

ISDA CDM | Data and Process Standards

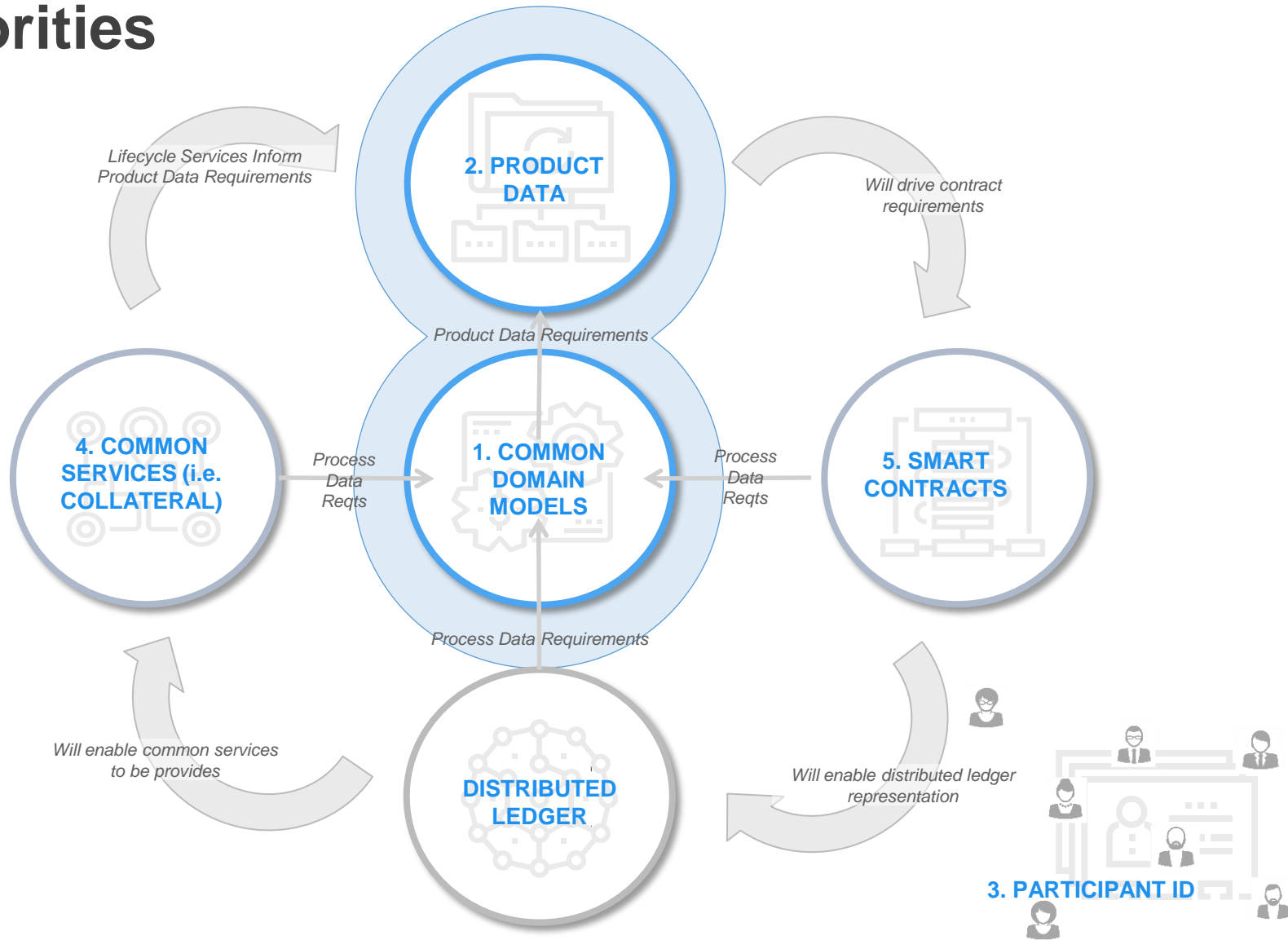


September 2017



Introduction | MITOC Priorities

- Following publication of the ISDA whitepaper on 'The Future of Derivatives Processing and Market Infrastructure' in September 2016, ISDA's Market Infrastructure and Technology Oversight Committee (MITOC) identified **5 key workstreams** to address the challenges identified therein
- A focus group met regularly for workshops and interviews to **mobilise these workstreams**
- The group quickly identified the interdependent relationship between the **foundational components** of the future derivatives ecosystem
- There is a recognised and pressing concern to avoid looking at these components in isolation and guard against duplication to **avoid replicating the fragmentation** that currently exists today
- Distributed ledgers and associated smart contracts provide a means of enforcement of common domain models across the industry and the group believe that this is the right area to **concentrate our focus** and best chance for success

