

# CDM PILOT KICKOFF SESSION

Presentation to Working Group

3 August 2020

# SCOPE

## Goals and Objectives



Model the main product features of a securities lending transaction, including collateral description, haircut, funding cost and schedule

Model the definition of a securities lending transaction execution, including counterparties, execution venue if any, collateral asset price;

Model the definition of the allocation function and the allocation inputs (quantities and end contractual parties) that support the allocation lifecycle event;

Model the definition of the settlement function and the settlement inputs (delivery vs payment, accounts) that support the settlement lifecycle event;

Demonstrate the performance of the model via a run-time execution of those events on relevant sample transaction data, in allocation vs non-allocation scenarios;

Support the testing and implementation of applications of the model by other market participants (firm or platform) to process allocations.

# APPROACH

Utilising the Agile methodology



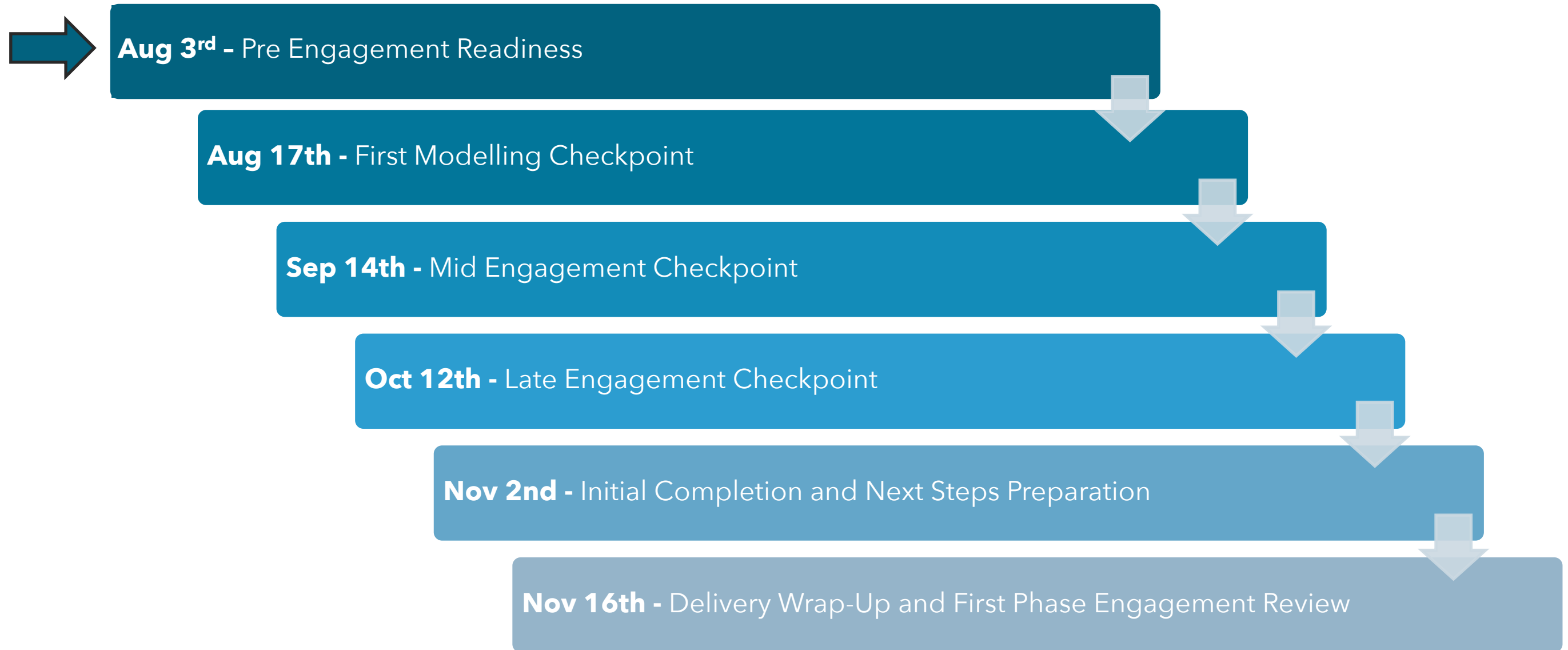
The following five Themes have been identified to describe aspects of the programme which share common attributes.

- ✓ **Scope**
  - definition of the approach and work required to complete the proof of concept.
- ✓ **Environment**
  - work items required to setup a dedicated CDM environment for hosting the Securities Lending model.
- ✓ **Industry Engagement**
  - work items describing engagement with the Securities Lending community.
- Product Modelling**
  - work items required to complete the modelling of the Securities Lending product in the CDM.
- Function Modelling**
  - work items required to complete the modelling of functions that describe Securities Lending product market processes.

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# ENGAGEMENT MILESTONES

Key dates for delivery of key components



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# THEME #1 - SCOPE

## Epics and User Stories



### Epics

The Candidate Requirements have been used to create an initial set of Epics



### User Stories

Describing technical and non-technical dependencies required in order to deliver the Candidate Requirements.



### Project Management

Two week sprints with an agreed set of deliverables.



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# THEME #1 - SCOPE

## Airtable - User Stories



A sample Kanban view of user stories which allows easy tracking and planning of tasks

The screenshot shows an Airtable Kanban board titled "CDM for Securities Lending". The board is organized into four columns: "Backlog", "Current Sprint", "Next Sprint", and "Done". Each column contains several user stories, each with a title, story type, description, owner, and engagement milestones. The "Backlog" column has 15 records, "Current Sprint" has 6 records, "Next Sprint" has 2 records, and "Done" has 14 records. The board also includes a "Code complete" column on the right side.

