Common Domain Model- An Overview

Catalyst for Change- Current Market Structure Challenges

CDM
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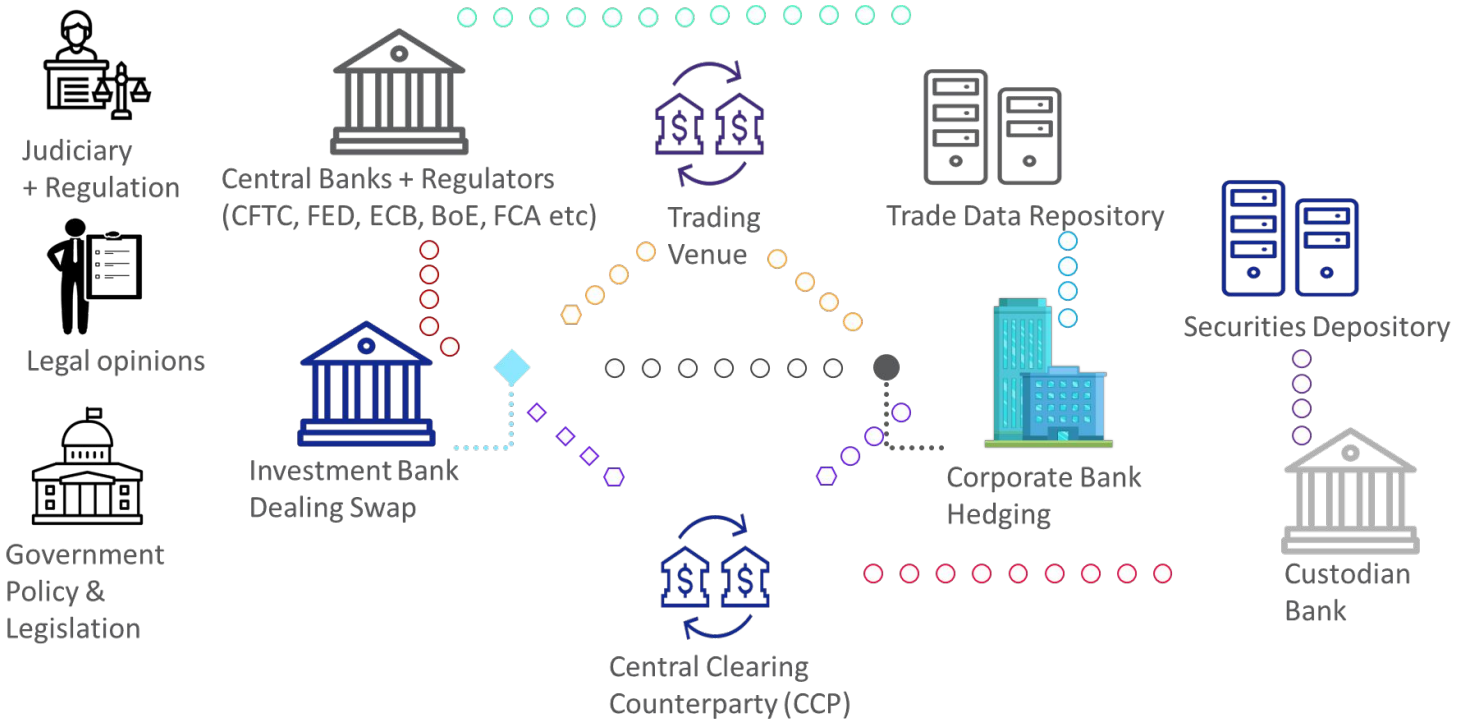
All parties store trade data in different formats & make lifecycle changes to these records inconsistently



What is the true "truth" at any point in time?

Differences in booking models lead to real world events in those models producing different outcomes:

- **Reconciliation breaks**
- **Valuation differences**
- **Collateral disputes**
- **Reporting mismatches**
- **Operational inefficiency**
- **Settlement failures**
- **Barriers to automation**

What is the CDM?

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The Common Domain Model (CDM) is a standardised, machine-readable and machine-executable blueprint for how financial products are traded and managed across the transaction lifecycle.

