

Information Architecture

White Paper
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Abstract

Effective information architecture is one of a number of attributes of a usable system. An information architect must create navigation schemes for web sites, content management systems, etc. that are at once concise, descriptive, mutually-exclusive, and intuitive. Users can only appreciate what they can actually find.

This white paper describes information architecture, information architecture styles, methods, and techniques. A special emphasis is given to information architecture of web sites.



What is Information Architecture

Information architecture is defined by the Information Architecture Institute as the art and science of organizing and labeling web sites, intranets, online communities, and software to support findability and usability.

Information architecture is the term used to describe the structure of a system, i.e the way information is grouped, the navigation methods and terminology used within the system. Effective information architecture enables people to step logically through a system confident they are getting closer to the information they require. Information architecture is most commonly associated with websites and intranets, content management systems, but it can be used in the context of any information structures or computer systems.

Information architecture involves the categorization of information into a coherent structure, preferably one that the intended audience can understand quickly, if not inherently, and then easily retrieve the information for which they are searching. The organization structure is usually hierarchical.

Organizing functionality and content into a structure that people are able to navigate intuitively doesn't happen by chance. Organizations must recognize the importance of information architecture or else they run the risk of creating great content and functionality that no one can ever find. Most people only notice information architecture when it is poor and stops them from finding the information they require.

Effective information architecture comes from understanding business objectives and constraints, the content, and the requirements of the people that will use the site.

Business/Context

Understanding an organization's business objectives, politics, culture, technology, resources and constraints is essential before considering development of the information architecture. Techniques for understanding context include:

- reading existing documentation;
- mission statements, organization charts, previous research and vision documents are a quick way of building up an understanding of the context in which the system must work;
- stakeholder interviews;
- speaking to stakeholders provides valuable insight into business context and can unearth previously unknown objectives and issues.

Content

The most effective method for understanding the quantity and quality of content (i.e. functionality and information) proposed for a system is to conduct a content inventory. Content inventories identify all of the proposed content for a system, where the content currently resides, who owns it and any existing relationships between content. Content inventories are also commonly used to aid the process of migrating content between the old and new systems.

Users

Effective information architecture must reflect the way people think about the subject matter. Techniques for getting users involved in the creation of information architecture include card sorting and card-based classification evaluation.

Card sorting involves representative users sorting a series of cards, each labelled with a piece of content or functionality, into groups that make sense to them. Card sorting generates ideas for how information could be grouped and labelled.

Card-based classification evaluation is a technique for testing information architecture before it has been implemented. The technique involves writing each level of information architecture on a large card, and developing a set of information-seeking tasks for people to perform using the architecture.

Information Architecture Styles

There are two main approaches to defining information architecture. They are:

Top-down information architecture

This involves developing a broad understanding of the business strategies and user needs, before defining the high level structure of site, and finally the detailed relationships between content.

Bottom-up information architecture

This involves understanding the detailed relationships between content, creating walkthroughs (or storyboards) to show how the system could support specific user requirements and then considering the higher level structure that will be required to support these requirements.

Both of these techniques are important in a project. A project that ignores top-down approach may result in well-organized, findable content that does not meet the needs of users or the business. A project that ignores bottom-up approach may result in a site that allows people to find information but does not allow them the opportunity to explore related content. Take a structured approach to creating effective information architecture.

The following steps define a process for creating effective information architecture:

- Understand the business/contextual requirements and the proposed content for the system. Read all existing documentation, interview stakeholders and conduct a content inventory.
- Conduct cards sorting exercises with a number of representative users.
- Evaluate the output of the card sorting exercises. Look for trends in grouping and labeling.
- Develop a draft information architecture (i.e. information groupings and hierarchy).
- Evaluate the draft information architecture using the card-based classification evaluation technique.
- Don't expect to get the information architecture right first time. Capturing the right terminology and hierarchy may take several iterations.
- Document the information architecture in a site map. This is not the final site map, the site map will only be finalized after page layouts have been defined.
- Define a number of common user tasks, such as finding out about how to request holiday leave. On paper sketch page layouts to define how the user will step through the site. This technique is known as storyboarding.
- Walk other members of the project team through the storyboards and leave them in shared workspaces for comments.
- If possible within the constraints of the project, it is good to conduct task-based usability tests on paper prototypes as it provides valuable feedback without going to the expense of creating higher quality designs. Create detailed page layouts to support key user tasks. Page layouts should be annotated with guidance for visual designers and developers.

Developing information architecture in this way enables you to design and build a system confident that it will be successful. It simply isn't good enough for organizations to build functionality or write content, put it on their computer systems and expect people to be able to find it.

