Boosting digital adoption of MSME ecosystem

TSI DPDP Consent Management System

UX & Accessibility Plan

28th May 2025
V1.0

TSI Tech Solutions Cooperative Foundation
A section 8 company

https://tsicoop.org

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Version History

Author(s)	Date	Version	Description
Satish Ayyaswami TSI Tech Solutions Cooperative Foundation	28/05/2025	0.1	Draft

Abbreviations, Terms and Definitions

DPDP Act	Digital Personal Data Protection Act 2023
CMS	Consent Management System
DF	Data Fiduciary
DP	Data Processor
DPB	Data Protection Board

About Us

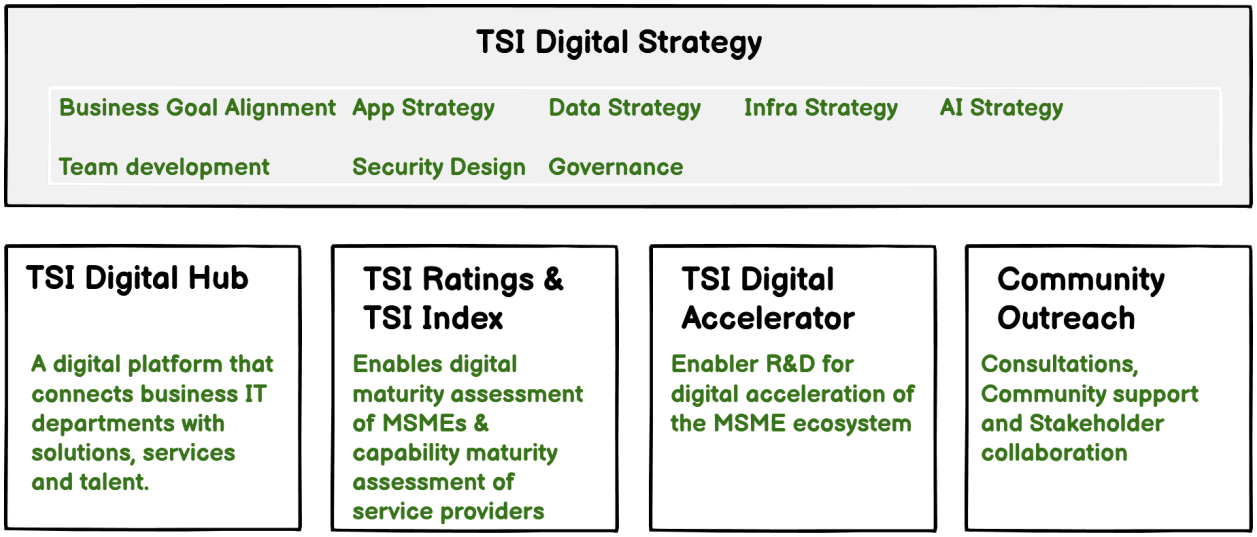
TSI Tech Solutions Cooperative Foundation (TSI Coop) initiative aims to address critical gaps in the MSME digital ecosystem by enabling businesses to implement successful technology strategies with the help of niche providers. Our mission also focuses on creating sustainable pathways for graduates from tier-3 and tier-4 institutions while fostering a more equitable and efficient domestic IT supply chain.

TSI stands for Technology & Social Impact. 'Coop' embodies the spirit of a cooperative economic model, where smaller providers and MSMEs collectively drive digital adoption within the ecosystem, fostering shared growth and opportunity.

While our IT machinery prioritizes foreign markets, GCCs, high profile startups and large enterprises, MSMEs are underserved. We aim to unlock their potential by facilitating the following:

- Discovery of niche providers, products, services and talent. Direct Interactions.
- Continuous digital maturity assessment of MSMEs ecosystem participants, helping stakeholders' identify areas for improvement
- Enabler R&D for digital acceleration of MSME ecosystem
- Community support and stakeholder collaboration

Our offerings for the MSME ecosystem below:



TSI DPDP Consent Management System is a key component of our TSI Digital Accelerator program.

Scope

This plan outlines the strategy for designing and implementing the User Experience (UX) and Accessibility of the DPDP Solution. A superior UX ensures Data Principals find the consent process intuitive and empowering, fostering trust. Robust accessibility guarantees that the solution is usable by all individuals, including those with disabilities, making consent truly "informed" and "free" as mandated by the Digital Personal Data Protection Act (DPDP Act), 2023.

Purpose

1. To define the UX and accessibility principles guiding the design and development.
2. To ensure compliance with relevant accessibility standards (WCAG 2.1 AA) and DPDP Act provisions related to user rights and clarity.

