CDM Showcase 2025

DLT and tokenization in repo and collateral markets: how to leverage the CDM and smart contracts

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ICMA CDM Priorities

❑ Facilitate the implementation of priorities of the European Repo and Collateral Council (ERCC) and Global Repo and Collateral Forum (GRCF) and digital transformation of capital markets more broadly.

❑ ICMA aligned the CDM to fully support repo best practices and industry standards across repo products and lifecycle events.

❑ On-going support for standards and interfaces between the CDM and other industry message protocols (FIX, Swift, XML) and regulatory reporting (SFTR, OFR).

❑ Facilitate use of the CDM for innovative technology solutions including distributed ledger technologies.

Repo workflows and functionalities in the CDM

Fixed, Float, Term, Open, Evergreen, Extendible

Full Repo Lifecycle Events

GC baskets & Collateral Eligibility

Best Practices

Settlement and Transfers using SWIFT*

SFTR and OFR Reporting*

FIX to CDM Mapping*

Repo Extensions for APIs

Web3 Extensions*

*Development and POC

CDM Repo Extensions and Demos

❑ **Repo Extensions**
- Many get/set functions to build repo products and execute lifecycle events
- https://github.com/tomhealey-icma/repo-cdm-extension-func

❑ **Repo Pair-off Extension**
- Repo Pair-off instruction and validation
- https://github.com/tomhealey-icma/repo-cdm-pairoff-extension

❑ **Repo Demo App**
- Repo Trading App
- https://github.com/tomhealey-icma/cdm-repo-demo-app

❑ **SFTR/OFR Extensions**
- Extension and mapping CDM to OFR
- https://github.com/tomhealey-icma/repo-sftr-extensions
- https://github.com/tomhealey-icma/repo-ofr-extensions

❑ **Repo GC Basket Builder**
- Created GC basket using CDM
- https://github.com/tomhealey-icma/cdm-gc-basket-builder

Repo and collateral in a DLT environment
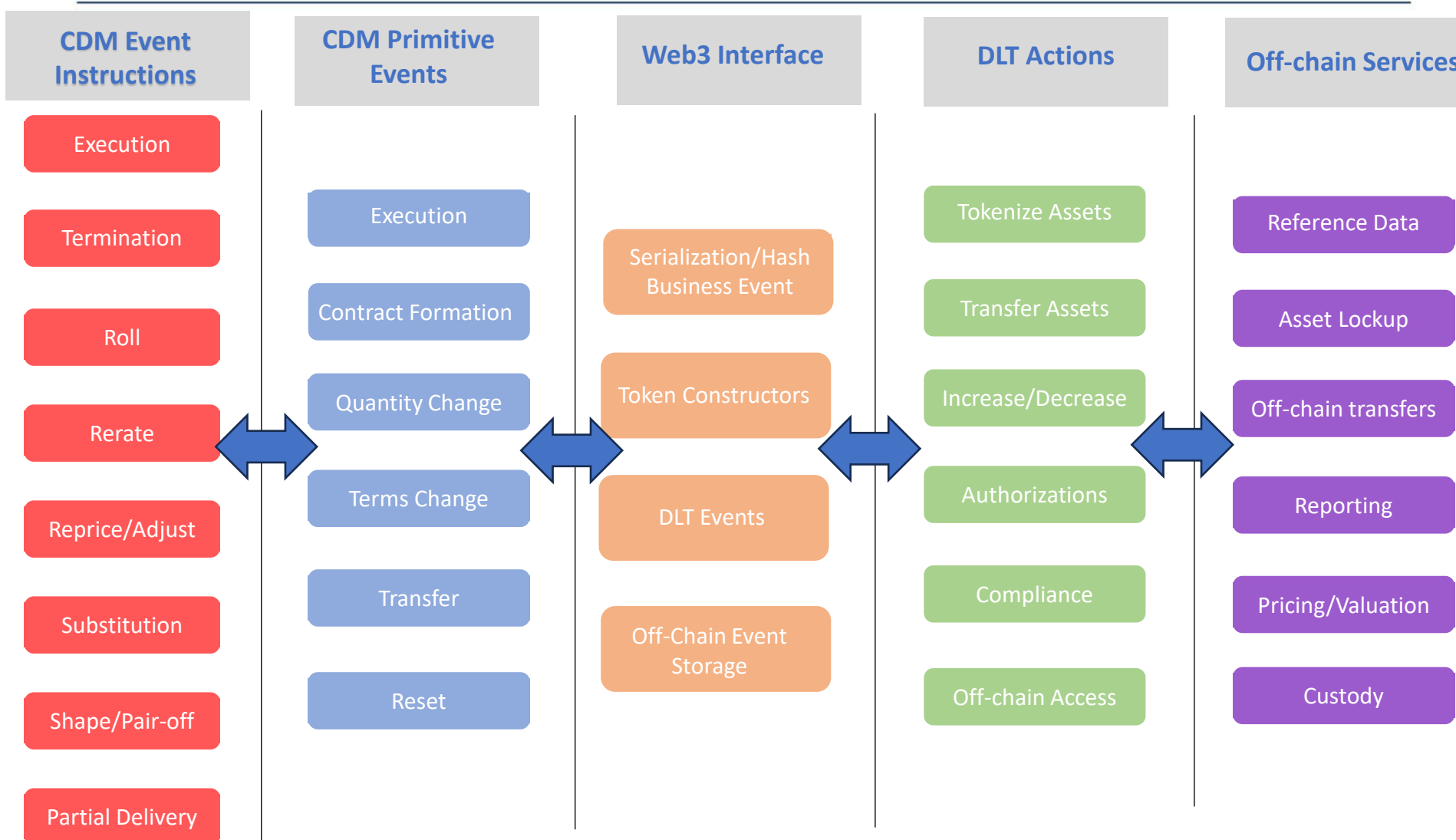
Repo and tokenization – Recent developments