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# THEME #1 - SCOPE

## Airtable - Issue tracker



CDM for Securities Lending

Engagement Themes | Epics | User Stories | Engagement Milestones | Issue Tracker

Grid view | 2 hidden fields | Filter | Grouped by 2 fields | Sort | Color

Ticket Id	Priority	Status	Due Date	Over Due	Category	Assignees	Brief Description	Detailed Description	User Story	Epics (from User Stories)	Resolution	Raised By	
<b>CRITICAL</b> Count 1													
<b>ASSIGNEES</b> ISLA 1													
2	ISLA002	Critical	Open	7/30/2020	Not Overdue	Product Model	ISLA	Does a Securities Lending transaction have the ...	Ensure the appropriate con...	Conceptual Model of Securi...		Nigel Cobb	
<b>HIGH</b> Count 9													
<b>ASSIGNEES</b> ISLA 4													
3	ISLA001	High	Open	7/30/2020	Not Overdue	Product Model	ISLA	What is the correct securities lending product ta...	Is there an equivalent of th...	Conceptual Model of Securi...	CR#1 - Securities Lending Prodi	Under SFTR they have brok...	Saeid Attarian
4	ISLA003	High	Open	7/30/2020	Not Overdue	Product Model	ISLA	Does Delivery Method needs to be defined sepa...	Confirm whether there are ...	Conceptual Model of Securi...	CR#1 - Securities Lending Prodi	You could have different D...	Saeid Attarian
5	ISLA004	High	Open	7/30/2020	Not Overdue	Product Model	ISLA	Are there are any other Duration Types apart fro...	We will build a validation lo...	Conceptual Model of Securi...	CR#1 - Securities Lending Prodi	Duration Type can be Ever ...	Saeid Attarian
6	ISLA006	High	Open	7/30/2020	Not Overdue	Product Model	ISLA	Is Minimum Fee required as part of SFTR?	To ensure the model is buil...	Conceptual Model of Securi...	CR#1 - Securities Lending Prodi		Saeid Attarian
<b>ASSIGNEES</b> Working Group 5													
7	ISLA005	High	Open	7/30/2020	Not Overdue	Product Model	Working Gro...	At what level is Minimum Fee applied? (Product...	Is minimum fee based on tr...	Conceptual Model of Securi...	CR#1 - Securities Lending Prodi		Saeid Attarian
8	ISLA007	High	Open	7/30/2020	Not Overdue	Product Model	Working Gro...	Should CDM introduce a validation logic for Div...	CDM can provide the optio...	Conceptual Model of Securi...	CR#1 - Securities Lending Prodi		Saeid Attarian
9	ISLA008	High	Open	7/30/2020	Not Overdue	Product Model	Working Gro...	At what level should rebate be defined (within P...	Can rebate sit at portfolio l...	Conceptual Model of Securi...	CR#1 - Securities Lending Prodi		Nigel Cobb
10	ISLA009	High	Open	7/30/2020	Not Overdue	Product Model	Working Gro...	How should Collateral Provisions be incorporate...	Collateral Provisions: It is cl...	Conceptual Model of Securi...	CR#1 - Securities Lending Prodi		Nigel Cobb
11	ISLA0010	High	Open	7/30/2020	Not Overdue	Product Model	Working Gro...	Confirm if Delivery Method is needed for Collat...	We need to confirm differe...	Conceptual Model of Securi...	CR#1 - Securities Lending Prodi		Saeid Attarian

Each issue is linked to a user story and epic, enabling easy tracking and reporting

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# THEME #2 - ENVIRONMENT

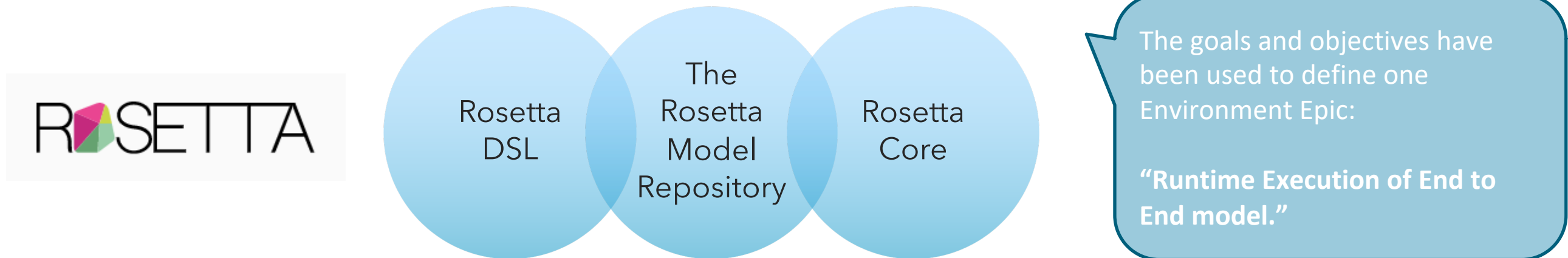
## Rosetta



REGnosys will use Rosetta as the development environment and suite of technical tools to accelerate delivery of the CDM for Securities Lending.

Rosetta is a domain-model development toolkit that allows users to efficiently design and develop domain models, map them to other models, databases or messaging formats, and to test and deploy model-based processes, applications and services.

At a high level, Rosetta is made of three components, being a mixture of open-source and proprietary components and which are described in the below diagram.