Dimensions of the CDM:

Product	Definitions of tradeable products qualified by their economic terms
Event	Data structures to represent the lifecycle events of financial transactions
Legal Agreement	Digital representation of the legal agreements that govern transactions
Process	Translates the technical standards that support those industry processes into a standardised machine-readable and machine-executable format
Reference Data	Reference data components that are specifically needed to model the other dimensions
Mapping	Mapped to a set of alternative data representations including FIX, FpML, ISO20022

The CDM is **NOT** an application in and of itself, but can be implemented within one

Composability allows for re-use of components for efficiency

Core Benefits

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Efficiency	Transparency	Accelerated Innovation
Enhance interoperability, reduce reconciliations and promote straight-through processing	**Promote transparency and alignment between regulators and market participants**	Create an environment for innovation in financial markets

- A **mutualised free open-source standardised digital blueprint** on how to represent financial transactions, performance and business events.
- **Extensible** to compose financial instruments by assembling reusable components. Already covers robustly derivative and securities financial transactions.
- **Scalable** as event-driven model that encapsulates primitive components that will de facto make the fabric of complex business and operational processes.
- **Operational and functional** to codify the contract mechanics and business logic of legal agreements.
- **Unambiguous** in digitising functionally complex business and regulatory logic into code.
- **Directly approachable** as published in both **human readable and machine executable languages.**
- **Implementable across several strategic uses cases** in capital markets for better automation and greater consistency e.g. Trade management systems, clearing, digital documentation, collateral managements, regulatory reporting.

Benefits- Consistency of representation

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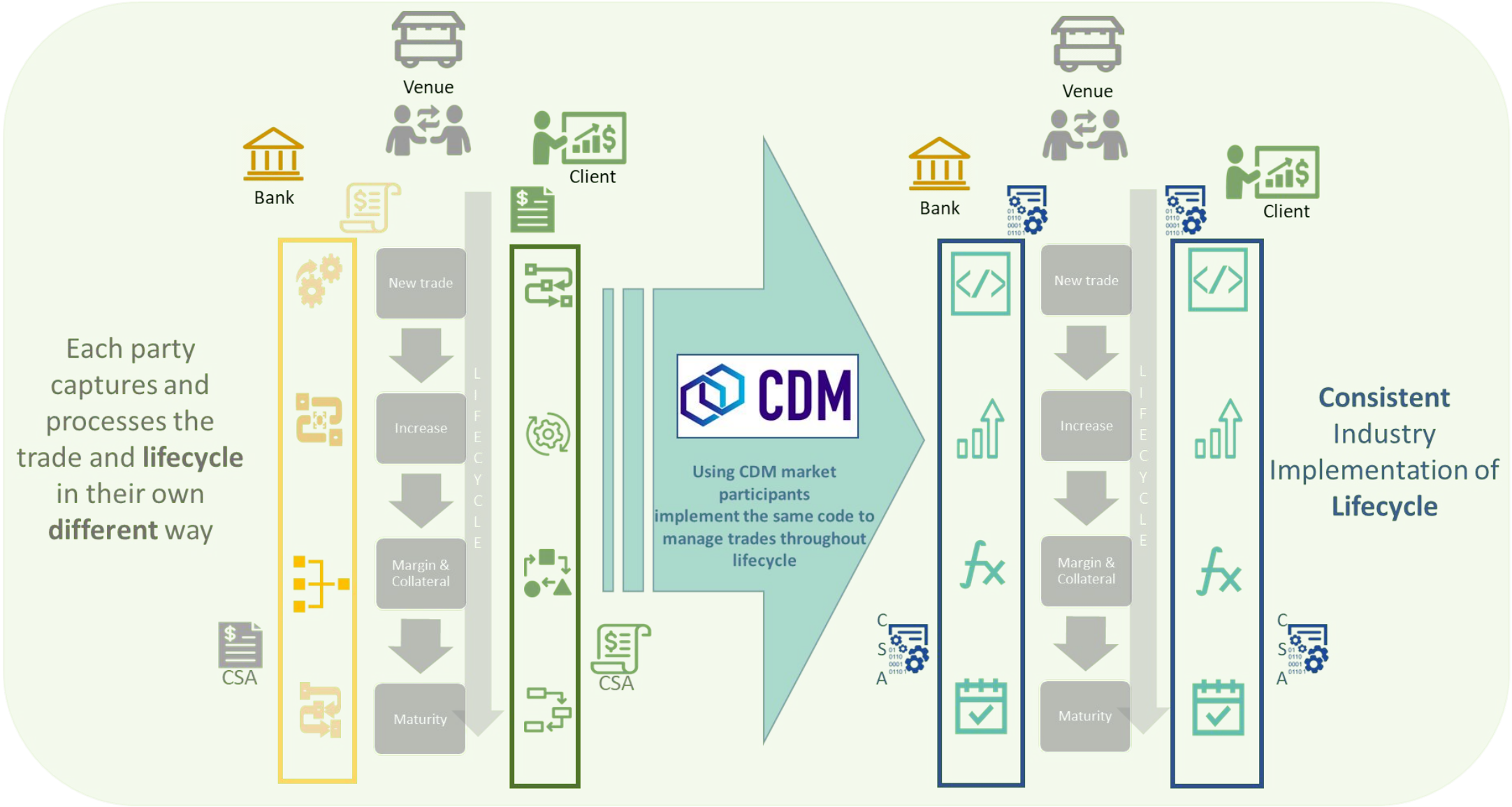