❑ ICMA's GMRA Digital Assets Annex, published in August 2024, provides a standardised framework and set of terms which can be used to document repo transactions involving digital cash, digital securities (including tokenised traditional securities), or asset-backed digital assets.

❑ Recent repo transactions and announcements involving DLT-based securities and/or digital forms of cash include:

- ✓ Santander and JPMorgan programmable intraday repo transaction, January 2025
- ✓ Société Générale Forge and Banque de France repo transaction on a public blockchain, December 2024
- ✓ Eurosystem trials and experiments facilitating the settlement of DLT-based transactions including repo in central bank money (May-November 2024)
  - ▪ ABN AMRO executed four repo pilot trades, November 2024
  - ▪ HQLAx, Goldman Sachs, Clearstream and Eurex Repo, November 2024
- ✓ UBS, SBI and DBS completed world's first cross-border repo with a natively-issued digital bond fully executed and settled on a public blockchain, November 2023

Note: See further examples and information on ICMA's New FinTech applications in bond markets webpage. This overview is provided by ICMA for information purposes only. ICMA does not endorse any of those firms or solutions listed.
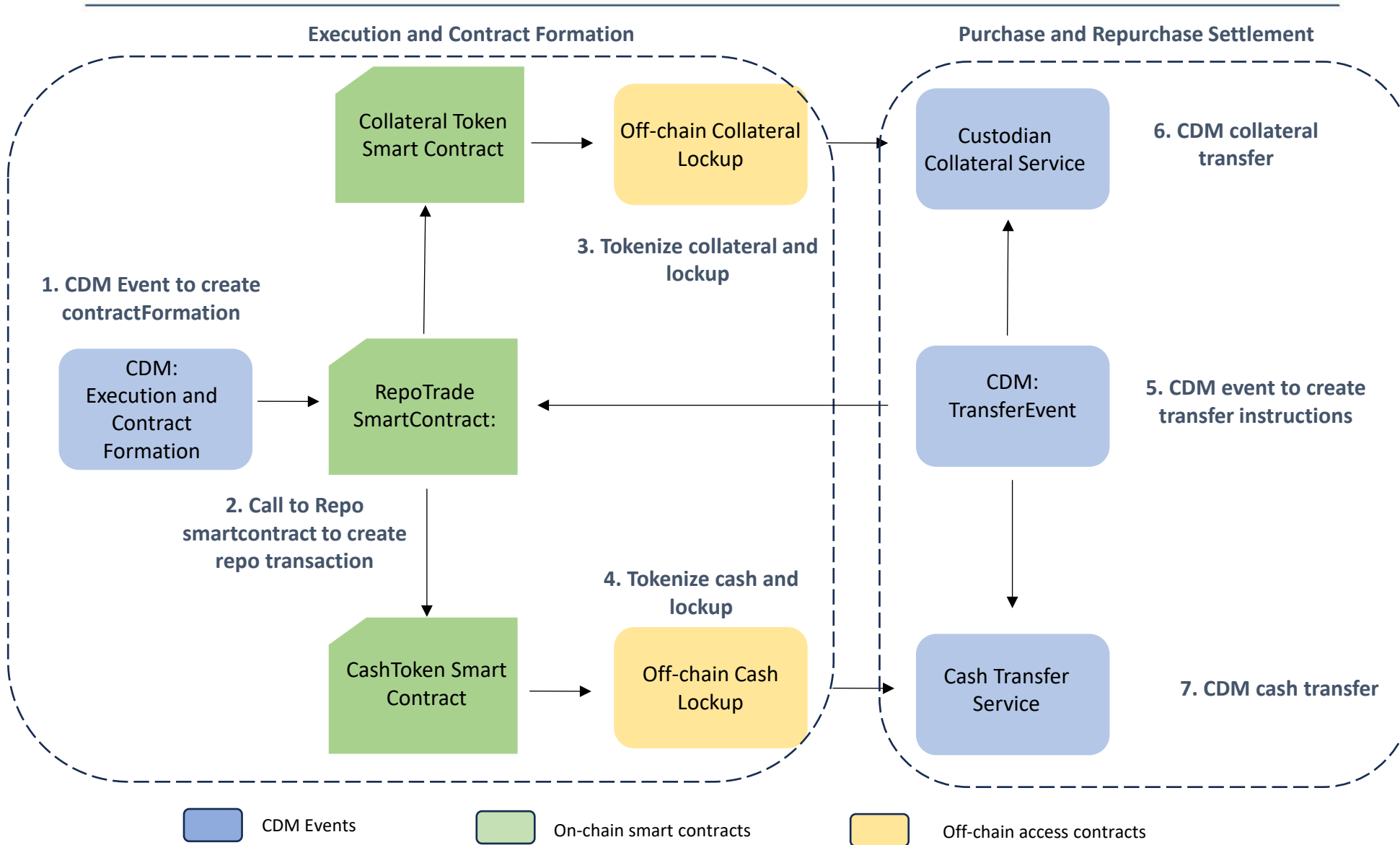
The CDM fills an important gap in DLT environments

Industry Benefit	DLT Capability	CDM DLT Support
Reduced Intermediation	Decentralization eliminates intermediaries	CDM generates stateless, standardized events
Standardized Event Processing	DLT smart contracts depend on external event triggers	Predefined and standardized lifecycle events
Greater Fungibility	Tokens do not depend on location and time zones	CDM standardizes product representations in a digital form

Demo Framework for integration of CDM and DLT

