

# ***What can I do for your organization? Information Architecture— The IA Model***



**IA Design & Usability: Services**

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**Topic: Services—The IA Model**

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### What Can I Do for Your Organization?

Let me tell you a little about my background and special skills in Information Architecture, User Experience Design, and Project Management. I am looking for an appropriate match—full-time, permanent employment situation as an Information Architect and Project Manager—or in a related field.

Because I accomplished my undergraduate work in Information Architecture and Design, I did additional work at the graduate level. My graduate degree was in **Information Architecture, Navigational Systems, Project Management, and Design** (my education also extends in to Product Design). Previously, my other undergraduate work included a degree in metaphysical counseling, which is an asset for any person working in Project Management—as this gives me additional interpersonal-relating skills and excellent negotiation skills—when working with team members or stakeholders.

In addition, I completed additional degree work in **Technical & Professional Writing** as well as another extensive graduate-level degree in **Information Architecture, Project Management, Usability Testing, E-Learning, and Corporate Training**. Both Theses Reports were specialized in Information Architecture—my last thesis report on Information Architecture—The IA Model—it was 759 pages. I completed an extensive program at The Multimedia Studies Program at The University, earning an **IA Certification in Internet Design & Technology**. I also have **IA Certifications** through the **IA MAIA** and **IA MAEd** programs. Every program I participated in provided extensive vocational training and skills, doing Information Architecture and Project Management. While I have been at The University and doing internships for a number of years, this equates out to more than the minimal requirement for work experience, including prior work experience at corporations in a related field.

### Information Architect and Project Management Work Experiences

I completed internships at The University relevant to my career goals. Internships were successfully completed for The Youth Law Center as well as at The University—other relevant projects. Because of my unique experiences and credentials, I am qualified to work in my chosen field—as an Information Architect and Project Manager, including doing Corporate Training and Technical Writing. I was also reviewed by well-known Professionals and Professors in the industry and found to be competent.

### Information Architecture Online Portfolio Website and Contact

If you desire to review my online Information Architect portfolio Website, please see <http://www.stevenheitman-ia.com>. If you need to contact me, I can be contacted via email at <mailto:stevenheitman-ia.com> or by telephone. Thank you for your time and consideration.



### What is Information Architecture?

Since Information Architecture is such a young profession, it is difficult to know exactly how to define what Information Architecture is or is not. The other problem with defining the professional practice of Information Architecture is that many universities or colleges do not offer any specialized degrees in Information Architecture, though. During the last decade, because Information Architecture is an emerging profession, a few universities currently offer Information Architecture or interaction design in graduate-level programs.

Wikipedia ([http://en.wikipedia.org/wiki/Information\\_architecture](http://en.wikipedia.org/wiki/Information_architecture)) gives this definition for Information Architecture.

The Information Architecture Institute (<http://iainstitute.org/en>) gives this definition for **Information Architecture** as:

1. The structural design of shared information environments.
2. The art and science of organizing and labeling Websites, Intranets, online communities and software—to support usability and findability.
3. An emerging community of practice focused on bringing principles of design and architecture to the digital landscape.

The term **Information Architecture** describes a specialized skill set, which relates to the interpretation of information and expression of distinctions between signs and systems of signs. It has some degree of origin in the library sciences. Many library schools [and graphic design schools] teach **Information Architecture**.

### Navigational Systems and User-Centered Design

A few years ago, the author did extensive, specific research on Navigational Systems and how, when, or why navigational systems are designed for specific Websites. Navigational Systems should be included in wire frame mockups for a Website. Per Heitman (2000), [http://www.stevenheitman-ia.com/html/IA\\_MAIA.html](http://www.stevenheitman-ia.com/html/IA_MAIA.html), the researcher and author found these basic Navigational Systems comprise most integrated Navigational Systems:

Seven Navigational Systems, in myriad combinations, are used in Websites for navigating by end users. Navigational Systems are naturally integrated together in Information Architecture design concepts.

For effective navigation within a Website, Navigational Systems are integrated together—research revealed that these seven commonly used Navigational Systems are:

1. Hierarchical Navigational Systems,
2. Global Navigational Systems,
3. Local Navigational Systems,

4. Integrated Navigational Systems,
5. Remote Navigational Systems,
6. Ad Hoc Navigational Systems, and
7. Search Engines in Websites.

### Research and Development of Information Architecture for Websites

Information Architects do research, usually accomplished by first doing a *needs assessment* or *competitive analysis*, using *methods-of-design research and procedures*. These documents should include: specific research and a design plan, a competitive analysis, wire frame mockups, flow chart, schematics, and supporting documentation.

Information Architects consult closely with a client or corporation to determine what their needs will be prior to designing and implementing a Website. Who has to use all of these online products? The answer to that question is clear that human beings use Websites. Information Architects meet with clients or stakeholders and interviews subject matter experts—to get at what the real need is for a client’s business requirements and for end users. This means developing a viable design plan report and solution prior to implementation of digital design products.

Understanding requirements for design plans are helpful to instructional designers that desire to produce high-quality Websites. In the long run, end users do benefit from user-centered design. Since information is then appropriately structured and Navigational Systems developed, end users can more effectively use a Website and then concentrate on using it. Information Architects use a variety of software programs to produce required documentation.

Information Architects create flow charts or schematics using Visio, OmniGraffle, and Inspiration. Then draws wire frame mockups, using Adobe Creative Suite or other software programs. One might develop a few working prototypes using Photoshop, Illustrator, ImageReady, Dreamweaver (wire frame mockups or online working prototypes). Then experienced computer programmers make code refinements. Information Architects are primarily concerned with the conceptual design part-of-the-project, incorporating user-centered design into every digital design product.

The Adobe Creative Suite ([http://en.wikipedia.org/wiki/Adobe\\_Creative\\_Suite](http://en.wikipedia.org/wiki/Adobe_Creative_Suite)), Visio, OmniGraffle, Inspiration are software programs used by Information Architects to develop and produce Information Architecture documentation for reports. It is an individual’s choice and decision to use software programs that best serve their particular professional goals.

### Implementation of Information Architecture Increases Productivity

Developing Websites or online training programs benefit from having Information Architecture done prior to implementation. That also means doing usability testing and continuously making evaluations to see if Websites really work—or do not work. Doing Information Architecture prior to implementing a final version of a Website may save a corporation a lot of money and time. If the Website is designed to work right and more usable, end users will desire to use the Website. If end users get frustrated when online, they may not be able to quickly find information they want to get at and say: “forget it.” Information Architects figure out objectives—their goal is to create meaningful experiences for end users—this makes using online products easier. That means incorporating user-centered design and “best practices” in all design products!

Since Information Architecture is a complicated subject matter, it cannot be fully elucidated in this brief paper. Many Information Architects have completed in-depth graduate-level programs to specialize in Information Architecture and usability testing. This enables them to specialize in Information Architecture, designing Navigational Systems—fully integrated Navigational Systems and search functions for design products. Other aspects include: interaction design, developing and performing usability tests after production—prior to implementation. Because Information Architecture is such a specialized arena, now universities are beginning to develop and offer advanced degree programs.