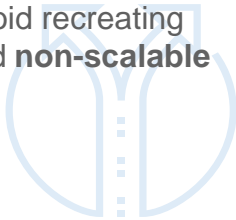


Executive Summary

Premise

A recognised challenge and opportunity

- Emerging technologies and design principles have highlighted major opportunities for process **transformation**
- Existing foundations for the exchange of information will prevent market participants from being able to fully **capitalise** on these opportunities and may require retro-fitting new technologies with old and inefficient components
- A decision needs to be taken in relation to data and process foundations to avoid recreating unsustainable and **non-scalable infrastructure**



Concept

A standardized model for expressing data and processes

- A common, standardised **data and process hierarchy** that builds upon the minimal object definitions contained within FpML to express transactions as collections of economic features and trade events
- A proven technique utilised in many internal risk management systems to mitigate the accepted practices of **bilateral information exchanges** between market participants
- This will act as a non-differentiated **unifying standard** to facilitate the development of new technologies, including distributed ledgers and smart contracts



Benefits

The essential building block for industry transformation

- The model provides for consistent hierarchical representation across trades, portfolios and events **providing enhanced risk management and trade processing capabilities**
- Provides the requisite foundations now for **genuine long-term process transformation** in concert with emerging technologies
- Provides **transparency and alignment** between market participants and regulators
- Enables market participants to comply with **regulatory requirements** in a cost-effective manner without fear of redundant effort



Proposal

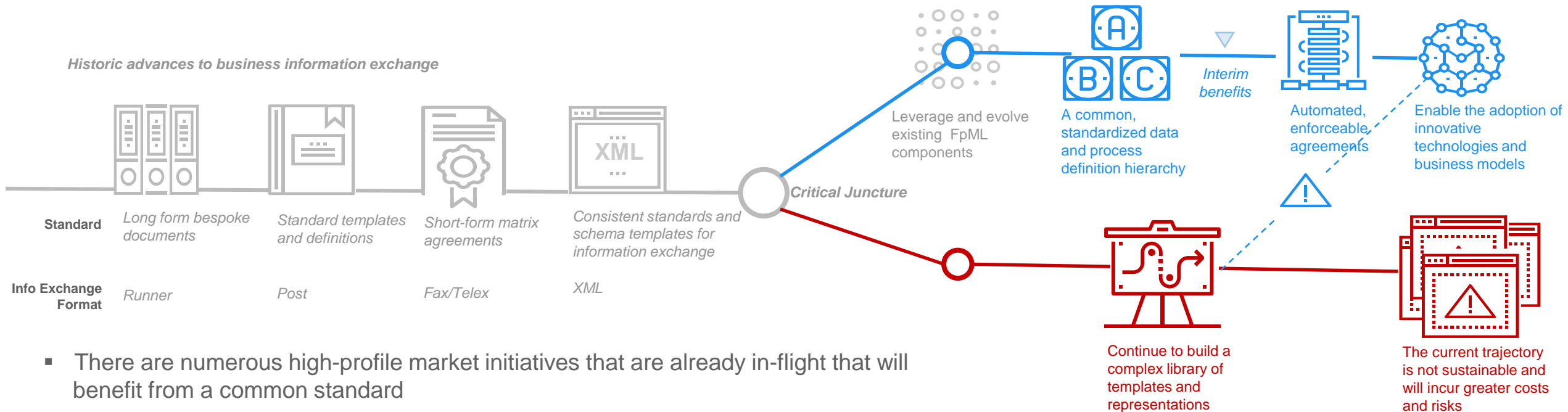
We must commit to developing the design and driving adoption

- Test and further **define the hierarchy** across a broader set of products, scenarios and actors
- Understand and assess potential to build the hierarchy **upon FpML foundations**
- Engage with key **stakeholders** including Fintech providers, regulators etc. and gather their views to refine the model
- Look at ways in which to establish the model as a **standard and governance** to encourage broad market adoption
- Immediate focus on demonstrating the opportunity to elicit requisite market participation