CDM vs. FpML

While both CDM & FpML are standards, they can and will co-exist

- CDM is not a data format for messaging or storage, it is a logical model describing relationships between pieces of data
- CDM can be expressed in various forms including XML, JSON and other standard formats such as FpML, FIX & ISO20022 for exchange and storage of information
- FpML does not define standards for event and workflow processing, CDM prescribes the validation logic to express these more specifically

Use Cases

Product Coverage

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The scope of contractual products in the current model are summarized below:

- **Interest rate derivatives**:
  - Interest Rate Swaps (incl. cross-currency swaps, non-deliverable swaps, basis swaps, swaps with non-regular periods, …)
  - Swaptions
  - Caps/floors
  - FRAs
  - OTC Options on Bonds
- **Credit derivatives**:
  - Credit Default Swaps (incl. baskets, tranche, swaps with mortgage and loans underliers, …)
  - Options on Credit Default Swaps
- **Equity derivatives**:
  - Equity Swaps (TRS, PRS, single name/index/basket, VarSwap, VolSwap, Dispersion, Correlation, Dividend Swap)
  - Options & Forwards
- **Foreign Exchange derivatives:**
  - FX Swap, Forward, NDF, Options
- **Commodity derivatives**:
  - Swaps, options, swaptions
- **Exchange Traded derivatives**

The use of common elements allow for representation of multiple types of products and events in the trade workflow with minimal incremental work. Thus, this coverage list does not represent an exhaustive list of all possible combinations of elements or events

Product & Event Coverage

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The scope of contractual products and events in the current model are summarized below:

- **Securities Lending**:
  - Single underlier, cash collateralised, open/term security loan
- **Repurchase Agreements**:
  - Open Term, Fixed Term, Fixed Rate, Floating Rate
- **Events**:
  - Allocation, Re-allocation
  - Cash, Security transfers, DVP settlement
  - Clearing events
  - Compression
  - Increase and decreases/returns
  - Novations- full, partial
  - Terminations- full, partial
  - Renegotiation
  - Reset
  - Execution
  - Stock Split
  - Index Transition
  - Determination of corporate action and credit events

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Trade Reporting Using the ISDA Digital Regulatory Reporting Solution

