# ISDA & ICMA: CDM for Repo
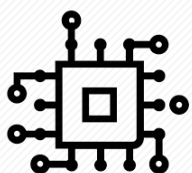
# THE CURRENT WAY
## Fragmented Implementations, Operational Inefficiencies

**TRADE ASSOCIATION(S)**

Example Artefacts:



Map of Trading Scenarios



Reporting Sample per Scenario

**INDUSTRY PARTICIPANTS**



Dealer X

Dealer Y

Vendor Z

- Every industry participant left to implement their own processes

- Loss of inter-operability between point solutions

- Pervasive reconciliation issues and other operational inefficiencies

# THE PROPOSED (CDM) WAY
## Cohesive Industry Implementations

**TRADE ASSOCIATION(S)**

**INDUSTRY PARTICIPANTS**

Example Artefacts:



Map of Trading Scenarios



Reporting Sample per Scenario

**Common Domain Model**
**=**
**"Digitising the Spreadsheets"**



✓ Directly operational output (software)

✓ Enable solutions inter-operability

✓ Eliminate reconciliation issues



Dealer X

Dealer Y

Vendor Z

REGnosys

# EXAMPLE APPLICATION: SFTR REPORTING
## End-to-End Implementation Based on CDM

Subject: VCON * RP - DEALER LENDS COLL.: DBR 0 ¼ 02/15/29 Corp *

VCON * RP - DEALER LENDS COLL.:    DBR 0 ¼ 02/15/29 Corp      *
          SETTLE DATE: 03/28/19  ISIN: DE0001102465  CUSIP: AW4161880
ROLL: N    SETTLEMENT      MARKET    TENOR:       SPREAD: 0.0000
PRICE    107.6179452   107.617945   FIXED    RATE(360):  -0.3100%
MTY YLD   -0.4996321   -0.4996321   COLLATERAL: 100.00% of money
ACCRUED   0.0520548    0.0520548    AS OF: 03/27/19 09:51
PX+ACC    107.6700000   107.670000
# OF BONDS:    100000000 X      SETTLE MONEY     107670000.00
TERMINATION DT: 03/29/19   (    1 days)    CALL OPTION: NO
MONEY AT TERMINATION:      WIRED AMOUNT:         107,670,000.00
  {VCON <GO>} to Automate  REPO INTEREST:              -927.16
                  TERMINATION MONEY:       107,669,072.84

Marketplace Message
(e.g. BBG VCON)

**This lives in the CDM (Open Source)**

SFTR Report Extract
(ISO 20022)