Developing effective information architecture is an essential step in the development of all computer systems. Effective information architectures enable people to quickly, easily and intuitively find content. This

avoids frustration and increases the chance that the user will return to the system the next time they require similar information.

Remember: people can only appreciate what they can actually find.

Information Architecture Methods and Techniques

There are few methods that are used in information architecture. Some of common methods are: site maps, annotated page layouts, content matrices, page templates, personas, prototypes, storyboards, wireframes.

Card Sorting

Card sorting is a low cost, simple way to figure out how best to group and organize your content based on user input. Card sorting works by writing each content set or page on an index card, and then letting users sort them into groups based on how they think the content should be categorized.

There are several types of card sorting methodologies. The basic method starts out with cards in random order and users sort them in the way they think they should be grouped. In reverse card sorting, the cards are pre-sorted into groups, and users are then given the task of rearranging them as they see fit. Open card sorting lets users name the groups they've created for the cards, while closed card sorting will have group names in which the participant places the cards into.

Various methods can be used to analyze the data. The purpose of the analysis is to extract patterns from the population of test subjects, so that a common set of categories and relationships emerges. This common set is then incorporated into the design of the site, either for navigation or for other purposes.

There are a number of tools available to perform card sorting activities with survey participants via the internet. The perceived advantage of remote card sorting is that it allows a larger group of participants to be reached at a lower cost. The software can also assist in the process of analyzing card sort results. The advantages of a remote card sort must be traded off against the lack of personal interaction between card sort participants and the card sort administrator, which may produce valuable insights.

Site Maps and Outlines

Site maps are perhaps the most widely known and understood deliverable from the process of defining an information architecture. A site map is a high level diagram showing the hierarchy of a system. Site maps reflect the information structure, but are not necessarily indicative of the navigation structure.

Site maps are quick and easy ways to visually denote how different pages and content relate to one another. It is an imperative step that "mocks up" how content will be arranged.

These content outlines show how all the pages on your site are grouped, what order they appear in, and the relationships between parent and child pages. This is often a simple document to prepare, and may be created after a round or two of card sorting.

For existing sites or content that must be placed in a web site, a content inventory is usually the prelude to this phase.

Annotated page layouts

Page layouts define page level navigation, content types and functional elements. Annotations are used to provide guidance for the visual designers and developers who will use the page layouts to build the site. Page layouts are alternatively known as wireframes, blue prints or screen details.

Content matrix

A content matrix lists each page in the system and identifies the content that will appear on that page.

Page templates

Page templates may be required when defining large-scale websites and intranets. Page templates define the layout of common page elements, such as global navigation, content and local navigation. Page templates are commonly used when developing content management systems.

Persona

Persona is a fictional character with all the characteristics of the user. Personas are created after the field research process, which typically consists of members of the primary stakeholder (user) group being observed on their behavior, and additionally answering questionnaires or participating in interviews, or a mixture of both.

Prototypes

Prototypes are models of the system. Prototypes can be as simple as paper-based sketches, or as complex as fully interactive systems. Research shows that paper-based prototypes are just as effective for identifying issues as fully interactive systems. Prototypes are often developed to bring the information architecture to life. Thus enabling users and other members of the project team to comment on the architecture before the system is built.

Storyboards

Storyboards are another technique for bringing the information architecture to life without building it. Storyboards are sketches showing how a user would interact with a system to complete a common task. Storyboards enable other members of the project team to understand the proposed information architecture before the system is built.

Wireframes and Prototypes

Wireframes are rough illustrations of page content and structure, which may also indicate how users will interact with the website. These diagrams get handed off to a visual designer, who will establish page layout and visual design.

Wireframes are useful for communicating early design ideas and inform the designer and the client of exactly what information, links, content, promotional space, and navigation will be on every page of the site. Wireframes may illustrate design priorities in cases where various types of information appear to be competing.

Basic wireframes can do a lot more than just give an outline of the design layout of a site. It also informs us how content will be arranged, at least on a basic level. Putting content into wireframes and prototypes gives us a good sense of how the content is arranged in relation to other content and how well our information architecture achieves our goals.

When you are wireframing, and especially when you are prototyping, you should be working with content that at least resembles what the final content of the site will be.

Information Architecture for Web Sites

Without a clear understanding of how information architecture (IA) should be set up, we can end up creating web sites that are more confusing than they need to be or make web site content virtually inaccessible. Here are some popular IA design patterns, best practices, design techniques, and case examples.