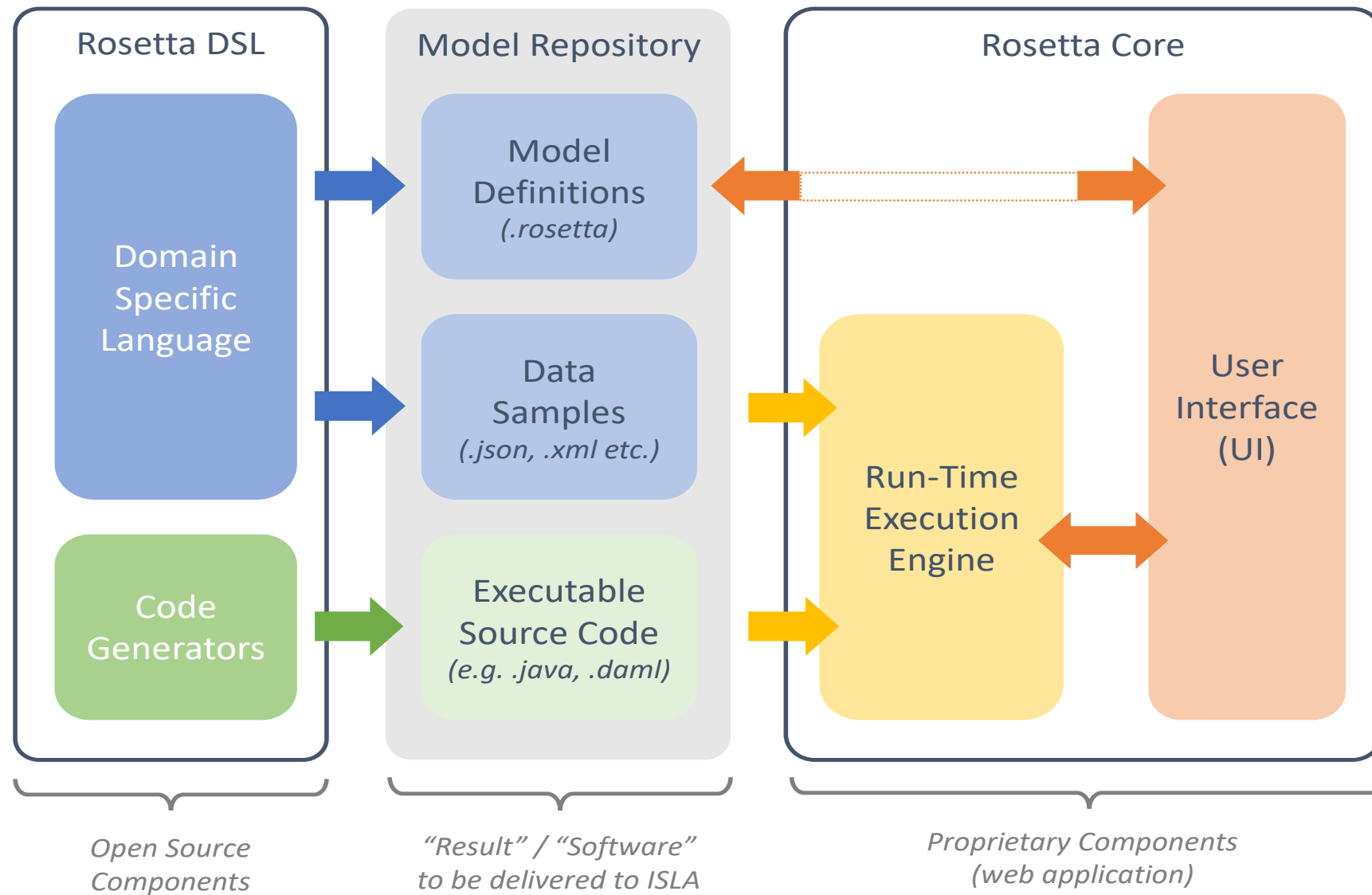


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# THEME #2 - ENVIRONMENT

## Rosetta Components



Rosetta Core is available under a free "community edition"

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# THEME #2 - ENVIRONMENT

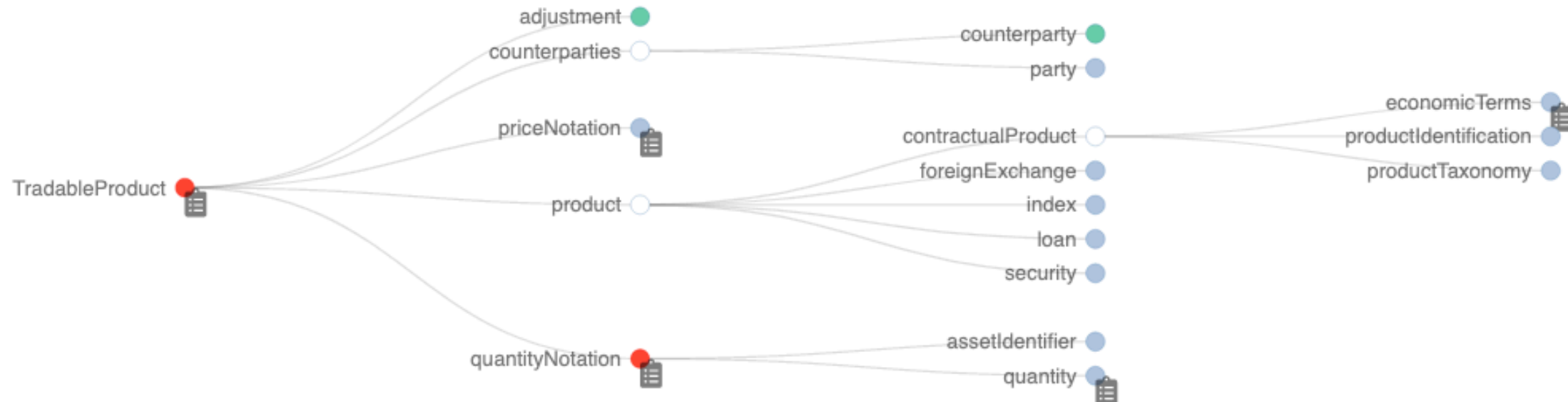
## Delivery and Demonstration Material



To accelerate integration efforts by ISLA members, each model release will contain an executable source code distribution, also available for download in Rosetta Core.

Initially provide support for the Java platform, which is widely adopted, open source and freely available.

Visualisation tools in Rosetta Core will help communicate the structure and functionality of the delivered model and demonstrate a path to standardisation of industry processes.



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# THEME #2 - ENVIRONMENT

## Rosetta Core



Files that represent the CDM for Securities Lending have been added to Rosetta Core.

Files are available when an ISLA specific workspace is created by authorized users.

**Workspace Manager**

Active Workspace

Name	Owner	Version	Mode
ISLA	nigel	0.0.15	Editable

Public Workspace

Name	Latest Version
ISDA CDM ISDA Common Domain Model	2.63.5

My Workspaces

Files

- model-cdm-sec-lending-enum
- model-cdm-sec-lending-func
- model-cdm-sec-lending-type**
- model-fpml-asset
- model-fpml-enum
- model-fpml-repo
- model-fpml-sec-lending

TEXTUAL VIEW

```
1 namespace cdm.securities.lending
2 version "${project.version}"
3
4 import org.isda.cdm.*
5 import cdm.base.*
6 import cdm.base.math.*
7 import cdm.base.datetime.*
8 import cdm.base.staticdata.identifier.*
9 import cdm.base.staticdata.asset.rates.*
10 import cdm.base.staticdata.asset.common.*
11 import cdm.base.staticdata.party.*
12 import cdm.synonyms.config.*
13
14 type Contract extends org.isda.cdm.Contract: <"...">
15   [rootType]
16   override tradableProduct TradableProduct (1..1)
```

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# THEME #3 - INDUSTRY ENGAGEMENT

## Objectives of the engagement



### Industry Awareness

- Validate the project brief and obtain engagement from core industry participants



### ISLA Working Group

- Ensure that the product that is delivered is fit for purpose and adoptable.



### An Industry Event ("Hackathon")

- Demonstrate that the engagement has delivered the initially defined project brief
- A practical exercise that can demonstrate the ease of adoption and the value that CDM can bring.

### Implementation by Market Participants

- Rosetta Core is designed to facilitate this industry engagement and is made freely available to any participant looking to contribute to the CDM initiative. Fostering contributions from market practitioners who have experience of real-world industry practices will help ratify the model and drive adoption and will allow model development to continue at scale.

The goals and objectives have been used to define one Industry Engagement Epic:

**"Implementation of Model by Market Participants."**

# THEME #4 - PRODUCT MODELLING

## Core Modelling Artefacts



Build Securities Lending Product model.