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CDM Event Instructions	CDM Primitive Events	Web3 Interface	DLT Actions	Off-chain Services
Execution				
Termination	Execution		Tokenize Assets	Reference Data
Roll	Contract Formation	Serialization/Hash Business Event	Transfer Assets	Asset Lockup
Rerate	Quantity Change	Token Constructors	Increase/Decrease	Off-chain transfers
Reprice/Adjust	Terms Change	DLT Events	Authorizations	Reporting
Substitution	Transfer	Off-Chain Event Storage	Compliance	Pricing/Valuation
Shape/Pair-off	Reset		Off-chain Access	Custody
Partial Delivery				

CDM demo of recording a repo transaction and transferring cash and collateral in a DLT environment

Repo DLT Demo using smart contracts and the CDM

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Execution and Contract Formation

Purchase and Repurchase Settlement

Collateral Token Smart Contract

Off-chain Collateral Lockup

Custodian Collateral Service

6. CDM collateral transfer

3. Tokenize collateral and lockup

1. CDM Event to create contractFormation

CDM: Execution and Contract Formation

RepoTrade SmartContract:

CDM: TransferEvent

5. CDM event to create transfer instructions

2. Call to Repo smartcontract to create repo transaction

4. Tokenize cash and lockup

CashToken Smart Contract

Off-chain Cash Lockup

Cash Transfer Service

7. CDM cash transfer

CDM Events

On-chain smart contracts

Off-chain access contracts

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Contacts & Resources

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Useful links:

FinTech Overview

FINOS CDM GitHub repository

ICMA's CDM webpage

ICMA CDM Demo – Automating repo transactions (April 2023)

Bond Data Taxonomy

DLT Bonds Working Group

FinTech newsletter

Podcasts