The value of doing Information Architecture, in the long run, reduces usability issues—lack of user-centered design. It can save corporations money. It increases productivity for their work force and raises a return on their investment because end users and employees are better able to use Websites or other design products. While a few critics may interject they feel it is not worth spending extra money for an Information Architect, viable research demonstrates one’s money is well spent on Information Architects and usability experts. For increased profit margins and higher productivity for end users (for a variety of audiences—from employees to people who use the Internet), Information Architects and Usability Experts design Websites that work more effectively, increasing productivity and profit margins for corporations.

**About (Bio) Steven Heitman—Information Architect, Project Manager**

My experiences and credentials are in Information Architecture, User Experience Design, Interaction Design, Graphic Design, Project Management, and Usability Testing. My expertise and knowledge base are in Information Architecture—coupled with experiences in Technical Writing, Corporate Training<sup>1</sup>. In addition, the author and inventor of The NS Model (copyright), The IA Model (copyright)—all about navigational systems, Information Architecture, user-centered design, usability testing, including why and how Information Architecture may be professionally practiced, accomplishing high-quality design products.

- <http://www.stevenheitman-ia.com>
- [http://www.stevenheitman-ia.com/html/IA\\_BAIA.html](http://www.stevenheitman-ia.com/html/IA_BAIA.html)
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<sup>1</sup> My degrees are IA BAIA (double major IA, GD), IA MAIA & IA ID&T, TPW & IA MAEd—degrees and certifications in IA.

**My Information Architecture Skills—The IA Model**

Steven Heitman is the original author of the **The IA (Information Architecture) Model**. Following a standardized systematic approach, this provides Information Architects and instructional designers with a better way to document their researched findings in detailed reports. A systematic approach is an iterative process and incorporates high-quality designs or well thought out conceptual ideas into design products. Another good reason for using an Information Architecture model is that it gives one a way to more readily and easily communicate with stakeholders as well as with team members.

**The IA Model** provides a systematic approach for doing specific Information Architecture design research, and it helps in an iterative design process to communicate to others and do high-quality work. If a good model and systematic approach is followed, it provides a solid framework for every person on the team. In addition, using a model is an excellent way to communicate and document conceptual ideas. It enables researchers to do brainstorming and create good designs. Let us talk about The IA Model.

**The IA Model** is comprised of eight steps: 1. Design Research, 2. Concept Generation, 3 User Scenarios, 4. Wire Frame Mockups, 5. Prototyping, 6. Usability Testing, 7. Implementation, and 8. System Testing (see Figure 1). Thus, The IA Model provides a systematic approach for every person to use on projects. While it is true processes and procedures have to be followed, The IA Model provides a solid framework and excellent model that any person can use on projects, including a systematic approach for building Websites or other digital design products.