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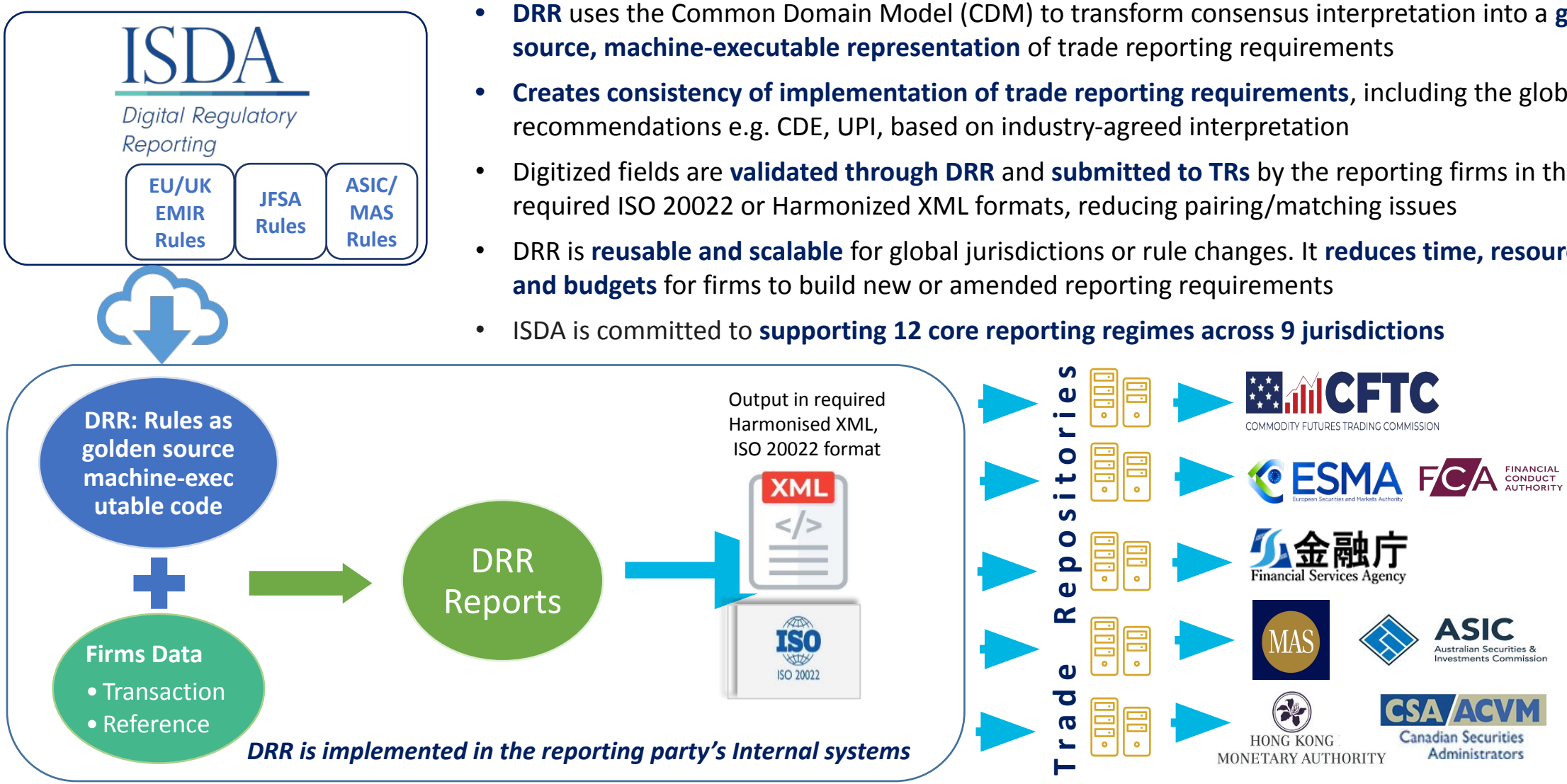


- **DRR** uses the Common Domain Model (CDM) to transform consensus interpretation into a **golden source, machine-executable representation** of trade reporting requirements
- **Creates consistency of implementation of trade reporting requirements**, including the global recommendations e.g. CDE, UPI, based on industry-agreed interpretation
- Digitized fields are **validated through DRR** and **submitted to TRs** by the reporting firms in the required ISO 20022 or Harmonized XML formats, reducing pairing/matching issues
- DRR is **reusable and scalable** for global jurisdictions or rule changes. It **reduces time, resources, and budgets** for firms to build new or amended reporting requirements
- ISDA is committed to **supporting 12 core reporting regimes across 9 jurisdictions**

