

Information Architecture

A guide to labeling and organizing information
in a way that makes sense to users.

By Jocelyn Baker, Jolene Follgard, Grace Murray,
Lucas Pisano, Logan Senko, and Rachel Yuen

Table of Contents

Introducing Information Architecture.....

01

Information Types.....

02

Examples of Types of Information Architecture

Organizing Information.....

03

Information Blocks

Chunking

Labels

Size & Content

Information Map/Template

Tables

Usability.....

04

Online Usability

Navigation

Images

Pop-Ups

Measuring Usability

Requirements

Rapid Prototype

Card Sorting

Tree Testing

Performance Testing

Learnability

Visual Design.....

05

Colour Contrast

Size

Readability

Good Vs. Bad Design

Glossary.....

06

References.....

07



Information Architecture

In a digital world where we are overloaded with all the information we could want at our fingertips, it can be overwhelming to try and sort through it all. Information architecture is the solution to that problem.

Similar to IT, people often don't think about information architecture unless it's done badly. Good information architecture means a user is easily able to navigate a website, app, or skim a document to find important information. While bad information architecture can leave a user staring blankly at a wall of text, or leaving a website when they can't find the information or service they are looking for.

In this text we will walk you through an introduction to the main principles of information architecture, the framework that should be utilized when structuring information for users, some examples of good and bad information architecture, and links to additional resources for those who wish to learn more.

We hope this guide can help readers recognize how information architecture is utilized in the world around them. And we hope that once readers finish this text they'll be able to create documents, websites, and applications that users can easily understand and navigate.

Introduction

01

What is information architecture?

Information architecture is a system to label and organize information in a way that makes sense to users, so they can navigate and find information. It covers a broad range of topics and mediums to combat information overload and navigational concerns.

Information architecture is used to structure the information in a way that the end user gets the simplest experience, and when done well should be intuitive.

On documents, it should allow the reader to skim headings and be able to understand the key findings or message the designer wants them to know. In a digital space, information architecture should allow the user to navigate and find what they are looking for on websites and apps without getting lost or frustrated.

Information Architecture is Concerned With:

Content:

What is the information, data, objectives that need to be shown to the user?

Context:

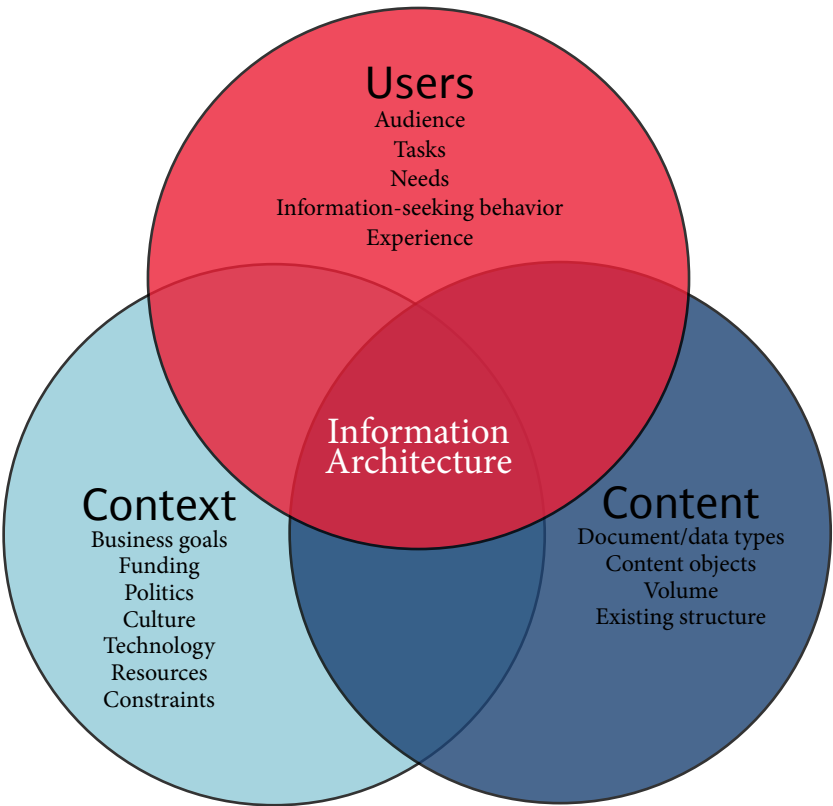
What is the environment, resources, and constraints on the project, as well as the broader societal context?

