EUROPEAN
DATAWAREHOUSE

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DATAWAREHOUSE

EDW'S 2025 DUTCH WORKSHOP

28 OCTOBER 2025

AGENDA

WELCOME & INTRODUCTION
DR. CHRISTIAN THUN, EUROPEAN DATAWAREHOUSE

REGULATORY AND PRODUCT UPDATES FROM EDW
DR. CHRISTIAN THUN, EUROPEAN DATAWAREHOUSE

DATA QUALITY UPDATE
GISELA HERKNER, EUROPEAN DATAWAREHOUSE

STS UPDATE
ROB KONING, DSA

SUSTAINABLE FINANCE: ENGAGE FOR ESG
MARTIJN BREED, NN BANK & VINCENT MAHIEU, HYPOPORT

AI IN STRUCTURED FINANCE
VICTORYA DINEKOVA, MUFG

Q&A AND CLOSING REMARKS
DR. CHRISTIAN THUN, EUROPEAN DATAWAREHOUSE

SPEAKING AT TODAY'S EVENT

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REGULATORY AND PRODUCT UPDATES FROM EDW

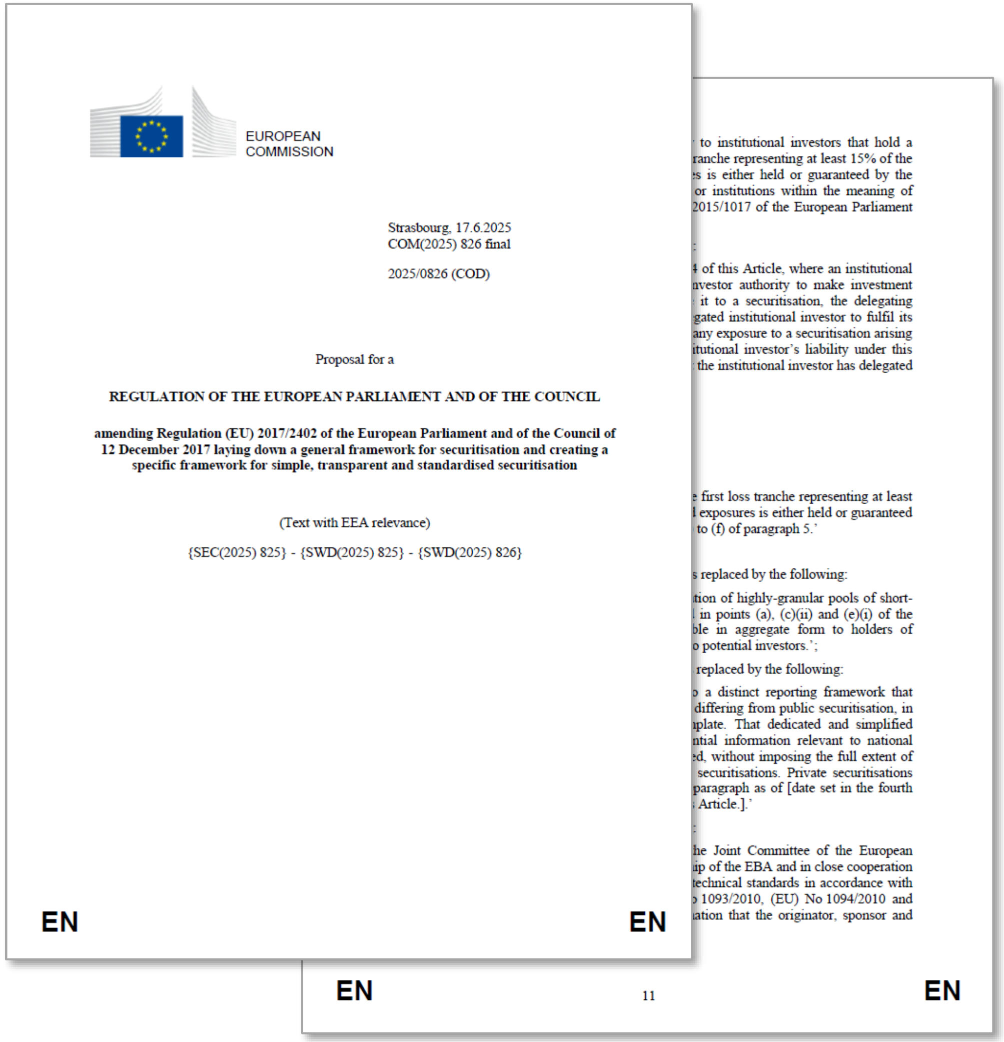
DR. CHRISTIAN THUN, EDW

EU COMMISSION PROPOSAL – NEXT STEPS

EU COMMISSION LEGISLATIVE PROPOSAL

HIGHLIGHTS ON DISCLOSURE

- On 17 June 2025, the EU Commission published its long-awaited proposal to review the EU's securitisation framework. It proposed:
  - New wider definition of ‘public’ securitisation (article 2)
    - A prospectus must be drawn up for that securitisation
    - The notes are traded at a trading venue in the EU
    - The terms are non-negotiable among parties
- Aggregated disclosure for highly granular portfolios
- Streamlined reporting templates for public securitisations (at least 35% reduction in data fields)
- Simplified reporting template for private securitisations
- Mandatory reporting to a repository for all securitisations (public and private)


EUROPEAN COMMISSION

Strasbourg, 17.6.2025
COM(2025) 826 final

2025/0826 (COD)

Proposal for a

REGULATION OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL

amending Regulation (EU) 2017/2402 of the European Parliament and of the Council of 12 December 2017 laying down a general framework for securitisation and creating a specific framework for simple, transparent and standardised securitisation

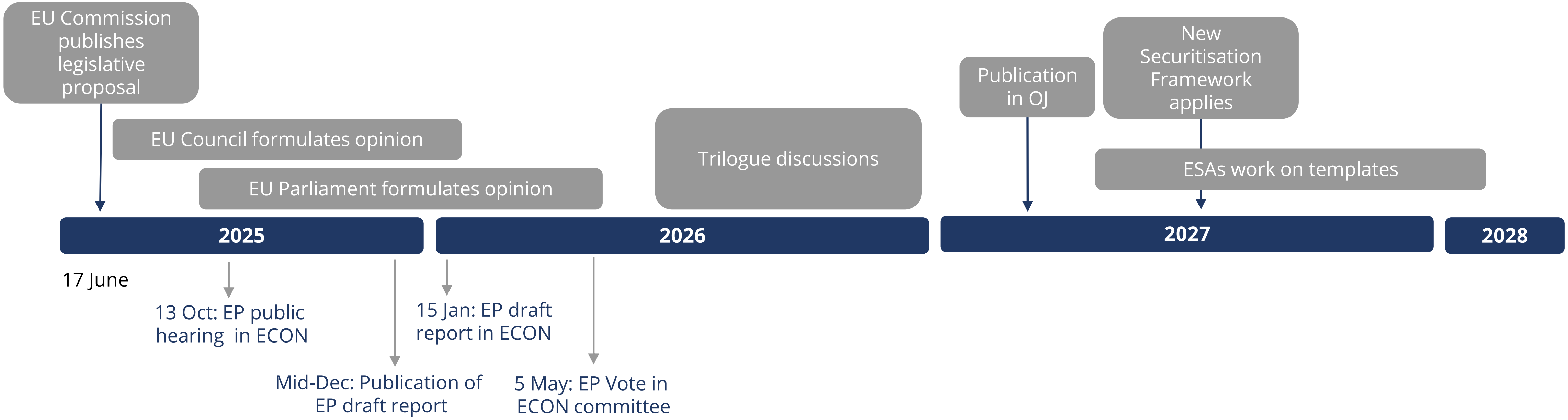
(Text with EEA relevance)

{SEC(2025) 825} - {SWD(2025) 825} - {SWD(2025) 826}

EN EN

TENTATIVE TIMELINE FOR NEW SECURITISATION FRAMEWORK

ASSUMED ADAPTION FROM 2027



EDW POSITION PAPER

- Following the publication of the EU Commission proposal on the revision of the securitisation framework the EDW management, the members of the Supervisory Board and the shareholder representatives jointly drafted a position paper on the EU Commission's proposal.
- The position paper was published on 23 September 2025.
- Complete paper is available on our website (insights - blogs)

EUROPEAN DATAWAREHOUSE

EDW'S POSITION PAPER

ON THE EU COMMISSION'S PROPOSED REVISION OF THE REPORTING FRAMEWORK

On 17 June 2025 the European Commission published its legislative proposals for reviving the European securitisation market and for striking a better balance between safeguards and growth.

In its proposal, the European Commission acknowledged that the very prescriptive legal requirements in the area of transparency and due diligence resulted in high operational costs for issuers and investors in securitisations, creating an unnecessary barrier to revitalising the securitisation market in the EU.

The proposal foresees differentiated disclosure requirements for public and private securitisations:

- public securitisations shall remain subject to comprehensive disclosure but with a planned streamlining of the reporting templates;
- for private transactions, new and less granular reporting templates are to be introduced.

To ensure greater market transparency and facilitate the supervision and monitoring of the entire EU securitisation market, all securitisations should report to securitisation repositories.

European DataWarehouse (EDW) — as Europe's first and leading securitisation repository serving issuers from Europe, North America, Australia and Asia — welcomes the intention to make the EU securitisation disclosure framework simpler, more cost efficient and fit for purpose. EDW hereby reiterates its commitment to support securitisation market participants in this respect and is standing ready to help with any changes to the disclosure framework that may ultimately be adopted.

EDW acknowledges that the proposed requirement for securitisations — deemed 'private' under the current disclosure regime — to report through a securitisation repository may pose challenges for these issuers in respect of confidentiality, data security and operational cost.

In this regard, over the past
been offering a dedicated re
for private securitisations to
that voluntarily decided to re
tion through a securitisation
ensuring the security and co
information hosted at EDW.

