



Standardizing the Future

A Unified Digital Platform for BIS
(Bureau of Indian Standards)

Transforming India's Standardization Ecosystem
through Technology and Stakeholder Empowerment

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**Standards are the
silent architecture
of progress;
digitizing them builds
trust, ensures quality,
and drives national
growth.**



Introduction

In an increasingly interconnected world, the role of standards has grown far beyond quality marks and technical compliance; they now underpin global trade, foster consumer trust, drive industrial innovation, and shape sustainable development. From the electrical appliances in our homes to the food we consume and the infrastructure we rely on, standards ensure **interoperability, safety, consistency, and efficiency** across every aspect of modern life.

As economies integrate and supply chains span the globe, countries must adopt robust standardization frameworks to remain competitive and protect public interests. Standards not only provide a common language for global trade but also form the bedrock of **regulatory policies, environmental compliance, and digital transformation**. In this landscape, nations that lead in standardization also lead in technological sovereignty and economic resilience.

Developed economies have long recognized this. For instance, the **American National Standards Institute (ANSI)** in the United States coordinates over **270 accredited standards developers**, facilitating the development of voluntary consensus standards that influence global technology and safety frameworks. **Germany's DIN (Deutsches Institut für Normung)** oversees more than **34,000 standards**, directly shaping both industrial policy and international competitiveness. Similarly, the **International Organization for Standardization (ISO)**, with over **170 member countries**, has published **more than 25,000 international standards, covering a wide range of areas**, from cybersecurity to agriculture.

India, too, is making significant strides in this direction through the Bureau of Indian Standards (BIS), the national standards body responsible for developing, publishing, and maintaining Indian Standards. With a catalogue of over **22,000 published standards**, BIS supports India's ambitions in **Make in India, Digital India, and Atmanirbhar Bharat**, while ensuring product quality, consumer safety, and industrial harmonization. Yet, to fully realize its potential and match global benchmarks, BIS requires a digital-first, integrated platform that can bring all standardization activities under one accessible, transparent, and efficient umbrella.

Need for a Unified Standard Portal

The Bureau of Indian Standards (BIS) plays a central role in ensuring quality, safety, and regulatory compliance across India's industrial and consumer landscape. However, its standardization activities are currently spread across multiple platforms, with manual and fragmented processes leading to inefficiencies and limited stakeholder participation. In today's digital-first environment, there is a pressing need for a **Unified Standard Portal** that can streamline operations and improve accessibility.

A centralized portal would integrate all workflows, ranging from draft notifications and public consultations to final publication and updates, into a single digital ecosystem. This would enable faster standard development, reduce administrative delays, and enhance accountability. It would also foster broader participation from MSMEs, academic institutions, and consumer groups by offering intuitive access to draft standards and simplified feedback mechanisms. Significantly, the portal would strengthen **compliance** and **enforcement** by providing real-time access to published standards, updates, and relevant mandates. It can also be integrated with hallmarking and certification services, creating a seamless experience for manufacturers and service providers.

Globally, leading institutions such as ANSI (USA) and DIN (Germany) have already adopted these digital infrastructures. For BIS, this portal is not just a technology upgrade; it is essential for aligning with global benchmarks, supporting India's trade objectives, and enhancing the credibility of its quality ecosystem.





Challenges



Fragmented Systems:

Multiple disconnected workflows lead to duplication, inefficiency, and an inconsistent user experience.



Poor Module Integration:

Disjointed systems for certification, R&D, and technical committees hamper coordination.



Manual Processes:

Formulating and reviewing standards involves time-consuming manual steps, resulting in delays.



Weak Outreach & Awareness:

The programs and engagement activities lack digital integration and visibility.



Low Stakeholder Participation:

Limited access and engagement tools restrict input from MSMEs, academia, and citizens.



Outdated User Interface:

Current platforms lack intuitive design and are not GIGW-compliant.



Lack of Lifecycle Visibility:

No end-to-end tracking of standards from proposal to publication and review.



Limited Analytics:

Absence of real-time dashboards and analytics limits insight-driven decision-making.



Inefficient Document & Meeting Management:

No centralized system for managing drafts, agendas, minutes, or meetings.



Scalability Issues:

The current infrastructure may not be able to support high user volumes during peak periods.

Solution



Unified portal for managing the lifecycle of Indian Standards



Multi-stakeholder access
(citizens, organizations, govt. bodies, academia, etc.)