Users:

Who is the audience, what are their needs, what is the user experience?

Information Architecture Venn Diagram

By looking at these three factors, information architecture can be used to organize the information required, to get the best user experience and convey information through design. In any form of user experience, information architecture is essential, and without it the user experience can be miserable.



The venn diagram representation of how information architecture is the intersection of context, content, and users (Rosenfeld et al., 2015).

Information Types

02

Information Types

The type of information can be distinguished by process, structure concept, principle, fact, and classification. Information types are not necessarily limited to these six categories, as they can be defined as organization systems, labelling systems, navigation systems, and search systems. These, however, refer more so to information structures, rather than systems. For all intent and purposes, the six main categories are as listed and defined below:

Process:

Refers to a sequence of changes that occur over time, for a specific purpose. It includes the different stages of the process, or a description of how it functions.

Structure:

Refers to a physical object, or something that can be separated into parts with physical or identifiable boundaries.

Concept:

Refers to a group of physical objects, conditions, relations, events, or ideas that share a unique combination of attributes not shared by other groups, and can be identified by one or more words or symbols.

Facts:

Refers to a statement presented without supporting evidence. Examples might include symbols, measurements, dates associated with events, and experimental results.

Classification:

Refers to the grouping of a set of specimens into classes or categories, based on some criteria.

Principle:

Refers to a statement that describes what should be done (e.g. laws, policies, etc.), what is generally the case (e.g. generalizations), and underlying assumptions.

Examples of Information Types

When compiling information, there are specific examples of information types that a designer can follow, for instance:

Diagram:

Refers to a visual representation of a system, process, or structure, usually using symbols or diagram to represent different components.

Site Mapping:

Refers to the process of creating a visual representation of a website's structure, layout, and content.

Inventory/Audit:

Refers to the process of examining and cataloguing a set of items or resources, usually to determine their value or quantity.

Tree Structure:

Refers to a hierarchical structure, usually represented as a tree, with nodes and branches that represent different elements or categories.

Information Organization

03

Information Organization

Information organization is the process of making data meaningful by organizing it. Data on it's own is hard to understand at a glance, and if there are large volumes of data it can only have meaning once it's chunked, labeled, and shaped into something a user can understand.

By Organizing Information

- All information should be easy to locate
- The most important information should be emphasized
- All information should be chunked
- The material should be easy to skim
- There should be a flow or sequence

The most common ways to organize information make up the acronym **LATCH**

LATCH:

- Location
- Alphabet
- Time
- Category
- Hierarchy

Information Blocks

Information Blocks are an alternative way to present and analyze information instead of a paragraph. They are used for small bits of sections of information grouped together with a specific purpose, such as instructions, warnings, steps, or short documents like procedure, policy, and process documentation.

Information block vs Paragraph

Quick decisions via skimming or scanning	VS	Easier to develop an argument or story
Useful for steps, actions, and tasks		More room for nuance and depth
Procedure, Policy, Process Documents		Essays, articles, stories
Short documents or instructions		Can be used for long-form content
No topic sentence, label instead		Use topic sentences, labels optional

Characteristics of an information block

- Short sentences (2-9), Short paragraphs, Single or limited topic
- Always has a label, Can be a diagram, Constructed via 4 Principles:

Chunking, Relevance, Consistency, Labeling

Examples of Information Blocks

Formula	Procedure Table	Title	Analogy
Outlines	Fact	Instruction	Diagram
Example	Flow Chart	Introduction	Objectives
Description	Comment	Warning	Worksheet

Labels

Labels act as shortcuts to communicate information efficiently. They are used for guiding readers or users while navigating the site by scanning for the relevant label. If someone wants to find contact information for a business they'll look for a contact label, if they want to navigate back to the home page they will look for the home button or text, a restaurant webpage will normally have a menu label. Without labels, people would not know where to look. Sites, apps, information blocks, and documents should all have labels as well as any graphics, tables, data visualizations and figures.

Label Guidelines

- Accurate description of the following block
- Short & concise
- Avoid jargon unless it's for that technical audience
- Simple
- Convey the importance of the block
- Avoid phrases or sentences
- Can use questions

Types of Labels:

Contextual Links:

Hyperlinked words that go to other pages or other sections of the same page. They should have a clear and simple meaning the user will understand. Can be separate or in a paragraph.

