UX GUIDELINES FOR IFMS 3.0

Version 1.0

28 April 2022

Draft

Version History

S.No.	Description	Version	Date	Remarks
1	User Experience Guidelines for IFMS 3.0	1.0	28 April 2022	Initial Draft

Contents

1. Introduction

1.1 Purpose

The Purpose of this document is to define a set of user guidelines to be followed while developing various screens and while designing user experience for the IFMS 3.0. The document will cover general guidelines along with the accessibility guidelines to be incorporated into the system. It is important to build the foundational components and framework to standardize all aspects of the solution but especially the usability of the system. This ultimately will help impact the acceptance of the system by the end users.

1.2 Scope

This document outlines the User Experience (UX) guidelines to be followed for UX design of IFMS 3.0. It does not include coding standards or core development elements but only guides the readers of this document to implement the UX with industry wide adopted principles and guidelines.

1.3 UX Facets

User Experience (UX) is defined by various elements. One such simple portrayal of the entity is given by the Peter Morville's honeycomb structure given below.

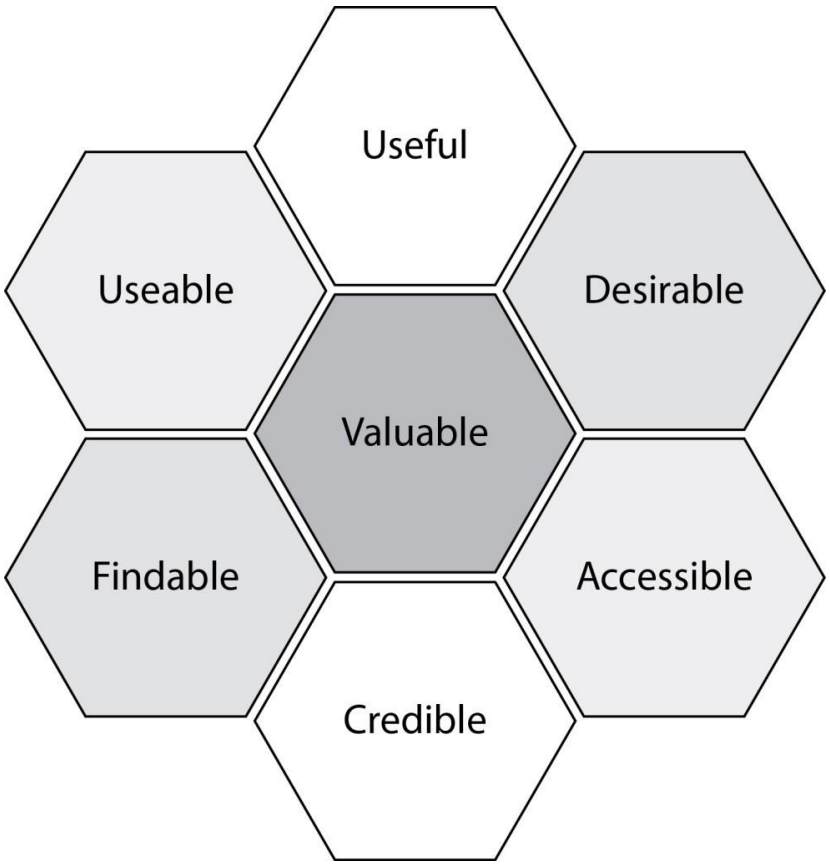


Figure 1 : Peter Morville's UX Honeycomb

He notes that in order for there to be a meaningful and valuable user experience, information must be:

- **Useful**: The content should be original and fulfill a need.
- **Usable**: Site must be easy to use.
- **Desirable**: Image, identity, brand, and other design elements are used to evoke emotion and appreciation
- **Findable**: Content needs to be navigable and locatable onsite and offsite.
- **Accessible**: Content needs to be accessible to people with disabilities.
- **Credible**: Users must trust and believe what you tell them.

1.4 What is UX?

The term User Experience was coined by **Donald Arthur Norman**, most regarded individual in the field of design, usability, engineering and cognitive science.

ISO 9241–210, defines user experience as "***a person's perceptions and responses that result from the use or anticipated use of a product, system or service***".

User Experience or UX is the overall experience of a user while using a product such as a website or mobile application. It is not limited to the User Interface which is an interface provided by the developers to end users to use the product. It focuses on having a deep understanding of users, what they need, what they value, their abilities, their limitations and most importantly, their pain points.

So Why is a good UX design important? Because it creates a positive experience for the users by anticipating—and fulfilling—their needs.

1.5 UX Design Process

User Experience Design Process is an iterative 5 stage process defined by the following.

1. **Product Definition** - One of the most important phase of the process is definition, here we tend to analyze its context for

existence. During this phase designers tend to brainstorm with stakeholders and come up with an idea or a set of ideas defining the product.