EDW's secure hosting soluti
curitisations enables issue
curitisations to keep the c
and make the reported data
those third parties explicitly
relevant owner of each sec
invests continuously in info
and follows applicable ind
EDW is committed to prot
and availability of the data
requirements.

Frankfurt am Main, Septem

Signed by

EDW MANAGEMENT

Dr. Christian Thun
CEO

EDW SUPERVISORY BOARD

1 For example, the reporting template
https://eurodw.eu/wp-content/uploa

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EUROPEAN DATAWAREHOUSE – GLOBAL FOOTPRINT

EUROPEAN DATAWAREHOUSE ATTRACTS ISSUERS & INVESTORS FROM FOUR CONTINENTS

- European DataWarehouse (EDW) was **founded in 2012 to service securitisation issuers in the Euro area** or those seeking funding under the Eurosystem collateral framework.
- To continue servicing its UK clients post-Brexit EDW **established its subsidiary European DataWarehouse Ltd. in London/UK in 2018.**
- **In 2021 EDW was registered by ESMA and the FCA** to serve as Europe's securitisation repository in the EU as well as the UK
- In **2023 issuers from Asia and Australia began using EDW** to provide the relevant documentation for EU/UK investors
- In 2025 EDW opened a **branch office in Bangalore**, India to better address the increasing needs for IT support and technical solutions.
- In 2025 EDW welcomed its first US issuer, which chose to store relevant documentation for EU investors exclusively on the EDW platform.

THE WORLD'S LARGEST ISSUER CHOSES EUROPEAN DATAWAREHOUSE

- In Q2 2025 the Federal National Mortgage Association (FNMA or "**Fannie Mae**") decided to use **European DataWarehouse** to provide EU institutional investors with the resources on the Multifamily Connecticut Avenue Securities ("MCAS") to support their compliance with the EU Securitisation Regulation.
- Please reach out to the Fannie Mae Investor Help Line at +1-800-232-6643 or via the Capital Markets Contact Form (https://capitalmarkets.fanniemae.com/form/main-contact-form) to be granted access.

AUSTRALIAN ISSUER LIBERTY USES EUROPEAN DATAWAREHOUSE

LIBERTY SERIES 2023-1 SME
Liberty
LIBERTY FUNDING PTY LTD
in respect of the Liberty Series 2023-1 SME
A$1,000,000,000
MORTGAGE BACKED SECURITIES

LIBERTY SERIES 2023-4
Liberty
LIBERTY FUNDING PTY LTD
in respect of the Liberty Series 2023-4
A$1,250,000,000
MORTGAGE BACKED SECURITIES

LIBERTY SERIES 2024-1 AUTO
Liberty
LIBERTY FUNDING PTY LTD
in respect of the Liberty Series 2024-1 Auto
A$850,000,000
ASSET BACKED SECURITIES

LIBERTY SERIES 2024-1 SME
Liberty
LIBERTY FUNDING PTY LTD
in respect of the Liberty Series 2024-1 SME
A$900,000,000
MORTGAGE BACKED SECURITIES

LIBERTY SERIES 2024-2
Liberty
LIBERTY FUNDING PTY LTD
in respect of the Liberty Series 2024-2
A$1,250,000,000
MORTGAGE BACKED SECURITIES

LIBERTY SERIES 2025-1
Liberty
LIBERTY FUNDING PTY LTD
in respect of the Liberty Series 2025-1
A$1,500,000,000
MORTGAGE BACKED SECURITIES

- Liberty Financial Pty Ltd. ("**Liberty**") is one of the top 5 non-bank lenders in Australia offering home, car, business, commercial, and personal loans.
- Liberty is a repeat issuer of securitisations (e.g. 7 new deals in 2022/2023 and 7 new deals in 2023/2024) and has chosen **European DataWarehouse** to provide EU & UK investors with the relevant documentation to comply with the Securitisation Regulation (EU)2017/2402 and UK Securitisation Framework.
- To be granted **access to the information** please contact Liberty Investor Enquiries at +61 3 8635 8888 or via email to alltreasury@liberty.com.au

PRODUCT UPDATE

DISCLOSURE REQUIREMENTS

DIFFERENCES BETWEEN PUBLIC AND PRIVATE SECURITISATIONS IN EDITOR – EDW'S SECURITISATION REPOSITORY SOLUTION

ESMA Reporting Templates	Public	Private
Underlying Exposures	✓	✓
Investor Report	✓	✓
Inside Information /Significant Event	✓	⊖

Disclosure requirements based on the RTS/ITS on operational standards for SR	Public Securitisation Repositories (SR)	Private (exempted from reporting to SR)
XML format	✓	✓
XML Schema checks	✓	⊖
ESMA Scoring	✓	⊖
Content checks (validation rules)	✓	⊖
ND Thresholds	✓	⊖

PRIVATE SECURITISATIONS IN EDW DATABASE

AN INCREASING NUMBER OF PRIVATE SECURITISATIONS (EU & NON-EU) IS STORED IN THE SECURITISATION REPOSITORY

PRIVATE SECURITISATIONS IN EDW DATABASE	>350 TOTAL	100+ ISSUERS	19 COUNTRIES	10 ASSET CLASSES

DEALDOX™

A NEW ERA OF EFFICIENCY AND SECURITY IN DEAL DOCUMENTATION HOSTING (COMING SOON)

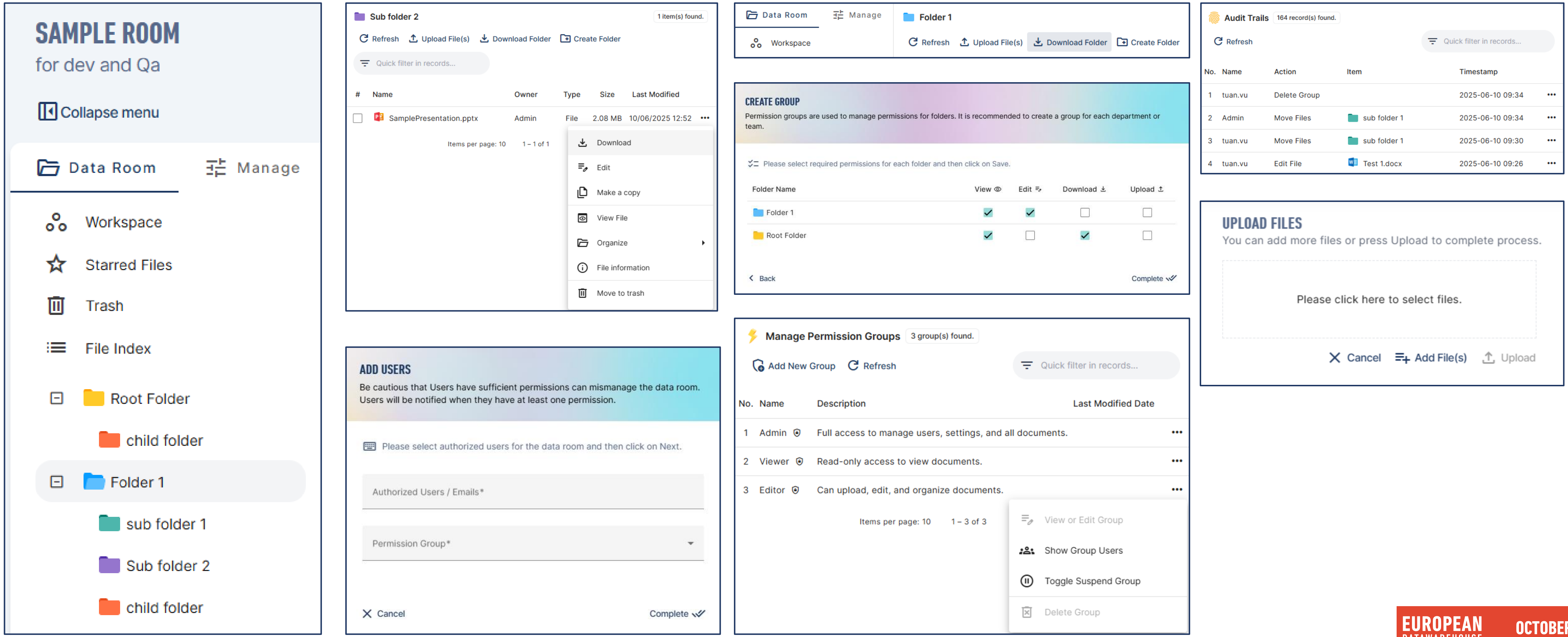
In response to the evolving needs of the structured finance industry, EDW has developed a **bespoke virtual data room solution tailored to the needs of the market**. Crafted with **meticulous attention to detail and informed by years of expertise in data management**, this specialised offering promises to elevate your document management experience, offering unparalleled features and benefits.

Benefits at-a-glance:

- **Secure, interactive workspace**
- **Intuitive drag-and-drop UI**
- Configurable terms and conditions
- **User-controlled access and permissions**
- Comprehensive **data user access analytics**
- Secure hosting developed and **housed in the EU**
- Integrated **archival and backup solutions**
- Redact, annotate, highlight, and even collect signatures in sensitive files via an **interactive PDF viewer**
- **Sync and push to EDITOR** for seamless reporting
- Hierarchical folder structures

DEALDOX™ PREVIEW

A NEW ERA OF EFFICIENCY AND SECURITY IN DEAL DOCUMENTATION HOSTING



EUROPEAN DATAWAREHOUSE ADHERES TO HIGHEST STANDARDS

IN OCTOBER 2025 EUROPEAN DATAWAREHOUSE RECEIVED SOC2 (TYPE 1) AND ISO 27001 CERTIFICATION

- By Q2 2026, EDW will strive to obtain SOC2 Type2 certification (a continuum audit) – the gold standard in IT Security

PROXY DATA TO COMPLY WITH ARTICLE 22(1) FOR THE STS TRANSACTIONS

EUROPEAN DATAWAREHOUSE CAN HELP YOUR ORGANISATION COMPLY WITH RELEVANT PERFORMANCE REQUIREMENTS

- With over 1,300 transactions, EDW offers solutions for the issuers/originators/SSPEs to comply with the STS Requirements relating to transparency
- EDW can perform on-demand SQL queries to extract historical performance data from its database across asset classes for a period of at least five years. The performance data includes historical arrears, defaults for exposures similar to those being securitised.

