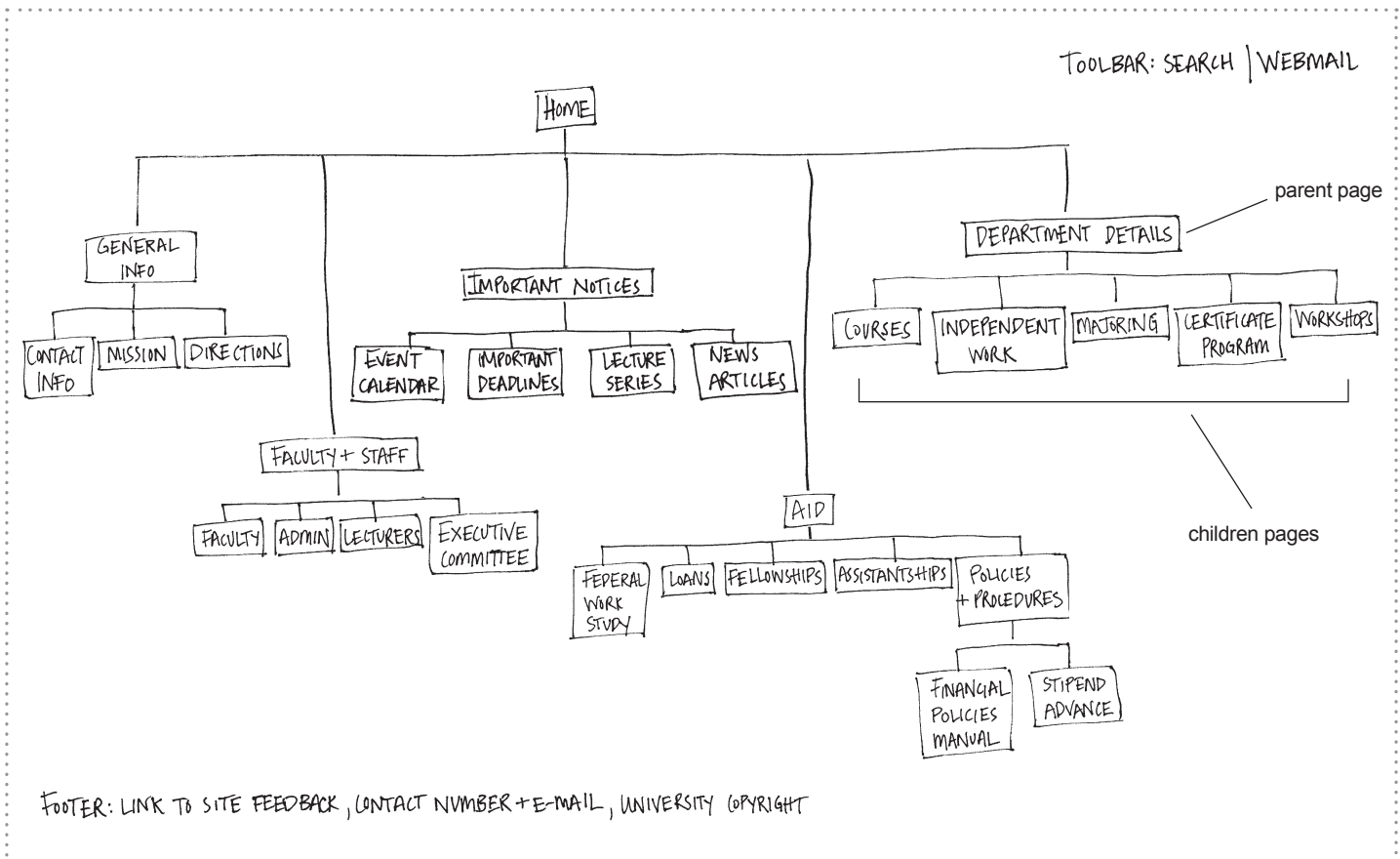
Now you are ready to create and validate the site map (a visual representation of the content areas). See the illustration below for an example of how to organize a site in a hierarchical way. In this type of structure pages have a parent/child relationship. Not every page has a child, but all pages have a parent.