Premise | A Critical Juncture

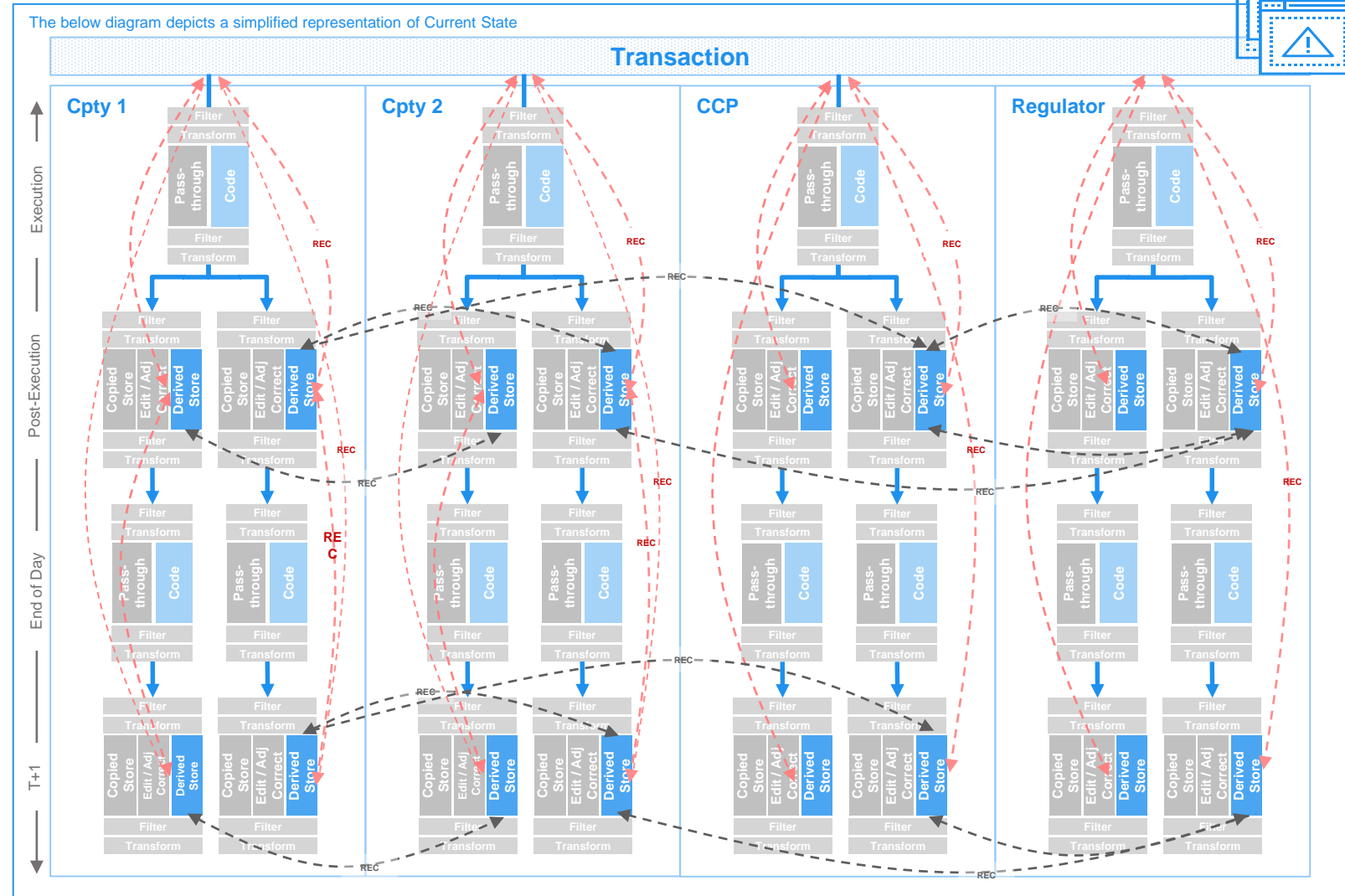
- We believe that the industry is at a critical juncture in its efforts to define and adopt improved data and process hierarchy standards
- We believe that there is no commercial advantage to organisations developing and maintaining standards separately. Current mechanisms for information exchange and storage are not scalable and will potentially (i) inhibit innovation and (ii) increase operational risks and costs
- We believe that there is a need for a standardized data and process definition hierarchy that evolves the FpML structures and provides greater organisation and control around common standards. We believe that the alternative path is not viable long-term