Online Work Item Proposal (WIP) submission and approval



Drafting, reviewing, commenting, and finalizing standards



Scheduled review and revision of standards



Digital publication and gazette notifications



Access to hallmarking and certification services



Technical committee management and collaboration



Centralized document management system



Role-based dashboards and analytics



Modules for awareness campaigns and MoU management

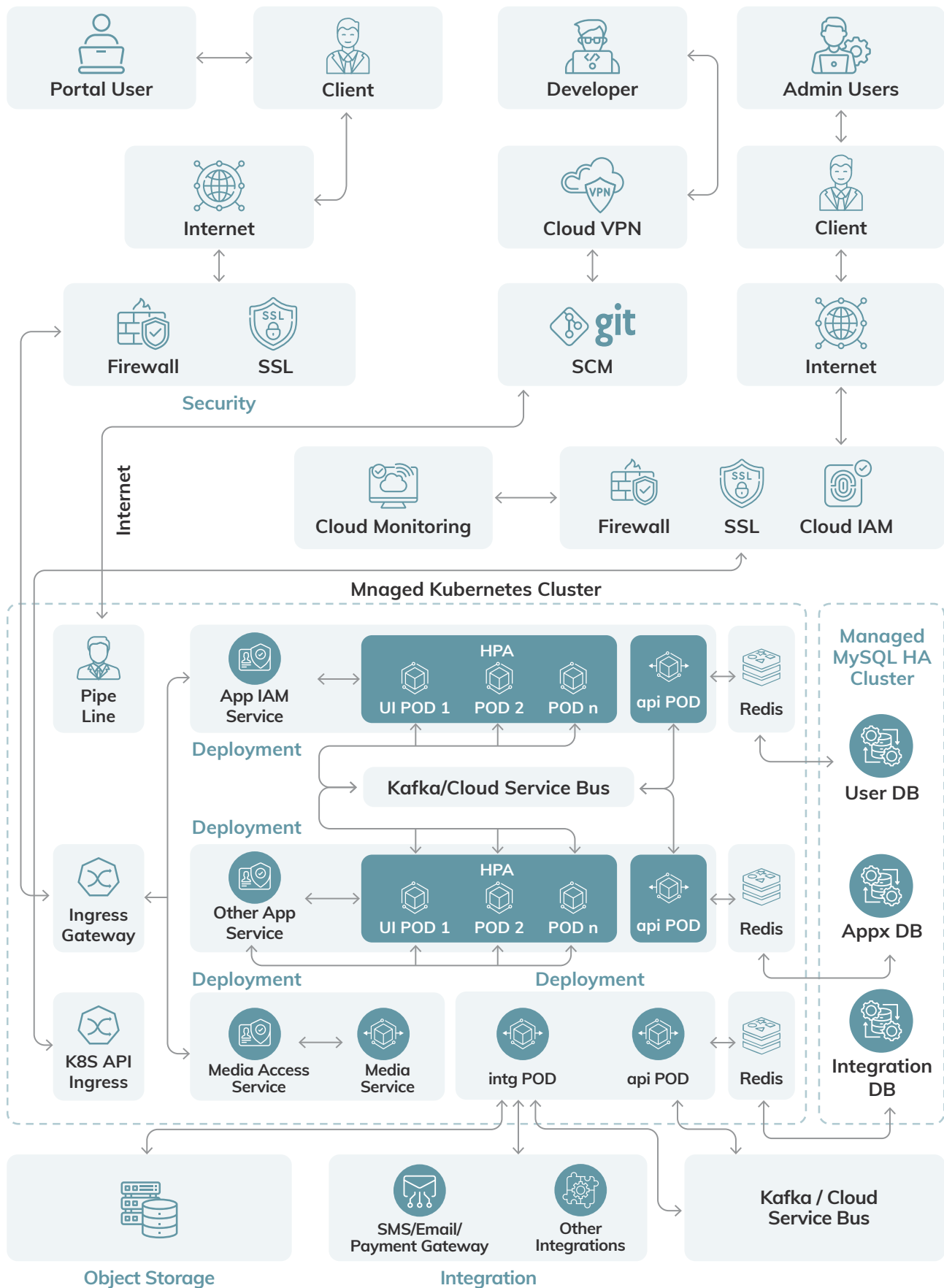


User role management and secure access

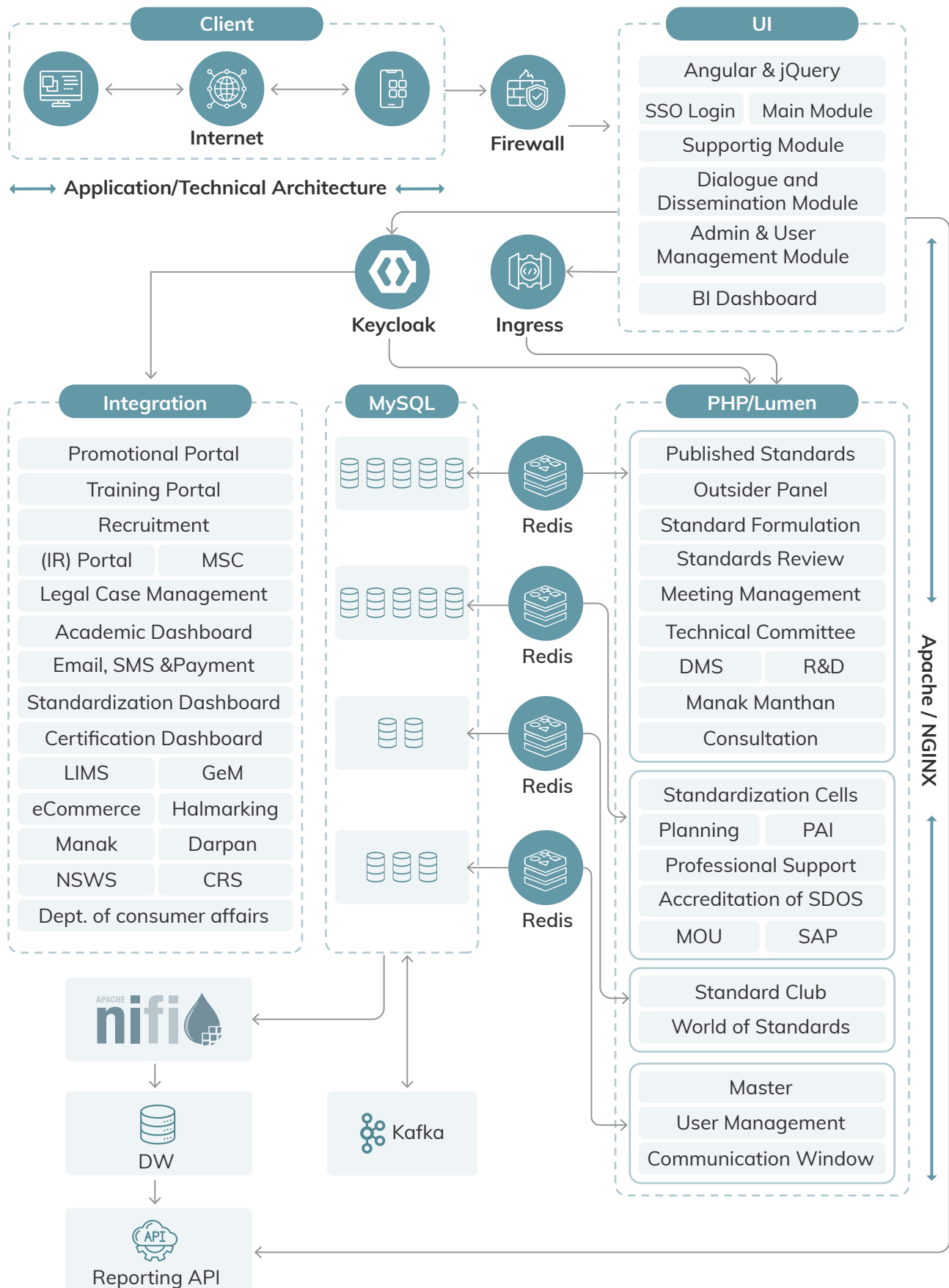


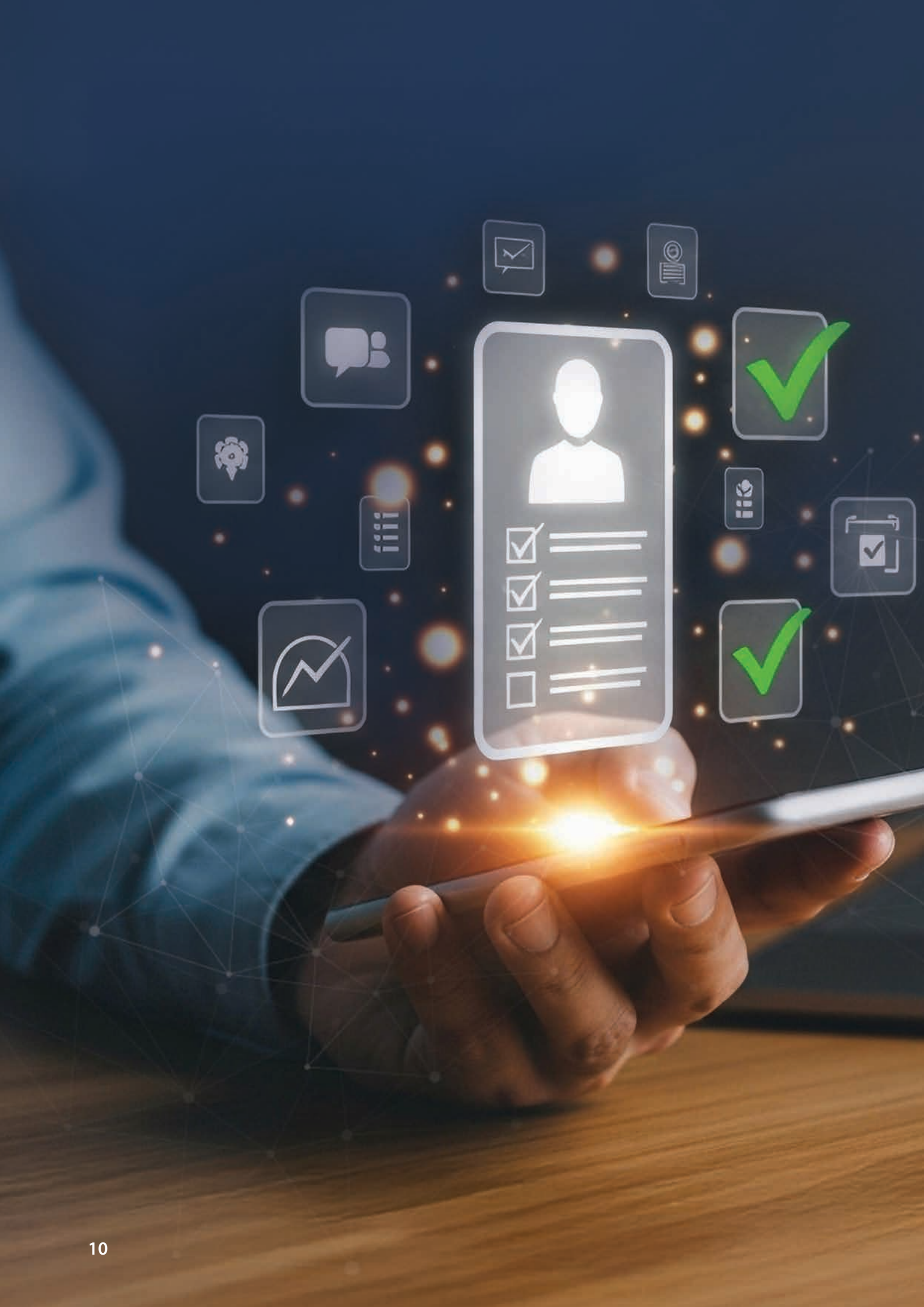
API-based system integration with internal/external platforms

Solution Architecture



Technical Architecture





Tech stack

Backend	PHP (Lumen), MySQL
Frontend	Micro UI, Browser-based