Take your content categories and create a site map like the one shown below. Once you are finished, you should test this site map by asking users from your target audiences whether they find your structure logical. Make adjustments accordingly.

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Example of a site map



Step 6. Outlining your navigational structure

Take the site map you created in Step 5 and draw it to emulate the navigation scheme in Illustration 1 below. The subpages are listed as bullets under the main content area headings (marked with a “★”).

The navigational items of your site should not point to other sites, nor should they point to Acrobat (.pdf) files, Microsoft Office documents or other non-HTML files. Doing this can be disorienting for the site visitor and can be problematic for those with slow connections.

Illustration 1: Sketch of a navigation scheme created from a site map

- ★ GENERAL INFO
 - CONTACT INFO
 - MISSION
 - DIRECTIONS
- ★ FACULTY + STAFF
 - FACULTY
 - ADMIN
 - LECTURERS
 - EXECUTIVE COMMITTEE
- ★ IMPORTANT NOTICES
 - EVENT CALENDAR
 - IMPORTANT DEADLINES
 - LECTURE SERIES
 - NEWS ARTICLES
- ★ AID
 - FEDERAL WORK STUDY
 - LOANS
 - FELLOWSHIPS
 - ASSISTANTSHIPS
 - POLICIES + PROCEDURES
 - FINANCIAL POLICIES MANUAL
 - STIPEND ADVANCE
- ★ DEPARTMENT DETAILS
 - COURSES
 - INDEPENDENT WORK
 - MAJORING
 - CERTIFICATE PROGRAM
 - WORKSHOPS

Links to other sites and documents should be placed in your central content area. Alternatively, they can be placed in “highlights” or “related links” areas of the page (see Illustration 2 below).

A helpful analogy for good navigation is to think of the menus/submenus of your site as if they were the table of contents of a textbook. The table of contents should not be cluttered with items that do not describe the main content areas of the book. Therefore, the main navigation of your site should not include links to pages outside of your site, downloadable documents or e-mail addresses.

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Illustration 2: Example of a “related links” section

The screenshot shows the website for the Center for African American Studies at Princeton University. The main content area is titled 'Course Listings' and features a section for 'Spring 2007' with a course listing for 'AAS 209/ENG 209 Introduction to African-American Literature: Harlem Renaissance to Present (LA)'. A callout box highlights a 'related links' area containing two links: 'Certificate Requirements' and 'Academic Departments & Programs'. Another callout points to a link for 'Professor Eddie Glaude Jr.' which leads to an external page. A third callout points to a link for 'Academic Departments & Programs' which leads to another section within the site.

The central content area can contain links to other sites and documents, too.

Once you have confirmed that each of your navigational links will bring you directly to a page of content in your site, you should begin to consider the way in which your navigation will appear.

Vertical navigation in smaller sites

If the number of your navigational links is less than 20 (including all content area headings and subpages), you can probably limit your navigation to the right or left vertical column of your site. If your site needs more than six primary navigation links, they can be separated with spacers to make shorter sub-groupings (see Illustration 3 below).

Illustration 3: Sample of a site using vertical navigational structure



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Adding a horizontal navigation bar

If the number of your navigational links is more than 20, you may need to place the main content area headings in a horizontal navigation bar and the subpage navigation in the vertical column, as shown in Illustration 4 on the next page.

Notice how each selected item in the horizontal navigation has corresponding vertical navigation showing only the pages in that section. In Illustration 4A, you can see that the “People” section has vertical navigation to “Overview,” “Faculty,” “Visitors,” “Lecturers & Preceptors,” “Student Interns,” “Executive Committee” and “Advisory Council.” Similarly, in Illustration 4B, you can see that the “Courses & Resources” section has vertical navigation to “Overview,” “Course Listings” and “Resources.”

You should try to keep the number of main navigation links in a horizontal bar to six or fewer to avoid visual clutter.