L 347/62 EN Official Journal of the European Union 28.12.2017

Article 22

Requirements relating to transparency

1. The originator and the sponsor shall make available data on static and dynamic historical default and loss performance, such as delinquency and default data, for substantially similar exposures to those being securitised, and the sources of those data and the basis for claiming similarity, to potential investors before pricing. Those data shall cover a period of at least five years.

PERFORMANCE TABLES

5 Years of Historical Arrears of a Sample of Substantially Similar Mortgage Receivables (Source: European DataWarehouse)

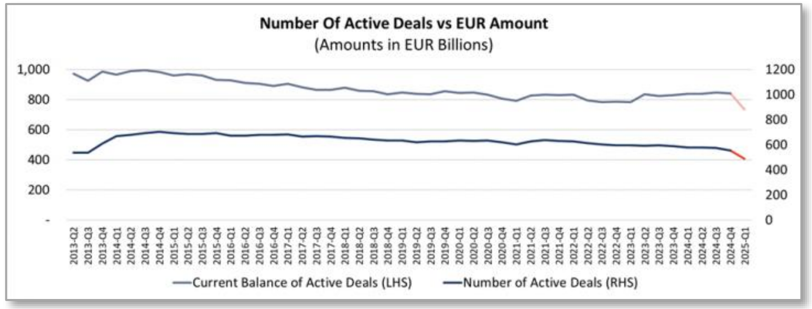
Date	Outstanding Balance	0-30 days	30-60 days	60-90 days	90-120 days	120-150 days	150-180 days	180+ days
31 March 2014	886,240,154	0.59%	0.12%	0.05%	0.02%	0.03%	0.02%	0.23%
30 June 2014	872,109,172	0.74%	0.27%	0.12%	0.14%	0.02%	0.02%	0.18%
30 September 2014	860,784,118	0.25%	0.10%	0.03%	0.00%	0.02%	0.00%	0.00%
31 December 2014	843,694,237	2.92%	0.23%	0.12%	0.06%	0.04%	0.02%	0.13%
31 March 2015	810,849,986	2.09%	0.21%	0.14%	0.01%	0.07%	0.03%	0.13%
30 June 2015	818,402,751	2.90%	0.28%	0.06%	0.03%	0.15%	0.04%	0.11%

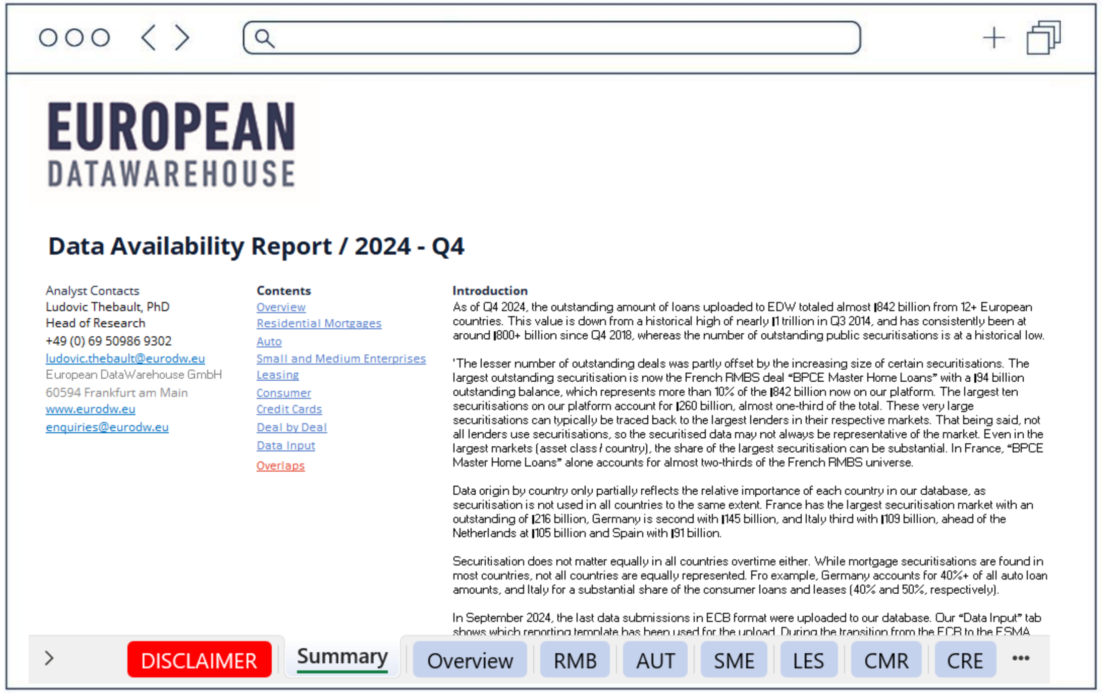
CORPORATE UPDATE & ONE MORE THING...

RECENT PUBLICATIONS: Q4 2024 DATA AVAILABILITY REPORT

RESEARCH REPORT FROM EDW

- The EDW Data Availability Report provides quarterly statistics on the outstanding number of active securitisations, loan amounts, and number of loans.
- As of **Q4 2024**, the outstanding amount of loans uploaded to **EDW totalled almost €842 billion from 12+ European countries**. This value is down from a historical high of nearly €1 trillion in Q3 2014, and has consistently been at around €800+ billion since Q4 2018.





EUROPEAN DATAWAREHOUSE

Data Availability Report / 2024 - Q4

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Leasing
Consumer
Credit Cards
Deal by Deal
Data Input
Overlaps

Introduction

As of Q4 2024, the outstanding amount of loans uploaded to EDW totaled almost €842 billion from 12+ European countries. This value is down from a historical high of nearly €1 trillion in Q3 2014, and has consistently been at around €800+ billion since Q4 2018, whereas the number of outstanding public securitisations is at a historical low.

'The lesser number of outstanding deals was partly offset by the increasing size of certain securitisations. The largest outstanding securitisation is now the French RMBS deal "BPCE Master Home Loans" with a €94 billion outstanding balance, which represents more than 10% of the €842 billion now on our platform. The largest ten securitisations on our platform account for €260 billion, almost one-third of the total. These very large securitisations can typically be traced back to the largest lenders in their respective markets. That being said, not all lenders use securitisations, so the securitised data may not always be representative of the market. Even in the largest markets (asset class / country), the share of the largest securitisation can be substantial. In France, "BPCE Master Home Loans" alone accounts for almost two-thirds of the French RMBS universe.

Data origin by country only partially reflects the relative importance of each country in our database, as securitisation is not used in all countries to the same extent. France has the largest securitisation market with an outstanding of €216 billion, Germany is second with €145 billion, and Italy third with €109 billion, ahead of the Netherlands at €105 billion and Spain with €91 billion.

Securitisation does not matter equally in all countries overtime either. While mortgage securitisations are found in most countries, not all countries are equally represented. Fro example, Germany accounts for 40%+ of all auto loan amounts, and Italy for a substantial share of the consumer loans and leases (40% and 50%, respectively).

In September 2024, the last data submissions in ECB format were uploaded to our database. Our "Data Input" tab shows which reporting template has been used for the upload. During the transition from the ECB to the ESMA

DISCLAIMER | Summary | Overview | RMB | AUT | SME | LES | CMR | CRE | ...

UPCOMING EVENTS: H2 2025

Date	EDW Hosted Event
28 October	2025 Dutch Securitisation Event - Amsterdam
4 November	2025 Spanish Securitisation Event - Madrid
17 November	2025 Portuguese Securitisation Event - Lisbon
20 November	2025 German Securitisation Event - Frankfurt
20 November	2025 GAS Workshop - Frankfurt
25 November	2025 Italian Securitisation Event – Rome
16 December	Q4 Research Update Webinar
17 December	Regulatory Roundtable Webinar: Updates and Outlook

Date	Third-Party Conferences
23 October	Moody's Structured Credit Symposium - Frankfurt
30 October	PCS Symposium - Milan
12 November	TSI Seminar Cash Securitisation - Frankfurt
18 November	LSEG/EDW Securitisation Summit - London
25-26 November	Australian Securitisation Conference - Sydney

PLEASE VOTE FOR EDW FOR THE 2026 GC SECURITISATION AWARD

Save the dates for the 2026 *GlobalCapital* European Securitization Awards!