- There are numerous high-profile market initiatives that are already in-flight that will benefit from a common standard

Path 1 | Continuing as we are

- The current information creation and exchange processes and technologies were developed for the purposes of electronic and automation. As regulation and market standards have become more sophisticated this has resulted in a major technology dependency and unserviceable operating expense debt
- The model required to enable the industry to capitalise on emerging technologies and disruptive business practices requires data integrity and trade certainty which is not possible with a model that is reliant on information exchange, transformation and reconciliation
- Continuing on this path will not only magnify the issue (putting further stress on operational processes and risk management) but also lead to retro-fitting innovative solutions with inhibiting constructs and workarounds

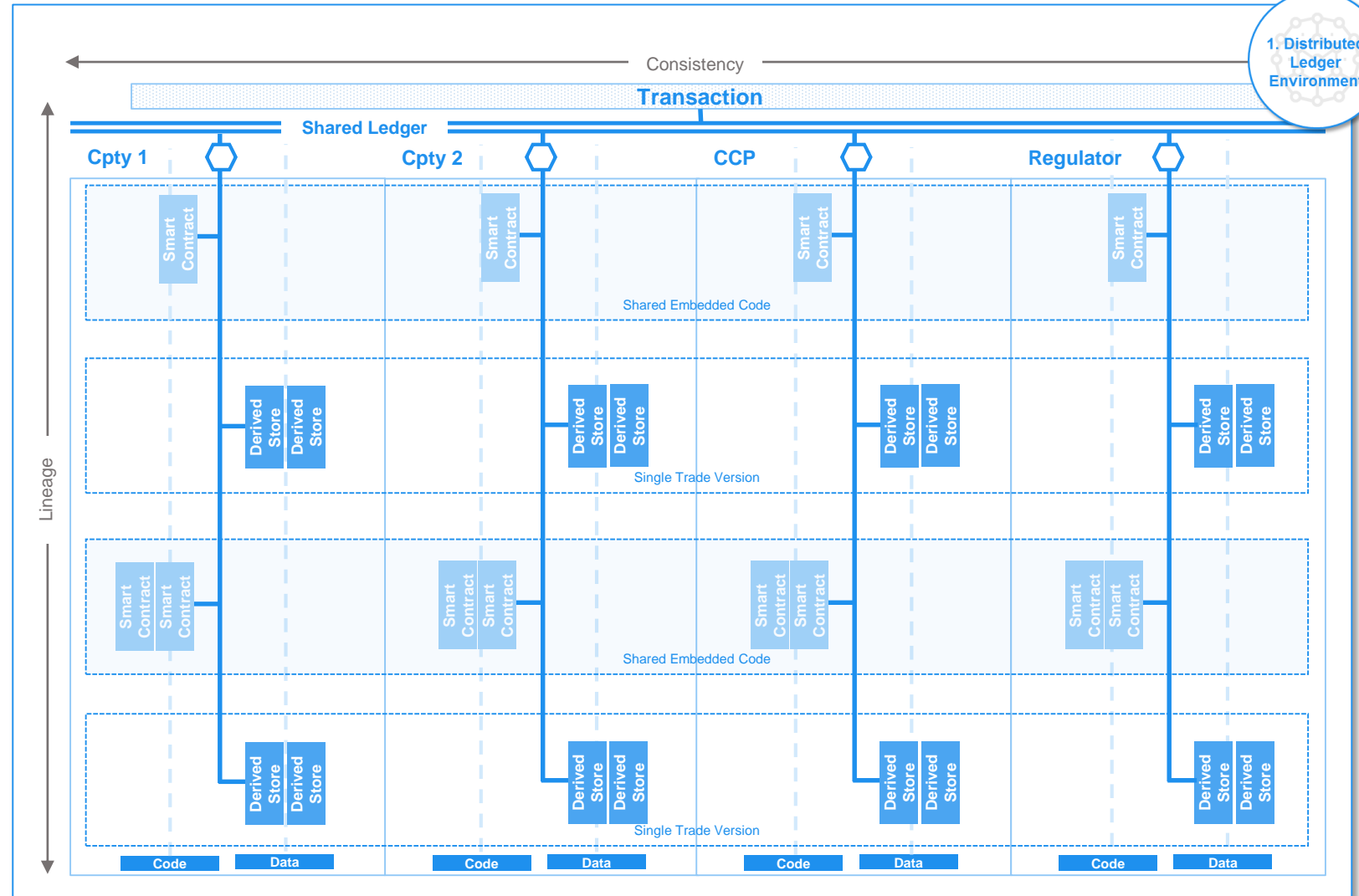


Path 2 | Long-Term Scalable Foundations

- A distributed ledger (or similar authoritative central record) and smart contract construct is able to facilitate complex processes in a simple manner by breaking the siloed input/process/output paradigm