Use of existing CDM models.

Create new model definitions

Build Securities Lending Transaction model.

Capture the collateral provisions from GMSLA - Require a sample set of GMSLA

As modelling the entire GMSLA would be a big exercise, we are proposing to capture the key terms as a component of the Product Model for now

Future exercise is to fully model out a GMSLA and have metadata linking to allow referencing that can populate the trade with standard terms.

The goals and objectives have been used to define two Product Modelling Epics:

**“Securities Lending Product Modelled in CDM”**

**“Securities Lending Transaction Modelled in CDM “**

# THEME #4 - PRODUCT MODELLING

## FpML and CDM



### ISDA Common Domain Model (CDM)

- Bootstrapping [ISDA CDM](#) (will be used as “Third Party Material” - i.e. excluded from the project deliverables).
- Inherit all ISDA CDM model components from the outset and will extend those by following the CDM design principles, reusing components wherever appropriate.
- CDM for Securities Lending shall eventually be contributed back and merged together with the ISDA CDM.
- The ISDA CDM is already supported by the Rosetta Model Repository and Rosetta Core has been extended to support editing of ISDA CDM model extensions.



### Financial products Markup Language (FpML)

- CDM for Securities Lending can make use of the existing Securities Lending model in FpML.
- The CDM for Securities Lending repository has been “seeded” based on an extract of existing FpML schemas, focusing on parts that are referenced by the Securities Lending product definition.
- This FpML-based model has been placed in standalone model files and will be used to inform the initial direction of the CDM for Securities Lending based on the assumption of sufficient, current FpML adoption.



<https://www.isda.org/a/z8AEE/ISDA-CDM-Factsheet.pdf>

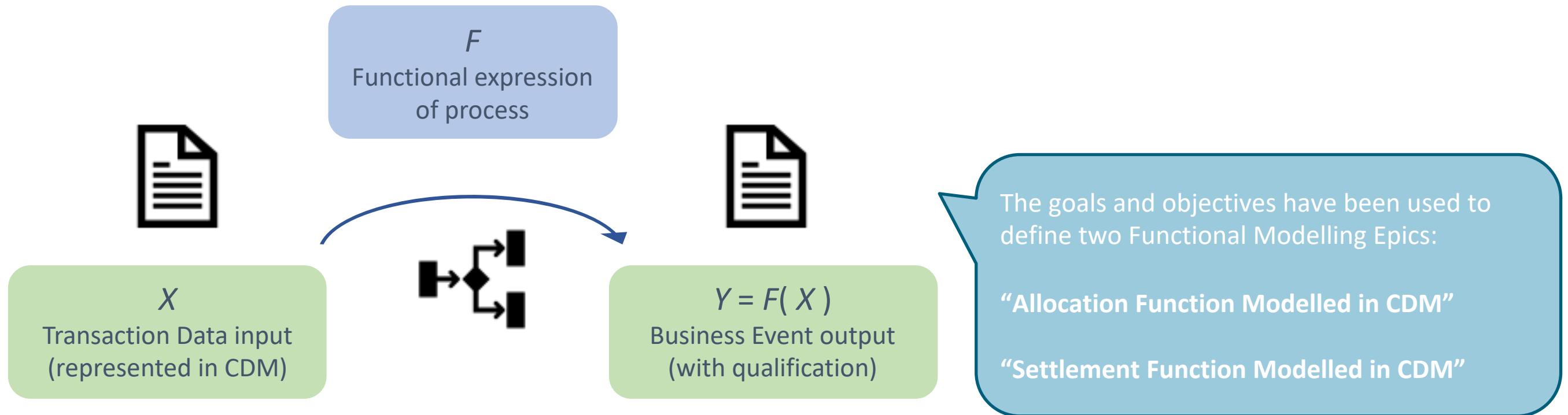
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# THEME #5 - FUNCTIONAL MODELLING

## Standardised Functional Expression of Industry Processes



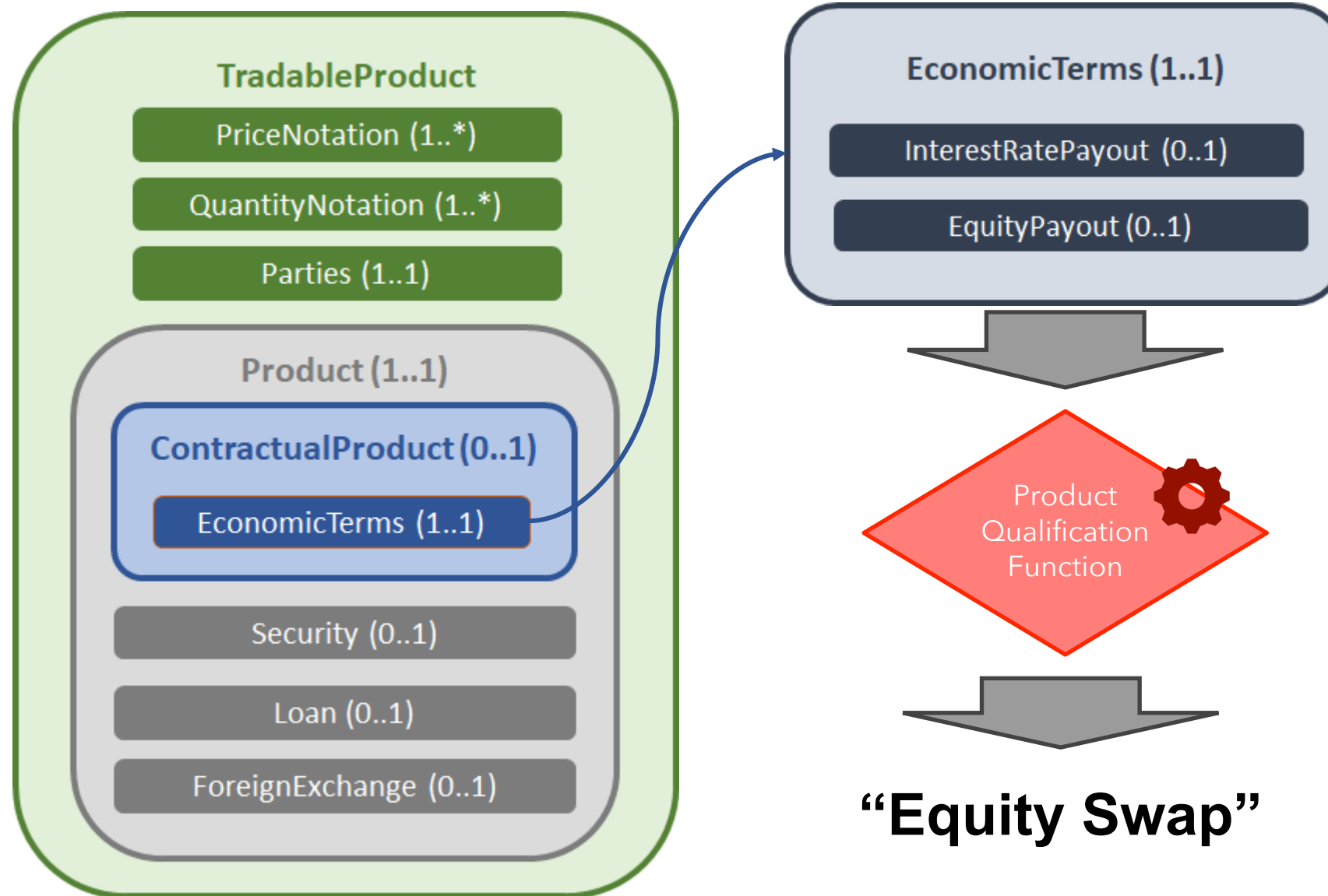
The CDM allows a *functional* approach to modelling processes, where events are represented by CDM *functions*:  $Y = F( X )$