3. To provide a roadmap for creating intuitive, engaging, and inclusive interfaces.
4. To detail strategies for localization and cultural relevance within India (especially Tamil Nadu).

Guiding UX Principles

Clarity & Transparency: Information about data processing and choices must be presented in plain, unambiguous language, avoiding legal jargon.
User Control & Empowerment: Data Principals should feel in control of their data. Actions (granting, modifying, withdrawing consent) must be simple and easily discoverable.
Consistency: Consistent design patterns, terminology, and interaction models across all touchpoints (banners, dashboards, forms).
Efficiency: Streamlined workflows to minimize user effort and time spent on privacy management.
Trust & Confidence: A professional, secure, and respectful interface builds trust with Data Principals.
Contextual Relevance: Present information and options that are relevant to the user's current context (e.g., specific service, jurisdiction).

Guiding Accessibility Principles

All interfaces will be designed and developed to meet WCAG 2.1 Level AA conformance.

- **Perceivable:**
    - **Text Alternatives (WCAG 1.1.1):** Provide text alternatives for all non-text content (e.g., alt text for images, captions for videos).
    - **Adaptable (WCAG 1.3.1):** Information and structure are separable from presentation, allowing content to be presented in different ways (e.g., by screen readers). Use semantic HTML.
    - **Distinguishable (WCAG 1.4.1, 1.4.3):** Ensure sufficient contrast ratio (min 4.5:1 for text, 3:1 for graphics/UI components). Avoid relying solely on color to convey information.
    - **Resizable Text (WCAG 1.4.4):** Allow text to be resized up to 200% without loss of content or functionality.
- **Operable:**

    - **Keyboard Accessible (WCAG 2.1.1):** All functionality is operable via a keyboard interface without requiring specific timings for individual keystrokes. Logical tab order.
    - **Focus Visible (WCAG 2.4.7):** Any keyboard operable user interface has a mode of operation where the keyboard focus indicator is visible.
    - **No Keyboard Trap (WCAG 2.1.2):** Users are not trapped within a subset of content.
- **Understandable:**
    - **Readable (WCAG 3.1.1, 3.1.2):** Text content is readable and understandable. Language of content is identified.
    - **Predictable (WCAG 3.2.3):** Navigation and interactive components are consistent.
    - **Input Assistance (WCAG 3.3.2):** Provide clear instructions, identify input errors, and offer suggestions for correction.
- **Robust:**
    - **Compatible (WCAG 4.1.1, 4.1.2):** Maximize compatibility with current and future user agents, including assistive technologies. Use correct HTML syntax and ARIA attributes where standard HTML doesn't suffice.

Target Users

Data Principals (Primary Focus): General public, varying digital literacy, diverse linguistic backgrounds, users with disabilities.
Data Fiduciary Administrators/DPOs/Auditors: Internal compliance, legal, and IT teams; higher digital literacy, but require efficient, clear workflows.
System Integrators: Developers requiring clear API documentation and SDKs.

UX & Accessibility Considerations by Module

Consent Banners & Forms

This includes Frontend Loading, Dynamic Rendering, Consent Collection

UX:

- **Non-Intrusive Banner:** Positioned at the bottom or top, not blocking essential content.
- **Clear CTAs:** "Accept All," "Reject All," "Manage Preferences" buttons are distinct and easy to understand.

- **Plain Language:** Consent messages are short, direct, and use simple Indian English, Tamil, and Hindi.
- **Contextual Relevance:** Policy language defaults to the user's browser language, with option to switch.
- **Intuitive Preference Center:** Toggles are easily understood. Clear descriptions for each purpose/category.
- **Easy Withdrawal:** Making the "Cookie Settings" or "Privacy Choices" link readily available on all pages (e.g., footer).

Accessibility:

- **Keyboard Navigation:** All buttons, links, and toggles are keyboard operable (Tab/Shift+Tab, Enter/Spacebar).
- **Focus Management:** Clear visual focus indicator on interactive elements. Focus trapped within modal preference center.
- **Screen Reader Semantics:** Use <button>, <input type="checkbox"> linked to <label>s via for attribute. Use role="switch" and aria-checked for custom toggles. aria-describedby to link descriptions.
- **Contrast:** Ensure banner text, button text, toggle colors meet 4.5:1 contrast ratio against background.
- **Resizable Text:** Ensure text within banner/modal scales correctly.
- **Language Attribute:** lang attribute set correctly on the <html> tag and for any text snippets in different languages.

User Dashboard

UX:

- **Clear Overview:** At-a-glance summary of current consent status and pending requests.
- **Intuitive Navigation:** Easy access to Consent History, Modify Consent, Grievance Redressal, and Notifications sections.
- **Transparent History:** Clearly presented chronological list of consent changes.
- **Simple Request Forms:** Streamlined forms for submitting privacy requests (access, correction, erasure).
- **Concise Notifications:** Easy-to-read alerts with clear action items.