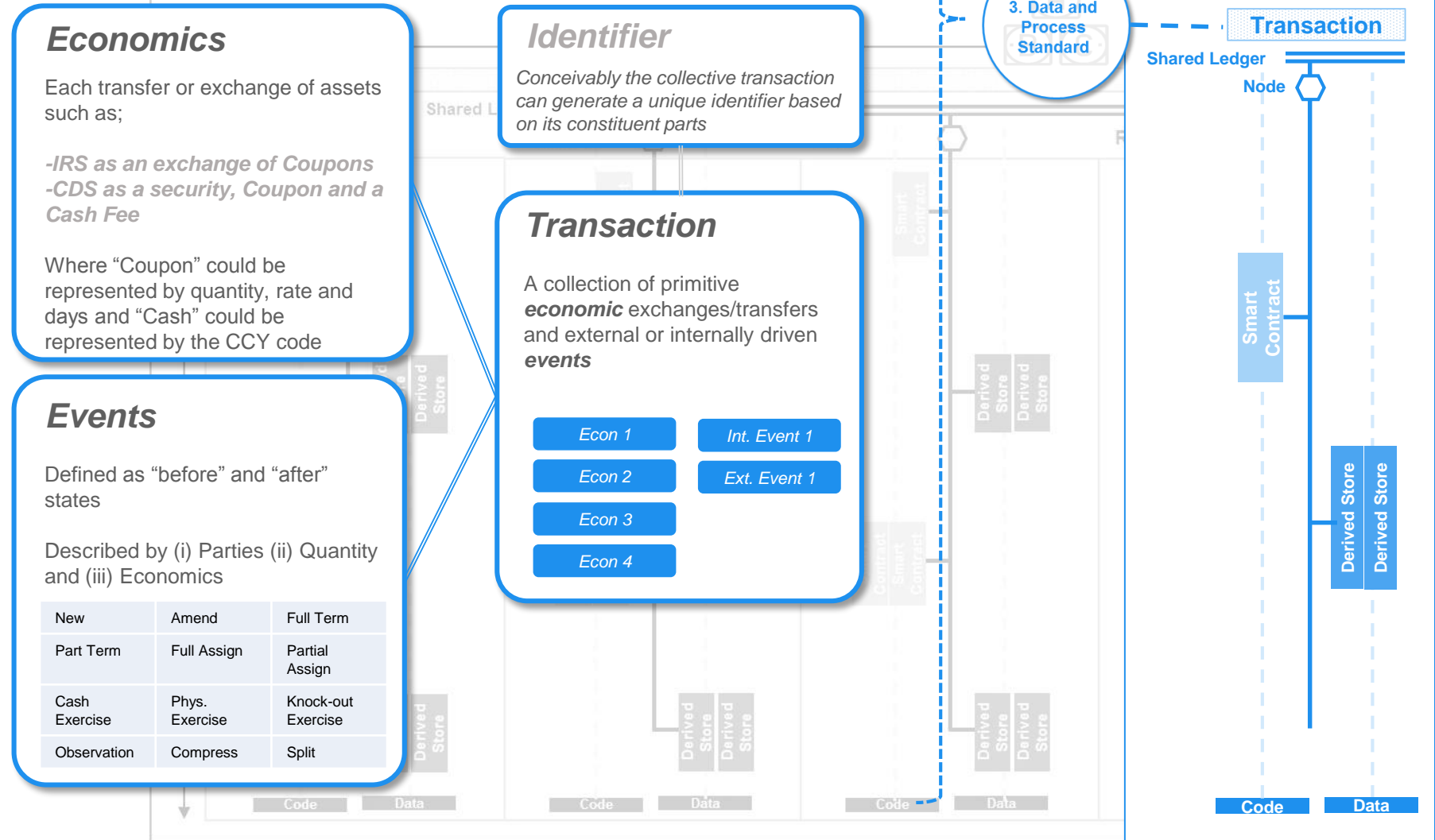
- Participants store data and perform calculations once
- Data representation and process/behaviours can be standardised into the smart contract definition
- Data and code lineage embedded in the distributed ledger – by implication this defines the data model and would be natively BCBS 239 compliant
- Data stores can be shared across permissioned market participants and regulators
- No {Extract, Transform, Transmit, Load, Transform, Store, Reconcile} processes.
- Natively secure (permissioned / encrypted)
- Interim benefits can be achieved through basic data clean up and introduction of standards