2. **Research** – Once the context is defined, it undergoes user research to understand the needs and goals of users to accurately capture them so as the product can be rightly designed and then developed. It depends on the complexity of the product, timing, available resources, and many other factors.

3. **Analysis -** The aim of the analysis phase is to draw insights from data collected during the research phase, moving from "what" users want/think/need to "why" they want/think/need it. During this phase, designers confirm that the team's most important assumptions are correct.

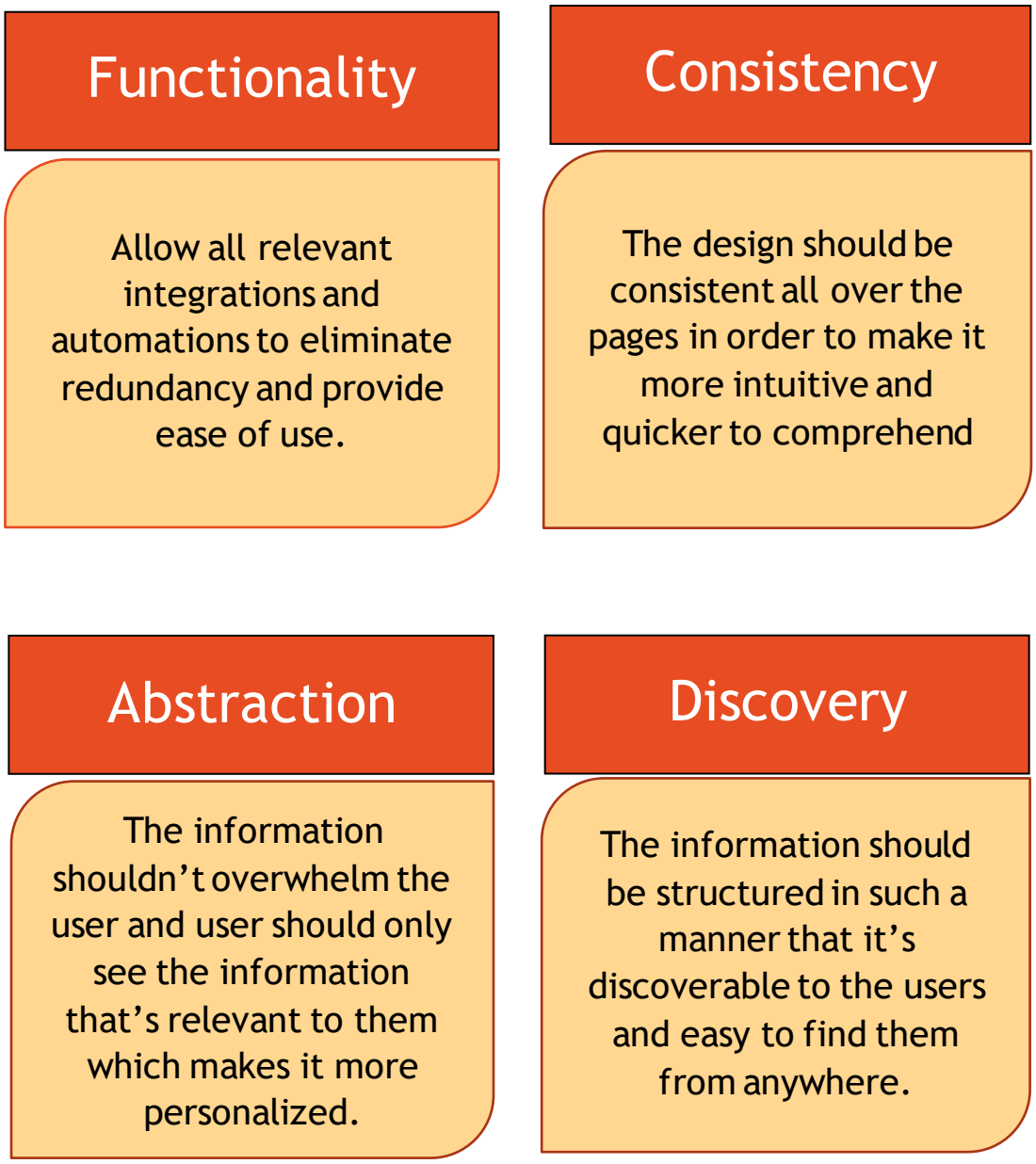
4. **Design -** When users' wants, needs, and expectations from a product are clear, product designers move to the design phase. At this step, product teams work on various activities, from creating the actual UI Design. The design phase usually includes
   - Sketching
   - Wireframing
   - Prototyping etc.

5. Validation

Validation is an essential step in the design process because it helps teams understand whether their design works for their users. Usually, the validation phase starts after the high-fidelity design is ready, since testing with high-fidelity designs provides more valuable feedback from end-users). During a series of user testing sessions, the team validates the product with both stakeholders and end-users.