Headings:

Tells the user what the next section of information will be about

Navigational System Choices:

Options to navigate, such as scroll down

Iconic labels:

Icons such as a house for the home button

Index Terms:

Usually invisible to users, these labels are used in the background of a site or app to make searching or browsing easier. For example, if someone searches for purses, necklaces, or scarves they might all belong to the index term accessories and suggest that page on a clothing site.

Information Maps & Templates

An information map is a way of structuring information on a page using two or more information block types. Each block is short, spaced out, and chunked into different sections that contain a single topic with no irrelevant information.

Information mapping allows you to transform a wall of text into clear information with road posts (labels) people can skim and look at to digest the information quickly. And any section they wish to learn more about or re-read they can find at a glance.

Chunking

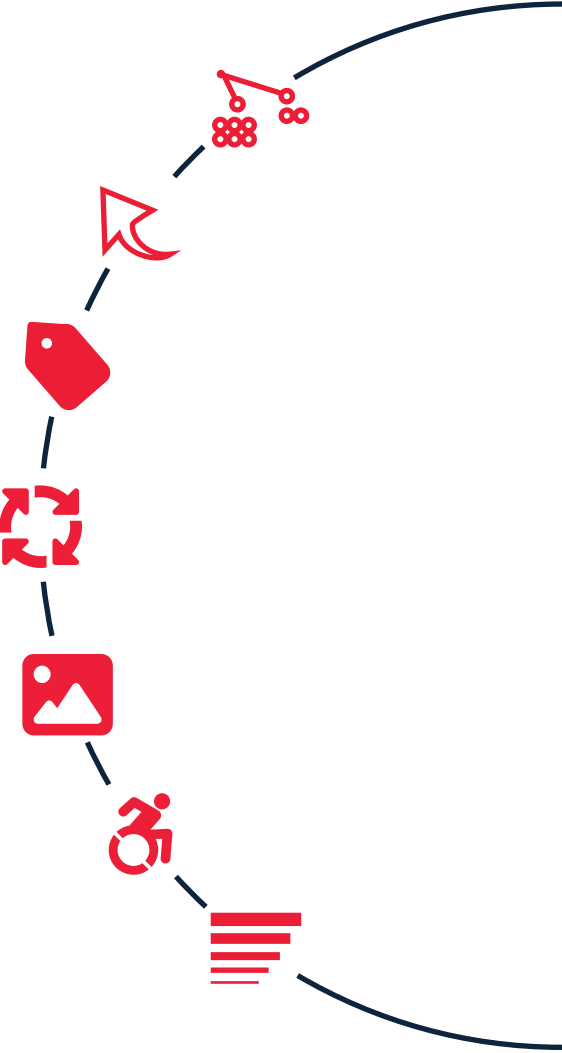
Breaking information into smaller "chunks" so it's easier to understand and digest. By creating visual entry points, it makes it easier for the user to navigate the document and scan for the information they are looking for or get the key highlights.

Bad labels

- Confusing
- Too general
- Vague
- Don't fit the context

Robert Horn's 7 principles of information Mapping:

- Chunking
- Relevance
- Labeling
- Consistency
- Integrated Graphics
- Accessible Detail
- Hierarchy of Chunking & Labeling



Usability

04

Navigation

Navigation plays a crucial role in on-line usability. Wayfinding, a concept in navigation, has four core components: orientation, route decisions, mental mapping, and closure. Orientation helps users understand where they are, route decisions help users find the way to where they want to go, mental mapping helps users track where they have been and predict where they should go next, and closure helps users recognize when they have arrived at the right place.

Navigational Systems

There are four types of navigational systems: **global**, **local**, **contextual**, and **supplemental**.

Global navigation systems are intended to be present on every page or screen in the information environment.

Local navigation systems complement global ones and allow users to explore the immediate area where they are.

Contextual navigation systems occur in the context of the content being presented and support associative learning by allowing users to explore the relationships between items.

Supplemental navigation systems, such as sitemaps, give the reader an overview of the site contents.