(continued on the next page)

Illustration 4: Sample of a site using both horizontal and vertical navigational structures



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Adding audience navigation

If your site is very large — more than 100 pages, for example — you might consider adding another level of navigation. This navigation will link directly to overview pages that contain brief introductory content aimed at each of your site's key audiences. These audience pages should direct site users to relevant content elsewhere in the site, rather than duplicating that content. This is important for three reasons:

- Updating duplicate content creates extra work.
- Information might get updated in only one place and may conflict with versions elsewhere.
- Each content item should be placed in a logical “home” so that it can be found easily again.

These audience links should be grouped separately from your topic section headers. If you choose horizontal navigation for your audience links, it should have six or fewer links. For an example of a navigation bar with links to audience pages, see the University's home page (www.princeton.edu).

Step 7. Labeling the content areas

It is important to give accurate and meaningful labels to your content areas. Users are clicking on words, so the words need to make sense. Test your nomenclature by showing people the navigation scheme you outlined in Step 6. Ask them what they would expect to find if they were to click on a particular link or button. Keep in mind that your labels should be succinct (not more than three words long), straightforward and consistent with your desired tone. Users are hoping to find information quickly and do not want to have to decipher the meaning of your links or read through whole sentences. Notice how the category names are refined into more intuitive labels, shown on the right side of the example below.

Example of refining content area labels

<u>ORIGINAL LABEL</u>	<u>REFINED LABEL</u>
★ GENERAL INFO • CONTACT INFO • MISSION • DIRECTIONS	→ ABOUT US
★ FACULTY + STAFF • FACULTY • ADMIN • LECTURERS • EXECUTIVE COMMITTEE	→ PEOPLE
★ IMPORTANT NOTICES • EVENT CALENDAR • IMPORTANT DEADLINES • LECTURE SERIES • NEWS ARTICLES	→ NEWS + EVENTS
★ AID • FEDERAL WORK STUDY • LOANS • FELLOWSHIPS • ASSISTANTSHIPS • POLICIES + PROCEDURES - FINANCIAL POLICIES MANUAL - STIPEND ADVANCE	→ FINANCIAL ASSISTANCE
★ DEPARTMENT DETAILS • COURSES • INDEPENDENT WORK • MAJORING • CERTIFICATE PROGRAM • WORKSHOPS	→ UNDERGRADUATE PROGRAM

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Step 8. Creating wireframes

A wireframe is a sketch or blueprint that closely represents how the areas of a page will be organized. Below you can see how a simple, hand-drawn wireframe sketch can be used as a guide for incorporating all of the necessary page elements in a well-organized and functional way. It is important that you use your wireframes as guides when you collaborate with your designers and developers. This will help ensure that your information architecture is not inadvertently revised or obscured later during the design and development processes.

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Examples of the relationship of a wireframe to a final design

WIREFRAME

→

What's next?

You have now developed the information architecture for your site. You may need to analyze and modify this architecture as you continue to work on your site, but it should serve as your guide for the rest of the process.

As mentioned earlier, you will need to work with visual designers, writers and technical staff to help you through the rest of the phases of your site's development — defining the project scope, writing the content, creating or modifying the visual design and building the site. The following sections of this document outline standards and requirements that can be used as guides for all of these phases.

Keep thinking about your key stakeholders' goals and the information recorded on your user data sheets as you test your assumptions through the remainder of your site development process. As often as you can, test the effectiveness of your site's visual design, content and programming decisions with members of your target audiences.