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# CONCEPTUAL MODEL FOR SECURITIES LENDING

## Product Model



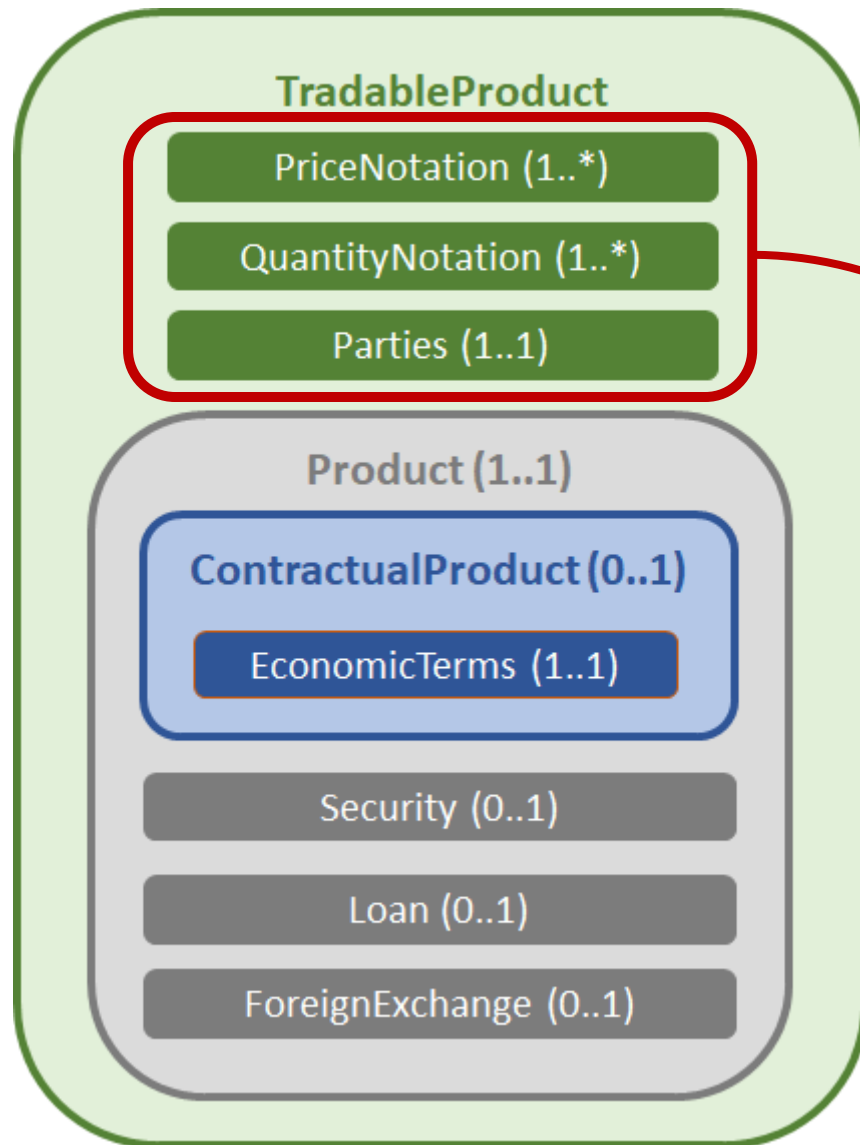
**Economic terms are specified by composition.** For example, InterestRatePayout type is a component used in the definition of any product with one or more interest rate legs (e.g. Interest Rate Swaps, Equity Swaps, and Credit Default Swaps).

**Product qualification is inferred from economic terms,** rather than explicitly naming the product type, in contrast with usual standards (for instance FpML qualifies the product explicitly through the *product* substitution group).



# CONCEPTUAL MODEL

## Level 1 - Tradable Product - Price and Quantity Notation



### **Price Notation:**

The agreed price on the transaction and the market price of the underlying security at execution

### **Quantity Notation:**

The number of units of the underlying security at execution

### **Settlement Terms:**

The valuation amount representing the exchange of fees when entering into the Securities Lending transaction would be represented as Settlement Terms on the Execution