2. Guiding Elements

Guiding elements are the elements which are the driving forces of the User Experience in IFMS 3.0. For a better user experience these are the points to be kept in mind. They are but not limited to the following.



User Centricity

The key to good UX design is empathy and user centricity which involves keeping the needs and goals of end users while designing

Feedback & Interactivity

Provide feedback to users and make the components more interactive that describes and catches attention and be more meaningful.

Support

Customer support solutions such as chatbots/manuals/guides, improved knowledge of support staff. quicker response time, options to speak to concerned authorities or raise requests. tailored customer service responses according to importance of the case.

Design

The UI design of the final solution of IFMS 3.0 should be at par with the design of the leading e-commerce solutions who have innovative designs such as Amazon, Flipkart, or such leading websites with innovative designs.

3. Areas of Implementation

Areas of implementation gives us the areas to work upon to improve the overall user experience in IFMS 3.0.

Usability

The portal should act upon all the 10 heuristics of usability and make the design more usable and viable.

Accessibility

The portal should be accessible to people with determination and to allow consistent viewing across browsers and platforms and should follow government initiatives and prerequisites.

Desirability

The feature that go inside portal are a critical design principle. It also includes personalizing the web portal in order to provide with all the access

Content Design

Content must be easy to read and understand, succinct and provide users with the information they need without distraction

The wording must be simple, factual and neutral avoiding extravagant language

4. Guidelines

4.1 General Guidelines

4.1.1 Principles

These guidelines are based on the general principles of good UI design and the "Guidelines for Indian Government Websites"(GIGW) issued by Government of India.

4.1.2 Guidelines

- Department has nominated a Web Information Manager as defined in the guidelines.
- It has been ensured that all stationery of the department as well as advertisements/public messages issued by the concerned department prominently display the URL of the web site.
- The system has the following clearly defined policies and plans approved by the web information manager.
  - Copyright Policy.
  - Content Contribution, Moderation & Approval (CMAP)
  - policy.
  - Content Archival (CAP) policy.
  - Content Review (CRP) policy.
  - Hyper linking Policy.
  - Privacy Policy.
  - Terms & Conditions.
  - Website Monitoring Plan.
  - Contingency Management Plan.
  - Security Policy.

- Source of all documents, not owned by the dept. that have been reproduced in part or full, is mentioned.
- Due permissions have been obtained for publishing any content protected by copyright.
- Home page of website displays the last updated/reviewed date.
- Complete information including title, size format and usage instructions is provided for all downloadable material.
- With respect to each, Circular, Notification, Document, Form, Scheme, Service and Recruitment notice, the following should be clearly listed on the Website:
  - Complete title.
  - Language (if other than English).
  - Purpose/procedure to apply (as applicable).
  - Validity (if applicable).
- All outdated, irrelevant content (like Announcements, Tenders, Recruitment notices, News and Press Releases) is removed from the website and/or placed into the archives as per the archival policy.
- The language is free from spelling and grammatical errors.
- Mechanism is in place to ensure that there are no 'broken links' (internal as well as external) or 'Page not found' errors.
- There are no links to 'under construction' pages.
- Mechanism is in place to check the accuracy of Hyperlinked Content and Clear indications are given when a link leads out to a non-government website.
- The system provides a prominent link to the 'National Portal' from the Home Page and Pages belonging to National Portal load in new browser window.
- Association to Government is demonstrated by the use of Emblem/Logo in proper ratio and color, prominently

displayed on the homepage of the website.

- Ownership information is displayed on the homepage and on all important entry pages of the website and each subsequent page is a standalone entity in terms of ownership, navigation and context of content.
- Use of Cascading Style Sheets to control layouts/styles and incorporates responsive design features to ensure that the interface displays well on different screen sizes.
- The system is readable even when style sheets are switched off or not loaded.
- Proper page title and language attribute along with metadata for page like keywords and description are appropriately included.
- Data tables have been provided with necessary tags/markup.
- The system has a readily available Help section linked from all pages of the website.
- All information about the department, useful for the citizen and other stakeholders, is present in the 'About Us' section and mechanism is in place to keep the information up to date.
- The system should have a 'Contact Us' page providing complete contact details of important functionaries in the department and this is linked from the Home Page and all relevant places in the website.
- Feedback is collected through online forms and mechanism is in place to ensure timely response to feedback/queries received through the website.
- The system has been tested on multiple browsers. Hindi/Regional language fonts have been tested on popular browsers for any inconsistency (loss of layout).
- Minimum content as prescribed in the guidelines is present on the homepage and all subsequent pages.