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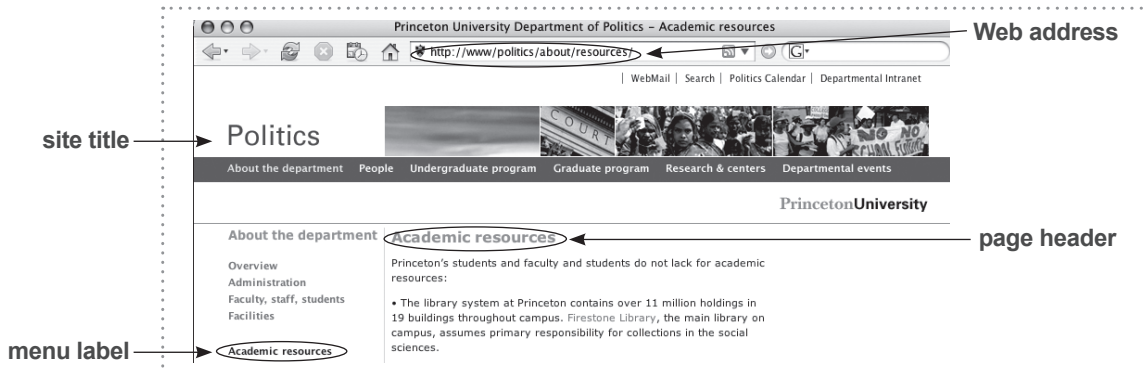
The purpose of information architecture is to create an organization for your site's content that will be as intuitive and easy for your visitors to use as possible. To achieve this goal you should keep refining your site so that visitors know where they are at all times, they can find what they seek, and interactive elements behave consistently, so that users can predict what will happen when they click on an item.

Naming conventions

Having a logical naming convention helps visitors know where they are and how to return. For example, you should use related, memorable, easily spelled words for the Web address, menu labels and page headers. The example below shows good consistency between the Web address, page header and menu label.

This naming convention is especially important for subpages. Not all visitors start at the home page, so subpages need to provide some context, too.

Example of consistent naming conventions



Visual design

More options are not always better. Your pages should remain uncluttered to allow the visitor to quickly scan for pertinent information and plan the next click.

Content location conventions

Put general information on the introductory pages and details on the subpages.

If you need to call special attention to a detailed topic several levels down, use a hyperlink in the content area.

Site title

Be sure to have your site's title prominently displayed near the top of every page of your site in order to help visitors know where they are. In the case of University departments and offices, the site title most often is the name of your office or department. In other cases, it may focus on a topic, such as the "Welcome Class of 2011" site for newly admitted students.

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The site title usually is located in the same place on every page. However, it may be larger and/or placed in a different location on your home page. It typically is used as a hotlink back to the site's home page, as well.

Navigation

Use straightforward wording, in one- to three-word phrases, for your navigational link titles.

Usability studies have shown that people process information in shorter lists more quickly and effectively, so it is best to limit the number of menu items in your navigation to six or fewer. If longer lists of navigational items are necessary, organize them into groups of six or fewer. Then use dividers or spacing between groups. You can organize groups alphabetically or thematically. If you group by theme, it is helpful to have the links that are most important to your target audiences appear first.

If your site is large (more than 20 pages), consider adding a horizontal navigation bar for your main section links. The vertical navigation bar would then contain links for the subsections.

Avoid linking to pages outside of your site, downloadable documents or e-mail addresses directly from a navigational menu item. Instead, create an intermediate page that lists these links in the content area.

Make sure that every page in your site can be accessed from some level of your navigation. (Navigational levels can be folded and unfolded and do not need to be visible at all times.) The “back” button of your browser should never be the only means available for returning to a page within your site.

Sites should not employ radical navigation schemes just to be different. Users appreciate conventional navigation that is consistent and easy to follow.

Using “fly-out menus,” which are lists of navigation links that appear when a user moves the mouse cursor over a navigation link, may be a common practice on websites; however, we strongly advise against the use of this navigational construct. They add an unnecessary level of complexity for the site visitors and they often block out the important information underneath them. Using point-and-click methods to drill down through categories is preferred by most users. Fly-out menus, especially those that have multiple hierarchical levels, require more manual dexterity than simple point-and-click and could be problematic for users with reduced motor control or who rely on keyboard-only navigation. If you use fly-out menus, always provide a point-and-click alternative.

If you are using Flash for your navigation, place descriptive alternative text links elsewhere in your page. Otherwise, visitors using screen readers may not be able to navigate your site.