**FpML:** *above components can be found in Principal component of FpML 5.11*

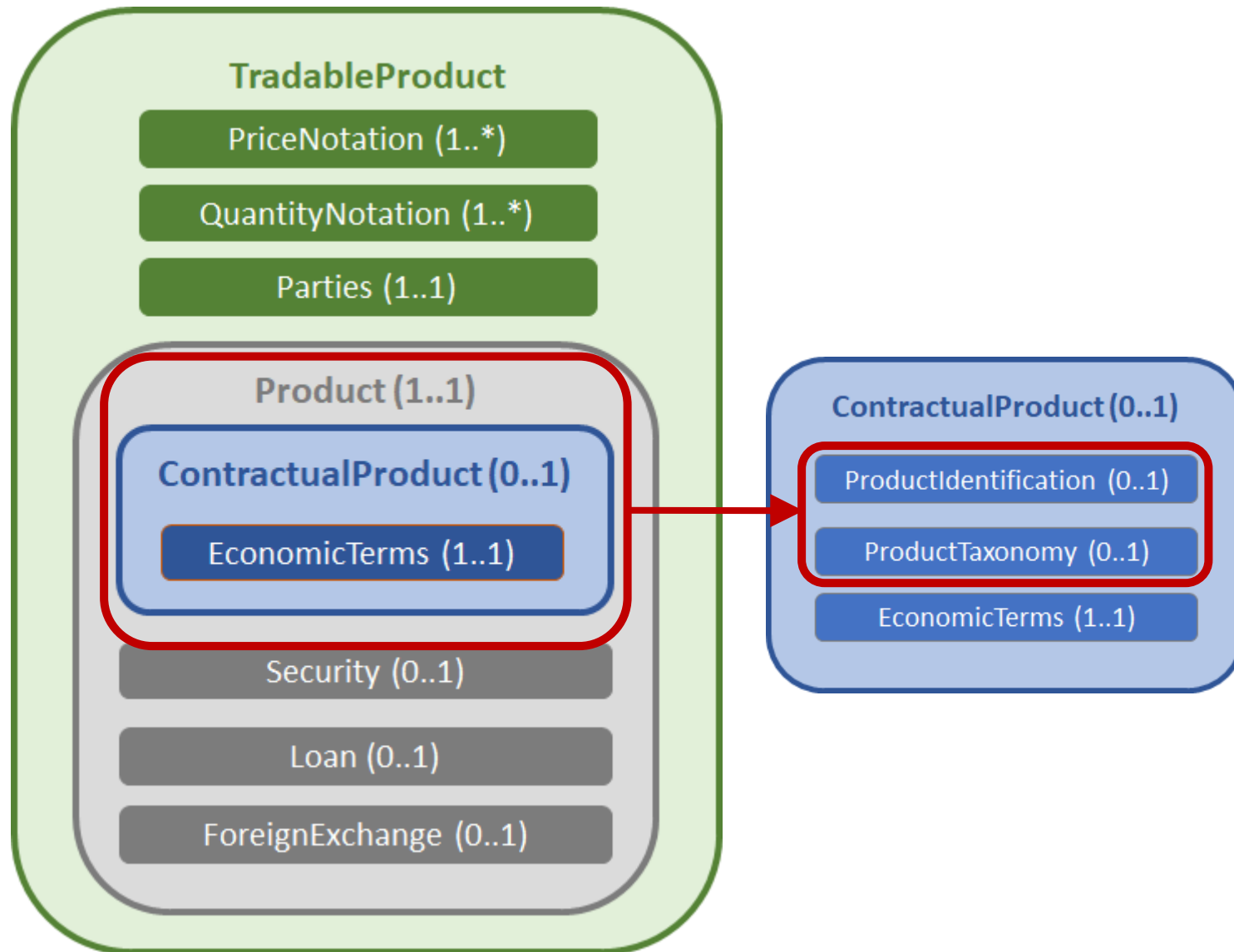
### **Parties:**

The parties to the transaction

- **Question:** Are there any other components of a Securities Lending transaction that should be considered part of the 'Trade' and not the 'Product'

# CONCEPTUAL MODEL

## Level 2 - Product Identification and Product Taxonomy



### ProductIdentification:

CDM supports capture of the FpML Asset Class Scheme and FpML Product Type values.  
AssetClassScheme = SecuritiesFinancing  
ProductType = SecurityLending

### ProductTaxonomy:

Product qualification is inferred from the economic terms of the product instead of explicitly naming the product type. Qualification logic can be developed once a conceptual product model has been developed.

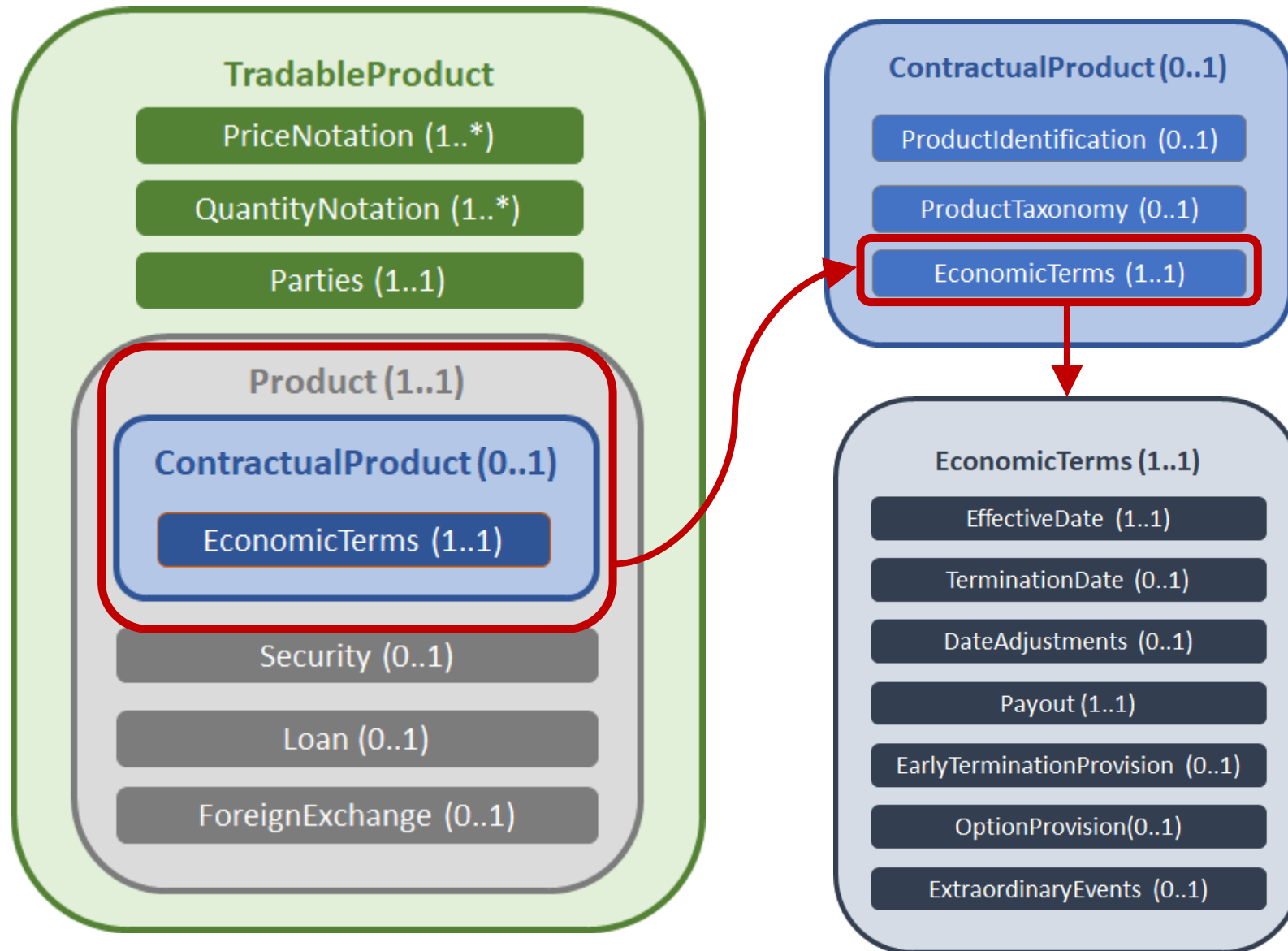
### Question:

*Is there an equivalent of the ISDA Product Taxonomy that categorises Securities Lending products into smaller groups?  
For example CFI codes go further than FpML in defining Securities Lending products.*

<http://www.iotafinance.com/en/Attributes-CFI-Codes-Group-LS.html>

# CONCEPTUAL MODEL

## Level 2 - Economic Terms



### Economic Terms:

The definition of all the key components of the transaction. Contains:

- Effective Date - Initiation Date of the Securities Lending transaction.
- Termination Date - The optional Termination Date of the Securities Lending Transaction.
- Date Adjustments - See question below.
- Payout - further explanation provided on following page

Derivatives specific considerations that are not applicable:

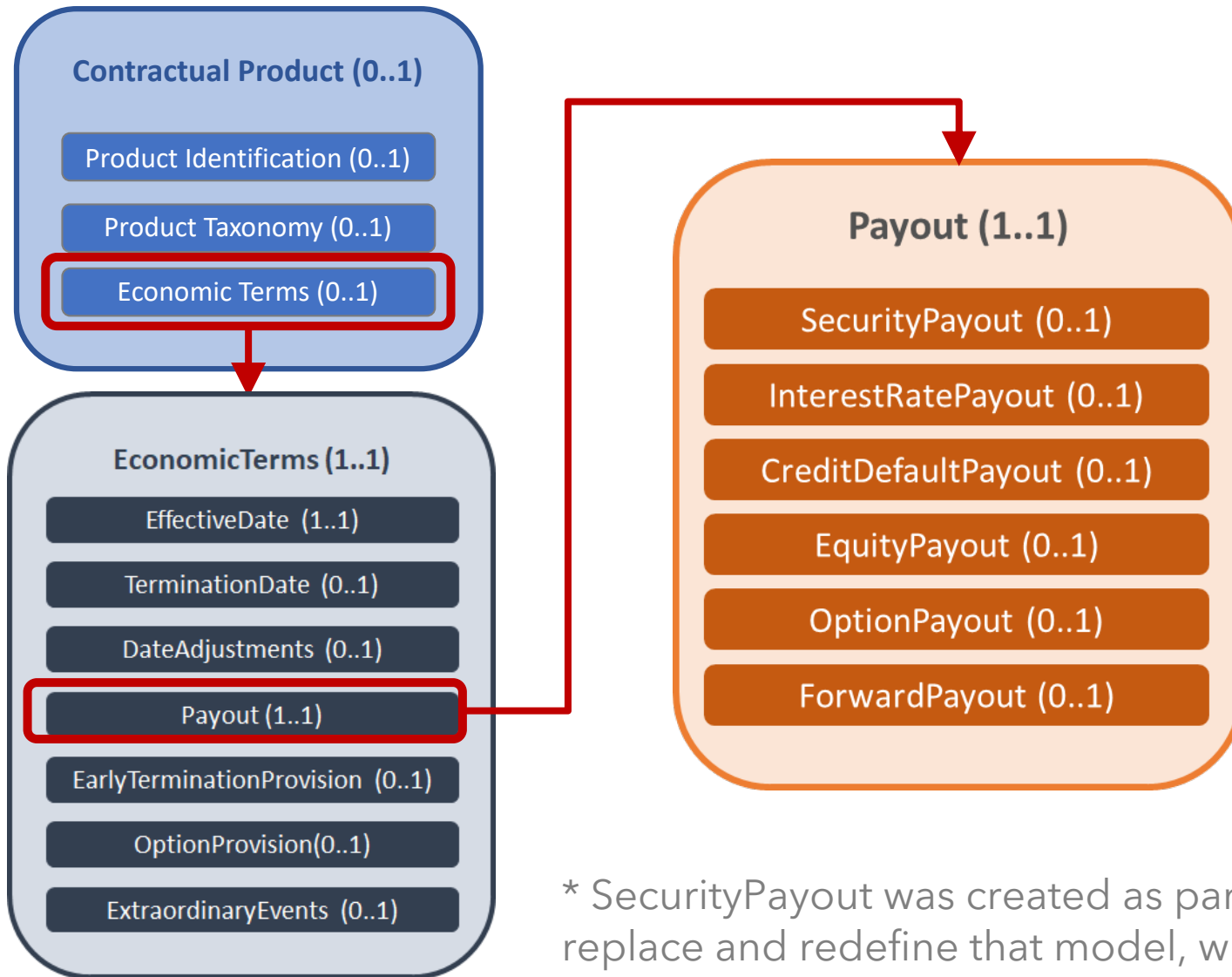
- Early Termination Provisions
- Option Provisions
- Extraordinary Events

**Question:** How does a Securities Lending transaction deal with the concept of Business Days convention and business centres?

**Response:** Defined in GMSLA. Product Model will need to contain appropriate data representation.

# CONCEPTUAL MODEL

## Level 3 - Payout



### Payout:

A unique payout structure is used to define each leg of the transaction.