**The IA Model**

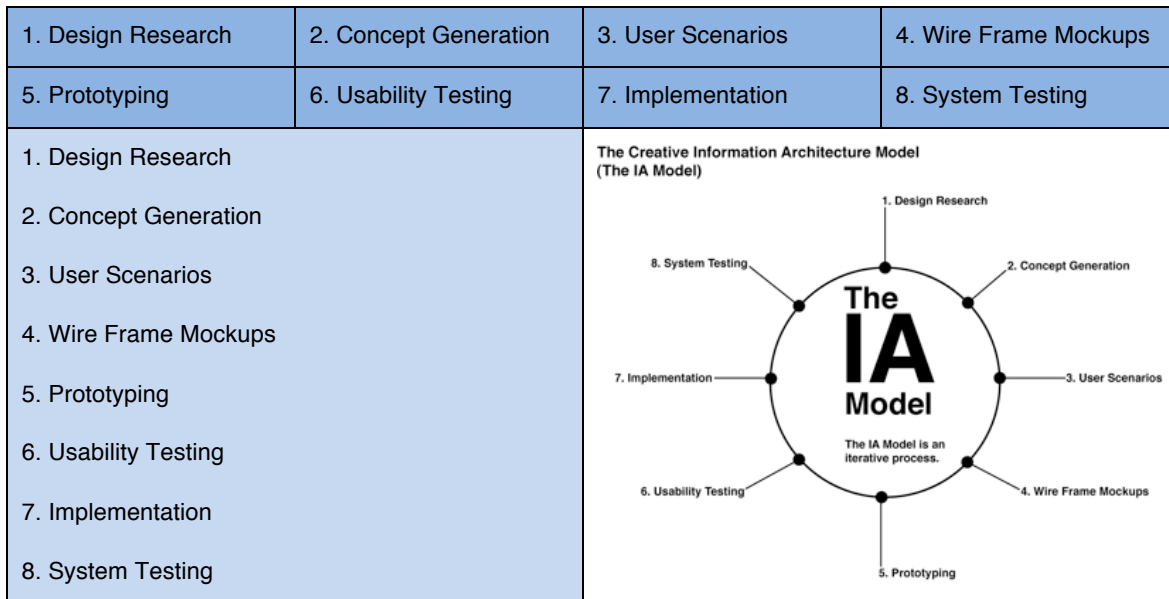


Figure 1: The IA Model

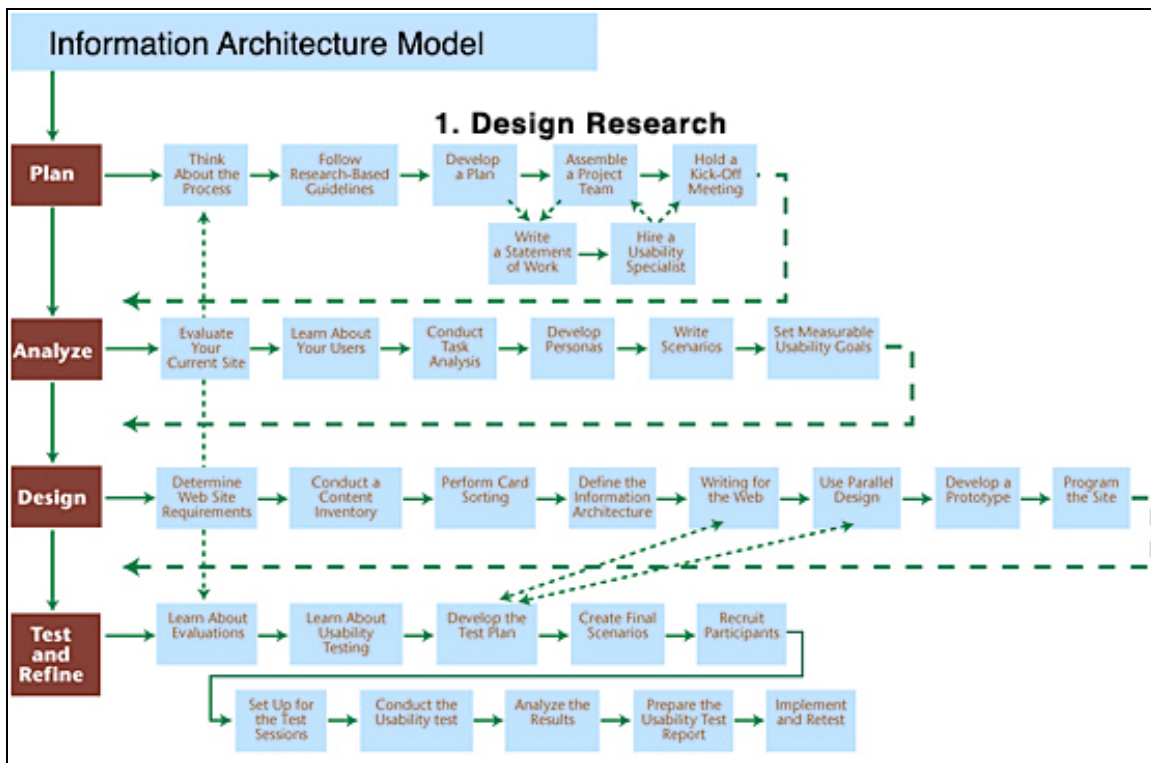


Figure 2: A Typical Information Architecture Model to Follow—The IA Model

## 1. Design Research

Information Architects do research, writing specific case studies, interviewing stakeholders, end users, and doing a competitive analysis (see Figure 3). Research also includes interviewing and observing end users to figure out how they intend to use a Website before it is designed. Doing card sorting with participants or setting up focus groups to gather research for design plan is another way to collect data from end users (may be accomplished in 3. User Scenarios and/or 4. Wire Frame Mockups). The rationale for doing research prior to designing and building a Website—it may save corporations money in the long run. In 1. Design Research, these procedures are followed.

### 1. Think about the process (see Figures 1-2):

- Learn about users.
- Researchers outside the agency.
- Researchers inside the agency.
- Other staff in the division.
- Non-research staff elsewhere in the agency.

2. Conduct a task analysis—to understand end users and their:
  - Needs for information on the Internet (Websites).
  - Ways of thinking about, grouping, and organizing information.
  - Expectations about your site.
  - Levels of knowledge about the subject matter.
  - Levels of experience with the Web and similar types of sites.
3. Follow research-based guidelines (see Figure 2):
  - The IA Model.
  - [http://www.stevenheitman-ia.com/html/IA\\_MAEd.html](http://www.stevenheitman-ia.com/html/IA_MAEd.html).
  - Who should use the guidelines?
    - Information Architects and Project Managers.
  - Can an Information Architect customize the guidelines?
    - Any person can customize guidelines to meet their specific needs on projects.
  - Do the guidelines have limitations?
    - Guidelines serve as a model—any system has limitations. Website design is highly specialized and a limited medium with different parameters than print-based projects.
4. Develop and write a Design Plan Report (see Figure 2):
  - Create an Information Architecture Design Plan Report (see [http://www.stevenheitman-ia.com/html/module\\_1.html](http://www.stevenheitman-ia.com/html/module_1.html)).
  - Determine project scope.
  - Identify user audiences.
  - Set objectives.



Figure 3: Design Research

## 2. Concept Generation

After research has been completed, Information Architects and their team members all come together to participate in brainstorming activities, numerous discussions, deciding on the best way to move forward with their intended design products (see Figure 4). One thinks about design concepts with regard to flow charts and various schematic—how to show the structure of a Website, including developing draft concepts of wire frame mockups (may be accomplished in 3. User Scenarios and/or 4. Wire Frame Mockups—in rapid prototyping these items could be done sooner). This is a way to brainstorm and think on paper by drawing out conceptual ideas, completing other pieces of relevant design research. In 2. Concept Generation, these procedures are followed.

### 5. Assemble a project team:

- Who should be included on the team?
  - Project Managers,
  - Usability Specialists,
  - Testers,
  - Content Writers,
  - Technical Writers,
  - Editors,
  - Subject Matter Experts,
  - Information Architects,
  - Corporate Trainers,

- Graphic Designers,
- Interface Designers, and
- Computer Programmers.
- What skills are needed?
  - Include research and pertinent details in Information Architecture Design Plan Report or Statement of Work (SOW) Design Plan.
- 6. Hold a kick-off meeting with:
  - Team visions and perceptions.
  - Project realities.
- 7. Write a Statement of Work (SOW) in Design Plan Report:
  - What is a Statement of Work (SOW)?
    - A detailed Information Architecture Design Plan Report, regarding requirements for Websites.
  - What should it include?
    - Work to be performed.
    - Location of the work.
    - Period of performances and timeline.
    - Deliverable schedule.
    - Any special requirements such as security clearances, travel required, special skills or knowledge.
  - Examples and templates—
    - Sample of the SOW covers a range of user-centered design activities, including:
      - Evaluation of current Websites.
      - User research and analysis.
      - User and task analysis.
      - Information architecture and content organization.
      - Iterative usability testing.
      - Templates and forms at <http://www.usability.gov/plan/sow.html>.

8. Hire a usability specialist:
  - What to ask?
    - Information about qualifications, degrees, references, and work experience.
  - Where to look for consultants—
    - Word of mouth and recommendations from clients, human resources, hiring managers, online at <http://www.stevenheitman-ia.com/index.html>, agencies, or recruiters.
9. Evaluate current Website:
  - Does the Website meet your organization's objectives and your usability goals?
  - Is the Website meeting the needs of your end users?
    - Review users' emails and phone calls.
    - Evaluate your Web logs and search logs.
    - Conduct an online survey.
    - Conduct a usability test.
  - Does the Website comply with basic Websites guidelines?
    - Evaluations have to be made and Website inspected. If a Website complies, that means user-centered design was incorporated into Website prior to implementation.

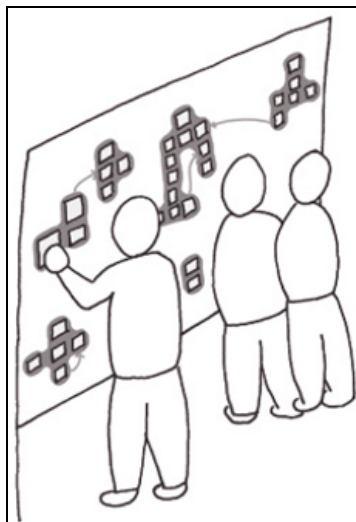


Figure 4: Concept Generation

**3. User Scenarios**

User scenarios help Information Architects and stakeholders to understand who intended audiences will be, as well as how an intended audience could use a Website, including how end users might use current computing technology devices and navigational systems (see Figure 5). This helps everyone involved to make determinations if computer programmers can actually do required computer programming for a proposed Website. Great conceptual ideas may be well thought out. Can they realistically be designed and implemented in the digital landscape?

Another consideration that must be taken into account is what computing devices or what software programs an end user might use or not use. End users may not have a high-speed Internet connection or large computer screens to view a Website. Understanding who the end users will be gives us insights about how to design a Website for its intended audiences. Other design issues concerning usability have to be taken into account: compliance with Section 508 of the Disabilities Act (requirements for specific Websites and intended audiences in online communities). In 3. User Scenarios, these procedures are followed.

- 10. Learn about your end users (IA Techniques and Characteristics of End users—see matrix below):
  - What I need to know about end users.
  - How can I learn about end users?

