



Boosting digital adoption of MSME ecosystem

TSI DPDP Consent Management System

Prototype Demonstration & Roadmap

29th 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
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Abbreviations, Terms and Definitions

DPDP Act	Digital Personal Data Protection Act 2023
CMS	Consent Management System
DF	Data Fiduciary
DP	Data Processor
CM & CA	Consent Manager & Consent Aggregator
DPB	Data Protection Board
MFA	Multi factor authentication
SDK & API	Software Development Kit & Application Programmable Interface
PII	Personally Identifiable Information
RBAC	Role based Access Control

Introduction

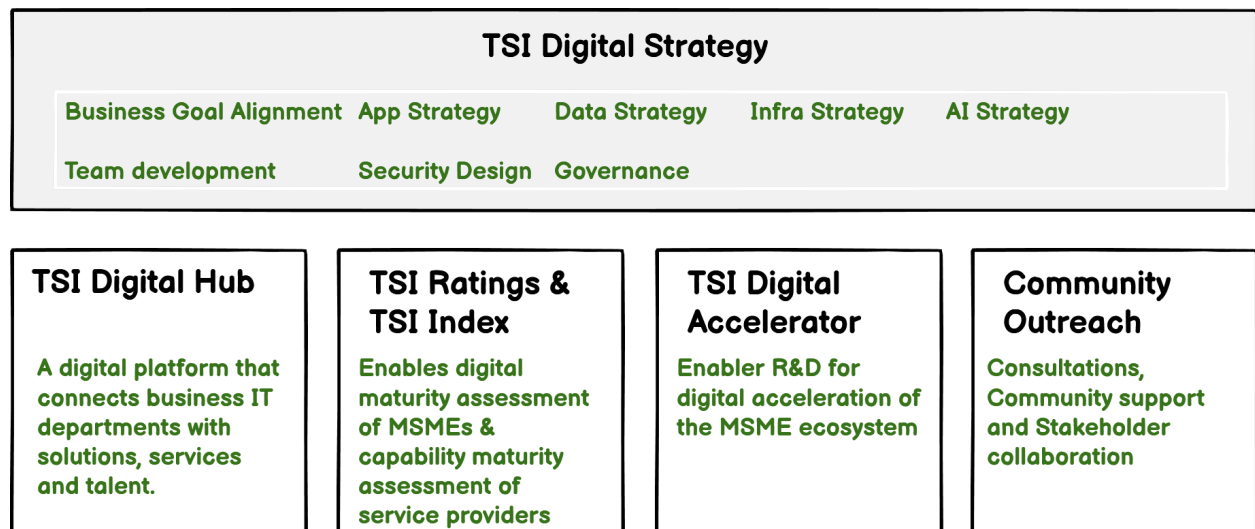
TSI Tech Solutions Cooperative Foundation (TSI Coop) initiative aims to address critical gaps in the MSME digital ecosystem by enabling businesses to implement successful technology strategies with the help of niche providers. Our mission also focuses on creating sustainable pathways for graduates from 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 document outlines the Prototype Demonstration (Discovery & Feasibility)

- **Target Date:** June 21, 2025

Overall Goal:

- To rapidly visualize and validate the core user experience for consent collection and initial consent storage.
- To test key technical assumptions, particularly around dynamic rendering of policies and basic consent persistence.
- To gather early stakeholder feedback on the proposed UX and core flow.

Key Deliverables:

- **Technical Proof-of-Concept (PoC):** Minimalist backend service for policy retrieval and consent storage; frontend JS for dynamic rendering and API invocation.
- **Low-Fidelity & High-Fidelity Wireframes (Balsamiq/Figma):** Interactive prototype of CMS backend system

Technical Proof-of-Concept

Please check out the [interactive tour](#) demonstrating the Technical Proof-of-Concept and [our live data fiduciary implementation](#).

