

Software UI/UX and Accessibility Guidelines

Government websites and systems serve as vital conduits between government institutions and the public, facilitating access to essential services, information, and resources. In this digital age, the user experience (UX) and user interface (UI) of these platforms are of paramount importance. A seamless and intuitive UX design ensures that citizens, businesses, and other stakeholders can navigate government websites and systems efficiently, effectively, and with minimal friction.

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Introduction

Government websites and systems serve as vital conduits between government institutions and the public, facilitating access to essential services, information, and resources. In this digital age, the user experience (UX) and user interface (UI) of these platforms are of paramount importance. A seamless and intuitive UX design ensures that citizens, businesses, and other stakeholders can navigate government websites and systems efficiently, effectively, and with minimal friction.

Accessibility lies at the core of UX considerations, with government entities striving to make their online platforms inclusive and accessible to all individuals, including those with disabilities or limited technical proficiency. Beyond accessibility, a well-designed UX enhances citizen engagement by fostering transparency, accountability, and trust in government institutions. By prioritizing usability and user-centric design principles, government websites and systems can streamline processes, reduce complexity, and simplify the completion of tasks for users. Positive user experiences not only improve public perception and reputation but also encourage continued interaction and participation in government services online.

Scope and objectives

This document provides guidelines that are aimed at ensuring that software applications and digital platforms have a well designed UI/UX and are easy to use and navigate and are also accessible to individuals with impairments. Key objectives for ensuring software is easy to use and accessible include:

- **Increasing User Engagement:** Good UI and UX design, including accessibility features, can enhance user engagement with government software by making it easier and more enjoyable to use, leading to higher levels of user satisfaction, participation, and trust in government services.
- **Enhancing Efficiency and Effectiveness:** Accessible and user-friendly software can improve the efficiency and effectiveness of government operations by reducing barriers to access, streamlining processes, and enabling citizens to interact with government services more easily and independently.
- **Inclusivity and Equity:** Designing software with accessibility in mind promotes inclusivity and equity by ensuring that all citizens, regardless of their abilities or disabilities, can access and benefit from government services and information on an equal basis. For people with diverse impairments such as visual, auditory, physical and cognitive disabilities, these guidelines attempt to remove barriers and offer equal access and usability.
- **Legal Requirements:** Governments often have legal obligations to ensure that their digital services are accessible to persons with disabilities, as mandated by laws and regulations. Ensuring software is accessible is part of implementing the right to equality before the law which is supported by the Rwandan Constitution. In addition, Rwanda is a party to the UN Convention on the Rights of Persons with Disabilities and the Elderly. The Convention affirms the right to accessibility to services and information.
- **Promoting Innovation and Excellence:** Investing in UI, UX, and accessibility design fosters innovation and excellence in government software development, encouraging the adoption of best practices, new technologies, and creative solutions to enhance user experiences and outcomes for all citizens.
- **Improving Public Perception and Trust:** Providing accessible and user-friendly government software demonstrates a commitment to serving the needs of all citizens and can enhance public perception, trust, and confidence in government institutions as responsive, inclusive, and accountable entities.
- **Future-Proofing Investments:** Designing software with accessibility in mind from the outset helps future-proof government investments in digital infrastructure and services, as it reduces the need for costly retrofits or redesigns later on and ensures compatibility with emerging technologies and standards.

Principles of accessibility design

According to W3C Web Content Accessibility Guidelines (WCAG) the four basic principles of accessibility design are perceivability, operability, understandability and robustness. These principles offer a foundation for creating software that is usable by people with impairments. The key guidelines under these principles are summarized below.

Perceivability

An application that is perceivable means that information can be identified by more than one sense. Some of the recommended practices to ensure perceivability are listed below.

Text alternatives [Recommended]

Text alternatives should describe non-text content such as labels and icons. Similarly, an application should provide captions and where possible audio to accommodate users with hearing and vision disabilities.

Captions for media content [Recommended]

Include captions for pre-recorded audio content. Offer alternative formats and transcripts for videos without subtitles. Add audio descriptions for videos with important visual information.

Color contrast [Recommended]

Ensure sufficient contrast between text and background colors, following WCAG guidelines. Avoid relying solely on color to convey information.

Resizable text [Recommended]

It should be possible to resize text without assistive technology without loss of content or functionality. This helps people with mild visual disabilities by allowing them to scale text and text-based controls on a web page, without requiring the use of assistive technology.

Clear error messages [Mandatory]

Provide clear and concise error messages with suggested solutions. Ensure error messages are programmatically linked to the corresponding form field. Offer tips or guidance for error correction where possible.