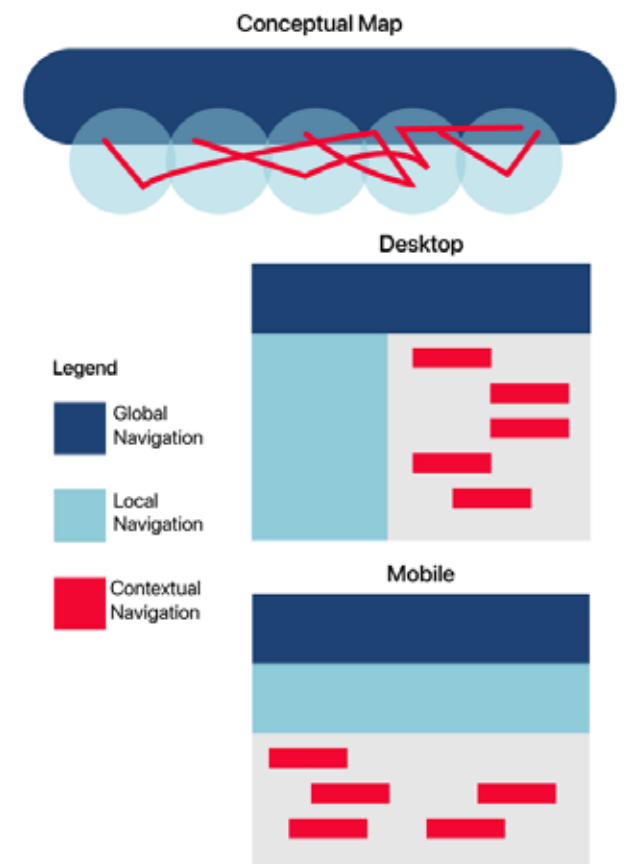
Site maps come in two varieties: graphic diagrams that use the “map” metaphor and organized list links to major pages within the site (Information Architecture, 2015; Rosenfeld & Morville)

Usability

Usability refers to the ease with which users can access and interact with a website or application to achieve their desired goals. It encompasses factors such as ease of navigation, clarity of content, and overall user experience. Usability is a critical aspect of information architecture as it directly affects user satisfaction, engagement, and retention. A usable information architecture is one that is designed with the user in mind, making it easy for them to find what they are looking for and accomplish their tasks efficiently and effectively.

Online Usability

To ensure online usability, website designers need to incorporate familiar conventions such as search, navigation, tables of contents and indexes. While website indexes may not need to be as extensive as their print counterparts, they still provide overviews, perspectives, and efficient navigation that readers will appreciate.



Types of Navigation Bars

Horizontal versus vertical navigation systems

Horizontal:

Immediately available

Horizontal:

Sometimes need a second bar at bottom of page

Vertical:

Grid layout. Makes the navigation secondary to the main information

Vertical:

Can accommodate a greater number of links than horizontal

Pop-up navigation systems

JavaScript navigation menus

Image Maps:

buttons, colours, roll-overs, icons

Pop-Ups

Pop-ups provide users with additional information, feedback, or guidance, and can be triggered by specific actions or events. For example, a pop-up could be used to provide a user with a confirmation message after completing an action, such as submitting a form. Pop-ups can also be used to provide users with helpful tips or guidance on how to navigate a website or app.

Images

Images convey information quickly and effectively, and can be used to supplement or replace text-based content. For example, an image could be used to represent a product or service, allowing users to quickly identify and understand what is being offered. Images can also be used to break up large blocks of text, making content more visually appealing and easier to read.

<div>Global Navigation</div> <div><div>Local Navigation</div><div>Contextual Navigation</div></div>	<div>Where am I?</div> <div><div>What's Nearby?</div><div>What's Related to What's Here?</div></div>	<div>Where Can I Go?</div> <div><div>Where Can I Go?</div><div>Where Can I Go?</div></div>
<div>Site Map</div> <div><div>Category 1</div><div>Subcategory</div><div>Category 2</div><div>Subcategory</div><div>Category 3</div><div>Subcategory</div></div>	<div>Index</div> <div><div>A</div><div>B</div><div>C</div></div>	<div>Guide</div> <div><div>Step1</div><div>Step2</div><div>Step3</div></div>

Measuring Usability

“Many people seem to think of the user experience as some nebulous quality that can’t be measured or quantified. It can, and the tools for measuring it are metrics like the following:

- Can users use their smartphone successfully to find the nearest doctor that’s in their health plan?
- How long does it take users to make a flight reservation using a travel website?
- How many errors do users make in trying to log in to a new system?
- How many users are successful in using their new tablet application to instruct their digital video recorder to record all episodes of their favourite TV show?
- How many users get into a new “destination-based” elevator without first choosing their desired floor, only to discover there are no floor buttons?
- How many users get frustrated trying to read the tiny serial number hidden under the battery of their new mobile phone when registering for service?
- How many users are delighted by how easy it was to assemble their new bookcase that came with wordless instructions?

