



## NSDL's new blockchain platform protects bond investors

Newly launched distributed ledger technology (DLT) platform offers greater transparency across the corporate bond lifecycle.



### At a glance

**Industry**  
Capital Markets

**Location**  
India

**Challenge**  
Develop a blockchain-based platform to enhance the monitoring, security and governance of corporate bonds to bring more discipline, standardization and transparency to the market.

**Products and services**  
Cognizant Digital Engineering services

**Success Highlights**

- 4291 issuers onboarded on the DLT platform
- 6368 secured ISINs mapped with assets by issuer, covering almost 90% of the outstanding secured ISINs
- Mapping approved for 6366 secured ISINs by debenture trustee, representing more than 95% ISINs mapped by issuers

### The challenge

Our client, National Securities Depository Limited (NSDL), is one of the largest central securities depositories (CSDs) in the world. As a CSD, the company holds custody value amounting to US\$4.21 trillion in dematerialized form in India's capital market. Using innovative and flexible technology systems, NSDL provides a range of services to end investors, stockbrokers, stock exchanges, custodians, issuer companies, RTAs (registrar and transfer agents), IPAs (issuing and paying agents), Market participants and others.

Cognizant initially engaged with NSDL to build custom applications using Java technologies. The engagement extended to helping the company with the Hadoop platform it uses for reporting.

Following these projects, the Cognizant infrastructure team helped NSDL with a large migration that extended to providing L2 support. We eventually managed infrastructure services, including critical infrastructure, and assisted with disaster recovery.



**Developing a new blockchain platform**

Most recently, Cognizant embarked on a journey to develop a first of its kind blockchain platform for NSDL. The new Security and its Covenant monitoring platform brings more transparency and standardization for secured debenture issues. It monitors the Asset cover of the security and its covenants in the corporate bonds market.

Among its goals, NSDL wanted to create the decentralized ledger to provide a verifiable and immutable audit trail of transactions between debenture issuers and trustees.

Functional and nonfunctional requirements for the project were outlined:

- Avoid data quality challenges by expanding the ability to perform multilateral data sharing
- Protect investor interest through transparency in Asset cover and charge management
- Ensure compliance with submission of records and disclosure to debenture trustee
- Monitor asset coverage, maintain an electronic book of accounts and manage due diligence documentation for the debenture trustee
- Monitor asset cover defaults and covenant breaches

Other issues that have directly affected debenture holders include the absence of an underlying asset, multiple charges on the same asset and deterioration of the value of the asset. By developing a better market infrastructure, NSDL can strengthen regulation of the debenture bond lifecycle and protect investor interests.

As part of a competitive bid process, Cognizant along with other competing vendors were invited to develop a Proof of Concept (PoC) and present a working model of a sample set of use cases along with a detailed approach for execution of this Greenfield project. We shared alternative solution approaches with pros and cons and a cost-effective solution that used an open source blockchain framework.

### Our approach

To ensure transparency and enable zero reconciliation, the blockchain-backed permissioned platform had to include all key stakeholders: debenture trustees, issuers, rating agencies and regulators.

We developed dedicated role-based portals for debenture trustees and issuers and the ability to generate alerts/notifications on corporate events, timeline breaches and more. Salient features of the implementation include International Securities Identification Number (ISIN) mapping to assets, asset charge creation, reports and document management, title search, valuation, issuance of annexure documents required by exchanges and the ability to record charge payments and charge closures, including an audit log.

The solution was jointly designed and developed by Cognizant, along with NSDL architects, product managers, business analysts, developers and quality assurance engineers. Infrastructure set-up and support was provided by NSDL.



"Launch of this platform will help establish the foundational blocks for building the DLT Blockchain infrastructure and pave the path for leveraging this next gen technology for innovation in Indian Capital Markets. Cognizant has been our trusted partner in building and maintaining this innovative platform."

**Sunil Batra, Executive Vice President and CTO**

"We are extremely happy about our partnership with Cognizant team on this strategic initiative. This platform will bring greater transparency in debenture issuance and will encourage other players in the financial ecosystem to make the best use of technology."

**Padmaja Chunduru, Managing Director and CEO at NSDL.**

### Business outcomes

Today, NSDL brings discipline, standardization and transparency to capital market customers by maintaining electronic book entries for the ownership and transfer of securities.

**Meeting goals for issuer-trustee transparency**

NSDL's DLT platform enables discipline and greater transparency to debenture assets and charges by diligently reporting the asset status. Asset securities are validated by the debenture trustees and are undisputable, and transactions recorded as periodic changes to the debenture status are monitored.

As another benefit, NSDL can prevent "over charging on the same asset" which happens when one loan security is not uniquely identifiable and used for multiple debts. The new feature prevents this from happening by performing the appropriate checks and balances.



**NSDL's new DLT platform delivered the following business outcomes\*:**

- 4291 issuers onboarded on the DLT platform.
- 3500+ issuers completed mapping of all their outstanding ISINs with assets.
- 5413 assets created for which mapping with ISIN is performed.
- 6368 secured ISINs mapped with assets by issuer, covering almost 90% of the outstanding secured ISINs.
- Mapping approved for 6366 secured ISINs by debenture trustee, representing more than 95% ISINs mapped by issuers.
- Cashflow information recorded for 6051 ISINs by issuers.

**4291** issuers onboarded on the DLT platform

**6366** secured ISINs approved for mapping by debenture trustee

**6368** secured ISINs mapped with assets by issuer

\*Stats based on outstanding ISINs as of 28-November-2024



**NSDL's Blockchain Platform Protects Bond Investors**

Watch video : <https://www.youtube.com/watch?v=PdRzKVCsxfA>

**About client session**

National Securities Depository Limited aims to ensure the stability of India's marketplace by developing settlement solutions that increase efficiency, minimize risk and reduce costs. Through its wide network of depository partners, NSDL provides a broad range of services to customers spread across the country—and around the world. To learn more, visit <https://nsdl.co.in>.