IA Techniques	Characteristics of End Users
<p><b>Usability Testing</b></p>	<ul style="list-style-type: none"> <li>• It can be done remotely; tester and user need not be at same location.</li> <li>• You usually develop the scenarios.</li> <li>• One or two users at a time.</li> <li>• Total numbers: 5 to 12 users.</li> <li>• You observe and listen to actual behaviors.</li> <li>• May be formal or informal, quantitative and/or qualitative results.</li> <li>• Users usually come to you.</li> </ul>

<b>Contextual Interviews</b>	<ul style="list-style-type: none"> <li>• You go to the user’s home or work site.</li> <li>• Users do their own work (different scenarios with different users).</li> <li>• One or two users at a time.</li> <li>• With individual sessions, typical total numbers: eight to 16 users per user group.</li> <li>• With remote testing, typical total numbers: 30 users per user group</li> <li>• You observe and listen to actual behaviors.</li> <li>• You see users’ environments and the technology users have.</li> <li>• Usually informal dialogue with user, qualitative results.</li> <li>• Interviewer and user are physically at same location.</li> </ul>
<b>Online Survey</b>	<ul style="list-style-type: none"> <li>• May have large number of responses.</li> <li>• Get users’ self-report.</li> <li>• Good for wish lists, attitudes, experiences; not for actual behaviors.</li> <li>• Usually mostly closed questions (yes/no, multiple choice, short answer).</li> <li>• May include open-ended questions, but they require more analysis.</li> <li>• Users may be located anywhere.</li> <li>• May be single-survey or iterative series.</li> </ul>
<b>Individual Interviews</b>	<ul style="list-style-type: none"> <li>• Face to face, by telephone, through instant messaging or other computer-aided technologies.</li> <li>• One user at a time.</li> <li>• Total numbers: usually five to 15 users.</li> <li>• Rich data—you can follow up on questions.</li> <li>• Can include both closed and open-ended questions.</li> <li>• Self-report; good for attitudes, experiences, wish lists.</li> <li>• Not good for actual behaviors.</li> </ul>
<b>Focus Groups</b>	<ul style="list-style-type: none"> <li>• Small group discussion, usually eight to 12 people per group.</li> <li>• Moderated by trained facilitator.</li> <li>• Usually everyone is in the same location.</li> <li>• Self-report; good for attitudes, experiences, and wish lists.</li> <li>• Not usually good for actual behaviors, but it can be combined with some aspects of behavioral usability testing.</li> <li>• Discussion is influenced by group dynamics (for good or bad).</li> </ul>

<b>Card Sorting</b>	<ul style="list-style-type: none"><li>• Usually used after gathering information with one or more of the other techniques.</li><li>• Each card represents a possible topic on the site.</li><li>• Need a start on content topics—so have some cards to sort.</li><li>• Can be done remotely with one of several Web-based tools; that allows for large numbers of responses but little understanding of why each person chose that response.</li><li>• Can be done as individual sessions; one or two users at a time.</li><li>• With individual sessions, typical total numbers: eight to 16 users per user group.</li><li>• With individual sessions, you can observe and take notes as users talk about what they are doing.</li><li>• With Web-based tools, typical total numbers: 30 users per user group.</li><li>• With Web-based tools, you can gather a great deal of data and can call users after the card sort to learn about how users sorted the cards into categories. (Source: <a href="http://www.usability.gov/">http://www.usability.gov/</a>).</li></ul>
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- Users' research techniques including surveys, interviews, contextual interviews, card sorting, and usability testing.

#### 11. Conduct task analysis:

- What is task analysis?
- What does task analysis focus on?
- What does task analysis involve?

#### **Task Analysis**

A task analysis complements user analysis. Task analysis means learning about your users' goals—what they want to do at your Web site—and your users' ways of working. Task analysis can also mean figuring out what more specific tasks users must do to meet those goals and what steps they must take to accomplish those tasks. Along with user and task analysis, we often do a third analysis: understanding users' environments (physical, social, cultural, and technological environments). Segmenting your target audiences by their main goals focuses your site's development on those users' tasks. (Source: <http://www.usability.gov/>).

- What are the benefits of task analysis?

### Benefits of Task Analysis

According to JoAnn Hackos and Janice (Ginny) Redish, authors of *User and Task Analysis for Interface Design*, user and task analysis focuses on understanding:

- What users' goals are and trying to achieve;
- What users actually do to achieve those goals;
- What personal, social, and cultural characteristics the users bring to the tasks;
- How users are influenced by their physical environment, including previous experiences; and
- How users' previous knowledge and experience influence how they think about their work and the workflow they follow to perform their tasks. (Source: <http://www.usability.gov>).

## 12. Develop personas:

- What is a persona?
  - A persona is a fictional person who represents a major user group for your Website (see Figure 5).
- How do you get information for a persona?
  - Contextual interviews.
  - Individual interviews.
  - Surveys (online).
  - Focus groups.
  - Usability testing.
- What does a persona format look like?
  - See Figure 5.

- What characteristics are included in a persona?
  - A name and picture.
  - Demographics (age, education, ethnicity, family status).
  - Job title and major responsibilities.
  - Goals and tasks in relation to your Website.
  - Environment (physical, social, technological).
  - A quote that sums up what matters most to the persona with relevance for your Website.
- What are the benefits of personas?
  - End users' goals and needs become a common point of focus for the team.
  - The team can concentrate on designing for a manageable set of personas, knowing that they represent the needs of many users.
  - Design for what end users' need.
  - Design Plan is based on needs of end users.
  - Disagreements over design decisions sorted out by referring back to personas.
  - Designs evaluated against personas, which results in better user-centered designs for Websites.

13. Write user scenarios:

- What is your scenario?
  - A short story about a specific end user and their goal(s) for using your Website; scenarios are questions, tasks, and stories that end users bring to your Website and that it must satisfy.
- When should you use scenarios?
  - Scenarios critical for Websites and usability testing.
  - Write down 10 to 30 most common scenarios.
  - While doing usability testing, an Information Architect can ask end users for their own scenarios.
- How detailed should a scenario be (simple to complex)?
  - Goal- or task-based scenarios.
  - Can be elaborate scenarios.

**Brief (No Story or Motivation):**

In which government building can you find Bertrand Adams' 1937 painting *Early Settlers of Dubuque*?

**Elaborated (with Story and Motivation):**

Your grandfather told you that he posed for Bertrand Adams when he was painting his large 1937 masterpiece, *Early Settlers of Dubuque*. You heard that the painting is displayed in a Federal building. In which building can this artwork be found?

- How do you gather scenarios?
    - Questions from contact links.
    - Questions people ask and stories they tell clerks who answer phones.
    - Surveys (online).
    - Contextual interviews.
    - Individual interviews.
14. Set measurable usability goals:
- What is a measurable usability goal?
    - A measurable usability goal is the definition of successful usability on your Website for a specific set of end users doing a specific task.
  - What types of measureable usability goals should be set (referring to affordances built into interaction design components and part of information architecture)?
    - Complete transactions in five or ten minutes.
    - Submit the right amount from the right bank and bank account.
    - Make no more than one error while using the application.
    - Recover from any error in one minute or less (built-in affordances for end users).
    - Rate the experience a four or five on a one to five scale where five is the best.

- Which types of measures should you rely on most?
  - Time, accuracy, overall success, satisfaction.
- How do you set measurable usability goals?
  - Test Website against your measurable usability goals and consider: time, accuracy, and success—more important than satisfaction.