<ns0:New>
  <ns0:TxId>ABC1000244</ns0:TxId>
  <ns0:ExctgPty>10G7TPQLTCTSJI19FLFVA</ns0:ExctgPty>
  <ns0:InvstmtPtyInd>true</ns0:InvstmtPtyInd>
  <ns0:SubmitgPty>10G7TPQLTCTSJI19FLFVA</ns0:SubmitgPty>
  <ns0:Buyr>▮</ns0:Buyr>
  <ns0:Sellr>▮</ns0:Sellr>
  <ns0:OrdrTrnsmssn>
    <ns0:TrnsmssnInd>false</ns0:TrnsmssnInd>
  </ns0:OrdrTrnsmssn>
  <ns0:Tx>
    <ns0:TradDt>2019-03-27</ns0:TradDt>
    <ns0:TradgCpcty>DEAL</ns0:TradgCpcty>
    <ns0:Pric>107.67</ns0:Pric>
    <ns0:CtryOfBrnch>UK</ns0:CtryOfBrnch>
  </ns0:Tx>
  <ns0:FinInstrm>
    <ns0:Othr>
      <ns0:FinInstrmGnlAttrbts>
        <ns0:ClssfctnTp>REPO</ns0:ClssfctnTp>
        <ns0:NtnlCcy>EUR</ns0:NtnlCcy>
      </ns0:FinInstrmGnlAttrbts>
      <ns0:DerivInstrmAttrbts>▮</ns0:DerivInstrmAttrbts>
    </ns0:Othr>
  </ns0:FinInstrm>
  <ns0:InvstmtDcsnPrsn>▮</ns0:InvstmtDcsnPrsn>
  <ns0:ExctgPrsn>▮</ns0:ExctgPrsn>
  <ns0:AddtlAttrbts>▮</ns0:AddtlAttrbts>
</ns0:New>
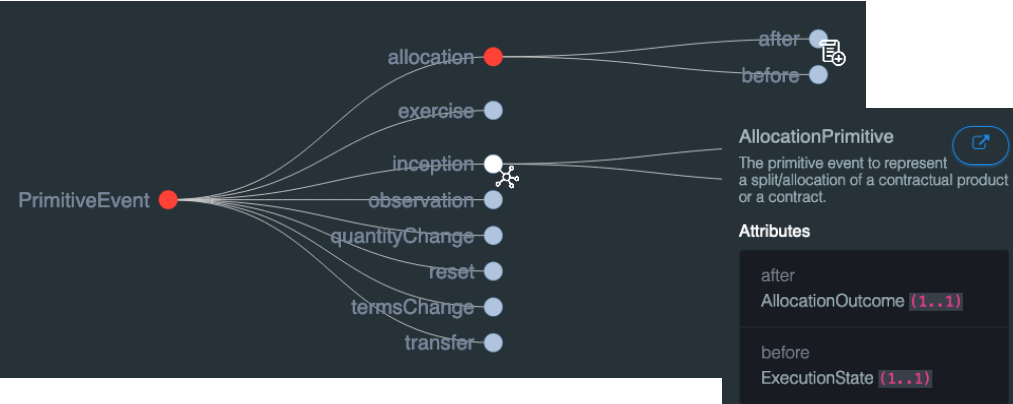
Firm's Electronic Record

<repo>
  <fixedRateSchedule>
    <initialValue>-0.31</initialValue>
  </fixedRateSchedule>
  <dayCountFraction>30/360</dayCountFraction>
  <duration>Term</duration>
  <initialMargin>▮</initialMargin>
  <nearLeg>
    <buyerPartyReference href="Party1" />
    <sellerPartyReference href="Party2" />
    <settlementDate>
      <adjustableDate>▮</adjustableDate>
    </settlementDate>
    <settlementAmount>
      <currency>EUR</currency>
      <amount>107670000.0</amount>
    </settlementAmount>
    <deliveryMethod>DeliveryVersusPayment</deliveryMethod>
    <collateral>
      <nominalAmount>▮</nominalAmount>
      <cleanPrice>107.6179452</cleanPrice>
      <accruals>0.0520548</accruals>
      <dirtyPrice>107.67</dirtyPrice>
      <assetReference href="asset-ref-1" />
    </collateral>
  </nearLeg>
  <farLeg id="forwardLeg">▮</farLeg>
  <bond id="asset-ref-1">

Normalised Trade Event

"contractualProduct": {
  "economicTerms": {
    "payout": {
      "interestRatePayout": [▮],
      "securityPayout": [
        {
          "initialMargin": {▮},
          "meta": {▮},
          "repoDuration": "TERM",
          "securityLeg": [
            {▮},
            {▮}
          ],
          "securityValuation": [▮]
        }
      ]
    },
    "rosettaKeyValue": "8f3ac8a3"
  },
  "productIdentification": {
    "productQualifier": "RepurchaseAgreement"
  }
},

Reporting Logic

report ESMA_SFTR regulation "(EU) 2015/2365" in T+1 when InScopeOfEvent
    using standard ISO__20022 with fields
        TypeOfSFT
        UnitPrice

reporting rule TypeOfSFT
    from
        if ProductIdentification -> productType = "RepurchaseAgreement"
            then "REPO"
        else if ProductIdentification -> productType = "Buy_Sell_Back"
            then "SBSC"
        else ""

reporting rule UnitPrice
    from
        Contract -> contractualProduct -> economicTerms -> payout -> securityPayout
            -> securityValuation -> securityValuationModel -> bondValuationModel
            -> bondPriceAndYieldModel -> cleanOrDirtyPrice -> dirtyPrice