Containerization	Kubernetes, Docker (implied)
Integration	Kafka, Apache NIFI, REST APIs
IAM	Keycloak with OIDC, OAuth 2.0, SAML
Caching	Redis
CI/CD	Jenkins, Git
Monitoring	Cloud Monitoring (OCI)
Cloud Platform	Oracle Cloud Infrastructure (OCI)
Security	SSL/TLS, mTLS, WAF, Firewall, Role-based Access
ETL & Reporting	Apache NIFI, Dashboard Reporting

Features



User-Friendly Interface:

Easy navigation with a clean, intuitive design, ensuring users can quickly find the standards they need.



Standard Development Tool:

An Online collaboration tool will be available to work on the draft document by technical committee members.



Comprehensive Database:

Access to a wide range of Indian Standards (IS), including industry-specific guidelines and updates.



Chat Window:

Chat window to communicate with an individual committee member. Group chat facility will be available. The user can also attach a file with the message.



Search Functionality:

Advanced search options allowing users to find standards by number, title, or keyword.



Downloadable Standards:

Options to view and download standards in PDF format for offline reference.



Standard Development Life Cycle:

Complete standard development life cycle, i.e., from development to publication and revision or amendment, will be covered and available on the portal.



Regulatory Updates:

Notifications about changes or updates to standards and regulations.



Training & Awareness Program:

Platform will facilitate the capacity building of members by training on standards. Organizing a workshop and seminar on standards to increase awareness of standards.