Descriptive titles [Mandatory]

Web pages/app screens should have titles that describe topic or purpose. This facilitates an easy and unambiguous identification of the webpage & also helps in a more relevant and visible presence in the search engine results.

Semantic HTML markup [Mandatory]

Use semantic HTML markup to structure content and provide meaningful information to assistive technologies. Proper use of headings, lists, and landmarks helps users navigate and understand the organization of content.

Operability

Software applications should allow users to perform all the actions necessary to navigate the user interface. Navigation should be seamless via all methods, such as the mouse, arrow keys and trackpad. When software is operable, it facilitates the use of assistive technologies like mouth sticks or speech recognition. Some of the recommended practices include:

Keyboard accessibility [Recommended]

Enable keyboard accessibility to ensure all elements are accessible through a keyboard. Prioritize keyboard access to form fields and interactive features. Allow using the "Enter" key as a substitute for clicking buttons.

Consistent and logical navigation [Mandatory]

Provide simple and consistent navigation. The default keyboard navigation order must be logical and intuitive. This generally means that it follows the visual flow of the page—left to right, top to bottom.

Focus indicators [Mandatory]

Provide focus indicators for interactive components so users can see what element has current keyboard focus.

Time limits [Mandatory]

Avoid problematic time limits for user interactions. Users should be provided with adequate time to provide responses without unnecessary time limits.

Define purpose of input fields [Mandatory]

The purpose of each input field collecting information about the user should be programmatically or described to enable use of assistive technology which can help users to complete forms.

Multiple navigation options [Recommended]

There should be more than one way available to locate a web page within a set of web pages except where the web page is the result of, or a step in, a process. Providing multiple navigation options can help people find information faster, particularly those with visual or cognitive impairments.

Search functionality [Mandatory]

Implement a robust search function that allows users to quickly find specific information or services by entering keywords or phrases. Supplementing navigation with search functionality provides an alternative method for users to access content and can be especially useful for users with specific information needs.

Easy access to important information [Recommended]

Ensure that important information, such as contact details, frequently asked questions, and key services, is easily accessible from any page of the website or system. Provide prominent links or buttons that direct users to essential information, reducing the time and effort required to find relevant content.

Understandability

Software that is understandable means that the user comprehends both the information it presents and the requirements for operation. Some of the practices to make software understandable include:

Use plain language [Mandatory]

Write content in plain language that is easy to understand for all users, regardless of their education level or background. Avoid technical jargon, complex terminology, and unnecessary verbosity to ensure clarity and comprehension.

Consistent format [Mandatory]

The application should be predictable, and its format should be consistent across pages.

Descriptive instructions [Mandatory]

All instructions and error messages should be descriptive and easy to follow, and software should help users correct their mistakes.

Limit reliance on sensory perception [Recommended]

Instructions provided for understanding and operating content should not rely solely on sensory characteristics of components such as shape, colour, size, visual location, orientation or sound. This is because some visually challenged users cannot perceive shape, size or colour. Alternative textual identification should be provided.

Multi language support[Recommended]

Where possible provide Kinyarwanda translations for software menus especially for software applications meant to be used by citizens.

Clear reading sequence [Recommended]

When the sequence in which content is presented affects its meaning, a correct reading sequence should be programmatically determined. This will enable assistive technologies such as screen readers to read the content in the correct order.

Logical structure for content [Mandatory]

Structure content in a logical and intuitive manner, using headings, lists, and clear signposts to help users navigate and find information quickly. Organizing content hierarchically improves readability and facilitates scanning and comprehension.

Robustness

Robustness means that software should be compatible with most devices and assistive technologies. Robust software adapts to ensure content is accessible as technologies evolve. Key practices include:

Responsive design [Mandatory]

Ensure that government websites and systems are responsive and adaptable to different screen sizes and devices. Responsive design enhances accessibility by providing a consistent user experience across desktops, tablets, and mobile devices.

Compatibility with assistive technologies [Recommended]

Ensure compatibility with various assistive technologies and assistive devices. Regularly test the software with a variety of assistive technologies, including screen readers, screen magnifiers, and voice recognition software, to identify and address accessibility issues.

Common standards [Mandatory]

Use common web technologies and adhere to standards and rules. Use consistent markup and standardized UI components.