Policy/Legislative Gatekeepers	
	<p><b>Paula Grey</b> Professional Staff Member, Senate Agriculture Committee</p> <ul style="list-style-type: none"> <li>• 42-years-old</li> <li>• Divorced, 1 child</li> <li>• Law degree</li> <li>• Very comfortable using a computer, intermediate Internet user, with high-speed connection at work and DSL at home for daughter</li> <li>• Uses email extensively; accesses web about 2 hours a day for work</li> </ul>
<p><b>"Is this information right?"</b></p> <p>Paula gathers information that will help her prepare economic analysis for the Senate Agriculture Committee and its staff. She is interested in the economic impacts and cost estimates of legislation.</p> <p>She obtains a great deal of her information from the Internet, now that increasingly most of the data, articles, and reports she regularly uses are available online. Some of the sites she uses are: AgWeb.com for timely news, NASS for raw data, and ERS for in-depth reports. She also obtains information from FAPRI, THOMAS, the Congressional Research Service, Mann Library, and the Farm Service Agency.</p> <p>For her, accuracy and credibility of the information she uses is key, but keeping abreast of the latest issues on a timely basis is also very important.</p> <p>She values ERS for its unbiased research and regularly refers to ERS' Agricultural Outlook, especially the Statistical Indicators section. She also uses the staff directory to find subject experts.</p> <p>Paula maintains a deep passion for jazz and plays the piano. She plays regularly with a friend's band.</p>	<p><b>Key Attributes</b></p> <ul style="list-style-type: none"> <li>• Concerned about providing valued information for policy and legislation decisionmaking process</li> <li>• Focused and fact and detail-oriented</li> <li>• Broad knowledge of agricultural legislation and issues</li> </ul> <p><b>Tasks</b></p> <ul style="list-style-type: none"> <li>• Researches information pertinent to current legislation</li> <li>• Prepares economic analysis for committee members and staff</li> <li>• Attends and performs briefings</li> <li>• Keeps abreast of current issues that may impact or have been impacted by policy and legislation</li> </ul> <p><b>Informational Goals</b></p> <ul style="list-style-type: none"> <li>• Broad subject focus</li> <li>• Looks for background information related to policy and legislative issues</li> <li>• Seeks expert analysis and direct access to subject matter experts for quick answers</li> <li>• Seeks information on a need-to-know basis</li> <li>• Keeps very up to date on current issues</li> <li>• Needs accurate and credible information (absolutely critical)</li> </ul>

Figure 5: User Scenarios

#### 4. Wire Frame Mockups

These mockups help Information Architects to clearly design and draw out what a Website might look like prior to developing it via code (see Figure 7). By drawing up wire frame mockups, it saves a company spending a lot of money to develop a Website because it costs a lot of money to pay a computer programmer to actually write code. Wire frame mockups can also be used to communicate Information Architecture design conceptual ideas to clients as well as to computer programmers.

By doing annotated wire frame mockups, enable other team members to view and read any wire frame mockup. Wire frame mockups include written technical specifications about functionality and rationale for a design. These drawings provide detailed technical specifications for everyone on a team. Wire frame mockups help Information Architects to communicate their conceptual ideas to computer programmers, and it prevents developing unrealistic design concepts that may never be able to

be implemented. Also, card sorting sessions with end users are performed to do research and collect data about how end users use Website—prior to implementation and production (see Figure 6). In 4. Wire Frame Mockups, these procedures are followed.

15. Determine Website's requirements:

- What are requirements?
  - Fully integrated navigational systems—
    - Navigational systems (main and local).
    - Search features and functions (Web indexing, et al).
  - Meets business requirements for stakeholders.
  - Links to related Websites (ad hoc).
  - Pertinent reports or documents (PDFs).
- How do you develop requirements?
  - Website reflects end users' needs.
- How detailed should requirements be?
  - One sentence description to define purpose of Website and what end user does on it.
- How do you use requirements?
  - Gather information on what end users' need.

16. Conduct a content inventory:

- What is a content inventory?
  - List of all the content on your Website.
- Why conduct a content inventory?
  - Information Architects and researchers need to know what is already on the Website.
- What goes into a content inventory?
  - Overall topic area for Web page(s).
  - Web page title.
  - URL.
  - Short description of information on Web page(s).
  - Creation date of Web page(s).
  - Date of last revision(s).

- Author of Web page(s).
- Who is responsible for Web page and his contact information?
- When Web page(s) must be reviewed next.
- Expiration date of Web page(s).
- Links on Web page(s).
- Web pages' status.
- How do you get a content inventory?
  - Audit Website.
- How do you organize a content inventory?
  - Use spreadsheet or database.
  - May sort by date of last revision.
- What do you do with a content inventory?
  - Use it to work with managers, content developers, and all team members.

#### 17. Perform card sorting:

- What is card sorting?
  - Card sorting is a way to involve users in grouping information for a Website (see Figure 6).
- What are the benefits of card sorting?
- It helps Information Architects to learn how end users' think about content and how they would organize a Website.

#### What are the different types of card sorting?

- **Open Card Sort—**
  - An open card sort is typically done when you want to learn how users group content and understand the terms or labels users call each category.
- **Closed Card Sort—**
  - A closed card sort typically works best when you are working with a pre-defined set of categories and you want to learn how users sort content items into each category.

- A closed sort works well after an open sort. By conducting an open card sort first, you can begin to identify categories of content. You can then use a closed card sort to see how well the category labels work.
- How do you conduct a card sorting session?
  - List content topics or types of information on Website.
  - Write each topic on a separate index card.
  - Limit yourself to 50 to 100 index cards; use blank cards; number index cards in bottom corner or on back and process—
    1. Select participants that represent broad range of end users.
    2. Plan for about an hour for each session.
    3. Have enough space for participants to work in with cards.
    4. Plan to have a note taker present to take notes.
    5. Pay participants and treat them.
  - Conducting card sorting session with participants—
    1. Show participants cards; home page and categories; explain you want them to group cards in ways that make sense to them.
    2. Ask participants to talk out loud because you want their thoughts.
    3. Let participants work to organize cards in a way that makes sense to them and for additional hyperlinks or other documents.
    4. At end, if too many home pages, ask if or how they could be combined.
    5. Provide additional colored cards and ask to name each group. What words would they use to name or label items?
    6. At end, pay participants and thank them.

7. Analyze data at end by recording number down quickly; make a detailed site map or other Information Architecture flow charts or diagrams; less detailed analysis use notes; more complex analysis use computing software for a spreadsheet.

18. Define the Information Architecture for Website:

- How do you define the Information Architecture for your Website?
  - Do research to learn about end users' and business requirements (see Figures 1-2).
- How do you determine what should go on the home page?
  - Reflects reasons why end users use Website.
- How can you use **card sorting** to help you define your categories and labels?
  - Card sorting is a way to involve users in grouping information for a Website; see how they group cards together and organize cards to gain insights into how end users' use Website (see Figure 6).
- What is a **wire frame mockup**—how do you create one?
  - A visual representation (drawing) of one Web page; it defines graphic design, navigational systems, functionality, consistence interface designs, and defines key features on a Web page; prioritizes the features so that the most important features are prominently positioned on a Web page; and visually communicates this information to the entire design team and stakeholders with a diagram of each and every Web page (see Figure 7).
  - Wire frame mock ups or illustrations are usually produced using Visio, and Illustrator, and are oftentimes annotated.
    - While no Figure is included to show an annotated wire frame mockup, it is just a wire frame mockup with additional notes included in diagram for additional details.

