
Digital Information Architecture

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Abstract

Some websites provide logical structure that helps us find answers and complete tasks. Others lack any intelligible organization and frustrate our attempts to navigate through them. Hence, designing of good, appropriate and intelligible website to manage data and knowledge becomes mandatory. The combination of organization, labeling and navigation schemes within an information system is the Digital Information Architecture. This has been dealt in this paper.

Keywords : Information Architecture, Graphic designers, Interaction designers, Context

0. Introduction

Digital Information Architect is the one who organizes huge amounts of information on big web sites and intranets and as an online merchandiser enabling the application of marketing concepts on the internet. The information architect is the one who takes on that information overload problem, which is being complained about lately. Graphic designers do a great deal of information architecture. Traditionally a graphic designer was responsible for all aspects of visual communication. On the web, there is an increase in specialization due to the complexity of the environment. Interaction designers are concerned with the users' achieving goals successfully and complete their tasks. They are involved in human-computer interaction and are focused on helping users successfully achieve goals and complete tasks. Usability Engineers apply the rigors of the scientific method to user research, testing and analysis. They are concerned with testing all aspects of the user experience, inclusive of information architecture and graphic design. Experience design is a broad term that covers information architecture, usability engineering, graphic design and interaction design as components of the holistic user experience.

Software development: Information architects and software developers are highly interdependent; the former rely on developers to bring our ideas to fruition where as the latter clearly help us to understand the possibles and the impossibles.

Content managers and Information architects are two sides of the same coin. Content managers deal with issues of content ownership and the integration of policies, processes and technologies to support a dynamic publishing environment. Knowledge managers develop tools, policies and incentives to encourage people to share what they know.

1. Information Architecture

Interactions and the information in a digital library can be organized effectively. Within the library information is stored as basic units of digital information eg. A digitized map, a section of text, a web page, a scanned photograph, etc. In digitized form, each basic unit is a sequence of bits. In this, even common terms such as 'report', a 'computer program' or an 'opera' can refer to many items that are variants of each other. They may have different formats, minor differences of content, different usage restrictions, and so on, but for some purposes users are willing to consider them as equivalent.

The information architecture provides a general approach to organize the material within the digital library in such a manner that computer programs can understand the structure of the material and carry out the interactions that the user wishes. The information architecture must reflect the economic, social and legal frameworks developing in the information infrastructure, thus aiding in the better designing of information infrastructure. In particular, the information architecture helps to recognize that information is valuable, subject to terms and conditions, and is transmitted over insecure networks that cross national boundaries. These considerations are a driving force behind the technical framework which underlies the architecture.

2. User Centered Architecture

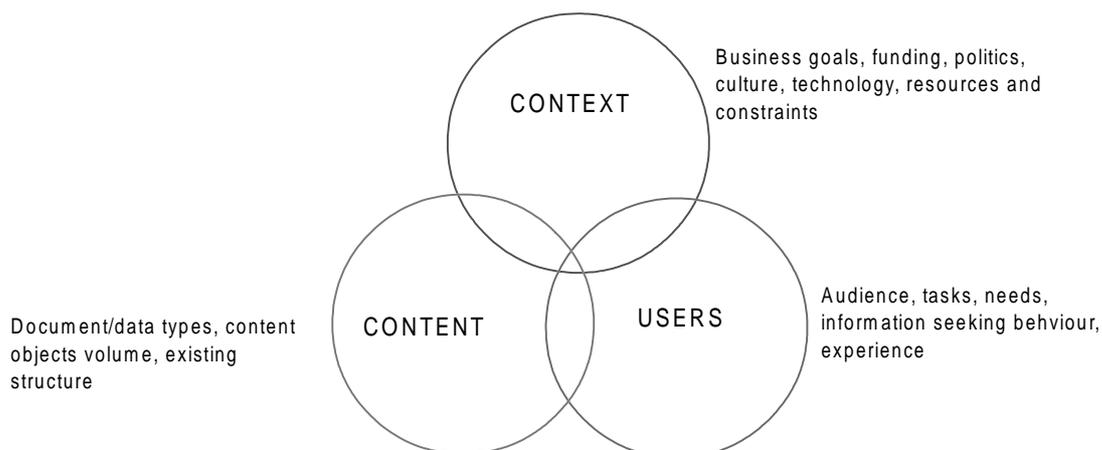
The information architecture must be illustrative of the application of user-centered iterative design to digital libraries, generally. The usability assessment addresses primarily interface design. Usability has been defined as “(a system’s) capability in human functional terms to be used easily and effectively by the specified range of users, given specified training and support, to fulfill a specified range of tasks, within the specified range of environmental scenarios”. Hence, designers have to be willing to engage in user-centered iterative design. This requires-