Nominations	Shortlist	Voting	Ceremony
October - November, 2025	December, 2025	December 2025 - January, 2026	March 26, 2026 | London
Coming soon	Coming soon	Coming soon	Coming soon

DATA QUALITY UPDATE

GISELA HERKNER, EDW

OVERVIEW OF EDW'S ESMA DATA QUALITY PROCESSES

1 Mandatory ESMA checks (ca. 1,200)	Schema checks	• Verification of file structure and the format of the data submitted
	Validation rules	• Rules that lead to a submission rejection
	ESMA additional rules	• Additional rules that need to be executed by the securitisation repository (only warning)
2 Optional EDW checks		• Rules developed by European DataWarehouse. A subset is used to calculate the Data Quality Score (DQS) that ranks submissions from A (best quality) to F (worst quality)

DATA QUALITY SCORE

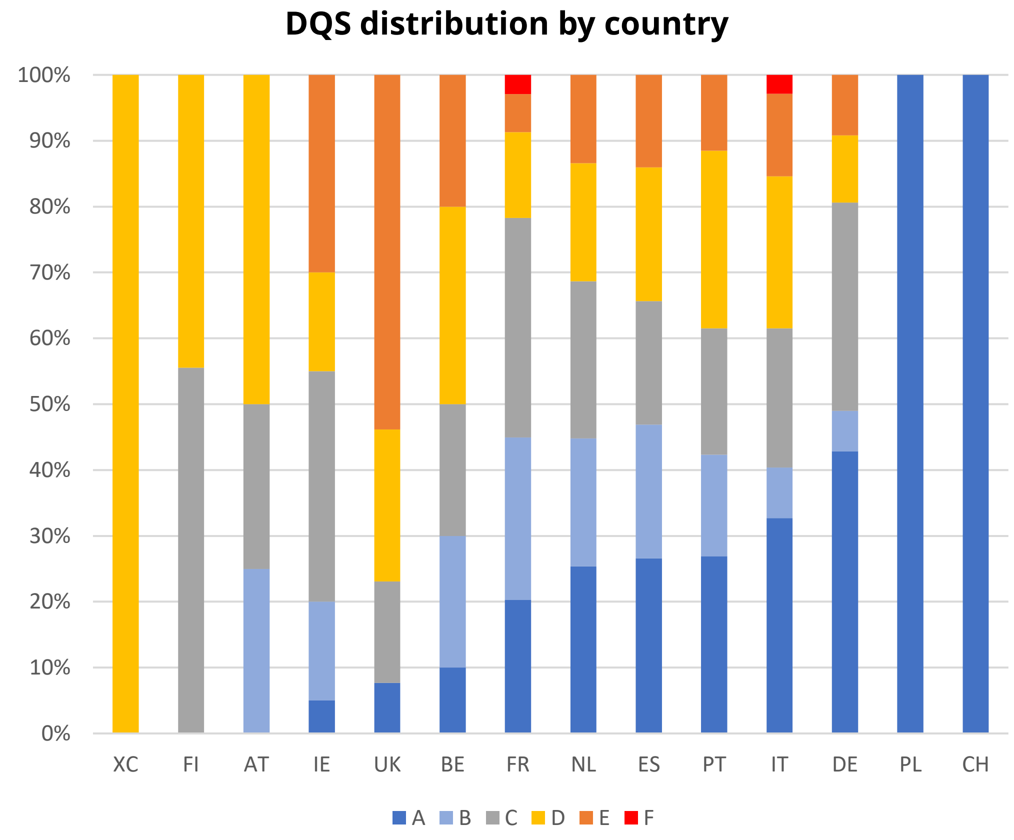
EUROPEAN DATAWAREHOUSE RELEASED DATA QUALITY SCORES ON A DEAL LEVEL IN 2017

What does the EDW Data Quality Score mean?

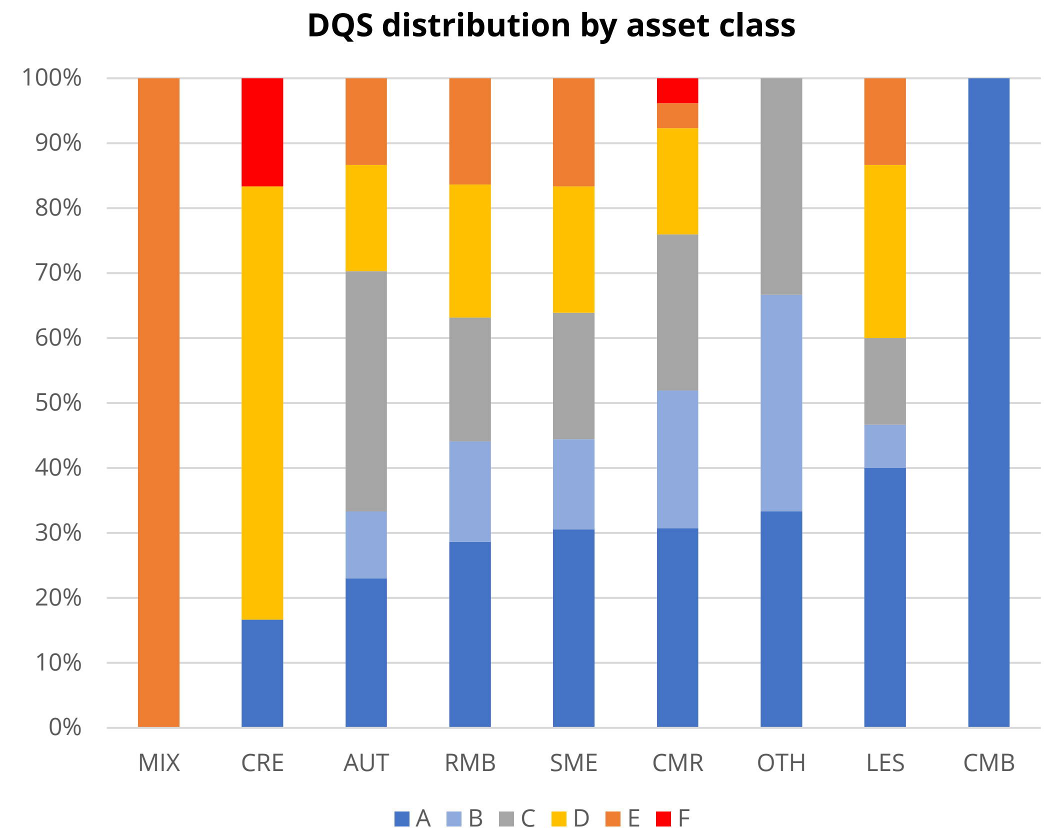
- The EDW DQS is an **automated score based on hard failure rules and is a subset of all EDW-applied rules.**
- The score is **objective and provides a common basis of data quality for all deals, jurisdictions, and asset classes.**
- It ranges from a minimum *fail ratio* of 0.0000% to a maximum of 0.0001% per million for an A grading to a minimum *fail ratio* of 4% to a maximum of 100% for an F grading.

DQ SCORE	MIN. FAIL RATIO	MAX. FAIL RATIO	RATIO
A	0.0000%	0.0001%	Up to 1 in a million
B	0.0001%	0.005%	Up to 5 in 100k
C	0.005%	0.1%	Up to 1 in a thousand
D	0.1%	1%	Up to 1 in a hundred
E	1%	4%	Up to 4 in a hundred
F	4%	100%	> 4 in a hundred

DATA QUALITY ESMA TEMPLATE – BY COUNTRY & BY ASSET CLASS



Please note: the number of submissions from exposure from mixed countries (XC) or from Switzerland (CH) and Poland (PL) represent outlier values.



Please note: due to the low number of submissions commercial real estate (CMB) or mixed asset class (MIX) securitisations represent outliers.

DQ SCORE DRIVERS

MOST AFFECTED FIELDS IN 60 PUBLIC DUTCH RMBS DEALS (56 DEALS IN 2025)

RREL68 Number Of Days In Arrears

- Number Of Days In Arrears equal to zero when Account Status is 'Restructured-Arrears' or 'Arrears. (18 deals 2024, 14 deals 2025) ⬆
- Number Of Days In Arrears populated (RREL68 > 0) when Arrears Balance (RREL67) is equal to zero. (3 deals 2024) (1 deal 2025) ⬆

RREC15 Current Valuation Date

- Current Valuation Date earlier than Original Valuation Date (RREC19). (9 deals 2024, 4 deals 2025) ⬆
- Current Valuation Date (RREC15) populated with ND5 for active loans with physical collateral (RREC5 <> 'SECU'; 'GUAR'; 'OTFA'; 'MIXD'; 'OTHR’). (9 deals 2024, 11 deals 2025) ⬇

RREC6 Geographic Region Collateral

- Geographic Region - Collateral (RREC6) populated with ND5 when Collateral Type (RREC5) is 'Building' or 'Real Estate for active loans. (11 deals 2024, 10 deals 2025) ▬

DQ SCORE DRIVERS

MOST AFFECTED FIELDS IN 60 PUBLIC DUTCH RMBS DEALS (56 DEALS IN 2025)

RREC12 Current Loan-To-Value

- Current Loan-To-Value (RREC12) equal to zero for active loans. (10 deals 2024, 6 deals 2025)
- [DQS] Current Loan-To-Value (RREC12) lower than zero. (1 deal 2024, 0 deals 2025)

RREC16 Original Loan-To-Value

- Original Loan-To-Value (RREC16) equal to zero for active loans. (7 deals 2024, 7 deals 2025)
- Original Loan-To-Value (RREC16) populated with ND5 for active loans with physical collateral (RREC5 <> 'SECU'; 'GUAR'; 'OTFA'; 'MIXD'; 'OTHR’). (3 deals 2024, 1 deal 2025)

RREL14 Credit Impaired Obligor

- Credit Impaired Obligor (RREL14) populated with ND5 when the deal is STS for active loans. (7 deals 2024, 6 deals 2025)

DQ SCORE DRIVERS

MOST AFFECTED FIELDS IN 60 PUBLIC DUTCH RMBS DEALS (56 DEALS IN 2025)

RREC17 Original Valuation Amount

- Original Valuation Amount (RREC17) equal to zero for active loans.
  (7 deals 2024, 7 deals 2025) -

RREL73 Allocated Losses

- Allocated Losses (RREL73) reports ND5 when Sale Price (RREC21) or Date Of Sale (RREC20) are populated; for active loans.
  (7 deals 2024, 4 deals 2025) ⬆

RREL30 Current Principal Balance

- Current Principal Balance (RREL30) equal to zero when Account Status is 'Performing’, 'Restructured' or 'Arrears' (RREL69 IN ('PERF'; 'RNAR'; 'RARR'; 'ARRE’)).
  (7 deals 2024, 4 deals 2025) ⬆

DATA INSIGHTS

ANNUALISED CONSTANT DEFAULT RATE (CDR) – VERIFICATION

WHY WE VERIFY CDRS REPORTED TO EDW (ANNEX 12)

We recalculate CDRs as part of our Data Quality effort because:

- CDRs are a Key Input for Cash Flow Models
- Recalculation verifies the Accuracy of Performance-Related Fields
- Past Reviews have revealed Data Quality Issues in Reported CDRs

