Achieving Smart Contract Management in OTC Derivatives Trading with Mindtree’s Blockchain Solution

Secure + Reliable + Fast Processing
In the capital markets, some risks are better managed through customizable, over-the-counter (OTC) contracts rather than through exchange-traded financial instruments. But what happens when OTC contracts themselves create the risks? Over-the-counter (OTC) derivative transactions allow counterparties added degrees of flexibility and privacy. Yet OTC transactions are subject to specific risks of data entry errors, data leaks and unauthorized changes, making them more expensive to manage and execute, and more difficult to track for internal audit or external compliance purposes. Until recently, these inefficiencies and risks were considered part of the cost of doing business. The counterparties to an OTC transaction had to be extremely careful, building in extensive checks, cross-checks and error resolution processes into an extremely complex workflow.

For OTC contracts, documentation—including text, photos, videos and voice confirmations—is essential. If there’s a dispute at any point during the lifecycle of an OTC transaction, it’s the quality and extent of documentation that will determine the outcome. That’s why counterparties entering into an OTC agreement must agree not only on terms and conditions, but also on a shared approach for sharing and protecting the underlying documents. OTC documentation is also required for regulatory purposes, including the Dodd-Frank Act in the U.S. and capital requirements under the Basel standards.

Blockchain Solution for Smart Contract Management

Mindtree’s Blockchain-based solution enables a new, smarter approach to OTC contract management. Using a distributed shared ledger based on Blockchain technology, banks can deploy a faster, more efficient and more secure solution for the trusted and transparent exchange of documentation related to an OTC transaction, including:

- Real-time, error-free document transmission and sharing
- Data security that maintains the privacy of transactions
- Protection against data manipulation
- Rapid retrieval of contract data for dispute resolution
- Efficient auditing with measurement of execution quality

The securities industry is moving toward the use of Blockchain for exchanging documentation related to OTC transactions. A distributed shared ledger delivers a common solution for all participants in OTC transactions, including banks (market maker) and their customers (Buyer/Seller), clearing members, CCPs and DTCC.

One of the simplest use cases, and consequently the area where initial development has been most focused, is with OTC derivatives contracts such as forward contracts on currencies. With these contracts, the amounts and timings are fully customizable to meet the needs of customers, and the underlying asset is a currency, which by definition is highly liquid and well understood.

Trading in OTC derivatives through a distributed shared ledger creates numerous efficiencies in trade initiation, execution, settlement and warehousing.

Stepping Through a Transaction

To illustrate the functionality with Smart Contract Management, suppose “Customer” wants to buy from “Trader” a forward contract with a notional value of USD $2M with a settlement date in 30 days.

Even though this example is among the simplest possible OTC transactions, it already involves numerous steps as well as multiple organizations throughout the clearing and settlement process. With the legacy...
Approach to OTC transactions, such a trade may have been agreed to on the telephone, with documents following by fax or instant message. For many organizations, the various documents were maintained using manual, paper-intensive processes, with each step requiring further bilateral processes. Any breakdown in these processes could lead to an expensive dispute resolution process.

A Blockchain enabled distributed shared ledger condenses the time between steps for all of the counterparties, and simplifies the entire process for:

- **Trade Initiation and Negotiation:** Bilateral exchange of information related to requests for quotes, signing of ISDA Master Agreement, collateral requirements and standard settlement instructions
- **Trade Execution and Confirmation:** Updating both parties with trade execution status and confirmation
- **Trade Termination:** Processing requests for termination according to agreements
- **Trade Settlement and Warehousing:** Processing settlement instructions, reporting of net settlement instructions, multi-lateral settlement, trade settlement confirmation and trade affirmation

### Overall Benefits of Smart Contract Management

At the highest level, Smart Contract Management builds trust in OTC contracts using the improved security, transparency and efficiency by distributed ledger:

**Security:**
- Encrypts and validates transaction details using cryptographically-secure methods
- Maintains the legitimacy of information associated with a trade, including customer information
- Reduces opportunities for fraud

**Transparency:**
- Seamless integration across multiple systems
- Simplifies data exchange between multiple entities
- Provides a single source of accurate data for use throughout clearing and settlement

**Efficiency:**
- Facilitates easy document storage and retrieval
- Eliminates unnecessary workflows
- Quickly resolves disputes by reducing errors and discrepancies

Smart Contract Management makes banks more effective at serving the needs of their customers, whether in terms of lowering the cost of transactions, improving execution quality, and fostering an environment of trust between customers and traders through the use of transactions that are less likely to fail.

### Making the leap to distributed shared ledgers

In order to unlock these substantial benefits, financial institutions first need to address the fundamentals of working with distributed shared ledgers. This does require a significant one-time effort for organizations to assign each participant with a secure, unique identity; to establish nodes on an integrated Blockchain network; and to assign participants to network nodes as required.

Mindtree supports financial institutions during this essential transition in several ways, both for the CTO and for the lines of business.
For the CTO
Mindtree provides a fully tested solution for joining a distributed shared ledger, which saves the CTO from having to ramp up on the steep learning curve required to the intricacies and hands-on details of Blockchain technology. With industry-grade software builds made available through cloud or on premise deployment, the Mindtree solution is easy to maintain and provides simple connectivity options to existing core systems.

Services include:
- Analysis for Blockchain solution deployment and support, with consideration of development, testing, maintenance and training
- Access to a highly qualified team of Blockchain experts
- Tested approaches for migration to distributed ledgers, including integration with legacy solutions.
- Best practices for risk management, security, archiving and rollback
- Evaluation of implications on IT architecture

In addition, Mindtree offers the CTO:
- Direct access to trusted experts in banking and financial services
- Customizations for firm-specific workflows and IT architectures
- Proof-of-concept demonstrations to gain stakeholder buy-in
- Fully-functional apps built by our performance-driven development labs
- Management of third-party implementation partners

For the Business Head
Mindtree provides an extensive set of services to support leaders in derivatives markets, investment banking and capital investment during the transition to Smart Contract Management with distributed shared ledgers.

The Future of Distributed Ledgers
Blockchain technology promises tremendous benefits to be realized throughout the industry. Using a shared, distributed ledger, all entities involved with a transaction will be able to access trade and settlement data in real time, while also having the ability to manage risks with maximum efficiency. OTC derivative transactions represent an excellent starting point for banks wishing to get started with the technology. The transactions are relatively simple compared to transactions involving more complex financial instruments, and there is a high demand for customization in terms of currency pairs, pricing and settlement dates.

By simplifying the contracting, clearing and settlement processes for OTC derivatives, banks have the opportunity to reduce costs and improve services for their customers. Over time, the financial services industry will be able to expand OTC derivatives to a wider customer base, supporting lower contract values at higher volumes and greater flexibility. This will enable the expansion of risk management to new areas, supporting future generations with stronger economic growth.