- It is ensured through content moderation and approval policy that Website content is free from offensive and discriminatory language.
- Text is readable both in electronic and print format and the content prints correctly on an A4 size paper.
- The system has cleared security audit.
- The system is in the nic.in or gov.in domain.
- The system is hosted in a data Centre in India having the following facilities:
    - State-of-the art multi-tier security infrastructure as well as
    - devices such as firewall and intrusion prevention systems.
    - Redundant server infrastructure for high availability.
    - Disaster Recovery (DR) Centre in a geographically distant
    - location.
    - Helpdesk & technical assistance on a 24x7x365 basis.

- The system should be bilingual with a prominent language selection link and uses Unicode characters.
- Documents/Pages in multiple languages are updated simultaneously.
- Documents are provided either in HTML or other accessible formats. Download details (File Format Size) & instruction for viewing these is provided.
- Mechanism is in place to ensure that all tender/recruitment notices are published/linked through the website.
- All documents have a publish date on the main page.

- All pages should have unique TITLE to assist screen readers as well as search engines apart from the normal user
- All pages should have META TAGS (Keywords and Description) related to that page
- Clear heading structure (H1, H2 and H3) should be maintained. This helps the visually challenged user to quickly scan the main content heads of the page. There should be only one H1 tag on a page
- Use external CSS as much as possible, avoid inline styling
- Always use OPTIMIZED images. Images can be optimized by using image editing softwares.
- Page should have a clear contrast between foreground and background
- A "Skip to content" link must be provided at the top of the page. This helps the user to directly go to the main content of the page bypassing the repetitive sections like page header, navigations etc.
- All functionality of the content like links, menus, forms etc. should be operable through a keyboard interface as the visually challenged cannot use the mouse
- Tables must not be used for layout and presentation purposes. When used for representing data, tables should be provided with proper header row and captions and the data items should flow left to right, one line at a time.
- Frames should be avoided while designing a webpage as frames cannot be easily read by the visually impaired. When used, frames should be titled with text that facilitates frame identification and navigation.
- Attributes of colour, shape and size must not be used to represent information as these would make the content inaccessible to the visually challenged. For example, we should avoid using statements like "All the text written in red are mandatory"

- All script function should include a NOSCRIPT tag for those browsers or assistive technologies that do not have script support.
- Enough time should be provided to user to read and interact with content. In case, content is time-based, same should be informed to user in advance
- Website must clearly reflect the ownership of Government of India through the use of State Emblem. Complete linage of the owner department must be mentioned, preferably at the footer of the page
- Content must be written from user's perspective and the language must be simple and free from errors
- Multi-lingual versions of the sites must be in sync with each other
- Website must work well in all the major browsers and across devices.
- Use Simple and consistent navigation across the entire website.
- Use visual hierarchy to focus on primary elements.
- Use of aria attributes to include assistance for accessibility.
- Ensure text can be resized 200% without horizontal scrolling, loss of content, or functionality. (Use zoom settings in your browser settings to test.).

4.1.2.1 Markup

The guide suggests following guidelines for implementing markup as part of UX in IFMS 3.0

- Page content must follow a logical structure.
- Use semantic elements such as header, footer, aside, nav etc. rather than legacy ways
- Every page starts with the <!DOCTYPE> declaration.
- Every page has a unique title that reflects the content of the page.
- Every page head section should include meta data.
- Heading structure on a webpage should be structured in a hierarchical manner – <h1> being the most important may be used for page title/heading then <h2> may be used for major section heading, <h3> for sub sections of the <h2> and so on.
- Only one <h1> heading is allowed per page and it should provide a summary of the content.
- Sub-section headings <h2> to <h6> are important and should be nested sequentially.
- Paragraphs should be short and concise.
- Lists should be preceded by a relevant heading.
- Lists should not include block items such as paragraphs or tables.
- Tables should be used for representing tabular data only. It should not be used for layout.
- Do not skip structural hierarchy level of heading elements(e.g do not use <h3> directly after <h1>).On a webpage, <h2> elements should follow <h1> elements and <h3> should follow <h2>.

- Headings should not be used to create font effects; use style sheets to change font styles.
- Lists should never be used for merely indenting or other layout purposes. Nested lists should be coded properly.

4.1.2.2 Forms

Form Fields/Form Controls

- Clearly distinguish mandatory and optional fields by indicators.
- Set default values wherever possible
- Use input masks wherever applicable
- Make form Keyboard friendly.
- Use autofocus to focus on fields and to give users a starting point.
- Match Keyboard to type of input in mobile.
- Limit typing and provide autocomplete/suggestions
- Use label with for attribute along with checkbox to denote that it's a checkbox label and to allow ease of selection.

Labels

- Use succinct, short, descriptive labels in sentence or title case and avoid all caps
- Align labels properly. Keep in mind the varying lengths of the localized and unlocalized versions
- Try to use placeholders carefully so as not to confuse users with the value, instead hint can be used below the field or floating labels may be used as an alternative.