1. Illustration of the ease and value of its application and the demonstrated successes in its use,
2. An array of methods for collecting, representing and incorporating user needs, so that any project can adopt those that are most appropriate to the problem at hand, in terms of speed, level of effort and issues addressed, and
3. The building of partnerships between designers and usability assessors.

3. Basic Elements in Designing the Digital Information Architecture

Users, Content Context are the three basic elements of the model for developing an effective information architecture design. This has been illustrated by a venn diagram as below:

Fig. 1 Elements of information architecture



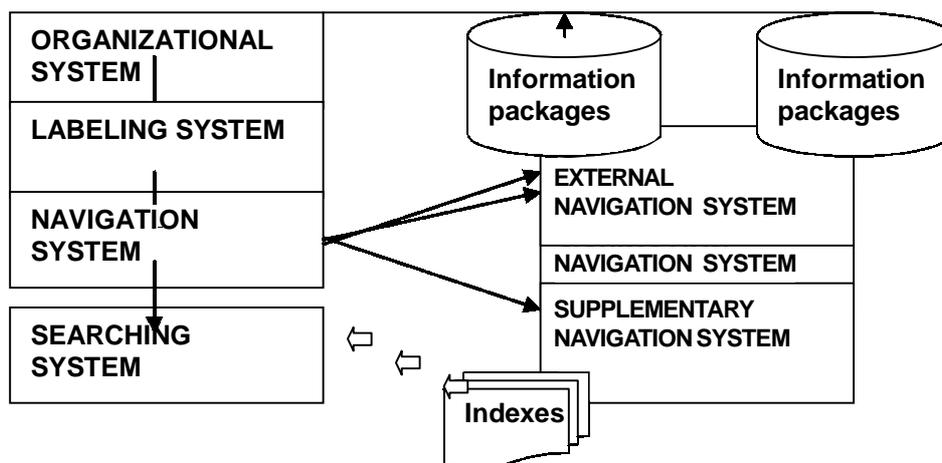
The concept of an 'information ecology' composed of the above said 3 interrelated elements, illustrate their dependant nature within a complex; each of them contribute to the emergence of a totally unique information ecology.

Context : All websites and intranets exist within a particular business or organizational context. It depends upon the mission, goals, strategy, staff, processes and procedures, physical and technology infrastructure, budget and culture and it is unique to each organization. Understanding information architecture and aligning them is essential.

Content : It includes the documents, applications, services and metadata that people need to use or find on the site. It comprises of following facets such as ownership, format, structure, metadata, volume and dynamism. All of the dimensions make for a unique mix of content and applications, which in turn suggests the need for customized digital information architecture.

Users : Designing the site needs customer research and analysis. Designs differ by user categories such as senior executives, research analysts, managers and teenagers. And that information is built upon an understanding of the unique customers or market segments.

Fig. 2 Digital Information Architecture



Users interact directly with some components, while they are unaware of existence of other components. The four components of digital information systems are-

1. Organizational Systems deal with the categorization of information by subject or chronology.
2. Labeling Systems is the method of representation of information by scientific terminology or lay terminology.
3. Navigation Systems is the way in which we browse or move through information, whether by clicking through a hierarchy.
4. Searching Systems- Information search is by executing a search query against an index.

This group can be presented in an alternative method of categorizing information architecture components. This method is comprised of browsing aids, search aids, content and tasks and 'invisible' components.