ANNUALISED CONSTANT DEFAULT RATE (CDR) – DEFINITION

CALCULATION METHOD AS DEFINED BY THE ESMA TAXONOMY

IVSS27	Annualised Constant Default Rate	The annualised Constant Default Rate (CDR) for the underlying exposures based on the periodic CDR. Periodic CDR is equal to the [(total current balance of underlying exposures classified as defaulted during the period) / (total current balance of non-defaulted underlying exposures at the beginning of the period)]. This value is then annualised as follows: 100*(1-((1-Periodic CDR)^number of collection periods in a year)) "Periodic CDR" refers to the CDR during the last collection period, i.e. for a securitisation with quarterly paying bonds this will usually be the prior three month period.

$$CDR = 100 * \left(1 - \left(1 - \frac{Current\ Balance\ of\ Defaulted\ Loans\ during\ the\ Period}{Current\ Balance\ of\ Non-Defaulted\ Loans\ at\ the\ beginning\ of\ the\ Period}\right)^{Number\ of\ Collection\ Periods\ in\ a\ Year}\right)$$

ANNUALISED CONSTANT DEFAULT RATE (CDR) – DEFINITION

HOW WE RECALCULATE CDRS

We count a loan as defaulted if any of the following conditions apply:

- **Account Status** changes to Default this Period
- A New **Default Amount** appears this Period
- A **Default Date** falls within Reporting Period

ANNUALISED CDR - RECALCULATION

WE EXPECT AT LEAST ONE OF THESE RECALCULATION METHODS TO MATCH THE CDR REPORTED IN ANNEX 12

Based on the Current Balance, as required by ESMA

Based on the Default Amount

Based on Gross Charge-Offs (Annex 12)

ANNUALISED CDR – COMPARISON

REPORTED VS. RECALCULATED CDR: A NUMERICAL COMPARISON

16%

of Reported CDR aligns well with our Recalculated CDR (Current Balance) ±10%

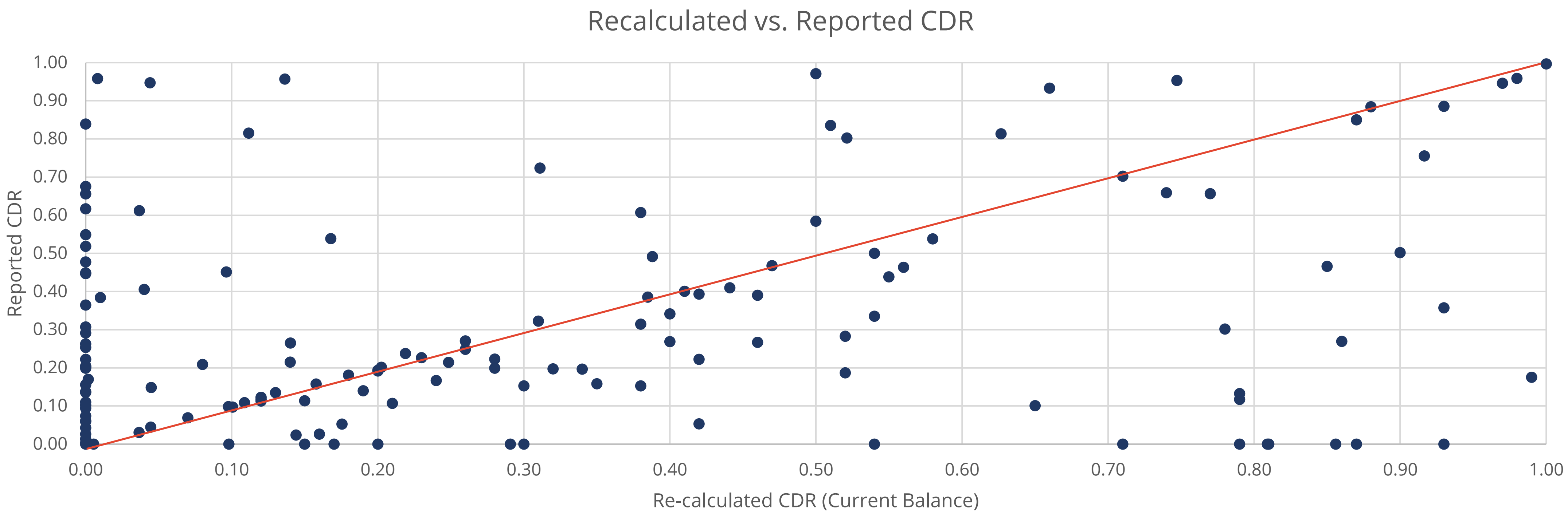
55%

of Reported CDR aligns with one of our Recalculated CDR (Current Balance, Default Amount or Gross Charge-Offs) ±10%

Sample Data: Latest Pool Cutoff – 326 Public Active Deals with Defaults

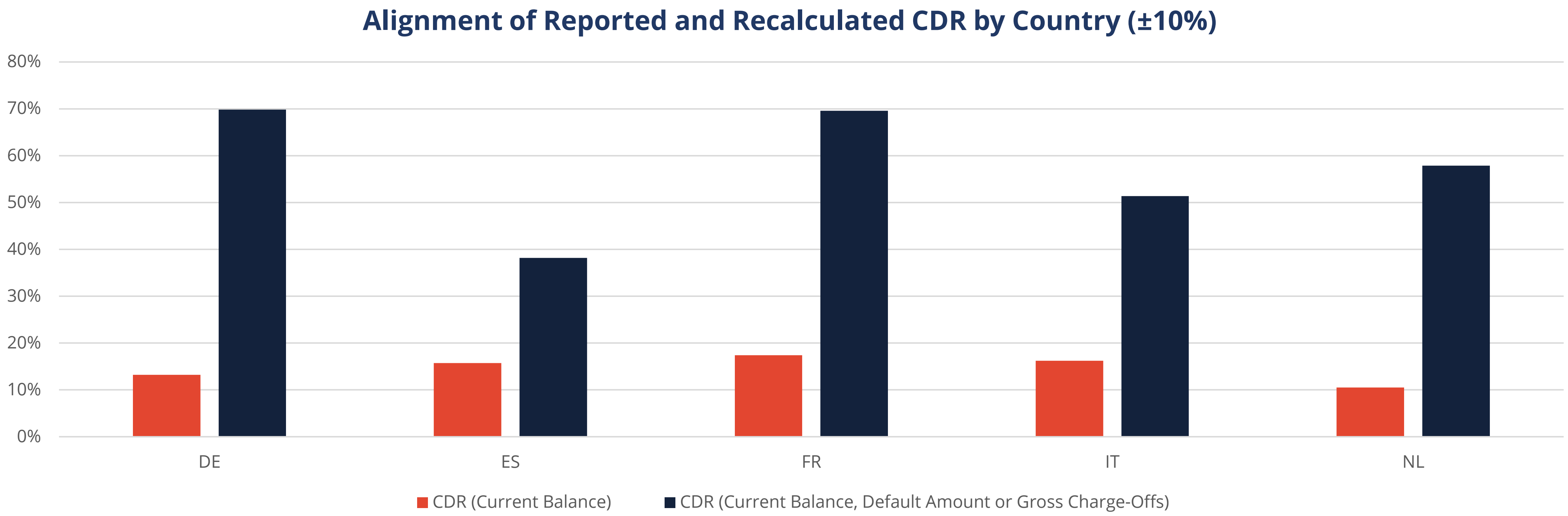
ANNUALISED CDR – COMPARISON

REPORTED VS. RECALCULATED CDR: ILLUSTRATED COMPARISON



ANNUALISED CDR – COMPARISON

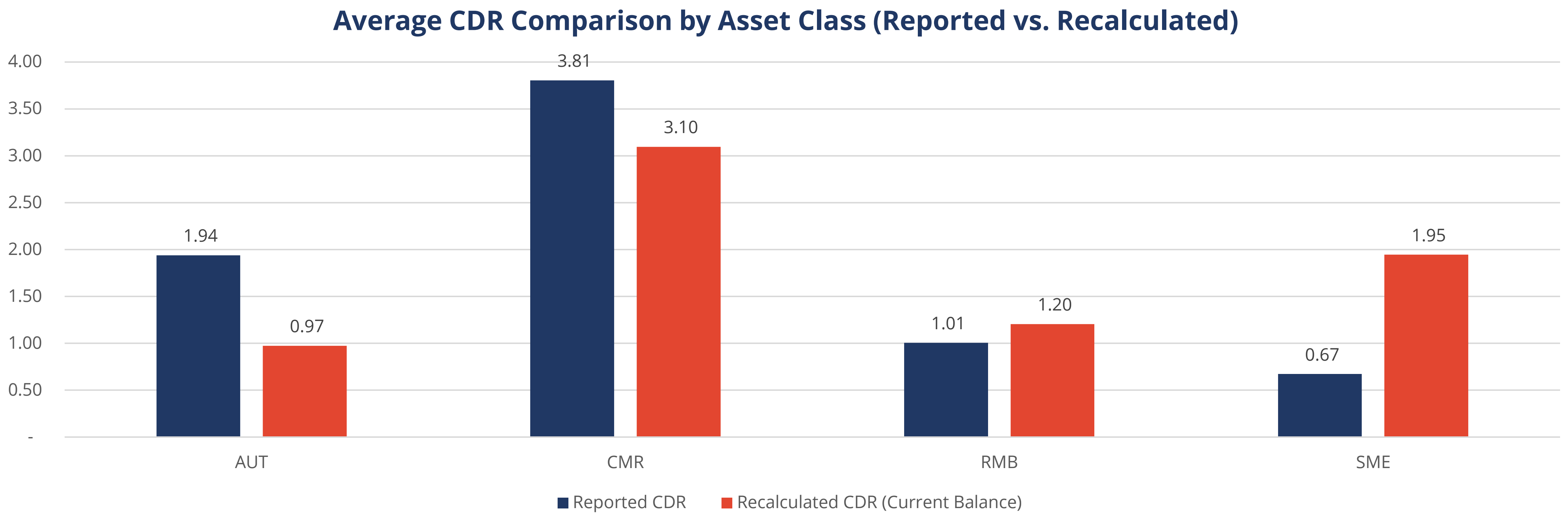
REPORTED VS. RECALCULATED CDR: COMPARISON BY COUNTRY