**This lives outside of the CDM**



**Subject:** VCON * RP - DEALER LENDS COLL.: DBR 0 ¼ 02/15/29 Corp *

```
VCON * RP – DEALER LENDS COLL.:   DBR 0 ¼ 02/15/29 Corp      *
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ROLL: N     SETTLEMENT       MARKET    TENOR:       SPREAD: 0.0000
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PX+ACC     107.6700000    107.670000
# OF BONDS:    100000000 X       SETTLE MONEY      107670000.00
TERMINATION DT: 03/29/19   (      1 days)    CALL OPTION: NO
MONEY AT TERMINATION:       WIRED AMOUNT:       107,670,000.00
 {VCON <GO>} to Automate   REPO INTEREST:              -927.16
                           TERMINATION MONEY:      107,669,072.84
```

### Marketplace Message
### (e.g. BBG VCON)

Firm's Electronic Record
=
Stereotype of how transactions get captured in
individual firms' systems

## Normalise the Trade Event Model

**Complete Map of Trading Scenarios**



**DIGITISING THE EVENT MODEL**

**Most events are already in the CDM**



Firm's Electronic Record



**CDM INGESTION**

Example:
New Trade =
"Inception" Event



Inferred qualification of product and event

Economic Terms:
1 interest rate payout
+ 2 security legs
= "Repo"

Reporting Sample per Scenario

DIGITISING THE REPORTING LOGIC

```
report ESMA_SFTR regulation "(EU) 2015/2365" in T+1 when InScopeOfEvent
    using standard ISO__20022 with fields
        TypeOfSFT
        UnitPrice

reporting rule TypeOfSFT
    from
        if ProductIdentification -> productType = "RepurchaseAgreement"
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            then "SBSC"
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reporting rule UnitPrice
    from
        Contract -> contractualProduct -> economicTerms -> payout -> securityPayout
            -> securityValuation -> securityValuationModel -> bondValuationModel
            -> bondPriceAndYieldModel -> cleanOrDirtyPrice -> dirtyPrice
```

PROJECTION

Reportable price(s) fetched from the model

Type of SFT uses built-in product qualification

# PIECING IT ALL BACK TOGETHER
## A Common Base Providing Inter-Operable Implementations



**Subject:** VCON * RP - DEALER LENDS COLL.: DBR 0 ¼ 02/15/29 Corp *

Marketplace Message
(e.g. BBG VCON)

**One CDM-based implementation
(they are all inter-operable)**

SFTR Report
Extract
(ISO 20022)

Firm's Electronic Record

Normalised Trade Event

Reporting Logic

REGnosys

## CDM-Based Messaging and Recording Across the Marketplace



**Marketplace Message (e.g. BBG VCON)**

**All merged into one = CDM representation**

**SFTR Report Extract (ISO 20022)**

**Firm's Electronic Record**

**Normalised Trade Event**

**Reporting Logic**

**ISDA. CDM**



Subject: VCON * RP - DEALER LENDS COLL.: DBR 0 ¼ 02/15/29 Corp *

```
VCON * RP - DEALER LENDS COLL.:   DBR 0 ¼ 02/15/29 Corp      *
        SETTLE DATE: 03/28/19  ISIN: DE0001102465  CUSIP: AW4161880
ROLL: N    SETTLEMENT       MARKET    TENOR:      SPREAD: 0.0000
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MONEY AT TERMINATION:      WIRED AMOUNT:       107,670,000.00
 {VCON <GO>} to Automate  REPO INTEREST:          -927.16
              TERMINATION MONEY:       107,669,072.84
```