Browsing Aids: These components present users with a predetermined set of paths to help them navigating the site. Users do not articulate their queries, but instead find their way through menus and links. Types of browsing aids include:

- **Organization Systems:** The main ways of categorizing a site's content. Also known as taxonomies and hierarchies. This systems contain various information packages
- **External Navigation Systems:** It leads the users to other related sites through a properly established linking mechanism.
- **Site-wide Navigation Systems:** Primary navigation systems that help users understand where they are and where they can go within a site.
- **Local Navigation Systems:** Primary navigation systems that help users understand where they are and where they can go within a portion of a site(i.e., a sub site)
- **Sitemaps/Tables of Contents:** Navigation systems that supplement primary navigation systems; provide a condensed overview of and links to major content areas and sub sites within the site, usually in outline form.
- **Site Indexes:** Supplementary navigation systems that provide an alphabetized list of links to the contents of the site.
- **Site Guides:** Supplementary navigation systems that provide specialized information on a specific topic, as well as links to a related subset of the site's content.
- **Site Wizards:** Supplementary navigation systems that lead users through a sequential set of steps; may also link to a related subset of the site's content.
- **Contextual Linking Systems:** Consistently presented links to related content. Often embedded in text, and generally used to connect highly specialized content within a site.

Search Aids: This enables the entry of a user-defined query and present users with a customized set of results that match their query. Search Components include-

- **Search Interface:** The means of entering a search query, typically with information on how to improve the query, as well as the other ways to configure the search.
- **Query Language:** The grammar of a search query; query languages might include Boolean operators, proximity operators or ways of specifying which field to search.
- **Retrieval Algorithms:** The part of a search engine that determines which content matches a user's query.
- **Search Zones:** Subsets of site content that have been separately indexed to support narrower searching.
- **Search Results:** Presentation of content that matches the user's search query; involves decisions of what types of content should make up each individual result, how many results to display, and how results should be ranked, sorted and clustered.

Contents and Tasks: These are the users' ultimate destinations, as opposed to separate components that get users to their destinations. However, it's difficult to separate content and tasks from an information architecture, as there are components embedded in content and tasks that help us find our way.

Examples of digital information architecture include:

- **Headings:** Labels for the content that follows them.
- **Embedded Links:** Links within texts; these label the content they link to.

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- Embedded Metadata: Information that can be used as metadata but must first be extracted (indexing of ingredients in a recipe to support searching by ingredient).
 - Chunks: Logical units of content; these can vary in granularity and can be nested.
 - Lists: Groups of chunks or links to chunks; these are important because they have been grouped together and have been presented in a particular order.
 - Sequential Aids: Clues that suggest where the user is in a process or task, and how far he has to go before completing it.
 - Identifiers: Clues that suggest where the user is in an information system.

“Invisible” components: Certain components ‘feed’ other components, such as a controlled vocabulary that populates embedded metadata fields are called as key architectural components, which run completely in the background and users rarely interact with them. These invisible digital information architecture components include-

- Controlled vocabularies of preferred terms that describe a specific domain; typically include variant terms.
- Thesauri: A Controlled vocabulary that may also include links to broader and narrower terms, as well as descriptions of preferred terms
- Rule Sets: Groups of rules that can be used to guide information retrieval.

4. Who is Qualified or Skilled ?

The need for information architects will rise, as websites and intranets become more sophisticated and mission-critical. Unlike medicine and law, the information

architect is not rewarded with any official certification process. But they are responsible for creating relationships between visual elements and determining how those elements can be integrated as a whole to communicate more effectively.

Librarians have proved very useful in dealing with the relationships between pages and other elements that make up a whole site. They are capable to organize and provide access to information and are trained to work with searching, browsing and indexing technologies. They are also called as ‘cybrarians’ due to their application of their expertise in new arenas far beyond the library walls. The librarians are also skilled at modeling content and metadata for including in a database. They are also great at figuring out how all of the component systems and technologies of digital information architecture fit together.

The Library professionals writing technical documentation or developing online help systems are sensitized to both the needs of users and the potential for structuring, labeling and describing textual content.

The information architects study the needs and behavior of people and have an excellent foundation in the concepts and challenges surrounding strategy and design.

5. Conclusion

The librarians, the digital information architects, are able to tap the motivations and talents of a diverse group of professionals; People with background in product, program or project management can become very effective information architects, particularly in the areas of strategy formation and interdisciplinary team management.

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