- How do you create a **site map** or **flow chart**?
  - A site map is a visual representation of the Information Architecture of your Website.
  - A flow chart depicts organization of main navigational system, et al., with links and other aspects of technology or computer programming or requirements for layer codes (AJAX, CSS, et al., in an Information Architecture Design Plan Report)—if required for Websites (see Figure 8).

#### 19. Writing for Web pages and/or the Internet:

- How do you select what your audience needs?
  - Audience needs defined from research.
    - Use relevant information.
    - Use information to serve end users' needs.
- How should you organize your content?
  - Break text into manageable chunks.
  - Put in headers and footers.
  - Write useful and meaningful headers.
  - Make headings into a table of contents (remote navigational system).
  - If information is in sequential order, keep it in order.
  - Non-sequential information organized by what end users' need first.
- How do you write clearly?
  - Main message first.
  - Cut out words.
  - Keep paragraphs shorts.
  - Keep sentences short.
  - Use fragments.
  - Use end users' language or words.
  - Give examples.

- How do you write visually or communicate visually?
  - Use photographs or illustrations or meaningful diagrams.
- 20. Use parallel design:
  - What is parallel design?
    - Using design solutions created by other people as though they were templates—a way to save time and money, using improved Websites and/or digital design products.
  - What are the benefits of parallel design?
    - Seeing and trying others' designs improved in final solutions—can use their designs for templates.
    - Creating many designs that produce better results.
    - Combining design elements that resulted in better user interfaces.
  - How have others conducted parallel design?

McGrew (2001) published an article confirming the value of parallel design. McGrew's case study was the user interface for an invoice reconciliation program. He scheduled a one-day session with several participants, including the project manager, a designer, two subject matter experts, and a technical writer who was scheduled to do the training, three users, and a human factors engineer. They began by having each person independently sketch a proposed user interface on a large sheet of paper using colored felt-tip markers. The sketches then were posted on the wall for all to see and evaluate. After viewing the design solutions proposed by others, each participant sketched two new designs. McGrew required that each new design include at least one idea from another person's design and an idea that no one had yet proposed. They began to agree on an optimal design fairly early in the process and were able to reach consensus on the final user interface before the end of the day. (Source: <http://www.usability.gov>).

- How does parallel design work?

What is most striking about parallel design is how many ideas can be considered in a very short time. Most linear processes would only have considered a few iterations of a single design in the time that parallel design can consider many ideas. McGrew's design team considered at least 40 design alternatives in a single day. McGrew found that most participants responded immediately to good ideas. This was true even when good ideas were contained in otherwise poor design solutions. Good user interface design requires designers first to "saturate the design space." This means that user interface designers should consider as many alternative design ideas as possible before selecting the best to take forward. (Source: <http://www.usability.gov>).

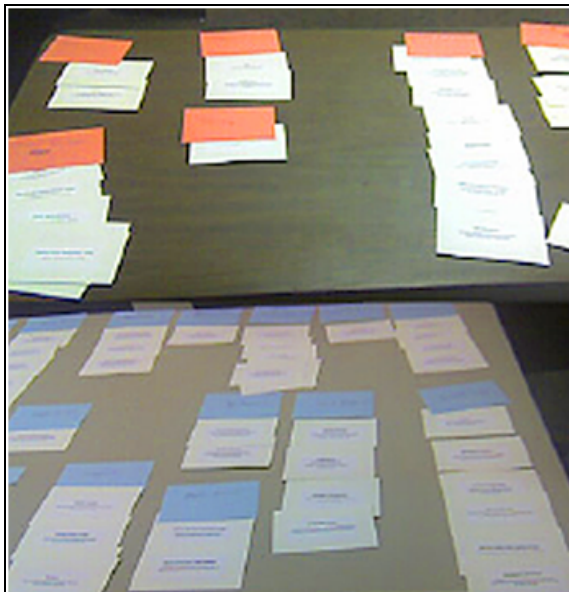


Figure 6: Card Sorting

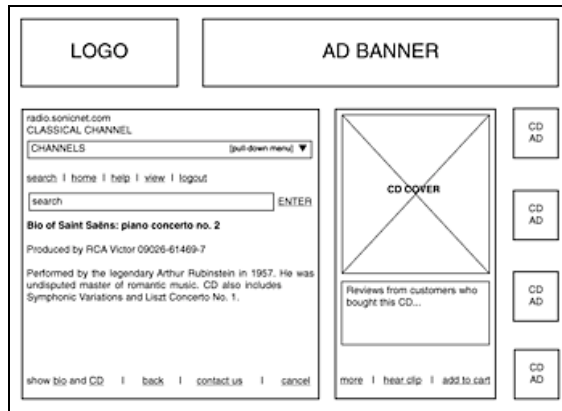


Figure 7: Wire Frame Mockups

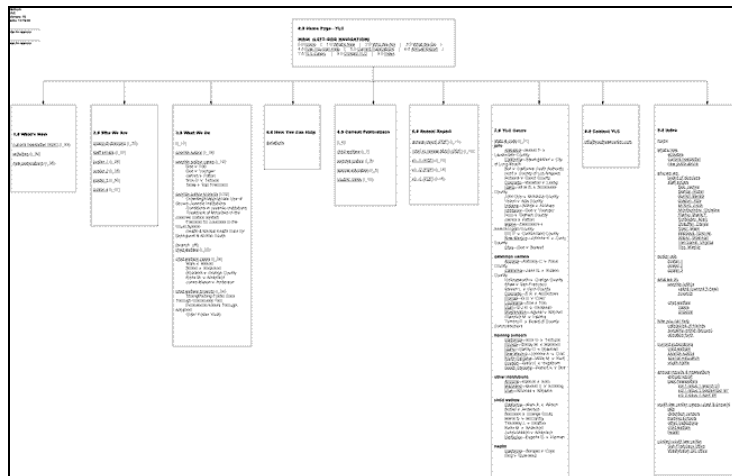


Figure 8: Flow Chart (IA, PM project for Youth Law Center) [http://www.stevenheitman-ia.com/html/IA/ylyc/html/ylyc\\_3.html](http://www.stevenheitman-ia.com/html/IA/ylyc/html/ylyc_3.html)

## 5. Prototyping

Information Architects work with other team members to create “experience prototypes” (see Figure 9). Working prototypes are developed quickly. End users can also be tested to see if they can easily use a prototype. Another inexpensive way to do prototyping is to use wire frame mockups to test end users. One might consider doing a focus group and recording or videotaping the sessions to provide Information Architects and clients with additional research documentation. In 5. Prototyping, these procedures are followed.