Validations

- Use inline real time form validation with a proper color palette such as red for errors and green for success.
- Make sure the messages are clear, straight-forward and are jargon free wherever possible and clearly indicate the error.
- Please see that the tone of messages implemented is serious, formal, respectful, and matter-of-fact error messages.
- If possible, provide a solution or way to achieve the same.

Action Buttons

When clicked the action button triggers a process/action such as form submission.

- Primary and Secondary action buttons should be properly spaced.
- Clearly delineate the difference between primary and secondary action buttons visually.
- Localize the buttons properly to allow them to be seen and used effectively.
- Use names/labels that describe the process rather than generic words.
- Avoid multiple action buttons.
- Provide visual feedback post click to show the process is in progress and prevent multiple submissions.

4.1.2.3 Tables

- Provide Names or Titles for Data Tables using the tag.
- Brief summaries of complex data may be given using the summary Attribute.
- Use tags to designate Row and Column Header.
- After creating headers, associate the cells with the appropriate headers. You can do so by using the scope attribute (for simple data tables) or use the headers and id attributes (for complex tables).
- Avoid spanned rows and columns as they are not handled well by some screen readers.
- Use proportional sizing rather than absolute sizing.
- Provide sorting, filtering, searching wherever possible.
- Style the table with alternate rows (zebra pattern) look for better visuals.
- Choose an appropriate line height.
- Align columns properly.
- Use tabular numerals.
- Include proper padding to provide spacing for a clear look.
- Provide hover actions. Highlight rows on hover.
- Provide bulk and individual actions on the table.
- Include pagination for very large datasets.
- Provide horizontal scroll for large number of columns.

4.1.2.4 Non-Text Elements

- For images, charts, and tables, provide description captions of the content and message the content intends to portray.

- For audio content, provide a text description that includes the dialogue and description of any background sounds that are important to the story.
- For video content, provide a text description that includes any dialogue and a narrative that tells the same story as the video.
- For sliders, provide next and previous buttons and clickable indicators to show the current position and navigate to different slides.
- Ability to turn off any autoplay audio but care should be taken not to autoplay video.
- The system should implement alt tag for Non text elements such as images and icons with appropriate description of the content, for example description of the image.
- For decorative images like icons and bullets, the system should use null alt (alt=" ").

4.1.2.5 Typography

- Use a professional font and make it consistent widely over the entire IFMS 3.0
- Limit the number of typefaces and use just a couple over the entire IFMS 3.0 for consistency and uniformity.
- Choose a font that best describes the trends along with being professional.
- Please find below some of the commonly used fonts.
  Raleway, Lato, Anton, Oswald, Montserrat, Poppins, Nunito, Source sans, Open Sans etc.
- You may find references to various fonts in the appendix.

Note : The font Raleway has been used in the Digital India website.

4.1.2.6 Color

- Use a color scheme that incorporates a proper color palette with primary and secondary colors.
- There should be sufficient contrast between the two main colors.
- Text and important elements like icons should follow legibility standards such as maintaining sufficient contrast for proper visibility when appearing over color.
- Color theme should be designed to be in harmony, ensuring accessible text and distinguish UI elements, surfaces from each other while maintaining uniformity and considering overall IFMS 3.0.

4.1.2.7 Icons

- Use standard icons
- Use icons to communicate meaning. Use 5-second rule.
- Prevent overuse.
- Maintain consistency across icons and use different sets cohesively.
- Wherever possible use them with labels.
- Icons must visually describe the function and purpose. Make them simple, familiar and meaningful.
- Keep icon designs simple and schematic. Minimize complex shapes and graphic detail.

4.1.2.8 Tone of Voice

The system should choose a tone that is serious, formal and respectful.

4.1.2.9 Navigation

- Keep primary site navigation simple and consistent.
- Consider using breadcrumbs on every webpage.
- Include a search bar to search contents.
- Keep in mind simplicity and functionality while designing navigation.
- Place the main navigation at the top of a page.
- Let the logo be clickable and it brings to the homepage of the website.
- Make links and buttons change color/appearance when you hover on them

4.2 Usability

Usability is a quality attribute that assesses how easy user interfaces are to use. The word "usability" also refers to methods for improving ease-of-use during the design process.

4.2.1 Principles

Usability largely means user-centered design and to make sure that their goals, mental models and requirements are met. At its core, there are 5 principles.

The 5 key principles of good design usability are listed below.

1. **Availability and Accessibility**

   Availability and Accessibility defines how available, defined by uptime and how accessible the website is to the end user.

   - **Server Uptime** – Try to make IFMS 3.0 more available by reducing the server downtime as much as possible.
   - **Broken Links** –. Avoid broken links. You can find the tool for the same in the reference section.
   - **Responsiveness** – Make sure the solution can handle different screen sizes. You can use either responsive frameworks such as Bootstrap or use media queries.