- **Consent Policy Definition (Basic):** Manual JSON configuration of one basic policy (English only) with 2-3 purposes.
- **Consent Frontend:**
 - Cookie Consent Banner (display/hide logic).
 - Basic Preference Center (2-3 toggleable categories).
 - "Accept All," "Reject Non-Essential," "Manage Preferences" actions.
 - Dynamic rendering of localized text (single language).
 - Basic client-side script blocking.
- **Consent Collection & Storage:**
 - Frontend capture of user choice.
 - API call to backend.
 - Backend storage of consent record (basic fields).
 - Basic consent validation by backend ([GET /consent/validate](#)).
- **Basic User Dashboard (Read-only):** View of current consent status only.

Key Activities:

- Detailed UX design of consent interactions.
- Frontend component development (HTML, CSS, JS) for banner/preference center.
- Backend API development for policy retrieval and consent record POST.
- Database schema implementation for **consent_policies** and **consent_records**.
- Internal user testing and feedback sessions.

Success Criteria:

- Interactive prototype approved by stakeholders.
- Technical PoC successfully demonstrates dynamic consent rendering and storage.
- Core consent flow is intuitive and understandable for test users.

Low-Fidelity & High-Fidelity Wireframes

Work-in-progress wireframes available here

- [Low Fidelity Design - CMS - Admin Onboarding](#)
- [Low Fidelity Design - CMS - Consent Manager Onboarding](#)
- [High Fidelity - CMS - Work-in-progress](#)

Roadmap

MVP (Minimum Viable Product)

- **Estimated Duration:** 12 weeks

Overall Goal:

- To deliver an end-to-end functional and DPDP Act-compliant solution for a pilot Data Fiduciary (likely internal or a friendly partner MSME).
- To establish core backend microservices and secure integration points.
- To gather real-world usage data and feedback from a limited set of users.

Key Deliverables:

- **Fully Functional Core CMS:** Deployed in a secure environment (e.g., cloud staging).
- **Comprehensive Backend APIs:** For all MVP features.
- **Initial Audit Log System:** Capturing core events.
- **Admin UI (Limited):** For policy and user management.
- **User Documentation:** Basic guides for Data Principals and CMS Admins.
- **Compliance Checklist (MVP):** Verification against DPDP Act requirements.

Target Features:

- **All Prototype Features:** Enhanced and made production-ready.
- **Consent Policy Management (Full):**
 - Admin UI for creating/editing/publishing/archiving multilingual policies.
 - Version control for policies.
 - Full [data_processing_purposes](#) and [data_categories_details](#) support.
- **Consent Lifecycle (Full):** Update, renewal logic, and basic withdrawal.
- **Data Fiduciary Management (Basic):** Admin UI to add/edit Fiduciary profile (name, domain, CNAME, DNS TXT validation).
- **User Role Management (Basic):** Predefined roles (Admin, DPO, Auditor), user creation, role assignment (for CMS users).
- **User Dashboard (Full MVP):**
 - View Consent History.
 - Modify/Revoke Consent (links to preference center).
 - Basic Privacy Request submission (e.g., generic form for access/correction/erasure requests).
 - Basic User Notifications (e.g., policy updates).
- **Audit Logging:** Comprehensive logging of all core CMS actions (consent, policy, user changes).
- **Basic Security:** TLS for all APIs, strong authentication for Admin UI, basic input validation.
- **Multilingual Support:** Full support for English, Tamil, and Hindi in policy content.

Key Activities:

- Detailed API development for all MVP services.
- Database schema finalization and migration scripts.
- Frontend development for Admin UI and enhanced user dashboards.
- Integration with authentication systems (e.g., local login, basic MFA).
- Automated unit and integration testing.
- Comprehensive security testing (vulnerability scanning).

- Deployment of MVP to staging/pilot environment.
- Internal/pilot user acceptance testing (UAT).
- Refine compliance documentation.

Success Criteria:

- End-to-end consent flow (collection to storage, validation) is stable and reliable.
- All critical DPDP Act requirements for Data Fiduciary's consent management are met for the pilot.
- Positive feedback from pilot Data Fiduciary and limited Data Principal users.
- The system is stable in the pilot environment.