Government institutions should also refer to the latest version of the Web Content Accessibility Guidelines (WCAG) which is a set of recommendations by W3C for web accessibility. WCAG offers guidelines and success criteria for making web content perceivable, operable, understandable, and robust for users with impairments

Guidelines for Designing User-Friendly Forms and Collecting Data Securely

Designing user-friendly forms and collecting data securely are essential aspects of creating effective government websites and systems. By following guidelines for minimizing form fields, providing clear instructions, and ensuring data privacy, government agencies can enhance usability and protect user information.

Minimizing form fields [Mandatory]

Keep forms concise by only including essential fields necessary for collecting the required information. Minimizing form fields reduces user effort and completion time, improving the overall user experience.

Clear instructions [Mandatory]

Provide clear and concise instructions for each form field to guide users through the data entry process. Clearly explain what information is required and how it should be formatted to reduce errors and ensure accurate data collection.

Progress indicators[Recommended]

Use progress indicators or step-by-step guidance to show users where they are in the form completion process and how much progress they have made. Progress indicators help users understand the scope of the form and encourage them to continue through the completion process.

Inline validation [Mandatory]

Implement inline validation to provide immediate feedback to users as they fill out the form. Highlight any errors or formatting issues in real-time, allowing users to correct mistakes before submitting the form.

Data privacy [Mandatory]

Ensure data privacy and security by implementing measures to protect user information from unauthorized access or disclosure. Use encryption protocols, secure server connections, and data encryption techniques to safeguard sensitive data collected through forms. Include a consent checkbox when collecting personal data.

Transparency [Mandatory]

Be transparent about how user data will be used, stored, and shared. Provide a privacy policy or data usage statement that clearly outlines the purposes for collecting data and the steps taken to protect user privacy.

Accessibility[Recommended]

Design forms with accessibility in mind, ensuring that all users, including those with disabilities, can easily interact with and complete the form. Use accessible form elements, provide alternatives for visual content, and follow accessibility guidelines to ensure inclusivity.

Mobile Responsiveness and Multi-Device Compatibility

Designing government websites that work seamlessly across different devices and screen sizes is essential for ensuring accessibility and usability for all users. By following guidelines for responsive design and considering the needs of mobile users, government agencies can provide a consistent and optimized experience across various devices.

Guidelines for Designing Government Websites for Different Devices

Responsive Design [Mandatory]

Adopt a responsive design approach that allows government websites to adapt and display optimally on various devices, including desktops, laptops, tablets, and smartphones. Responsive design ensures that content remains accessible and legible regardless of screen size or orientation.

Fluid Layouts[Recommended]

Use fluid layouts that adjust proportionally based on the size of the viewport, allowing content to resize and reflow to fit different screen sizes. Fluid layouts ensure that government websites maintain a consistent and visually appealing appearance across devices.

Mobile-First Approach[Recommended]

Prioritize mobile users by designing government websites with a mobile-first approach. Start by creating a design optimized for mobile devices, then progressively enhance the experience for larger screens. By focusing on mobile usability from the outset, government agencies can ensure that their websites are accessible to users on the go.

Touch-Friendly Elements[Recommended]

Design touch-friendly elements, such as buttons and navigation menus, that are easy to tap and interact with on touchscreen devices. Ensure that interactive elements have sufficient spacing and size to accommodate finger input, reducing the risk of accidental taps or misclicks.

Optimized Performance[Recommended]

Optimize website performance for mobile users by minimizing page load times, reducing file sizes, and prioritizing content delivery. Mobile users often have limited bandwidth and slower connections, so optimizing performance is crucial for providing a smooth and responsive experience.

Responsive Design Techniques and Considerations for Mobile Users

Media Queries[Recommended]

Use CSS media queries to apply different styles based on the characteristics of the device, such as screen width, resolution, and orientation. Media queries allow designers to create adaptive layouts and customize the presentation of content for different devices.

Flexible Images and Media[Recommended]

Use flexible images and media that scale proportionally to the size of the viewport, ensuring that images remain clear and legible on smaller screens without compromising quality or loading times.

Viewport Meta Tag[Recommended]

Include a viewport meta tag in the HTML <head> section to control the viewport behavior and scale on mobile devices. Setting the viewport width to match the device width ensures that websites are displayed at the appropriate size and scale on mobile screens.

Progressive Enhancement[Recommended]

Implement progressive enhancement techniques to deliver a basic yet functional experience to all users, regardless of device capabilities. Start with core functionality and content accessible to all devices, then add enhancements for more advanced features and interactions on larger screens.

User Testing on Mobile Devices [Mandatory]

Conduct user testing on a variety of mobile devices to ensure that government websites are optimized for mobile users. Test usability, performance, and functionality across different devices and screen sizes to identify and address any issues or discrepancies.