These are all examples of behaviours and attitudes that can be measured. Some may be easier to measure than others, but they can all be measured. Success rates, times, number of mouse clicks or keystrokes, self-reported ratings of frustration or delight, and even the number of visual fixations on a link on a webpage are all examples of UX metrics. And these metrics can give you invaluable insight into the user experience” (Measuring the User Experience, 2013, Tullis & Albert).

Rapid Prototype

Rapid prototyping is a design technique that involves quickly creating a low-fidelity version of a product or service to test usability. This approach allows designers to gather feedback early in the design process and make iterative improvements before investing in more expensive design work. Measuring usability with rapid prototyping involves testing how well users are able to interact with the prototype and identifying areas where improvements can be made.

For example, creating a low-fidelity prototype of a new e-commerce website wherein users are asked to complete a typical shopping task, such as finding and purchasing a specific product. The metric being measured is: the time it takes for users to complete the task and the number of errors they make along the way. This metric relates to measuring usability and evaluating the information architecture by: testing the effectiveness of the site’s organization and labelling of product categories and pages.

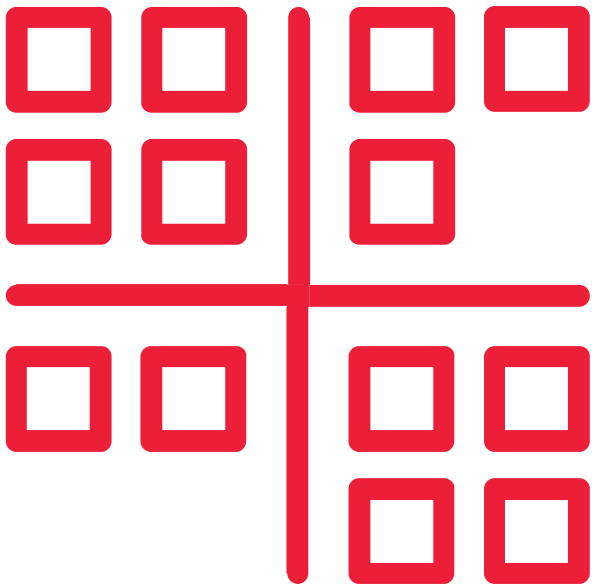
Requirements

Measuring usability begins with understanding the requirements of the product or service being tested. This involves gathering information on user needs, tasks, and goals, and using this information to inform the design of the product or service. By clearly defining the requirements upfront, usability testing can be focused on measuring how well the product or service meets these requirements.

Card Sorting

Card sorting is a user-centered design method for evaluation that involves organizing content into categories based on user feedback. This method is used to create an information architecture that is intuitive and easy to navigate. Measuring usability with card sorting involves testing how well users are able to understand and navigate the product and identifying areas where improvements can be made.

For example, during the development of a healthcare portal, users are asked to sort a list of medical conditions into categories that make sense to them. The categories that emerge from this exercise are used to inform the organization and labeling of the site’s navigation structure. The metric being measured is: the number of participants who are able to create the same or similar categories, indicating a consistent mental model of the proposed information architecture. This metric relates to measuring usability and evaluating the information architecture by: testing the intuitiveness of the site’s placement and labeling of medical conditions.



Performance Testing:

Performance testing is a usability testing method that involves testing how well a product or service performs under different conditions. This includes testing speed, responsiveness, and stability. Measuring usability with performance testing involves identifying the most important performance metrics for the product or service and testing how well it performs under different conditions.