Accessibility:

- **Semantic Structure:** Use headings (`<h1>` to `<h6>`), lists (`<ul>`, `<ol>`), tables (`<table>`) appropriately for screen reader navigation.

- **Tabular Data:** Ensure tables for consent history, grievances, and notifications are properly marked up with `<th>`, `scope`, and captions for screen readers.
- **Form Accessibility:** All form fields for requests follow WCAG guidelines (labels, focus, errors).
- **Consistent ARIA:** Apply ARIA attributes consistently for dynamic content updates and modal dialogs.

Data Fiduciary Dashboard

UX:

- **Centralized Command Center:** Dashboard provides key compliance metrics and actionable insights at a glance.
- **Efficient Workflows:** Streamlined processes for managing grievances, reviewing audit logs, and preparing reports.
- **Clear Visualizations:** Use charts and graphs effectively for data trends (e.g., consent rates over time, grievance resolution SLAs).
- **Search & Filter:** Robust filtering and search capabilities for large datasets (audit logs, grievances).
- **Actionable Alerts:** Notifications directly link to relevant actions or detailed views.

Accessibility:

- **Complex Table Accessibility:** Ensure complex data tables (audit logs, reports) are fully accessible with proper headers, scope, and potentially aria-describedby for intricate columns.
- **Dashboard Widget Accessibility:** If using dashboard widgets, ensure they are programmatically identifiable and interactive for screen readers.
- **Form Accessibility:** All configuration and report generation forms follow WCAG guidelines.
- **Keyboard Shortcuts:** Consider implementing keyboard shortcuts for frequently used DPO actions.

Design & Implementation Strategy

UX Research:

- **User Personas:** Develop detailed personas for Data Principals (varying technical literacy, language) and internal users (DPOs, Admins).
- **User Journeys:** Map out key user journeys (e.g., first-time consent, withdrawing consent, submitting a grievance).

- **Competitive Analysis:** Review best practices in consent management UX globally.

Information Architecture (IA):

Design clear navigation paths and content organization for all dashboards and forms.

Wireframing & Prototyping:

- Start with **low-fidelity wireframes** to define layout and basic flow.
- Progress to **high-fidelity interactive prototypes (Figma/XD)** for visual design and interaction testing.
- Incorporate WCAG principles from the wireframing stage.

Design System: Develop a consistent design system (colors, typography, components, icons) that inherently supports accessibility guidelines.
Component Libraries: Utilize UI component libraries (e.g., Material UI for React, Angular Material) that are built with accessibility in mind, providing ready-made accessible components.
Accessibility Linting & Automated Testing: Integrate tools like Axe-core (browser extension, CI/CD), Lighthouse CI, and Eslint A11y plugins into the development pipeline.
Manual Accessibility Testing: Essential for catching issues automated tools miss. Conduct manual testing using:

- Keyboard-only navigation.
- Screen readers (NVDA, VoiceOver, TalkBack).
- Color contrast analyzers.

Usability Testing: Conduct usability tests with representative users (including those with disabilities) to gather feedback and iterate on designs.

Localization Strategy

Multilingual Content: Implement robust support for Indian languages within the consent_policies and other JSON-based content.
Language Switching: Provide a clear and accessible language switcher on all user-facing interfaces.
Cultural Nuances: Use culturally appropriate terminology and metaphors in translations.

Right-to-Left (RTL) Support: (If expanding to languages like Arabic/Urdu in the future) Ensure layout and text direction adapt correctly.

Training & Documentation

User Guides: Provide clear, simple documentation for Data Principals on how to manage their consent and exercise rights.
Admin/DPO Training: Comprehensive training for internal users on using the dashboards and managing privacy processes efficiently and compliantly.
Developer Guidelines: Clear guidelines for developers on implementing accessible UI components and following UX best practices.

Continuous Improvement

Feedback Loops: Establish channels for users (Data Principals, DPOs) to provide feedback on UX and accessibility.
Regular Audits: Conduct periodic UX reviews and accessibility audits (manual and automated).
Stay Updated: Monitor changes in data protection laws (DPDP Act, future amendments) and accessibility standards (WCAG updates) and iterate the solution's design accordingly.

Wireframe Development

We are actively developing LowFidelity & HighFidelity wireframes. Please find out work-in-progress details below

1. Low Fidelity Design - CMS - Admin Onboarding
2. Low Fidelity Design - CMS - Consent Manager Onboarding
3. High Fidelity - CMS - Work-in-progress