Beta Version (Refinement & Expansion)

- **Estimated Duration:** 16 weeks

Overall Goal:

- To enhance the MVP into a production-ready solution suitable for wider deployment, incorporating advanced features, robust integrations, and performance optimizations.
- To refine the solution based on pilot feedback and prepare for system integration partner engagement.

Key Deliverables:

- **Production-Ready CMS:** Scalable, secure, and optimized for performance.
- **Comprehensive Integration Capabilities:** Enhanced APIs, webhooks, and potentially SDKs.
- **Full Suite of Admin/DPO Dashboards:** Operational and audit dashboards.
- **Data Processor Management Module:** Integrated.
- **Data Retention Execution:** Automated purge/anonymization.
- **Regulatory Reporting Module:** DPB integration.
- **Full User Documentation & Training Materials.**
- **Security Audit Report (External):** Independent verification of security posture.
- **Compliance Report (Full):** Final verification against DPDP Act.

Target Features:

- **All MVP Features:** Enhanced performance, stability, and UX.
- **Data Processor Management:** Admin UI to add/edit processors, link to purposes, DPA tracking.

- **Data Retention Policy Configuration & Execution:** Define flexible policies, automate purge/anonymization, generate purge reports.
- **Grievance Redressal & Resolution Tracking:** Full workflow management (assignment, status updates, communication logs for DPO).
- **DPO Dashboard (Full):** Centralized view of compliance health, metrics, pending tasks.
- **Auditor Dashboard (Full):** Read-only access to all audit logs, policies, configurations for compliance verification.
- **Regulatory Reporting (DPB):** Full integration for secure report submission (breach notifications, compliance reports).
- **Enhanced Security:** Robust MFA/SSO integration, advanced threat detection, granular API key management.
- **Advanced Notifications:** Customizable notification templates, multiple channels (email, SMS).
- **System Configuration Dashboard:** Global settings management.
- **Scalability & Resilience:** Horizontal scaling for microservices, database replication (if multi-node).
- **Performance Optimizations:** Caching, query optimizations.

Key Activities:

- Gather and incorporate feedback from MVP pilots.
- Develop remaining backend services and API endpoints.
- Develop advanced features for DPO/Auditor dashboards.
- Conduct performance and load testing.
- Execute penetration testing and external security audits.
- Finalize comprehensive documentation (API, Deployment, User Manuals).
- Prepare training programs for System Integration partners and larger Data Fiduciaries.
- User acceptance testing with a wider beta group.
- Prepare for production release.

Documentation:

- **Test Plan:** Outlines the scope, approach, resources, and schedule of testing activities (e.g., Unit, Integration, System, Acceptance, Performance, Security).
- **Test Cases:** Detailed steps for verifying specific functionalities and requirements.
- **Test Reports:** Summarizes testing results, defects found, and overall quality.
- **User Acceptance Testing (UAT) Plan:** Specific plan for end-users to validate the system against business requirements.

- **Deployment Guide:** Step-by-step instructions for deploying the system in target environments (on-premise, cloud). This would detail the Docker Compose setup, environment variables, network configurations, etc.
- **Installation Guide:** Specific instructions for setting up the foundational infrastructure if not fully automated.
- **Operations Manual / Runbook:** Provides instructions for daily operations, system health checks, troubleshooting common issues, startup/shutdown procedures.
- **Monitoring Plan:** Details what metrics to monitor, alert thresholds, and responsible teams.
- **Backup & Disaster Recovery (DR) Plan:** Comprehensive strategy for data backups, restoration, and system recovery in case of disaster, including RTO/RPO.
- **Maintenance Plan:** Schedule and procedures for routine maintenance (patching, upgrades).
- **User Manuals:** Guides for end-users (Data Principals, DPOs, Admins) on how to use the system's features.
- **Training Materials:** Presentations, tutorials, exercises for onboarding new users.

Success Criteria:

- The solution is stable, scalable, and secure for broader deployment.
- Adequate documentation support for all stakeholders
- All critical DPDP Act requirements are fully met and verified by external audit.
- Positive feedback from beta users.
- System Integration partners are onboarded and capable of customization.