Collateral- Benefits of CDM Standard Documentation

CDM
COMMON DOMAIN MODEL

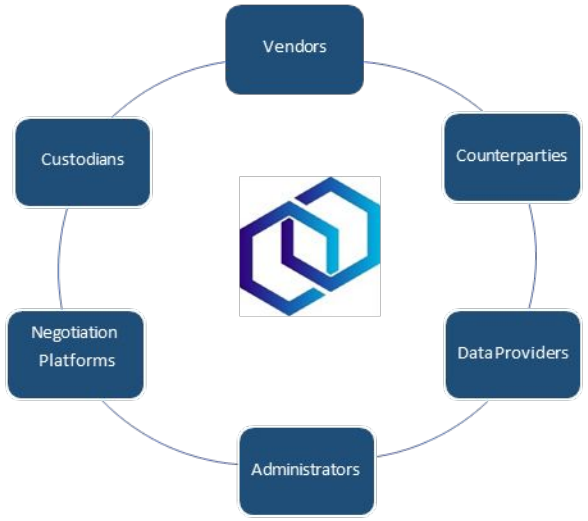
ISDA create

IM CSA Negotiated between parties

Standard CSA data ouput via ISDACreateAPI


```
{
  "agreementDate": {
    "day": 16,
    "month": 7,
    "year": 2020
  },
  "agreementType": {
    "governingLaw": "USNY",
    "name": "CREDIT_SUPPORT_ANNEX",
    "publisher": "ISDA",
    "vintage": 2018
  },
  "contractualParty": [
    {
      "value": {
        "meta": {
          "externalKey": "partyA",
          "globalKey": "65781808"
        },
        "name": {
```


Standard Representation Promotes Interoperability, Transfer of Clean Data and STP



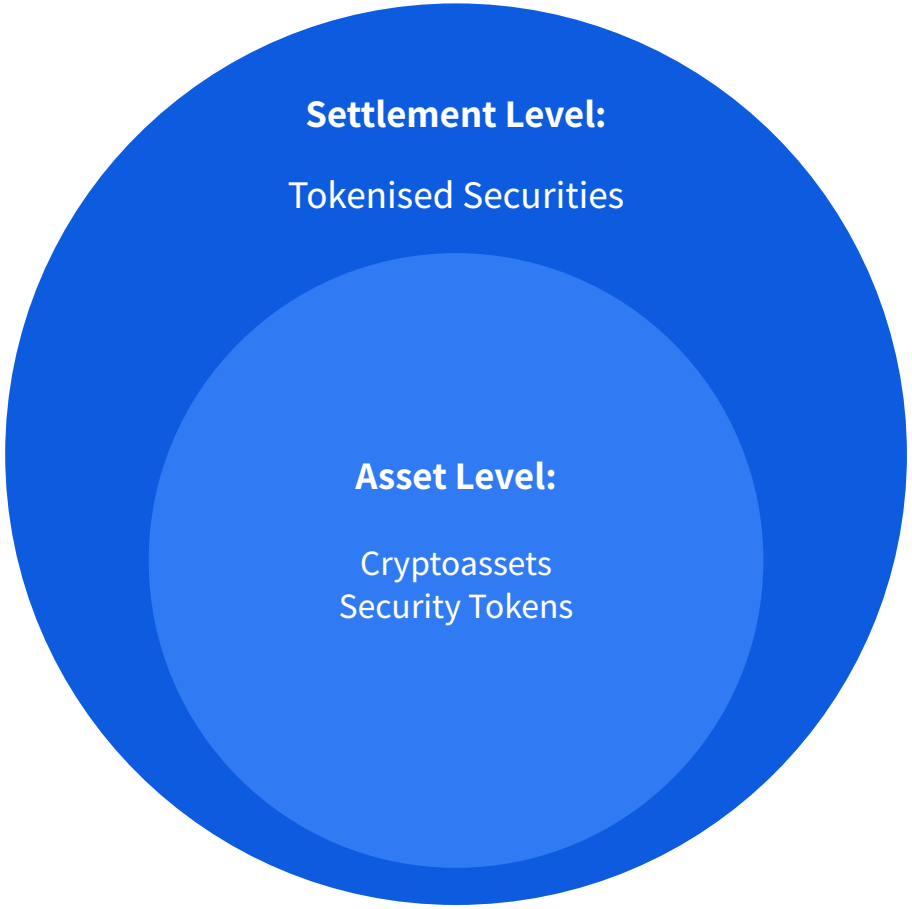
Institutions can exchange CDM Standard for Documents including Eligibility Data to drive Collateral Processes