Sample Data: Latest Pool Cutoff – 281 Public Active Deals with Defaults

ANNUALISED CDR – COMPARISON

REPORTED VS. RECALCULATED CDR: AVERAGE COMPARISON BY ASSET CLASS



Sample Data: Latest Pool Cutoff – 316 Public Active Deals with Defaults

ANNUALISED CDR – DISCREPANCIES

COMMON CAUSES FOR DISCREPANCIES

- Not Annualised
- Not expressed as Percentage
- Current Balance of Defaulted Loans reported as Zero
- Calculated using the Deal’s Definition of Defaulted Loans rather than the ESMA Definition
- Certain Defaulted Loans are reflected in the followings Period’s CDR rather than the current one
- Incorrectly Reported Amounts (e.g., Cumulative or Outstanding Defaults)

STS UPDATE

ROB KONING, DSA

SUSTAINABLE FINANCE: ENGAGE FOR ESG

MARTIJN BREED, NN BANK & VINCENT MAHIEU, HYPOPORT

ENGAGE 4 ESG

An introduction for EU Taxonomy Compliance
for residential loans.

EDW Workshop Amsterdam

October 2025

Co-funded by the
European Union

ENGAGE
for ESG

1. About us

An introduction

ENGAGE: introduction

ENGAGE *in short*

ENGAGE is a market-driven initiative, co-funded by the EU, aimed at developing and maintaining a future-proof standard for residential real estate loans and ESG data. Our primary focus is on aligning with the **EU Taxonomy**-related disclosures, a fundamental element of EU sustainable finance regulation.

We do this by developing and maintaining:

- **Template Add-ons**: Enhancing existing mortgage loan disclosure frameworks through a flexible system of *ESG add-ons*. These *add-ons* are market-designed and built with transparency in mind.
- **ENGAGE Portal**: Providing a platform where stakeholders can evaluate ESG criteria with complete transparency. The portal also functions as a secure data room and potentially as a repository for sustainable disclosures.

Scope: EU, Residential (mortgage) loans, EU Taxonomy, EIB, CSRD

URL: https://engage4esg.eurodw.eu/

Over 70+ **EU financial institutions** joined and requested the templates.

Consortium members

HYPOPORT

EUROPEAN DATAWAREHOUSE

woonnu

UCI

DEXAI ARTIFICIAL ETHICS

Università Ca'Foscari Venezia

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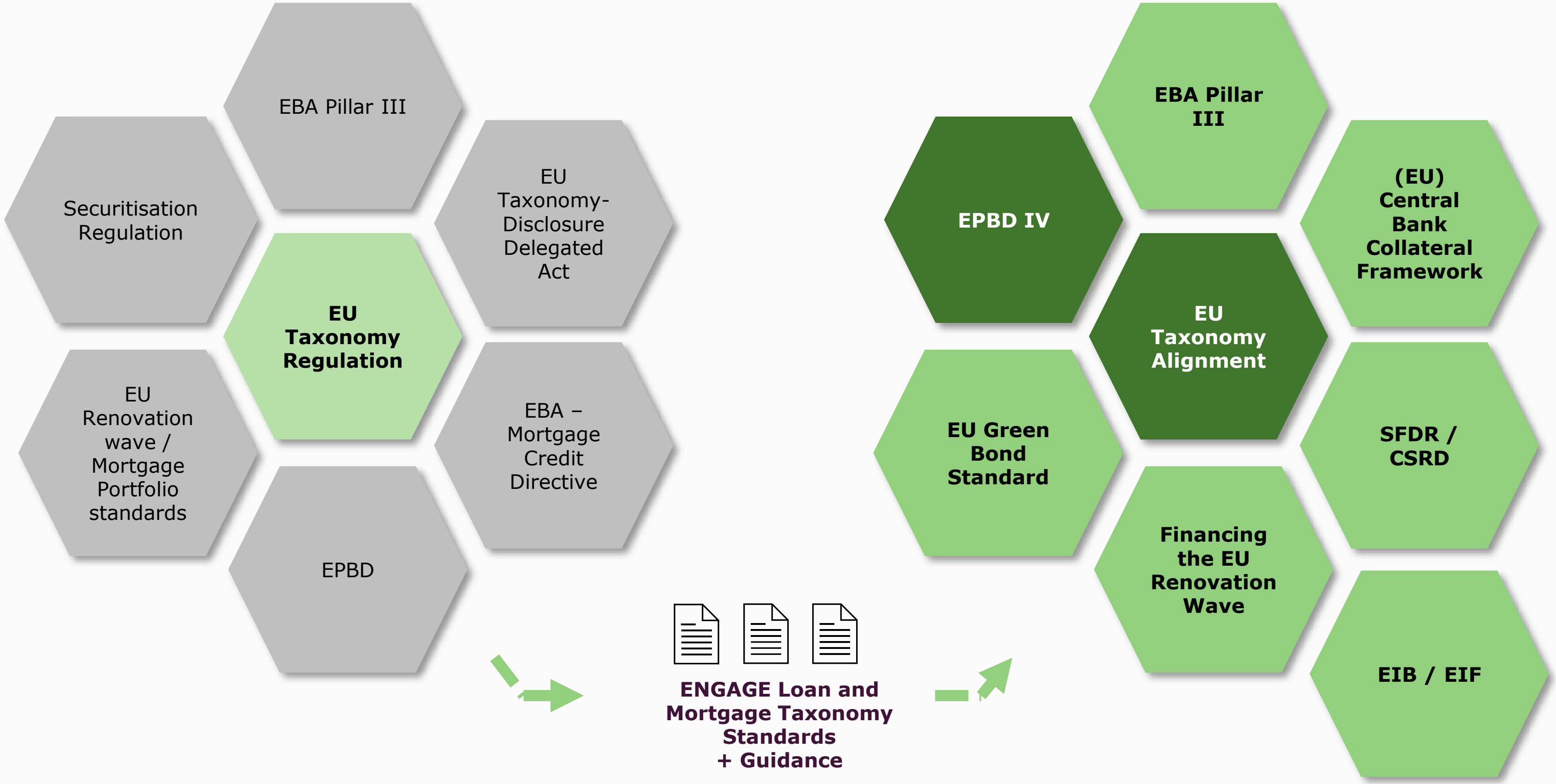
ENGAGE: (Regulatory) Background



EU Taxonomy is the common denominator of many (forthcoming) regulations

The Eu Taxonomy – Scope for ENGAGE

In short:

- The **EU Taxonomy** is a regulation that constitutes the cornerstone of the EU Sustainable Finance Action Plan.
- The EU Taxonomy provides a **common language** and uniform criteria to identify the extent to which economic activities may be considered environmentally sustainable.
- It aim is to reorientate **capital flows towards lower-emission economic activities** that will help decarbonize the economy.
- The EU hopes to reach **its 2030 climate targets** and **the ultimate goal of net-zero greenhouse gas emissions by 2050**.
- The EU Taxonomy defines the **minimum criteria that economic activities should comply with in order to be considered environmentally sustainable**.

Taxonomy Regulation

Climate Delegated Act

Annex I – CC Mitigation

EU Taxonomy Alignment Steps

Substantial Contribution

\+

Do No Significant Harm

\+

Minimum Safeguards

=

Sustainable Activity

Additional Technical Screening Criteria Available

The Eu Taxonomy – Scope for ENGAGE

EU Taxonomy Climate Delegated Act Criteria + Traditional (mortgage) loan disclosure = ENGAGE (mortgage) Loan Framework

TSC

- Substantial Contribution
- Do No Significant Harm
- Minimum Safeguards

Data Granularity

- Detailed Loan(part) and collateral (building unit level information)
- Climate Related Information
- Documentation and governance

+

Sec. Reg. Disclosure

- Loan
- Collateral

The Eu Taxonomy – Scope for ENGAGE

EU Taxonomy Climate Delegated Act Criteria

Traditional (mortgage) loan disclosure

=

ENGAGE (mortgage) Loan Framework

TSC

- Substantial Contribution
- Do No Significant Harm
- Minimum Safeguards

Data Granularity

- Detailed Loan(part) and collateral (building unit level information)
- Climate Related Information
- Documentation and governance