Information Architecture Design Patterns

There are a number of different IA design patterns for effective organization of web site content. Understanding these IA models will help you pick the most appropriate starting point for a site's information structure. Let us talk about five of the most common web site IA patterns.

Single Page

The first pattern is the single page model. Single page sites are best suited for projects that have a very narrow focus and a limited amount of information. These could be for a single product site, such as a website for an iPhone app, or a simple personal contact info site.

Flat Structure

This information structure puts all the pages on the same level. Every page is just as important as every other page. This is commonly seen on brochure style sites, where there are only a handful of pages. For larger sites with a lot more pages, the navigation flow and content findability gets unwieldy.

Index Page

A main page with subpages is probably the most commonly seen web site IA pattern. This consists of a main page (we know this more commonly as a "home page" or "front page"), which serves as a jump-off point for all the other pages. The sub-pages have equal importance within the hierarchy.

Strict Hierarchy Pattern

Some websites use a strict hierarchy of pages for their information design. On these sites, there will be an index page that links to sub-pages. Each sub-page (parent page) has its own subpages (child pages). In this pattern, child pages are only linked from its parent page.

Co-Existing Hierarchies Pattern

As an alternative to the strict hierarchy, there is also the option of co-existing hierarchies. There are still parent and child pages, but in this case, child pages may be accessible from multiple parent pages/higher-level pages. This works well if there's a lot of overlapping information on your site.

Best Practices for Information Architecture Design

There are a number of things you need to remember when designing the information architecture of your site. Most importantly, you need to keep the user experience at the forefront when making choices about how best to present and organize the content on your site.

Don't Design Based on Your Own Preferences

You are not your user. As a designer, you have to remember that site visitors won't have the same preferences as you. Think about who a "site user" really is and what they would want from the site.

Research User Needs

Researching what your users need and want is one of the most important steps in creating an effective information architecture. There are a number of ways to research user needs. You could get feedback through interviews, surveys, user side testing, and other usability testing methods prior to the site launch to see if users are able to navigate your site efficiently.

Once you know what your users actually need, rather than just your perception of what they need, you will be able to tailor your information architecture to best meet those needs.

Have a Clear Purpose

Every site should have a clear purpose, whether that's to sell a product, inform people about a subject, provide entertainment, etc. Without a clear purpose, it is virtually impossible to create any kind of effective IA.

The way the information on a site is organized should be directly correlated to what the site's purpose is. On a site where the end goal is to get visitors to purchase something, the content should be set up in such a way that it funnels visitors toward that goal. On a site that is meant to inform, the IA should lead people through the content in a way that one page builds on the last one.

You may have sub-goals within a site, requiring you to have subsets of content with different goals. That is fine, as long as you understand how each piece of content fits in relation to the goals of a site.

Use Personas

Creating personas, a hypothetical narrative of your various web site users, is another great way to figure out how best to structure the site's content.

In its very basic form, developing personas is simply figuring out the different types of visitors to your site and then creating "real" people that fit into each of those categories. Then throughout the design process, use the people you have profiled as your basis for designing and testing the site's IA.

Keep Site Goals in Mind

It is important that you keep the site's goals in mind while you're structuring content. Pick the right IA pattern for those goals. Use goals to justify why the information structure should be the way you designed it.

Be Consistent

Consistency is central to exemplary information architectures. If eight of your nine informational pages are listed in a section, why wouldn't you also include the ninth page there? Users expect consistency.

The same goes for how information is structured on each page. Pick a pattern and stick to it. If you deviate from that pattern, make sure you have a very good reason to do so; and make the deviation consistent in similar cases. Inconsistencies have a tendency to confuse visitors.

Final Recommendations

Information architecture is very important for usability. If you want your organization to succeed, and you want to improve the quality of your information, consider scheduling a usability test with participants that will offer insight into your information systems. The results of the test should help you to determine the areas of your information and design that need to be improved. It can help to establish what works and what doesn't work.

About Galaxy Consulting



Galaxy Consulting provides services in business analysis and usability, content and knowledge management, records management, information architecture, enterprise search, taxonomy development and management, document control, and information governance.

Galaxy Consulting was founded with the mission and vision of helping organizations to manage their valuable information assets. Many of our clients, both large and small, have dramatically improved efficiency and reduced unnecessary labor hours through efficient methods, processes, and solutions we created.

Galaxy Consulting believes in partnerships with our clients. We are committed to working with you and to helping you transform your business. We will increase efficiency and productivity, maintain regulatory and legal compliance, improve collaboration, enhance innovation, and reduce costs through effective information management!

Call us TODAY to schedule a free, no obligation consultation!

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