2. Clarity

At the core of usability lies clarity. A clear and usable design can be achieved through

- **Simplicity** – Focus on what's important, avoid distractions.
- **Familiarity** – Try designing a familiar solution, one that the user is aware or knows how to use already or build something that is easy to adapt.
- **Consistency** – Create a consistent experience across entire IFMS 3.0 to keep your users mind at ease.
- **Guidance** – Take the users by the hand. Guide them through the site and show them what is there to offer or keep things easily accessible if it's not possible.
- **Direct feedback** – Feedback is essential to any interaction. Make sure to offer an indication of success or failure of their actions.
- **Good information architecture** – Understand users' mental models and use that to structure the content on the site. A good information architecture provides ease of use and clear design.

3. Learnability

It includes designing intuitive user interfaces. Key to intuitive design is to work on what people already know or create something that is easy to learn.

4. Credibility

Credibility is a crucial aspect if any website. Avoid mistakes such as spelling and grammatical errors. You can also use testimonials, work references etc. to demonstrate this.

5. Relevancy

The content other than being clear should also be relevant. Start with defining your users, understand their goals, Third define user scenarios and make design decisions for a more user-friendly user experience.

4.2.2 Guidelines

The Usability guidelines for user experience are built on top of 10 heuristics outlined below.

4.2.2.1 Visibility of system status

The design should always keep users informed about what is going on, through appropriate feedback within a reasonable amount of time.

4.2.2.2 Match between system and the real world

The design should speak the users' language. Use words, phrases, and concepts familiar to the user, rather than internal jargon. Follow real-world conventions, making information appear in a natural and logical order.

4.2.2.3 User control and freedom

Users often perform actions by mistake. The system should **provide a clearly marked "emergency exit" to leave the unwanted action without having to go through an extended process.**

Exits allow users to remain in control of the system and avoid getting stuck and feeling frustrated

- Support *Undo* and *Redo*.
- Show a clear way to exit the current interaction, like a *Cancel* button.
- Make sure the exit is clearly labeled and discoverable.

4.2.2.4 Consistency and standards

Users should not have to wonder whether different words, situations, or actions mean the same thing. The system should follow platform and industry conventions.

- Improve by maintaining both types of consistency: internal and external.
- Maintain consistency over the entire IFMS 3.0.
- Follow established industry conventions

4.2.2.5 Error prevention

Good error messages are important, but the best designs carefully prevent problems from occurring in the first place. Either eliminate error-prone conditions or check for them and present users with a confirmation option before they commit to the action.

4.2.2.6 Recognition rather than recall

Minimize the user's memory load by making elements, actions, and options visible. The user should not have to remember information from one part of the interface to another. Information required to use the design (e.g. field labels or menu items) should be visible or easily retrievable when needed.

- Let users recognize information in the interface, rather than having to remember (“recall”) it.
- Offer help in context.
- Reduce the information that users have to remember.

4.2.2.7 Flexibility and efficiency of use

Shortcuts may speed up the interaction for the expert user such that the design can cater to both inexperienced and experienced users.

- Provide accelerators like keyboard shortcuts and touch gestures.
- Provide personalization by tailoring content and functionality for individual users.
- Allow for customization, so users can make selections about how they want the product to work.

4.2.2.8 Aesthetic and minimalist design

Interfaces should not contain information which is irrelevant or rarely needed. Every extra unit of information in an interface competes with the relevant units of information and diminishes their relative visibility.

- Keep the content and visual design of UI focus on the essentials.
- Don't let unnecessary elements distract users from the information they really need.
- Prioritize the content and features to support primary goals.

4.2.2.9 Help users recognize, diagnose, and recover from errors

Error messages should be expressed in plain language (no error codes), precisely indicate the problem, and constructively suggest a solution.

- Use traditional error message visuals, like, red text.
- Keep the language simple - avoid technical jargon.
- Offer a solution, like a shortcut that can solve the error immediately.

4.2.2.10 Help and documentation

It's best if the system doesn't need any additional explanation. However, it may be necessary to provide documentation to help users understand how to complete their tasks.

- Ensure that the help documentation is easy to search`.
- Whenever possible, present the documentation in context right at the moment that the user requires it.
- List concrete steps to be carried out.

4.3 Accessibility

Accessibility is the practice of making your websites usable by as many people as possible. We traditionally think of this as being about people with disabilities, but the practice of making sites accessible also benefits other groups such as those using mobile devices, or those with slow network connections.

4.3.1 Principles

W3C has given accessibility guidelines under WCAG called Web Content Accessibility Guidelines which is organized around four principles known as POUR.