+

Sec. Reg. Disclosure

Loan	RREL
Collateral	RREC
	EREC
	EGFF

=

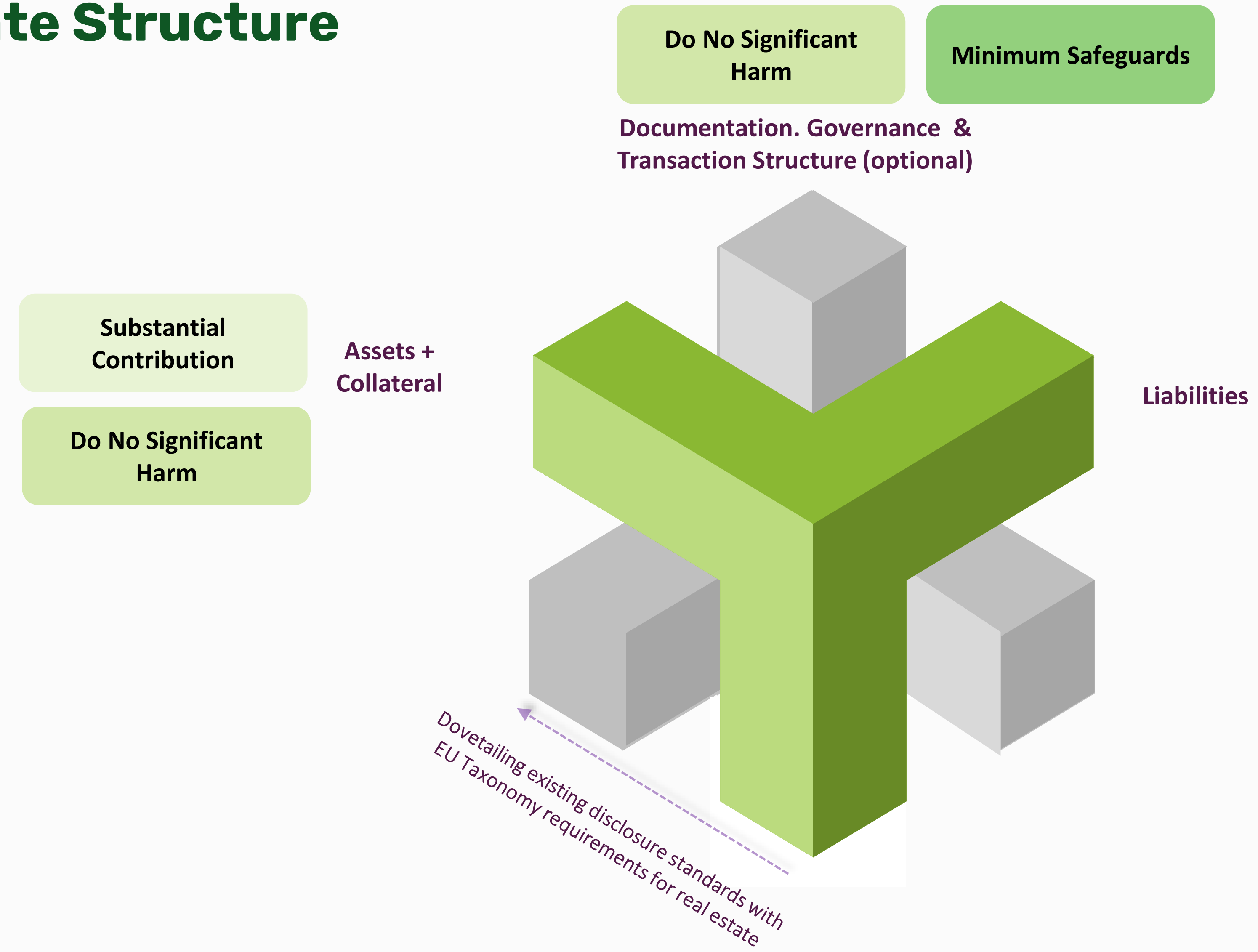
ENGAGE Loan and Mortgage Taxonomy Standards + Guidance

Combining the (implicit) data requirements of the EU Taxonomy with common mortgage loan disclosure format(s).

ENGAGE Template Structure

Dovetailing – Common Denominators

- ✓ By **identifying common denominators among regulatory disclosure templates**, financial institutions can simplify and streamline their (often costly) reporting processes.
- ✓ This **will reduce the time and resources required to comply with multiple regulations**, allowing financing institutions to focus on their core business: lending money.



Note that the ENGAGE Template format can be used for mortgage portfolios, funds, securitisations and covered bonds.

2. The ENGAGE Templates

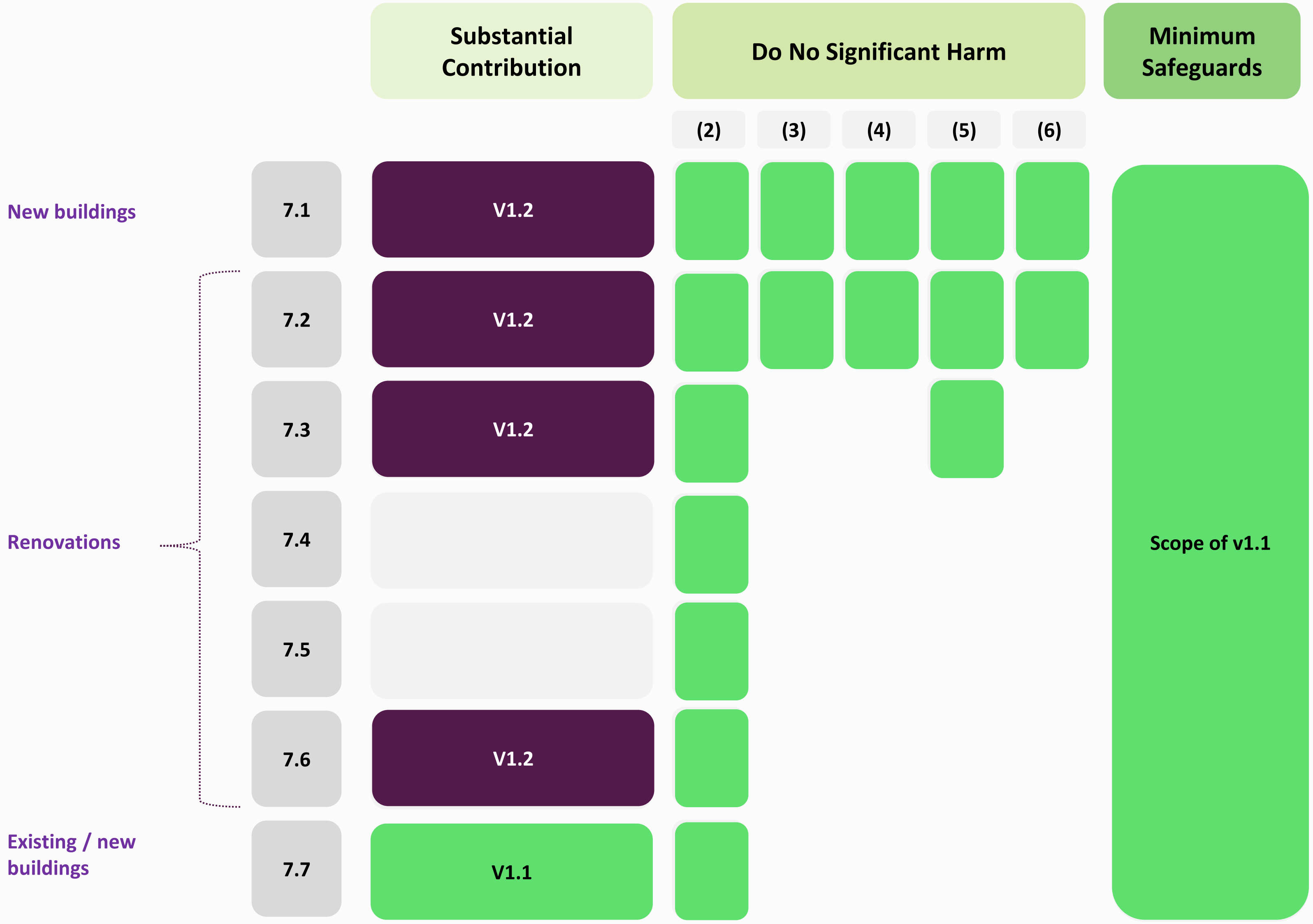
Converting EU Taxonomy into Data requirement

Economic Activities – Scope for ENGAGE

When developing **version 1.1** of the ENGAGE Templates, the ENGAGE consortium has considered:

- ✓ Engage data framework **is an add-on to existing market best practices**
- ✓ Engage data **framework** is **scalable**. Meaning that if in the first phase the focus is on the EU Taxonomy, other elements can be incorporated at a later timeframe.
- ✓ **New in ENGAGE template v1.2:**
  - ❑ **SCC 7.1**
  - ❑ **SCC 7.2, 7.3 + 7.6**
  - ❑ **Annex 6 version for unsecured renovation loans**
  - ❑ **CSRD – Financed emissions**
  - ❑ **EIB**
  - ❑ **(minor) Improvements**

V1.3 we expect to include the EUT Simplification (on the agenda for 2026H1)!



4. ENGAGE Portal and Output

Portal & Output

ENGAGE Output: EU Taxonomy *Assessment Report*

Section	Economic Activity	Subsection
7.1	Construction of new buildings	
7.2(1)	Renovation of existing buildings	*Major Renovations*
7.2(2)	Renovation of existing buildings	*Reduction of (net) Primary Energy Demand*
7.3	Installation, maintenance and repair of energy efficiency equipment	
7.4	Installation, maintenance and repair of charging stations for electric vehicles in buildings (and parking spaces attached to buildings)	
7.5	Installation, maintenance and repair of instruments and devices for measuring, regulation and controlling energy performance of buildings	
7.6	Installation, maintenance and repair of renewable energy technologies	
7.7(1)	Acquisition and ownership of buildings	*Buildings built before 31 December 2020: building has at least an Energy Performance Certificate (EPC) class A.*
7.7(1a)	Acquisition and ownership of buildings	*Buildings built before 31 December 2020 - Alternative: building is within Top 15%*
7.7(2)	Acquisition and ownership of buildings	*Buildings built after 31 December 2020*

New Constructions

Renovations

Existing / new buildings

ENGAGE Output

1. ENGAGE EUT Assessment output

This report provides a comprehensive overview of the portfolio's underlying exposures in the EUT assessment:

- Each (sub) section of the EU Taxonomy's economic activities is broken down into (partial) alignment.
- Offers greater granularity than DDA templates.
- Enables deeper insights into the nuances of the TSC, including SCC and DNSH.

The output is broken down in loans, collateral (building (units) and balance.

2. EU Taxonomy Data Quality report

We have also developed an EU Taxonomy Data Quality report for mortgage loans, offering detailed insights into data completeness and portfolio quality.

We have transparently indicated per EUT economic activity which data fields the ENGAGE Portal applies in the TSC assessment.