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- Link to the University's home page from your site's home page.
- If you use the Princeton University logotype and/or shield, you must use an approved treatment with proper fonts and colors. You can request the University logotype and/or shield from the Office of Communications by e-mailing commpub@princeton.edu.
- Link to either the University's search or a site-specific search from your site's home page. If you choose to link to a site-specific search, you must include a link to the University's search from your site-specific search page. See www.princeton.edu/odus for an example.
- Provide the University's copyright notice, including the current year — "© 2008 The Trustees of Princeton University" — on your site's home page.
- Provide contacts for site owners somewhere within your site.
- Provide a page modification date on your site's home page.
- Provide critical information in a format that does not require a plug-in (third-party software) for viewing.
- Provide <alt> tags containing alternative text for all of your site graphics and photos. (See page 35 for more details.)
- Be sure to have permission to post each photo or other visual elements before loading them on your site. If you are not sure about the copyright issues for a specific image, do not use it.
- Be sure that your office has permission to reuse any copyrighted text that appears in your site.
- Include photo credits.
- Grammar, spelling and punctuation must follow a style guide and be used consistently on all pages. The University recommends the Web Editorial Style Guide (www.princeton.edu/webteam/style) which is based on the Associated Press Stylebook.
- Language should conform with the University's Equal Opportunity Policy and Nondiscrimination Statement (see page 43). If in doubt, contact the Office of the General Counsel or Terri Harris Reed, Vice Provost for Institutional Equity and Diversity.
- Do not advertise, endorse, link to or include logos for external corporations, or other commercial ventures anywhere on your site — such actions are prohibited by the University. There are limited exceptions to this rule. You may credit an external entity for copyright purposes, but such credits must be factual and not advertising. For example, to credit a photo from AbleStock.com, following their guidelines and ours, use: "© [insert current year] JupiterImages Corporation" near the photo or on a credit page. For clarification, please contact Lauren Robinson-Brown, director of communications, lauren@princeton.edu.
- "Rights, Rules, Responsibilities" applies to the Web, and University entities are responsible for making sure their Web content follows these guidelines.
- Make sure that your site represents Princeton University well.

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Why planning for content is important

Your content is the reason visitors come to your site — and continue to return. Given adequate time to prepare, your prose and images can be sparkling, helpful and motivating. While content is often defined as text, it is important to remember that it includes the visual elements of the site as well.

Planning for content creation

We have found that in the website “design” process, content is often an afterthought. Frequently, the content process is only started when big blank spaces in pages become apparent. Not only can this delay your site delivery, but it can affect the quality of your site. When the content process is rushed, it is often written without carefully considering the site users’ goals and interests.

Creating content and following an approval process can be time consuming. Therefore, we recommended you begin the content process as soon as the outline of the navigation is available (see pages 20–22). With the navigation outline in hand, you can see each of the opportunities to add new content or revise existing content, particularly for your main overview pages.

User-oriented content

Just as your pages need to be organized based on the questions your audience will ask, your prose needs to be written and your images selected based on your audience’s expectations and proficiencies.

For example, if a primary audience is undergraduate applicants, it is safe to assume that most are not familiar with the University’s procedures. Therefore, to serve this audience, you should avoid using internal jargon or acronyms. Remember, many University sites have key audiences who are not familiar with your office or department’s daily practices.

Whenever appropriate, keep the tone conversational and friendly; photos should be inviting.

Consistency is a major key

Once you settle on a tone for your content, be it friendly and casual, or formal and official, this needs to be carried through the site as much as possible. This is particularly true on the overview pages.

Each overview page should give the impression that your group is speaking with one voice. This includes referring to your group either in the first-person or the third-person voice, but not both.

Use consistent sentence structures and organize lists of links in parallel ways from page to page. This will help visitors become familiar with the way you communicate your information, and they won’t have to relearn your site logic from section to section.

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Using proper grammar and spelling also supports this sense of consistency. The Office of Communications has compiled a Web Editorial Style Guide (see www.princeton.edu/webteam/style/) to assist you.

Use the correct, formal names for buildings, schools and event titles on first reference. See the Web Editorial Style Guide for more details on titles for buildings and places.

Avoid using italics and all-capital letters in large blocks of text or as menu labels or section headings. These are hard to read and they may not print clearly.