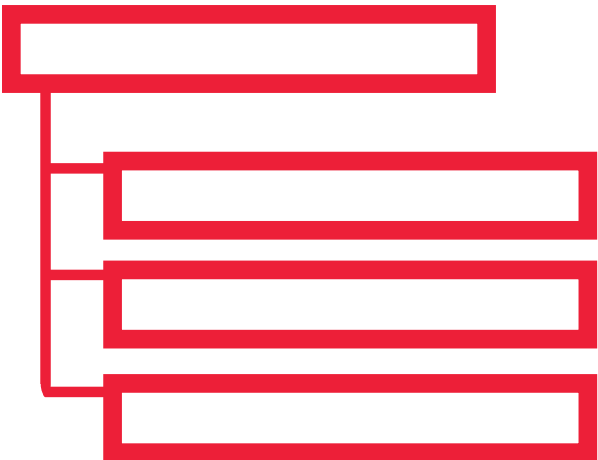
For example, testing a mobile game performance by measuring the time it takes for the game to load on different devices and network speeds. The metric being measured is: the load time and stability of the game across different platforms. This metric relates to measuring usability and evaluating the information architecture by: testing the efficiency and effectiveness of the code and underlying technology that powers the game.



Tree Testing

Tree testing is a usability testing method that involves testing the organization and labeling of a website or application without the distraction of visual design. This approach helps to identify areas where users may struggle to find information or navigate the site. Measuring usability with tree testing involves evaluating how confidently users are able to complete tasks using the site structure and labeling, and identifying areas where improvements can be made.

For example, testing the navigation of a cooking website by asking users to find a specific recipe using only the site’s navigation structure. The metric being measured is: the number of steps it takes for users to find the recipe and the number of incorrect turns they make along the way. This metric relates to measuring usability and evaluating the information architecture by: testing the effectiveness of the site’s organization of recipe categories and subcategories.



Learnability:

Learnability is a measure of how easy it is for users to learn how to use a product or service. Measuring learnability involves testing how quickly users are able to complete tasks with minimal training or guidance. This can include testing how easily users are able to navigate the interface, understand terminology, and complete common tasks. By measuring learnability, designers can identify areas where the product or service can be made more intuitive and easy to use.

For example, to test a new email client, users are asked to compose and send an email using the interface without any prior training or guidance. The metric being measured is: the time it takes for users to complete the task and the number of errors they make along the way. This metric relates to measuring usability and evaluating the information architecture by: testing the intuitiveness of the interface elements, design, and labeling of different features.



Visual Design

05

Visual Design

When designing applications, websites, or any type of display of content, it is important to consider the readability, colour scheme, vocabulary, font types, text alignment, etc. The main goal of a designer should always be to support reading and understand that skilled reading is based on feature, character, and word recognition. To provide legibility for all users', designers should be conscious of the following:

Designing With Colour

Colour Contrast:

Our visual system combines the signals from retinal cone cells to produce three colour-opponent channels: red-green, yellow-blue, and black-white. The colours that people can distinguish easiest are those that cause a strong signal (positive or negative). Not surprisingly, those colours are red, green, yellow, blue, black, and white. All other colour cause signals on more than one colour channel, causing our visual system to struggle to distinguish between them as quickly as the listed six colours.

Separate Strong Opponent Colours:

Placing opponent colours right next to, or on top of, each other causes a shimmering sensation; ultimately it should be avoided.

Distinguish Colours by Saturation and Brightness:

Ensure your software uses colours which are perceptible to all sighted users, and avoid subtle colour differences. Ensure that the contrast between two colours is high, you can do this though converting the colours to a greyscale colour system and see the two colour that are most different.

Readability of Content

Unfamiliar/Uncommon Vocabulary:

Use vocabulary that readers are familiar with and don't disrupt the flow of reading - stick to words that are easy to understand.

Difficult Script/Typefaces:

Fonts with minimal spacing or difficult shapes make it difficult to recognize - stick to simple, easy-to-read fonts.

Tiny Fonts:

Fonts that are too small can cause the readers' visual system to be unable to read the content - stick to a font size that is appropriate for all audiences.

Text on Noisy Backgrounds:

Inserting text on a visually noisy background can disrupt the readability and recognition of features, characters, and overall words.

Text Contrasts Poorly with Backgrounds:

If backgrounds contain similar colours to the text, it can be difficult to see the contrast between the two.

Information Repetition:

If successive lines of text contain lots of repetition, it can disturb the flow of information.