**Marketplace Message (e.g. BBG VCON)**

**DRR** DIGITAL REGULATORY REPORTING

**Reporting pulled by regulators "on-demand" (building CDM logic)**

**SFTR Report Extract (ISO 20022)**

```xml
<ns0:New>
  <ns0:TxId>ABC1000244</ns0:TxId>
  <ns0:ExctgPty>10G7TPQLTCTSJ1I9FLFVA</ns0:ExctgPty>
  <ns0:InvstmtPtyInd>true</ns0:InvstmtPtyInd>
  <ns0:SubmitgPty>10G7TPQLTCTSJ1I9FLFVA</ns0:SubmitgPty>
  <ns0:Buyr>___</ns0:Buyr>
  <ns0:Sellr>___</ns0:Sellr>
  <ns0:OrdrTrnsmssn>
    <ns0:TrnsmssnInd>false</ns0:TrnsmssnInd>
  </ns0:OrdrTrnsmssn>
  <ns0:Tx>
    <ns0:TradDt>2019-03-27</ns0:TradDt>
    <ns0:TradgCpcty>DEAL</ns0:TradgCpcty>
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  </ns0:Tx>
  <ns0:FinInstrm>
    <ns0:Othr>
      <ns0:FinInstrmGnlAttrbts>
        <ns0:ClssfctnTp>REPO</ns0:ClssfctnTp>
        <ns0:NtnlCcy>EUR</ns0:NtnlCcy>
      </ns0:FinInstrmGnlAttrbts>
      <ns0:DerivInstrmAttrbts>___</ns0:DerivInstrmAttrbts>
    </ns0:Othr>
  </ns0:FinInstrm>
  <ns0:InvstmtDcsnPrsn>___</ns0:InvstmtDcsnPrsn>
  <ns0:ExctgPrsn>___</ns0:ExctgPrsn>
  <ns0:AddtlAttrbts>___</ns0:AddtlAttrbts>
</ns0:New>
```

```xml
<repo>
  <fixedRateSchedule>
    <initialValue>-0.31</initialValue>
  </fixedRateSchedule>
  <dayCountFraction>30/360</dayCountFraction>
  <duration>Term</duration>
  <initialMargin>___</initialMargin>
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    <settlementDate>
      <adjustableDate>___</adjustableDate>
    </settlementDate>
    <settlementAmount>
      <currency>EUR</currency>
      <amount>107670000.0</amount>
    </settlementAmount>
    <deliveryMethod>DeliveryVersusPayment</deliveryMethod>
    <collateral>
      <nominalAmount>___</nominalAmount>
      <cleanPrice>107.6179452</cleanPrice>
      <accruals>0.0520548</accruals>
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      <assetReference href="asset-ref-1" />
    </collateral>
  </nearLeg>
  <farLeg id="forwardLeg">___</farLeg>
  <bond id="asset-ref-1">
```

**Firm's Electronic Record**

```json
"contractualProduct": {
  "economicTerms": {
    "payout": {
      "interestRatePayout": [___],
      "securityPayout": [
        {
          "initialMargin": {___},
          "meta": {___},
          "repoDuration": "TERM",
          "securityLeg": [
            {___},
            {___}
          ],
          "securityValuation": [___]
        }
      ]
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  },
  "rosettaKeyValue": "8f3ac8a3"
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"productIdentification": {
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}
},
```

**Normalised Trade Event**

```
report ESMA_SFTR regulation "(EU) 2015/2365" in T+1 when InScopeOfEvent
    using standard ISO__20022 with fields
        TypeOfSFT
        UnitPrice
```

```
reporting rule TypeOfSFT
    from
        if ProductIdentification -> productType = "RepurchaseAgreement"
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        else if ProductIdentification -> productType = "Buy_Sell_Back"
            then "SBSC"
        else ""
```

```
reporting rule UnitPrice
    from
        Contract -> contractualProduct -> economicTerms -> payout -> securityPayout
            -> securityValuation -> securityValuationModel -> bondValuationModel
            -> bondPriceAndYieldModel -> cleanOrDirtyPrice -> dirtyPrice
```

**Reporting Logic**

**REGnosys**

**What is required to initiate the project**

➢ Focus on use-case to drive delivery of CDM extension for repo:
  o SFTR?
  o Other: Collateral Management?

➢ Identify some key firm(s) from your membership who will agree to:
  o Provide sample legal agreements (GMRA, trade confirmations)
  o Provide sample electronic records of trades and/or database schemas (from their trading / booking systems) – to be used as inputs to enhance the CDM event model and also as testing data
  o Commit to test the CDM extension on the selected use case