Shorter is better

Keep sentences and paragraphs short. Because your computer monitor is back-lit, reading content on the Web is harder than reading printed material. Shorter text is always more reader-friendly, especially on your main pages.

Try to limit the vertical length of your pages to one screen. Users do not always know that they can scroll down.

If you have a large amount of content on a page, consider editing it down or breaking it up into subpages. For pages that must have longer text, try breaking the text up with photos, bullets or horizontal lines with subheads. Visitors can find the information they are looking for more quickly on shorter, well-organized pages.

Make a favorable impression

Each section overview page presents opportunities to discuss your group's philosophical approach or describe what makes you special and interesting to your top-priority audiences. See example below.

Prose should be up-to-date, accurate and written in a welcoming voice for any audience. Presenting your content consistently and coherently gives a positive subliminal message about the state of your department or office.

Sample introductory text

Office of the Dean of Undergraduate Students — Overview

The staff in the Office of the Dean of Undergraduate Students (ODUS) is committed to enriching the undergraduate experience at Princeton University. ODUS is part of the Office of the Vice President for Campus Life.

While the main ODUS office is located in West College, programmatic centers are also housed in both the Carl A. Fields Center for Equality and Cultural Understanding and in the Frist Campus Center.

We encourage you to explore this site to learn more about our resources and areas of responsibilities that are available to the larger University community.

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Links

Hyperlink two- or three-word phrases rather than single words, as the longer hyperlink is easier to recognize as such.

The wording of the link should describe what it links to, rather than something non-descriptive (e.g., “contact us” rather than “click here”). This aids in accessibility for users with impaired vision, and also helps site visitors who quickly skim content.

Guard against adding hyperlinks to anything and everything just because you can.

When an item points to a document instead of a Web page, it is common practice to place information about it in parentheses, e.g., (.pdf), (.doc) or (.xls).

If it is possible to render content as a Web page in your site, rather than linking to a PDF or Word document, it is advisable to do so. Your users will appreciate the effort.

If you want to link to a Word document, save it as Word (.doc) or text (.txt) only, not as HTML (.html). When a Word document is saved as HTML, it appears to the user as an undesigned Web page without a way to navigate back to the rest of the site.

Be consistent about which links open in new windows. Links to pages in your own site should not open a new window, but links to other University departmental/office sites or links to sites outside of the University (e.g., www.unitedway.org) can. Just be consistent with your decision.

Instead of incorporating information on your site that really is owned by other University entities, link to this information as “related” or “other useful” information.

Lists

If your text contains multiple, consecutive links, consider extracting these from the body of the text and placing them into bulleted lists.

Lists of links with more than six items also can be broken into smaller groupings with subheadings or horizontal lines as dividers.

Visual content

When selecting photos, pick images that communicate the energy and vitality of the University and your department. Princeton University has a diverse community and the images selected should reflect this diversity. Communicating diversity — which includes ethnicity, gender, age, fields of study, etc. — is a University priority. Other communications priorities include showcasing the caliber of our students; the accessibility of our faculty; and our world-class teaching and research. Additionally, these priorities include internationalism, which encompasses international educational opportunities and engagement with global issues.

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Be sure to have permission to post a photo before loading it on your site. If you are not sure about the copyright issues for a specific image, do not use it.

Captions under photos can help you tell your story.

Include photo credits.

Users with impaired vision may not be able to see the content of your images. Consequently, it is critical to add an “<alt> tag” containing alternative text to every photo which will enable screen readers to read the description of the image out loud.

Adding alternative text is a requirement of federal accessibility standards as described in Section 508 of the Rehabilitation Act of 1998.

- The alternative text should be informative without being too lengthy. For example, instead of adding a nondescript <alt> tag such as “campus,” the text could read, “Students do research in Firestone Library.”
- In the Roxen CMS, adding text to the “Title” field in the image “Browse & Upload” window will automatically create the <alt> tag for you. In Dreamweaver, you can enter the image’s <alt> tag text in the Properties toolbar.