Use Cases and Benefits

- Fewer Reconciliations, Translations
- Shorter Processes
- Reduced Negotiation Timeframes
- Improved Onboarding
- Decreased Settlement Risks
- Cost Effective
- Secure transfer of information
- Mitigates Margin Disputes
- STP from Negotiation to Settlement
- Produces Clean Auditable data
- Facilitates Digitizing Legacy Data
- Matching counterparty
- Standards for Eligibility Data
- Advance Optimization Processing
- Improved Custodian Services and Interoperability
- Advanced processing of Contract Amendments

Modelling tokenised securities in CDM

- The appropriate level of modelling depends on whether the asset itself is a token, or whether tokenisation is used only as a settlement mechanism
- In the **CDM Tokenised Assets Working Group**, we have adopted a layered approach:
  - Asset-level tokenisation,
  - Settlement-level tokenisation.



Modelling tokenised securities in CDM

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Problem statement

Increased adoption momentum has seen more firms actively engaging with CDM. This has highlighted:

1) **Strong interest from members in standardized post-trade processing using CDM**
2) **Knowingly under-developed workflow dimension can lead to orchestration of CDM functions in slightly different ways by implementers**

Objective

Build an open-source and freely available library of standardized production-ready CDM functions and workflows to allow firms to automate post-trade events using CDM logic directly in their infrastructure, beginning with a focus on resets.
This will be achieved by workshops with members and development, project managed and OS code delivered by Tokenovate on behalf of ISDA

In-scope

- **66% of clauses in ISDA 2021 IRD Definitions**
- Reset process including: observation, business day adjustments, observation lags (lookback, lockout, shift), compounding/averaging/interpolation methodologies, caps and floors
- Fallback logic
- Cashflow calculation
- Integration with ISDA FRO matrix (access to values will still require relevant membership/IP purchasing through MyLibrary)

Benefits

- **Added value to CDM/DRR adopters** through consistent industry tooling for a wider set of post-trade use cases
- **Reduced risk** of fragmentation at the implementation stage
- Foundation for tokenized workflows and **T+1 settlement**
- Ready-made libraries for use in **smart contracts**, also **unlocking AI-based modelling**
- **Scalable to other asset classes** and products e.g. Eq/FX Swaps, any product with averaging, compounding components

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Further Use Cases

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Integration with CRIF standard for FRTB, SIMM, and SA-CVA reporting

Transcribe legally prescribed functional clauses from ISDA Def into machine readable and human readable codified functions

Facilitate more efficient re-use of data e.g. data template for large volume of increases of an Equity portfolio swap

Set a standard for the efficient digitalisation of collateral related margin process

Assert and mutualise the standardised encoding and capacity for implementation of legal clauses supporting the life cycle events of derivative transactions.

Express the CCP clearing handbook book that regulates the registration and clearing of a transaction into a machine readable and executable code that can be automatically generated.