SecurityPayout: will be used to define key terms including:

- Reference Security Terms
- Duration and Extension Periods including additional Initiation and Termination info
- Dividend Return
- Collateral Provisions

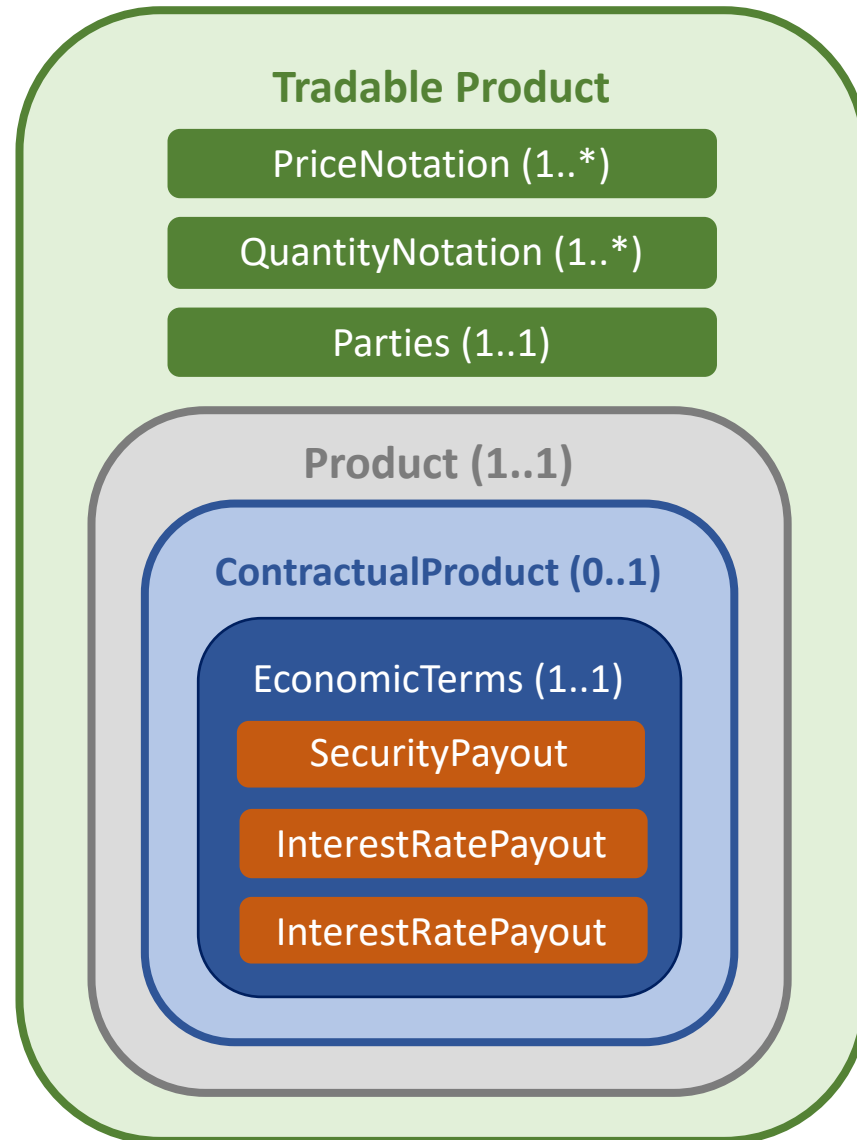
InterestRatePayout: the existing Interest Rate Payout can be used to define key terms including:

- Fee
- Rebate
- Day Count Fraction

\* SecurityPayout was created as part of a previous modelling exercise. This exercise will replace and redefine that model, while maintaining the CDM design principles of composability and reusability.

# THEME #4 - PRODUCT MODELLING

## Security Lending Conceptual Model Overview



### Summary Components of a Security Lending Transaction:

PriceNotation for each leg:

- Initial Asset Price in SecurityPayout
- Spread/Fixed Rate for Borrow Fee in InterestRatePayout
- Spread/Fixed Rate for Rebate (if Cash Collateralised) in InterestRatePayout

QuantityNotation for each leg:

- Quantity of Asset in SecurityPayout
- Notional of Shares lent in InterestRatePayout
- Daily notional of Cash Collateral in InterestRatePayout

SecurityPayout:

- Containing reference asset, Minimum Fee and Dividend Terms (if applicable)

InterestRatePayout:

- Containing terms for the borrow fee.

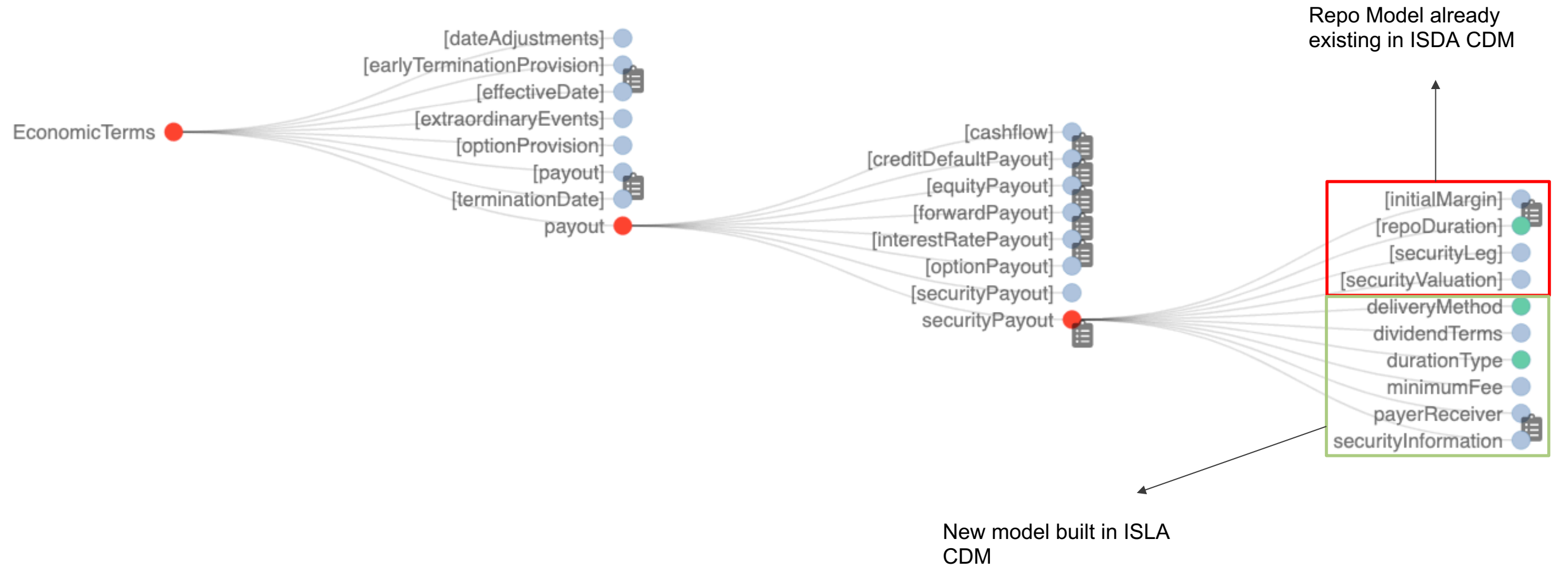
InterestRatePayout:

- Containing terms for the collateral rebate

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# THEME #4 - PRODUCT MODELLING

## Security Lending Logical Model Overview



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