### 21. Develop a prototype:

- What is a prototype?
  - A draft version of your Website—
    - HTML (see Figure 9).
    - Image based (see Figure 9).
    - Paper based (see Figure 9).
- When should you build a prototype?
  - Can be built at any time; best time is early on in the process.
- Why build a prototype?
  - Since it is much cheaper and a good way to get feedback from end users (per Nielsen, 2003, he says—“it saves a 100 times the actual cost and 10 times the impact. If you discover you need a change early on in your project,” see source: <http://www.usability.gov>).
- Why use low-fidelity prototypes?
  - Because it is less expensive, fast—the quickest way to get feedback on your preliminary Website’s Information Architecture, design, and content.
  - Can use paper and scissors.
  - Sticky notes.
- Does fidelity make a difference?
  - Research indicates it makes no difference.

## 22. Programming (computer programming) the Website:

- When should you begin programming?
  - Consider paper prototyping or HTML or use of images to prototype.
  - After research and focusing on end users' needs, test working prototypes or consider parallel design.
  - When final solutions have been decided upon, programming may begin.
- When should you test the Website?
  - Consider testing HTML prototypes early on in the design process.
- What about accessibility for end users?
  - Accessibility (Section 508 of the Rehabilitation Act, 29 U.S.C. 794d) requires all Federal Agencies to make their electronic and information technology accessible to people with disabilities.

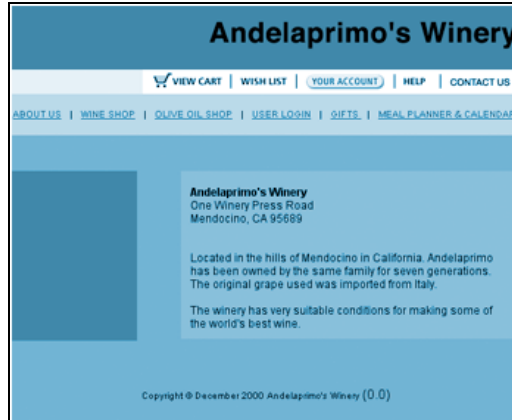


Figure 9: Prototyping

## 6. Usability Testing

Information Architects write and develop usability test plans, since it provides a structured way in which to test end users. Most likely, an Information Architect requires two other team members to assist with usability testing. The Information Architect leads end user in the taking the usability test; a note taker jots down notes (see Figure 10). The other team members observe end users. End users may be video taped for future references. In 6. Usability Testing, these procedures are followed.

### 23. Learn about evaluations (see IA MAIA Thesis Report; IA MAEd Thesis Report and Appendix C):

- How can you tell if your Website is usable?
  - Usability evaluations, which typically do not include users working with the product. Usability tests, which focus on users working with the digital design products.
- What types of usability evaluations are there?
  - Surveys and questionnaires.
  - Observational evaluations.
  - Guideline based reviews.
  - Cognitive walkthroughs.
  - Expert reviews.
  - Heuristic evaluations (see matrix below).

#### **What is a heuristic evaluation?**

The goal of **heuristic evaluation** is to find usability problems early in the design of a Website so that improvements can be made as part of the iterative design process.

Heuristic evaluations usually are conducted by a small set (one to three) of evaluators. The evaluators independently **examine** a user interface and judge its compliance with a set of usability principles.

The result of this analysis is **a list** of potential usability issues or problems. The usability principles, also referred to as usability heuristics, are taken from published lists. Ideally, each potential usability problem is assigned to one or more heuristics to help facilitate fixing the problem. As more evaluators are involved, more true problems are found.

Some evaluators try to **estimate** the degree to which each usability issue potentially could impede user performance or acceptance.

This is done to help **set priorities** for making revisions to the system. However, judging the severity of proposed usability issues has been shown to be very difficult to do.

Nielsen (1994), after evaluating several **sets of heuristics**, concluded that a better set of heuristics may be:

1. Ensure good visibility of system status.
2. Have a good match between the system and the real world.
3. Ensure user control and freedom.
4. Use consistency and standards.
5. Design to prevent user errors.
6. Design to facilitate recognition rather than recall memory.
7. Provide for flexibility and efficiency of use.
8. Use aesthetic and minimalist design concepts.
9. Help users recognize, diagnose, and recover from errors.

For more information, review source:

<http://www.usability.gov/methods/heuristiceval.html>.

- When should you do usability evaluations?
  - When you have a prototype for end users to review.
- Which should you rely on more: usability evaluations or usability tests?
  - Examine the results of both; a usability test with representative users tells you whether your predictions are valid.

- What is a heuristic evaluation?
  - A method for finding usability issues in a user interfaces is by having a small number of evaluators (1 to 5) evaluates Websites. It can be conducted on paper prototypes, PowerPoint wireframes, Visio wireframes, and any other type of prototype for fully functioning Websites or applications.
- How do usability tests differ from usability evaluations?
  - Tests include participants and evaluations do not.

#### 24. Learning about usability testing:

- What is usability testing?
  - Tests end users to see if they complete typical tasks with digital design products.
- What are you looking for in a usability test?
  - To identify usability issues problems.
- How does usability testing fit into user-centered design?
  - Usability testing is part of user-centered design. A user-centered design process should include a series of tests developed specifically to evaluate both performance and preference.
- What can you learn through usability testing?
  - Can end users successfully complete tasks?
    - How fast?
    - How many clicks does it take to get to the information?
      - 1-3 clicks are usually considered excellent IA design.
    - Websites perform well enough to meet usability objectives?
- What should you keep in mind when usability testing?
  - You are testing the Website, not end users.
  - Do testing and rely on what you learn from it.

- Do I need a lab to do usability testing?
  - If required, yes. If not, then see options below.
    - Fixed laboratory.
    - Conference room.
    - End user’s room.
    - End user’s workspace or office.
- How many participants are needed for a usability test?
  - 8-16 end users.
  - Plan several rounds of testing.
  - Homogenous user population.
- How much does it cost to do usability testing?
  - Depends on how many rounds and how many hours may be required. A usability specialist charges competitive rates, congruent with education and complexity of vocation.

25. Develop the test plan:

- The usability specialist and design team meet and the usability specialist writes a test; team reviews and a final plan is developed (see matrix below).

<b>Information Architecture &amp; Usability Testing</b>	
<b>Scope</b>	What and who are you testing?
<b>Purpose</b>	What concerns, questions, and goals is the test focusing on?
<b>Schedule and Location</b>	When and where will the test take place?
<b>Participants</b>	How many users of what types will you recruit?
<b>Scenarios</b>	What will participants do with the product in this round of testing?
<b>Questions</b>	What will you ask at the beginning and end of the session?

<b>Data to be Collected</b>	What will you count?
<b>Set Up</b>	What system will you use for testing? Will you be videotaping and/or audiotaping? Will you be using a specific technology to capture data?
<b>Roles</b>	Who will do what in the usability test?

- Includes information on numbers of participants, scenarios to be tested, pre- and post-test questions and data to be collected.

26. Create final scenarios:

- What is a scenario?
  - Tasks end users' perform on a Website.
- What makes a good scenario for usability testing?
  - Goals or tasks.
  - Data, if needed, that a real user would have when going to a Website.
- What does *not* go in a scenario for usability testing?
  - The scenarios *do not* include any information on how to accomplish the task; that is what usability testing is for and to show you how the participant goes about accomplishing task.
- Should you write down how to accomplish the task?
  - Note taker takes notes and establishes pathways to accomplish task; end user does not see this during testing.
- What if you give participants choices for answers?
  - Sometimes you can use multiple-choice tests if necessary.
- What if users have difficulty in understanding scenarios?
  - Test out on a pilot test and make corrections if necessary.