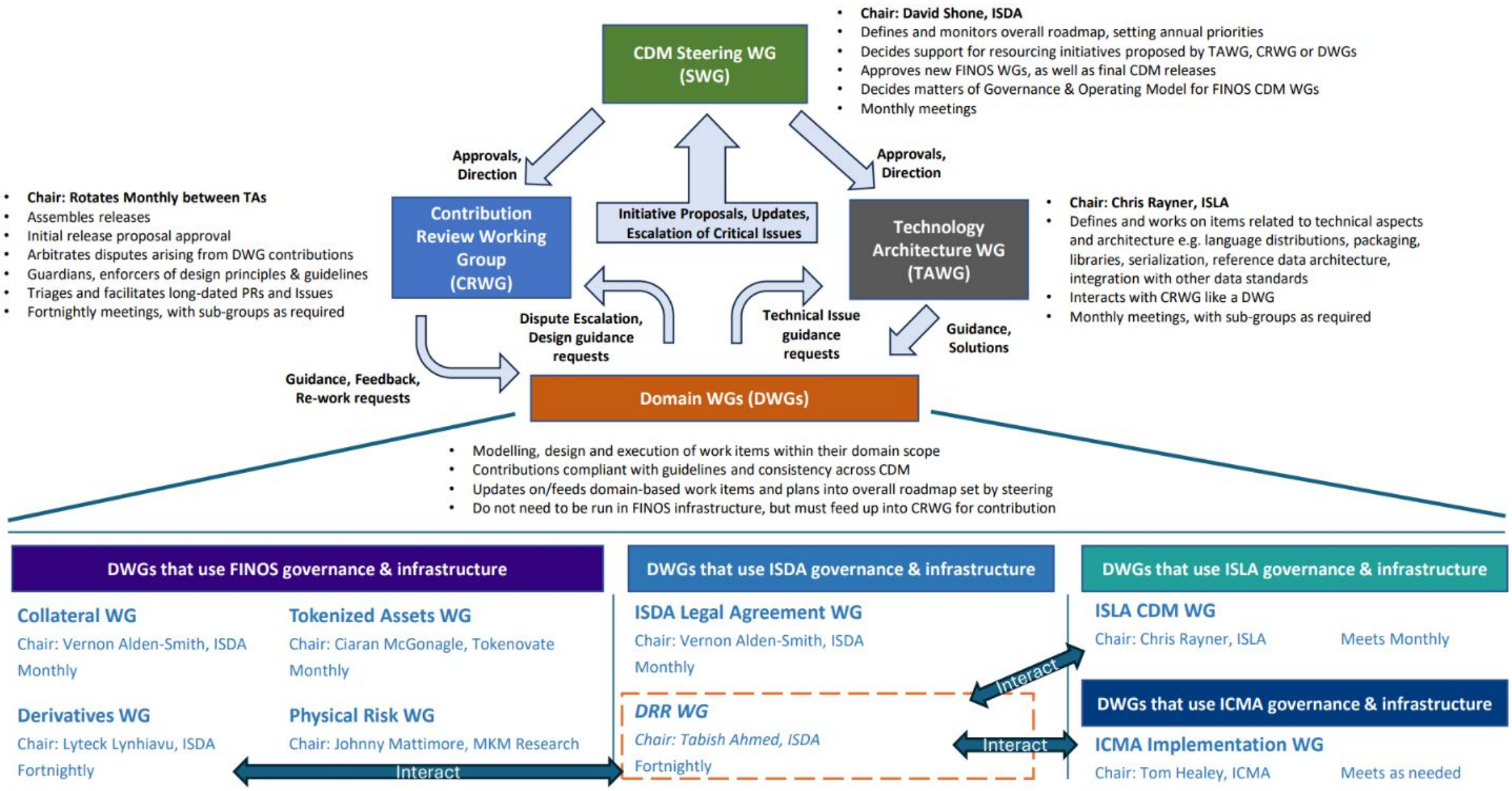
Support more consistent implementation of market infrastructures processes such as clearing in tally with upcoming new innovative technologies (DLT, Cloud, Smart Contract, etc)

Match and store consistent trade representations that feed in “real time” FO trading systems using DLT and detect inconsistencies if any.

Aid the standardized representation of SSIs

Get Involved

CDM Governance Landscape



FINOS: The Home of CDM
Join Working Groups

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Steering Working Group

Developing the technical and modelling guidelines, setting and revising the project's strategic roadmap, and for vetting proposed changes.

Monthly, Tuesdays
11AM EST (4 PM BST)

Contribution Review Working Group

Reviews approves, and implements contribution proposals to the CDM.

Semi-monthly, Tuesdays
10 AM EST (3PM BST)

FINOS Community Calendar

Collateral Working Group

Provides the CDM framework for harmonization of data and processes for collateral flows and documentation.

Monthly, Wednesdays
10AM EST (3PM BST)

Derivatives Working Group

Focused on swaps, structured products, options, FX, post-trade events.

Semi-monthly, Wednesdays
11:30 AM EST (4:30PM BST)

Tokenized Assets Working Group

Working to Introduce tokenisation attributes to the existing asset model.

Monthly, Wednesdays
10AM EST (3PM BST)

Technology Architecture Working Group

Aligns architecture tooling services, infrastructure, development practices, and deployment to existing and future technologies.