Centred Text:

Automatic eye movement takes our eyes back to the same horizontal position and down one line while we read. If large bodies of text are centred or misaligned, it disturbs the automatic eye movement - stick to left-aligned text with large bodies of content.

Good Vs. Bad Design

Design can be evaluated by clarity, consistency, and understanding the user's goals. Designers should stay consistent with their content, ensuring that the information is legible and stays within the topic category

Avoid Ambiguity:

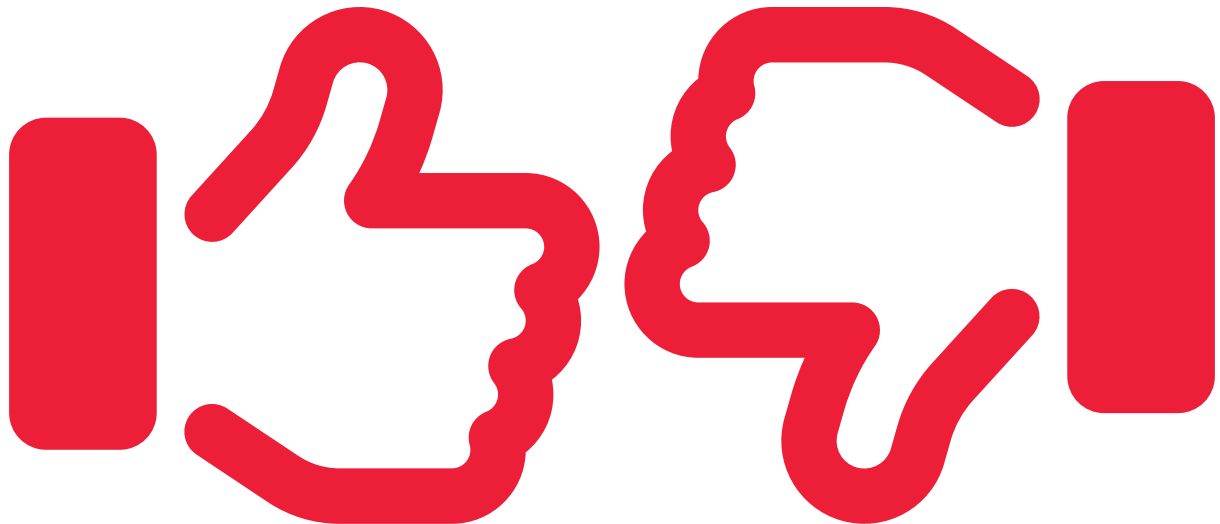
Use clear information displays and test your design to ensure that all users understand the display in the same way. Where ambiguity is avoidable, use standards or conventions to resolve it, and stay uniform

Be Consistent:

Place information and controls in consistent locations. Controls and data displays that serve the same function on different pages should be placed in the same position on each page on which they appear. They should also stay a consistent colour, text font, shading, and so on. This consistency allows users to spot and recognize them quickly

Understand Users Goals:

Users come to a system with goals they wish to achieve. Designers should understand those potential goals. Realize that users' goals may vary and that their goals strongly influence what they perceive. Ensure that at every point in an interaction, the information users need is available, prominent and maps clearly to a possible user goal, so users will use the information



Glossary

06

Chunking:

Breaking information into digestible pieces, all information in a chunk will be on the same subject

Classification:

Refers to the grouping of a set of specimens into classes or categories, based on some criteria

Concept:

Refers to a group of physical objects, conditions, relations, events, or ideas that share a unique combination of attributes not shared by other groups, and can be identified by one or more words or symbols

Content:

What is the information, data, objectives that need to be shown to the user?

Context:

What is the environment, resources, and constraints on the project, as well as the broader societal context?

Contextual Links:

Hyperlinked words that go to other pages or other sections of the same page. They should have a clear and simple meaning the user will understand. Can be separate or in a paragraph

Closure:

Helping users recognize when they have arrived at the right place in a website or application

Data:

Facts & figures, usually quantifiable

Contextual Links:

Hyperlinked words that go to other pages or other sections of the same page. They should have a clear and simple meaning the user will understand. Can be separate or in a paragraph

Closure:

Helping users recognize when they have arrived at the right place in a website or application

Data:

Facts & figures, usually quantifiable

Diagram:

Refers to a visual representation of a system, process, or structure, usually using symbols or diagram to represent different components

Facts:

Refers to a statement presented without supporting evidence. Examples might include symbols, measurements, dates associated with events, and experimental results

Headings:

Tell the user what the next section of information will be about

Iconic labels:

Icons such as a house for the home button

Information:

Facts provided or learned about something or someone

Information Blocks:

A two to nine sentence chunk of information that is separated in the document through white space or borders. Always includes a label.