## 27. Recruit participants:

- Who should participate in a usability test?
  - End users that use Website(s).
- Who should recruit participants?
  - Information Architects, commercial recruiting, companies, or human resources.
- What should you ask in a screening questionnaire?
  - Review online templates.
- Does recruiting cost money?
  - Yes.

## 28. Set up for the test sessions:

- Make sure you have everything you need—
  - Prototype you are testing.
  - Computer set up with appropriate equipment and set up right.
  - Note-taking forms or set up on a computer.
  - Consent forms.
  - Questionnaires, if you are using any.
  - Participant's copy of scenarios.
  - Cameras, microphones, or other recording equipment if you are using any.
  - Folders to keep each person's paperwork in if you are using paper.
- Do a dry-run and a pilot test:
  - See if your questions and scenarios make sense to participants.
  - Do time estimates for how long each participant will spend on each scenario(s).
  - If computing technology is working, then great. If problems become apparent, then glitches have to be fixed.

## 29. Conduct the usability test:

- What happens in a typical usability test session?
  - Introductions, questions by participants, facilitator guides everyone for each task.
  - Debriefing and a thank you to participants.
  - What makes for good test facilitation?
    - Treating participants with care.
    - Staying neutral.
    - Deciding when and how much to help.
    - Taking good notes.

## 30. Analyze the results:

- What data will you have?
  - Success rate.
  - Time to complete tasks.
  - Pages visited.
  - Error rates.
  - Ratings on a satisfaction questionnaire.
- Qualitative data, might include—
  - Notes of your observations about the pathways participants took.
  - Notes about problems.
  - Notes about what they said while working.
  - Questions to open-ended answers.
- What do you do with qualitative data?
  - Look for patterns.
- Prepare the usability test report and write it—
  - Keeping each section short.
  - Using lots of tables.
  - Being very brief about the background information.
  - Focusing on findings and recommendations.
  - Including visual examples.

- What should you include?
  - Introduction and summary of the background on logistics.
  - Information from test plan—
    - What and whom you tested.
    - When and where the test was held.
    - The system that you used for testing (resolution, monitor size, etc.).
    - What you did during the testing (names of the facilitator and note-takers).
    - Tables of information about end users, keeping it anonymous, including demographic features and pertinent details.
  - Summary of quantitative data.
  - Findings and recommendations.

Section 2.0	3 Excellent	2 Good	1 Poor
Instructional Design Website: <a href="http://www.infed.org/index.htm">http://www.infed.org/index.htm</a> Matrix for Information Architecture Research Questions:			
<b>Ease of Use</b> <ul style="list-style-type: none"> <li>• Unity of Web page design</li> <li>• Predictable and clear navigation</li> <li>• 1-3 clicks to get to information</li> <li>• Aesthetically pleasing design</li> </ul>	3	2	1 1
Remarks: Overall, this Website is quite easy to use. The only problem is that no consistent navigational systems are used. The navigation is not clear or very predictable because an end user lands on different pages with no way out. Affordances for end users are not incorporated into design. Many links are very redundant and serve no purpose. There is no consistent Web page design; no consistent main navigational systems used—navigating for end user is unproductive—since this type of design lends itself to assisting and users to get lost while using this design product.			
<b>User Experience</b> <ul style="list-style-type: none"> <li>• Legibility and reading speed</li> <li>• Good use of the screen in all resolutions</li> <li>• Printer-friendliness</li> <li>• Browser compatibility</li> <li>• Respect interface standards</li> <li>• Icons work or do not work</li> <li>• Use of colors</li> </ul>	3	2 2	1 1
Remarks: Overall, the user experience is quite poor. While the Web page, design is somewhat pleasing; one does not really know what the icons represent without prior knowledge of subject matter. The gray squares boxes at the top on the right side serve no purpose. The type size on most Web pages is too small and difficult to read.			
<b>Practical Value</b> <ul style="list-style-type: none"> <li>• Informative homepage</li> <li>• Contact information</li> <li>• Search and search results</li> <li>• Up to date and correct information</li> <li>• Language and copywriting appropriate/not appropriate</li> </ul>	3 3 3 3		1
Remarks: Overall, the homepage is not very informative because the purpose of the Website is not clearly defined. In terms of practical value, (without really having prior knowledge) it is hard to understand the practical value of the Website. Since this is supposed to be a Website about instructional design, the end user should be able to access relevant information about instructional easily. Unfortunately, it is hard to get the information since it is so buried in the Website.			

Figure 10: Usability Testing

## 7. Implementation

The final design product or Website is produced and implemented (see Figure 11). Additional changes may have to be made. *It is an iterative process*, leading up to the final development of an intended design product. In 7. Implementation, these procedures are followed.

### 31. Implement and retest:

- Implementing recommendations and making revisions.

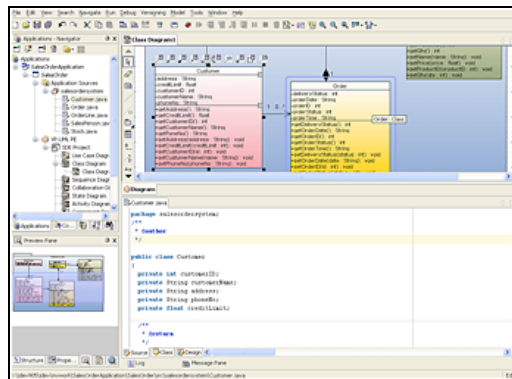


Figure 11: Implementation

## 8. System Testing

The final stage of development is where tests are run on a Website to see if it works, and catch any bugs or code errors prior to launching a design product or Website (see Figure 12). Load tests are performed on a Website to see if it works. When numerous end users use it, tests are performed to see if the Website works. As required, further usability testing is done to make sure the final product is good and works for end users. In 8. System Testing, these procedures are followed.

### 32. Implement final version of digital design product and retest—if required and necessary:

- Retest, making revisions if necessary.



Figure 12: System Testing

### Unique Design Products Require Information Architecture Design

As one may imagine, Information Architecture and incorporating user-centered design into products enable end users to use them. Because we have to be able to use these online products and to keep environments safe, the practice of Information Architecture and implementation of user-centered design help protect end users.

According to the authors of *Cool Stuff 2.0 and How It Works* (2007), many design products are unique. End users cannot always successfully use these products and products must pass governmental standards for usability to comply with safety regulations, for example:

- High-tech toilets,
- User interface screen designs that super markets want end users to use,
- Watches to alarm clocks,
- E-voting,
- A petcam device,
- Aircraft HUD,
- Robotical navigational systems used in robotics to navigate,
- Second Life,
- A hawk-eye device,
- A sandstorm navigational device,
- Navigational systems for a Mars rover,
- SpaceShipOne,
- A space station in outer space,
- A neutrino tank,
- A reactor vessel,
- A Falkirk wheel,

- A computerized monitoring device—a mass damper,
- Airport security devices,
- X-ray machines,
- Stealth military technology,
- Simulators,
- Silent flight technologies,
- Tsunami alert systems,
- Many computerized design products used in the military,
- Many computerized devices used in health care, and
- Other computerized devices used to protect and keep the public safe.