Semi-monthly, Thursdays
9AM EST (2PM BST)

Physical Risk Working Group

Integrating physical risk into the global banking system through an open-source framework.

Monthly, Wednesdays
9 AM EST (2PM BST)

Smart Contract Task Force

Task force dedicated to the operationalisation of the CDM.

Monthly, Fridays
9:30 AM EST (2:30 PM BST)

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TRADE HEADER

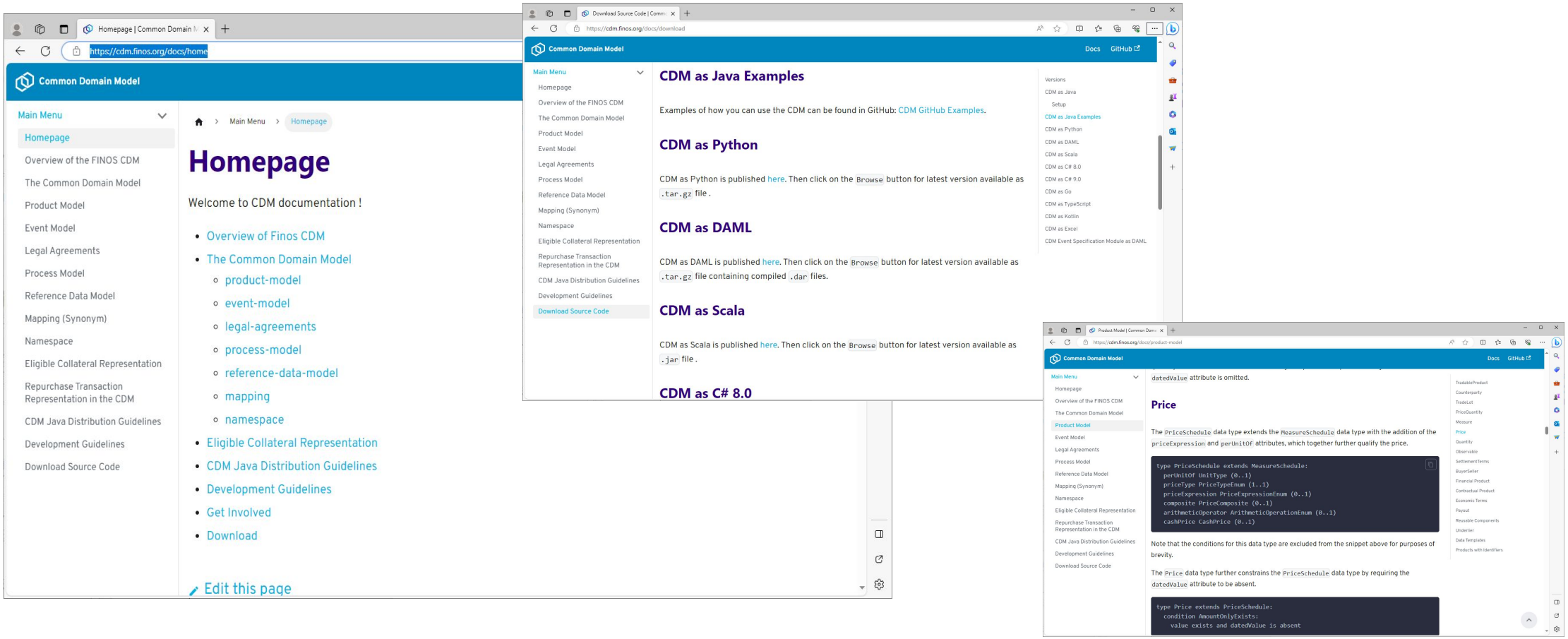
THE LINUX FOUNDATION

A 90-minute, self-paced Express Learning course – teaches how to use CDM to standardize data for various financial products, including derivatives, securities, and repos and apply business events to related transactions.

ENROLL TODAY!

How to get involved

Info hub for FINOS including user documentation downloadable distributions: Homepage | Common Domain Model (finos.org)



COMMON DOMAIN MODEL

The Common Domain Model is brought to you by:

FINOS

ISDA Safe, Efficient Markets

ICMA International Capital Market Association

ISLA INTERNATIONAL SECURITIES LENDING ASSOCIATION