Additional Web media

If you are offering video, audio or Flash, you may want to include links to download the appropriate media players. If any of these elements contain critical information, be sure to provide this information in a format that does not require a plug-in as well.

If you have a Flash movie (.swf) on your home page, you may want to use a Javascript browser detector to deliver a page without Flash for those who are using screen readers, users who do not have the Flash plugin and users who have blocked Flash.

Indicate links to Web video and audio by noting its format and bandwidth level (low, medium or high) in parenthesis.

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The Office of Communications must review sites to ensure that they meet all of the University website requirements before making them accessible from the University's main site. Details on the University website requirements listed below can be found on page 30. Please be sure that you build at least two weeks into your development time to allow for this review and to make any necessary adjustments to your site before launch.

We also strongly recommend that your site include each of the elements outlined under “Highly recommended features” below. Details on these items can be found on pages 27–28. Incorporating these features will greatly enhance your user's experience.

University website requirements

- There is a link to the University's home page from your site's home page.
- If you use the Princeton University logotype and/or shield, you use an approved treatment with proper fonts and colors.
- There is a link to either the University's search or a site-specific search from your site's home page. If you choose to link to a site-specific search, you must include a link to the University's search from your site-specific search page. See www.princeton.edu/odus for an example.
- The University's copyright notice, including the current year, exists on your site's home page.
- Contacts for site owners are provided somewhere within your site.
- A page modification date exists on your site's home page.
- Your site provides critical information in a format that does not require a plug-in (third-party software) for viewing.
- <alt> tags containing alternative text are provided for all of your site graphics and photos.
- You have permission to use all photos that exist on your site and photo credits are included.
- All copyrighted material is used with permission.
- Grammar, spelling and punctuation are correct and follow a consistent style.
- You do not advertise, endorse, link to or include logos for commercial entities.
- Your site complies with “Rights, Rules, Responsibilities,” as well as the Equal Opportunity Policy and Nondiscrimination Statement, which are included on page 43.
- Your site represents Princeton University well.

Highly recommended features

- Your site title is placed prominently on every page.
- Your site has a logical naming convention for Web addresses, menu labels and page headers.

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- Your navigation uses straightforward wording, in one- to three-word phrases.
- Your navigation is grouped in clusters of six or fewer items.
- Your navigation does not link to pages outside of your site, downloadable documents or e-mail addresses.
- Every page in your site can be accessed from some level of your navigation.
- Interactive elements in your site behave consistently, so that users can predict what will happen when they click on an item.
- When making hotlinks use descriptive two- or- three-word phrases.
- All links to pages within your own site open up in the same window.
- Your site uses a consistent practice for opening up new windows for links that take the user outside of your site.
- Proper names are used correctly.

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Content management system (CMS)

A centrally managed computing system that allows non-technical users to easily update text and images and modify their organization within a website.

Developer

Someone who uses a programming code or a software package to transform the content and visual design into a functional site.

Hyperlink / hotlink / link

A clickable item in a site, usually represented by words or images, that will take a user to information in another page or elsewhere in the same page.

Information architecture

The structure or organization of your website, particularly the way in which the different pages of the site relate to one another. It also includes the order in which information is displayed on each page, as well as the navigation scheme selected.

Key stakeholders

The people who set the tone and overall goals of a website and give required approvals at various stages of the site's development.

Navigation

Descriptive links or buttons that are grouped together to give a visual cue that your users can click on them to find their way to the information in your site.

Project scope

An outline of your site's goals, parameters and resources. Developing the project scope includes several important activities, such as identifying key audiences, assessing existing and needed content, determining the essential and custom-built functional features and establishing the budget and timeline.

Roxen CMS

The University's centrally supported content management system. It includes University-created templates that incorporate a number of usability and accessibility standards.

Screen Reader

A type of browser that speaks Web text aloud, often used by site visitors with vision impairments.

Site map

A visual representation of the content areas and their relationship to one another in your site.

Target audience(s)

The primary audience(s) for which a site is built.

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User

Someone who visits your site for information or to complete a task.