Requires commonly adopted data and process definitions to be able to truly capitalise on the opportunity



Path 2 | Data and Process Standard

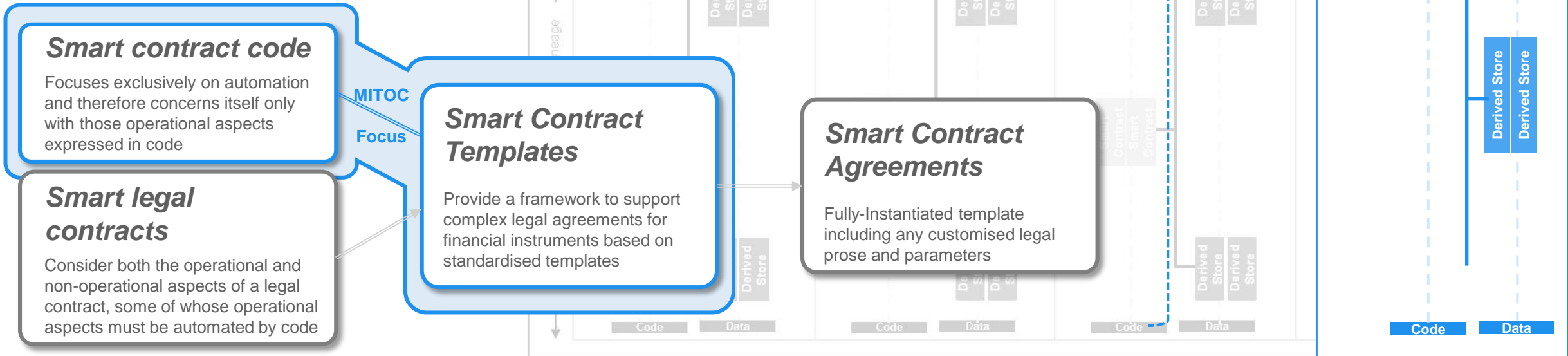
- We are advocating a considered move to a concept that can represent any financial markets product or processes and is **applicable at any scale**
- By breaking down products into primitive features/objects we would be creating a model where the underlying structure of **products, events** and **portfolios** are logically identical and can be simply aggregated where required
- The model utilises proven engineering and computer science techniques and provides the necessary foundation to be able to capitalise on **smart contract** and **distributed ledger** principles



Path 2 | Smart Contracts

A smart contract is an automatable and enforceable agreement. **Automatable** by computer, although some parts may require human input and control. **Enforceable** either by legal enforcement of rights and obligations or via tamper-proof execution of computer code

- Technology behind smart contracts allows for data to be married with the logic that acts on it, in a **unified representation**
- This allows 'smart code' embedded in the contract definition to respond to **events and process** them in a pre-defined manner, which can potentially result in other events that trigger additional processing and so on.
- Definition of such smart contracts can incorporate **both economic and contractual/legal terms** and can significantly eliminate duplication in processing and need for reconciliations across industry participants
- Further, digitizing legal terms with the commercial elements of the trade enables seamless processing and resolution through a **shared data fabric**



*Definitions as specified in the document "Smart Contract Templates: foundations, design landscape and research directions" (August 4th 2016), available at <https://arxiv.org/pdf/1608.00771.pdf>

Concept | High Level Overview

- Ultimately the primary goals and underlying value will only be maximised with broad industry adoption
- ISDA has proven experience and a trusted market position in developing and maintaining industry-wide standards
- We believe delivery of this target future-state has two key areas of focus for ISDA which can be categorised as follows:

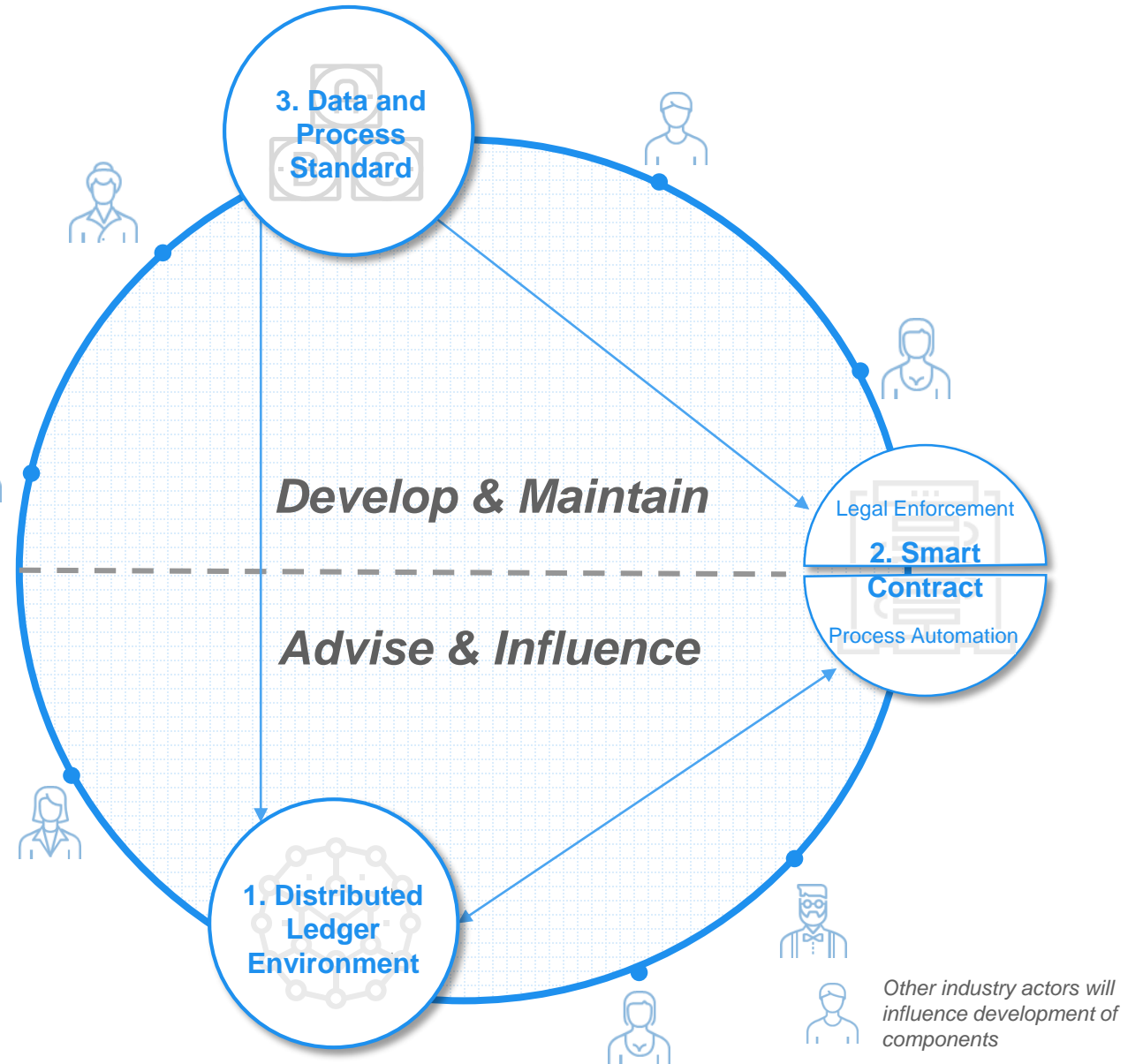
1. Develop & Maintain

- Facilitate Design and publication
- Manage Updates
- Subscriptions

2. Advise & Influence

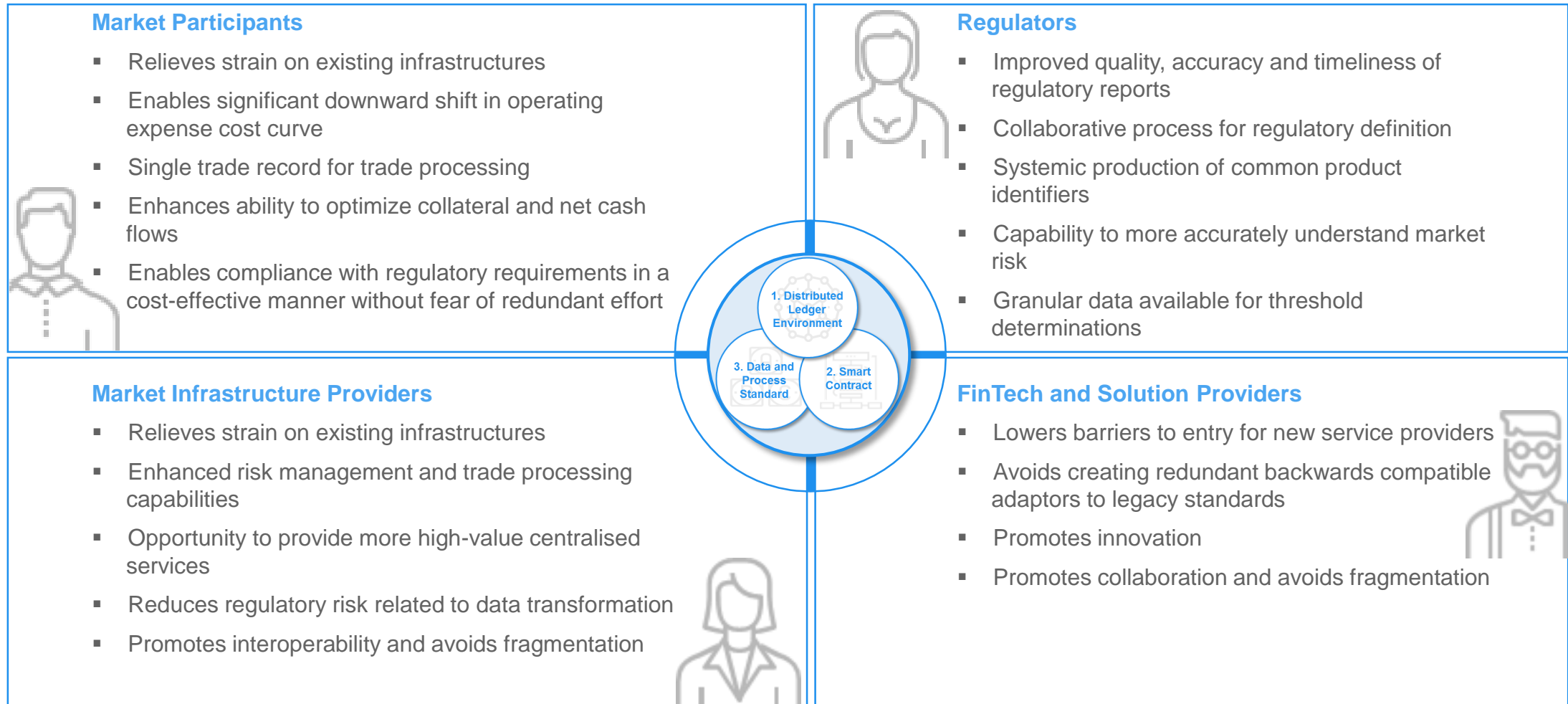
- Advise on Standards
- Drive Adoption
- Collaborate with Vendors
- Market Awareness & Education

- We expect that ISDA will develop and maintain a Financial Data and Process Object Definition (as it currently does with FpML)
- We expect that ISDA will be involved in the creation and maintenance of smart contracts
- We expect that ISDA will work closely with utilities and service providers to ensure distributed ledger technologies are able to adopt the proposed standards



Potential Benefits | Summary by Stakeholder Group

A common, standardised data and process hierarchy provides important benefits to all key market actors and participants



Next Steps

- Publish ISDA CDM version 1 ‘model definition’ discussion document that provides a definition for the standard representation of derivatives trade events that are asset class and product agnostic,
- Complete an initial use case study to test the model and demonstrate its application and the opportunity,
- Engage broad industry stakeholder groups to further validate the version 1 model definition and identify additional use-cases to test the robustness of the model against a range of applications,
- Leverage the feedback from industry engagement to refine the model and develop a version 2 ISDA CDM in digital form,
- Work with a broad set of industry stakeholders to develop an appropriate and robust governance model for the ISDA CDM,
- Participate, and facilitate where appropriate, in the debate regarding the development and deployment of smart contracts in the derivatives industry. Ensure the technology, legal and operational processing communities are aligned.

**If you would like to know more or to get involved in this work please contact
MarketInfrastructureandTechnology@isda.org**