1. Perceivable

Information and user interface components must be presentable to users in ways they can perceive. This means that users must be able to perceive the information being presented (it can't be invisible to all of their senses).

2. Operable

Operability means that a user can successfully use controls, buttons, navigation, and other necessary interactive elements. For many users, this means identifying an interface control visually, and then clicking, tapping, or swiping. For other users, using a computer keyboard or voice commands may be the only means by which they can operate and control the interface.

3. Understandable

Information and the operation of user interface must be understandable. This means that users must be able to understand the information as well as the operation of the user interface (the content or operation cannot be beyond their understanding).

4. Robust

Content must be robust enough that it can be interpreted reliably by a wide variety of user agents, including assistive technologies. This means that users must be able to access the content as technologies advance (as technologies and user agents evolve, the content should remain accessible)

4.3.2 Guidelines

World Wide Web Consortium under WCAG (Web Content Accessibility Guidelines) provides Accessibility guidelines and broadly categorizes them under four categories.

1. Perceivable

Information and user interface components must be presentable to users in ways they can perceive.

- Provide text alternatives for any non-text content so that it can be changed into other forms people need, such as large print, braille, speech, symbols or simpler language.
- Time-based media: Provide alternatives for time- based media.
- Create content that can be presented in different ways (for example simpler layout) without losing information or structure.

- Make it easier for users to see and hear content including separating foreground from background.

2. Operable

User interface components and navigation must be operable.

- Make all functionality available from a keyboard.
- Provide users enough time to read and use content.
- Do not design content in a way that is known to cause seizures.
- Provide ways to help users navigate, find content, and determine where they are.

3. Understandable

Information and the operation of user interface must be understandable.

- Make text content readable and understandable.
- Make web pages appear and operate in predictable ways.
- Help users avoid and correct mistakes.

4. Robust

Content must be robust enough that it can be interpreted reliably by a wide variety of user agents, including assistive technologies.

- Maximize compatibility with current and future user agents, including assistive technologies.

There are techniques and tools available. Kindly refer the appendix section for a reference to the same.

The guidelines stated above translate to general principles for various UI elements which can be found here.

Text content

- Use nested headings (H1, H2, H3, etc.) without skipping levels.
- Use section headings within blocks of content.
- Ensure all headings and labels clearly describe the topic or purpose of the content.
- Use in-page links to allow users to skip to specific sections for long pages.
- Use different styles for different text types, such as sections, details (for accordion content), ordered and unordered lists, and blockquotes. Use HTML tags to label these content elements and their purpose.
- Ensure text blocks are either right or left align, rather than justified across the whole column.
- Use the HTML <role> attribute to describe each content block, such as article, document, definition, search box, etc.
- Except for logos, use actual page text rather than an image of text [1.4.9], unless customizable by the user or essential to conveying information [1.4.5]. Page text is critical for screen readers but for text to be readable at different screen sizes. (It's also necessary for Google to index your page content.).
- Make all text readable and understandable. Provide a glossary or similar way of identifying: unusual words, including idioms and jargon, abbreviations, special pronunciations.
- For complex text, provide supplemental content or summary at an eighth grade reading level or lower. (AAA).

Links and buttons

- Use text that clearly describes the purpose of links from the link text alone or the link context.

- Add an HTML tag of <aria-label > or provide a way to switch to "full link version" where the link text is the full descriptive name of the page. Or make sure the link text makes sense in combination with the heading above it. (AAA)
- Include hidden descriptive names for screen readers to help clarify the link purpose.

  For example:

  <p>Go to Code of conduct of ACME Corporation<p>

  ...end of news story. Read more
- Ensure that the accessible name matches the visible text label for links, buttons, and form inputs.

  When speech input users interact with a web page, they usually speak a command followed by the reference to a visible label (such as text beside an input field or inside a button or link). For example, they may say "click search" to activate a button labeled Search. When speech recognition software processes speech input and looks for matches, it uses the accessible name of controls. Where there is a mismatch between the text in the label and the text in the accessible name, the user might not be able to user the component at all.
- Design a minimum target size for pointer inputs of 44 by 44 pixels except for links in a block of text (or provide an equivalent link or control that is at least 44 by 44 pixels). (AAA, and good best practice for mobile)

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Gestures

- All functionality that uses multipoint or path-based gestures can be operated with a single pointer without a path-based gesture unless it's essential.

  For example, a map that requires two fingers to zoom also has zoom buttons.
- For draggable content, allow the drag-and-drop action to be reversed by either: releasing the picked-up item outside a drop target, dragging the picked-up item back to its old position, or confirmation dialog or an undo control
- If a site uses a device's motion sensors to gather input, also provide a button or link that does not rely on sensor input and let the user turn off the sensor input.

  For example, a text editor with a "shake to undo" feature could be problematic for users with hand tremors. Include a button to undo and a way to turn off the "shake to undo" feature.