Information Map:

A way to structure information by combining two or more information blocks.

Information Overload:

When there is a large amount of information but no organizing system, it becomes difficult to figure out what to do or what to look for. Information overload is when the quantity of information is so overwhelming it becomes paralyzing

Index Terms:

Usually invisible to users, these labels are used in the background of a site or app to make searching or browsing easier

Inventory/Audit:

Refers to the process of examining and cataloguing a set of items or resources, usually to determine their value or quantity

LATCH:

Acronym for organizing information via Location, Alphabet, Time, Category, or Hierarchy

Labels:

A single word or short sentence describing the content in the information block or image. Used for description, navigation, or searching

Navigation:

The way users move through a website or application to access information and perform tasks.

Orientation:

Helping users understand where they are in a website or application.

Navigation:

The way users move through a website or application to access information and perform tasks.

Orientation:

Helping users understand where they are in a website or application.

Principle:

Refers to a statement that describes what should be done (e.g. laws, policies, etc.), what is generally the case (e.g. generalizations), and underlying assumptions.

Process:

Refers to a sequence of changes that occur over time, for a specific purpose. It includes the different stages of the process, or a description of how it functions.

Users:

Who is the audience, what are their needs, what is the user experience?

Retinal Cones:

Light-sensitive cells in the retina of the eye that provides colour and sharp central vision

Site Mapping:

Refers to the process of creating a visual representation of a website's structure, layout, and content.

Structure:

Refers to a physical object, or something that can be separated into parts with physical or identifiable boundaries.

Tree Structure:

Refers to a hierarchical structure, usually represented as a tree, with nodes and branches that represent different elements or categories.

Way finding:

The process of orienting oneself within an environment and finding the way to a desired destination.

Usability:

The ease with which users can interact with a website or application to achieve their desired goals.

User Experience (UX):

The overall experience a user has while interacting with a website or application, including factors such as usability, accessibility, and aesthetics.

References



07

Accessible icon: <https://fontawesome.com/icons/accessible-icon?f=brands&s=solid>

Adobe. (2020) 5 Examples of Effective Information Architecture.
<https://xd.adobe.com/ideas/process/information-architecture/information-architecture-examples/>

Adobe. (2023) The Beginner's Guide to Information Architecture in UX. <https://xd.adobe.com/ideas/process/information-architecture/information-ux-architect/>
Card Sorting: <https://thenounproject.com/icon/card-sorting-229077/>

Consistency circle: <https://fontawesome.com/icons/arrows-spin?f=classic&s=solid>

Integrated Graphics icon: <https://fontawesome.com/icons/image?f=classic&s=solid>

Learnability: <https://thenounproject.com/icon/active-learning-3317653/>

Map Icon: <https://fontawesome.com/icons/map?f=classic&s=regular&pc=%23ec1e35>

Performance Testing: <https://thenounproject.com/icon/performance-test-3126333/>
Rosenfeld, L., Morville, P., Arango, J. (2015) Information Architecture: For the web & beyond (4th edition). O'Reilly.
Thumb Down: <https://fontawesome.com/icons/thumbs-down?f=classic&s=regular>

Thumb up: <https://fontawesome.com/icons/thumbs-up?f=classic&s=regular>

Traynor, B. (2020). Information Architecture Course Documents [Slides, PDFs, WordDocs]. Mount Royal University Blackboard.

Thumb up: <https://fontawesome.com/icons/thumbs-up?f=classic&s=regular>

Tubik. (2017). Information Architecture: Effective Techniques For Designers.
<https://uxplanet.org/information-architecture-effective-techniques-for-designers-3c993956b1e1>
Usability.gov. (2023, March 15). Information Architecture Basics. <https://www.usability.gov/what-and-why/information-architecture.html>

Tullis, T. (Thomas), Albert, B., & Albert, B. (William). (2013). Measuring the user experience: collecting, analyzing, and presenting usability metrics (2nd ed.). Elsevier.