Support Resources:

FAQs, user guides, and contact support for assistance with navigating the portal or interpreting standards.



Integration Capabilities:

Potential integration with other systems or platforms for streamlined processes and data management.



Quiz & Competition:

Dialogue and dissemination module will facilitate the user to configure the branch level, regional level, and national level quiz competition.

Case Snippet

BIS Standard Portal for Bureau of Indian Standards



The Bureau of Indian Standards (BIS), the national standards body established under the BIS Act, 2016, is mandated to formulate, implement, and revise Indian Standards. To digitalize this mission, CSM Technologies partnered with BIS to design and develop a unified **Standard Portal**. This robust, web-based platform centralizes all BIS functions, from standard formulation to stakeholder engagement.

This solution covers all aspects that the proposed solution will encompass in terms of design and development. The application ensures effective service delivery in the BIS working area. This involves public services enrolment starting from a citizen, organization, central government body, or professional bodies applying for a new work item proposal submission, verification by department officers, formulating the IS, and publication & gazette notification for adoption across India. A BIS officer will also review the standard after a pre-defined time duration.

The broader vision behind the project is building a robust, technology-enabled Standard Portal that is reliable, highly available,

and seamlessly integrated. BIS acknowledges the critical role of Information Technology in shaping and managing national standards. The portal will serve as a one-stop digital interface, enabling diverse stakeholders, including ministries, government departments, NGOs, academic institutions, R&D bodies, professional associations, testing labs, and manufacturing agencies, to access essential information and services such as hallmarking and certification. Through this initiative, BIS aims to enhance transparency, operational efficiency, and responsiveness across its Technical Departments, ensuring faster, more inclusive, and more accountable service delivery for all users.

This next-generation portal empowers technical departments, government agencies, academia, industry, and the general public through over **20 core modules**, including **Standards Formulation, Technical Committee Management, Document Management**, and **Dialogue & Dissemination**. It also includes features like online commenting on standards, standard lifecycle visualization, SDO accreditation, and training/workshop facilitation.

Modules of Standards Portal

I

Main Modules

- Published Standards Module
- Standards Formulation Module
- Standards Review Module
- Technical Committee Module
- Document Management Module
- Meetings Management

II

Supporting Module

- Standardization Cells Module
- Planning Module
- Partnership with Academic Institutions
- Professional Support Module
- Accreditation of SDOs Module
- Memorandum of Understanding (MoU) Module
- Standards Awareness Program Module
- BIS National Directory Module
- Dashboard and Reporting Module

III

Dialogue and Dissemination Module

- Standard Club Module
- World of Standards

IV

User Management Module

- Communication Window

V

Miscellaneous

- System Integration Requirement

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The development of the BIS Standard Portal marks a significant leap in India's journey toward digital-first governance and global quality leadership. By consolidating standard formulation, stakeholder engagement, certification services, and outreach efforts into a single unified platform, BIS is redefining how standards are created, managed, and adopted nationwide.

With this initiative, **CSM Technologies and BIS have not only digitized workflows but also democratized access, enhanced collaboration, and ensured that every stakeholder, from citizen to industry, has a voice in shaping India's quality framework.** As India continues to integrate into global markets, this digital transformation stands as a benchmark for how technology can elevate trust, efficiency, and innovation in public service delivery.

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CSM Technologies is a pioneering Tech Services organization that harnesses the power of existing and emerging technologies to provide solutions with tangible impact on efficiency of governance and quality of citizens' lives.

CSM Technologies (HQ)

E/56, Infocity, Chandrasekharpur
Bhubaneswar, Odisha - 751024
Tel: +91-674-6635 903
Email: info@csm.tech
Website: www.csm.tech

CSM Technologies

903, 9th Floor, Bhikaji Bhawan,
Bhikaji Cama Place,
New Delhi - 110066
Tel: +91-9314772527
Email: delhi@csm.tech

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Additional Locations

CSM Technologies Inc.

15310 Amberly Drive Suite,
60 Tampa FL, 33647,
USA

+1 (509) 408-2507
unitedstates@csm.tech

CSM Tech Corp.

200 Bay St,
North Tower Suite 1200,
Greater Toronto Area,
M5J 2J2, Canada

+1 647-267-3819
canada@csm.tech

CSM Tech Limited

3rd Floor, Office Suite No.2,
Western Heights, Karuna
Road, Nairobi, Kenya






+254-713512751
kenya@csm.tech

India

Bhubaneswar | Delhi NCR | Raipur |
Mumbai | Patna | Ranchi

Overseas

Kenya | Rwanda | Ethiopia | Dubai | USA | Canada

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