Keyboard and mouse input

- A keyboard tab causes content to come into and out of focus, and the keyboard focus indicator is visible.
- Things that happen on hover also occur on the keyboard tab.
- If you do have drag and drop features, provide a way to achieve the same goal with a keyboard.

Motion and animations

- Don't design any element that flashes more than three times in any one second.
- Provide a way to stop, pause, or hide auto-updating information or any moving, blinking, or scrolling content, unless the motion

is essential. This applies to content that starts automatically, lasts more than five seconds, and is next to other content.

Timed updates and time limits

- Provide a way to turn off, adjust, or extend a time limit, unless the limit is required or already longer than 20 hours.
- If possible, don't set time limits on any steps. (AAA)
- Save all data even if re-authentication is required or warn users of timeouts that could cause data loss. (AAA)
- Allow users to change content manually if possible. If content changes automatically, allow users to turn this off and do it manually instead. (AAA)

Fonts and colors

- Use the following spacing minimums or ensure no loss of content or functionality occurs with these spacing values. (Assistive technologies might change the text spacing.)
- Line height (line spacing) to at least 1.5 times the font size.
- Spacing following paragraphs to at least two times the font size.
- Letter spacing (tracking) to at least 0.12 times the font size.
- Word spacing to at least 0.16 times the font size
- Width is no more than 80 characters or glyphs (40 if CJK). (AAA)
- Text is not justified (aligned to both the left and the right margins) (AAA)
- Don't rely on users understanding sensory information shape, color, size, visual location, orientation, or sound to act.
- Don't rely on color as the only visual means of conveying information.

- Use color contrast of at least 3:1 between the background and foreground for non-text graphics and UI elements
- For text, color contrast between the background and foreground should be at least 3:1 for Level A, 4.5:1 for Level AA, or 7.1 for Level AAA.
- Allow the user to select the foreground and background colors for blocks of text (AAA).

Conformance

W3C under WCAG guidelines provides three levels of conformance to meet accessibility guidelines.

Level A

There are 30 basic criteria to meet level A as given in Appendix [5].

Easy to follow, necessary for general usability

Level AA

To meet level AA, there are 20 additional criteria to incorporate which can be found in Appendix [5].

Requires knowledge of the guidelines, level that is typically referred to when "making a website accessible."

Level AAA

To meet level AAA, there are 28 additional criteria which may require additional resources, such as transcription. You may find the details in Appendix [5].

5. Appendix

S.No.	Link and References	Description
1.	https://guidelines.india.gov.in/tools-and-resources/	Tools and resources suggested by Govt. of India
2	https://developer.mozilla.org/en-US/docs/Learn/Accessibility	Accessibility Introduction by Mozilla development network.
3	https://www.w3.org/TR/UNDERSTANDING-WCAG20/conformance.html\	Conformance overview by W3C.
4	https://www.w3.org/WAI/standards-guidelines/	W3C Accessibility standards overview.
5	https://www.w3.org/WAI/WCAG21/quickref/	W3C WCAG 2.1 guidelines
6	https://www.w3.org/TR/WCAG20/ https://www.w3.org/TR/UNDERSTANDING-WCAG20/	W3C WCAG 2.0 guidelines
7	https://www.w3.org/TR/WCAG20-TECHS/	Techniques given by W3C to implement different accessibility guidelines.

S.No.	Link and References	Description
8	https://guidelines.india.gov.in/	Guidelines website by Govt. of India
9	https://guidelines.india.gov.in/compliant-websites/	List of compliant websites as published by Government of India for reference.
10	https://www.elegantthemes.com/blog/resources/professional-fonts-for-upscale-web-designs https://xd.adobe.com/ideas/principles/web-design/best-modern-fonts-for-websites/ https://fonts.google.com/ https://www.awwwards.com/20-best-web-fonts-from-google-web-fonts-and-font-face.html	Font references
11	https://fonts.google.com/icons, https://ionic.io/ionicons, glyphicons, material icons	Icons
12	https://developer.mozilla.org/en-US/docs/Web/Accessibility/ARIA/Attributes	Reference to aria attributes.
13	https://usability.yale.edu/web-accessibility/articles/wcag2-checklist	Level A and AA conformance checklist.
14	https://guidelines.india.gov.in/compliance-	Compliance matrix as issued by

S.No.	Link and References	Description
	matrix/#1585239298471-fd39317c-8b66	Government of India.
15	https://cdnbbsr.s3waas.gov.in/s3c92a10324374fac681719d63979d00fe/uploads/2020/03/20200326100.pdf	Compliance matrix handbook and certification guide published by Government of India.
16	https://en.wikipedia.org/wiki/ISO_9241#ISO_9241-210	ISO 9241 standard for Human Computer Interaction