User testing

Sessions in which actual users are observed navigating and assessing your site to determine whether or not they can find information easily and complete desired tasks. It also can be used to gauge the user's overall experience and impression. These findings are often useful when making adjustments to the site's organization, visual presence and/or functional features.

Validate / validation

Ensuring that the decisions you've made in your site's organization, visual presence and/or functional features fulfill your users' and key stakeholders' goals. This is often accomplished with user-testing.

Visual designer

A person who creates the visual presence of a site.

Visual presence

This is the look and feel of a site: the images, typefaces and colors used, the placement of visual elements (based upon a wireframe) and the style of the navigation.

Web accessibility

An accessible website provides equal or equivalent access to its content for everyone, including those with varying technical access, language skills and physical abilities. Accessibility can be considered a subset of Web usability.

Section 508 of the Rehabilitation Act of 1973 requires that people with disabilities — including people with visual, hearing or physical impairments and people with photosensitive epilepsy — are given access that is comparable to access available to others. In 1998, Congress amended the act to make electronic and information technology accessible to people with disabilities. ¹

Web usability

This refers to the concept of creating sites that are intuitive and allow visitors to accomplish their goals quickly and efficiently. The site's logic should be easy to learn and easy to remember. It should always be clear what the user should do next, and the site should behave as expected when the user interacts with it.²

Wireframe

A sketch or blueprint that closely represents how the content areas within the pages of your website will be organized.

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¹ *Designing with Web Standards* (Jeffrey Zeldman, 2007) and www.section508.gov

² *Designing Web Sites that Work: Usability for the Web* (Tom Brink, 2002)

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Credits

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Equal Opportunity Policy

Princeton University subscribes to a policy of equal opportunity. The University believes that commitment to principles of fairness and respect for all helps create a climate that is favorable to the free and open exchange of ideas, and the University seeks to reach out as widely as possible in order to attract the ablest individuals as students, faculty, and staff. For these reasons, decisions concerning admission to University academic and other programs, as well as employment decisions in all University departments and offices, are made on the basis of an individual's qualifications to contribute to meeting Princeton's educational objectives and its institutional needs. In applying this policy, the University is committed to the principle of not discriminating against individuals on the basis of personal beliefs or characteristics such as political views, religion, national or ethnic origin, race, color, sex, sexual orientation, gender identity, age, marital status, veteran status, or disability unrelated to job or program requirements.

In addition to the general policy just defined, Princeton has specific legal obligations as a recipient of federal financial assistance and as a federal contractor. These obligations include the development and implementation of a plan to undertake appropriate forms of affirmative action to employ women, people of color, people with disabilities, and Vietnam-era and disabled veterans. Princeton's affirmative action plan is available for review at the University upon request.

The University president and provost are responsible for overseeing the implementation of this equal opportunity policy and the affirmative action plan. The vice provost for institutional equity and diversity is responsible for monitoring University practices and procedures to ensure compliance with our policy and federal, state, and local laws and regulations, including Section 504 of the Rehabilitation Act and Title IX of the Education Amendments of 1972. Inquiries regarding these matters should be directed to the Office of the Vice Provost for Institutional Equity and Diversity, Princeton University, 321 Nassau Hall, Princeton, NJ 08544 or (609) 258-6110.

Nondiscrimination Statement

In compliance with Title IX of the Education Amendments of 1972, Section 504 of the Rehabilitation Act of 1973, and other federal, state, and local laws, Princeton University does not discriminate on the basis of age, race, color, sex, sexual orientation, gender identity, religion, national or ethnic origin, disability, or status as a disabled or Vietnam-era veteran in any phase of its employment process, in any phase of its admission or financial aid programs, or other aspects of its educational programs or activities. The vice provost for institutional equity and diversity is the individual designated by the University to coordinate its efforts to comply with Title IX, Section 504 and other equal opportunity and affirmative action regulations and laws. Questions or concerns regarding Title IX, Section 504 or other aspects of Princeton's equal opportunity or affirmative action programs should be directed to the Office of the Vice Provost for Institutional Equity and Diversity, Princeton University, 321 Nassau Hall, Princeton, NJ 08544 or (609) 258-6110.

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