ENGAGE: EUT Assessment Output

ENGAGE
for ESG

Portfolio Name *Example Portfolio 2024*
Portfolio Date (DD-MM-YY) *01-08-2024*

Total # of Loans 1300
Total # of Building Units 1100
Total Balance €444,600,000.00
TSC passed % **0.00%**

Section	Economic Activity	Subsection	TSC assessment*									TSC pass Total Portfolio								
			SCC (check passed)			DNSH* (check) passed			TSC Passed (SCC + DNSH)			SCC (check passed)			DNSH (check) passed			TSC Passed (SCC + DNSH)		
			# of loans	# of Building Units	Balance	# of loans	# of Building Units	Balance	# of loans	# of Building Units	Balance	% of all loans	% of total Building ur	% of total Balance	% of total loans	% of total Building ur	% of total Balance	% of total loans	% of total Building ur	% of total Balance
7.1	Construction of new buildings																			
7.2(1)	Renovation of existing buildings	*Major Renovations*																		
7.2(2)		*Reduction of (net) Primary Energy Demand*																		
7.3	Installation, maintenance and repair of energy efficiency equipment																			
7.4	Installation, maintenance and repair of charging stations for electric vehicles in buildings (and parking spaces attached to buildings)																			
7.5	Installation, maintenance and repair of instruments and devices for measuring, regulation and controlling energy performance of buildings																			
7.6	Installation, maintenance and repair of renewable energy technologies																			
7.7(1)	Acquisition and ownership of buildings	*Buildings built before 31 December 2020: building has at least an Energy Performance Certificate (EPC) class A.*																		
7.7(1a)		*Buildings built before 31 December 2020 - Alternative: building is within Top 15%*																		
7.7(2)		*Buildings built after 31 December 2020*																		
	Total																			

* If there are multiple checks under this criteria we display the aggregate result of the applicable underlying checks.
** Failed at least one of the underlying check or no data was present to accuratly assess the criteria of the relevant economic activity

Overview of the ENGAGE – EUT Assessment report. Portraying a breakdown of TSC assessment as per economic (sub) activity

ENGAGE: EUT Assessment Output

ENGAGE
for ESG

Portfolio Name	*Example Portfolio 2024*
Portfolio Date (DD-MM-YY)	*01-08-2024*
Total # of Loans	1300
Total # of Building Units	1100
Total Balance	€444,600,000.00
TSC passed %	**50.94%**

TSC assessment*

Section	**Economic Activity**	**Subsection**	**SCC (check passed)**			**DNSH* (check) passed**			**TSC Passed (SCC + DNSH)**		
			# of loans	# of Building Units	Balance	# of loans	# of Building Units	Balance	# of loans	# of Building Units	Balance
7.7(1)	Acquisition and ownership of buildings	*Buildings built before 31 December 2020: building has at least an Energy Performance Certificate (EPC) class A.*	460	411	€133,400,000.00	414	370	€120,060,000.00	411	363	€119,190,000.00
7.7(1a)		*Buildings built before 31 December 2020 - Alternative: building is within Top 15%*	392	301	€113,680,000.00	353	271	€102,370,000.00	349	301	€101,210,000.00
7.7(2)		*Buildings built after 31 December 2020*	23	22	€6,670,000.00	21	20	€6,090,000.00	21	22	€6,090,000.00
Total			875	734	€253,750,000.00	788	661	€228,520,000.00	781	686	€226,490,000.00

TSC pass Total Portfolio

Section	**SCC (check passed)**			**DNSH (check) passed**			**TSC Passed (SCC + DNSH)**		
	% of all loans	% of total Building u	% of total Balance	% of total loans	% of total Building u	% of total Balance	% of total loans	% of total Building u	% of total Balance
7.7(1)	35.38%	37.36%	30%	31.85%	33.64%	27%	31.62%	33.00%	27%
7.7(1a)	30.15%	27.36%	26%	27.15%	24.64%	23%	26.85%	27.36%	23%
7.7(2)	1.77%	2.00%	2%	1.62%	1.82%	1%	1.62%	2.00%	1%
Total	67.31%	66.73%	57.07%	60.62%	60.09%	51.40%	60.08%	62.36%	50.94%

Example of breakdown for Economic Activity 7.1 (Acquisition & Ownership of Real Estate)

ENGAGE: EUT Assessment Output

Portfolio Name	*Example Portfolio 2024*
Portfolio Date (DD-MM-YY)	*01-08-2024*
Total # of Loans	1300
Total # of Building Units	1100
Total Balance	€444,600,000.00
TSC passed %	**50.94%**

TSC assessment*

Section	**Economic Activity**	**Subsection**	**SCC (check passed)**			**DNSH* (check) passed**			**TSC Passed (SCC + DNSH)**		
			# of loans	# of Building Units	Balance	# of loans	# of Building Units	Balance	# of loans	# of Building Units	Balance
7.7(1)	Acquisition and ownership of buildings	*Buildings built before 31 December 2020: building has at least an Energy Performance Certificate (EPC) class A.*	460	411	€133,400,000.00	414	370	€120,060,000.00	411	363	€119,190,000.00
7.7(1a)	Acquisition and ownership of buildings	*Buildings built before 31 December 2020 - Alternative: building is within Top 15%*	392	301	€113,680,000.00	353	271	€102,370,000.00	349	301	€101,210,000.00
7.7(2)	Acquisition and ownership of buildings	*Buildings built after 31 December 2020*	23	22	€6,670,000.00	21	20	€6,090,000.00	21	22	€6,090,000.00
	Total		875	734	€253,750,000.00	788	661	€228,520,000.00	781	686	€226,490,000.00

This block displays the Technical Screening Criteria (TSC) assessment, per Economic (Sub) Activity. This section of the report displays the absolute number of loans, building units and corresponding balance that passed these checks.

ENGAGE: EUT Assessment Output

Portfolio Name	*Example Portfolio 2024*
Portfolio Date (DD-MM-YY)	*01-08-2024*
Total # of Loans	1300
Total # of Building Units	1100
Total Balance	€444,600,000.00
TSC passed %	**50.94%**

TSC pass Total Portfolio

SCC (check passed)			DNSH (check) passed			TSC Passed (SCC + DNSH)		
% of all loans	% of total Building u	% of total Balance	% of total loans	% of total Building u	% of total Balance	% of total loans	% of total Building u	% of total Balance
35.38%	37.36%	30%	31.85%	33.64%	27%	31.62%	33.00%	27%
30.15%	27.36%	26%	27.15%	24.64%	23%	26.85%	27.36%	23%
1.77%	2.00%	2%	1.62%	1.82%	1%	1.62%	2.00%	1%
67.31%	66.73%	57.07%	60.62%	60.09%	51.40%	60.08%	62.36%	50.94%

This block displays the Technical Screening Criteria (TSC) assessment, per Economic (Sub) Activity. This section of the report displays the relative (vis-à-vis the portfolio) number of loans, building units and corresponding balance that passed these checks.

ENGAGE
for ESG

2. ENGAGE v1.2

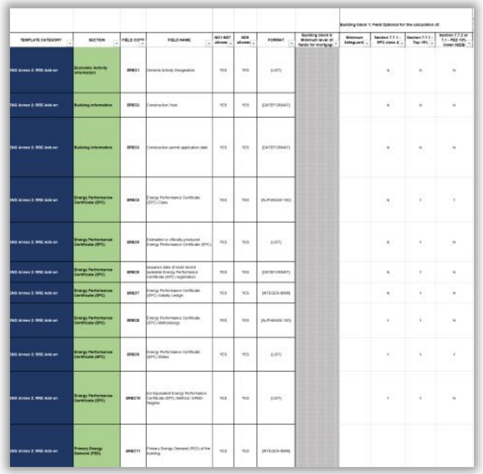
Converting EU Taxonomy into Data requirement

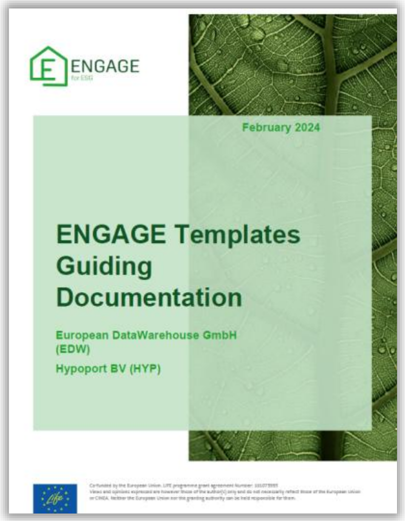
The ENGAGE Templates

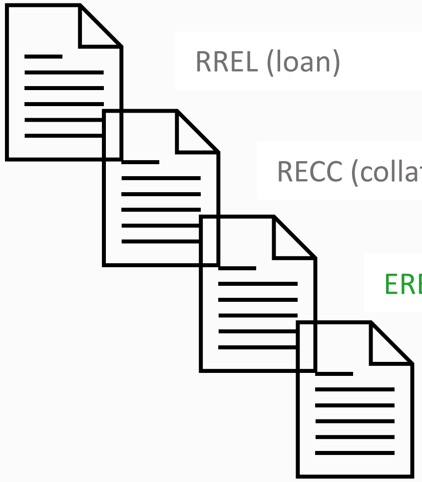
Template

Guiding Documentation

Example files







RREL (loan)

RECC (collateral)

EREC (energy efficiency collateral extension)

EGFF (governance file)

Available for registered users

Guiding documentation for registered users.

The ENGAGE Templates: how it *works*

Building Block
- Fields marked with **0** denote the original ESMA Template
- Fields marked with **1** indicate the ENGAGE Add-On fields

Fields used for Taxonomy TSC assessment
- Fields with **N** are <u>not</u> optional for the TSC assessment for that economic activity.
- Fields with **Y** are not needed per se for the specific check, for that economic activity.

ND Options for the BUILDING BLOCK 0		ND Options for the BUILDING BLOCK 1				Building block 1: Field Optional for the calculation of:				Building block 1: Field Optional for the calculation of:	
ND1-ND4 allowe	ND5 allowe	ND1-ND7 allowe	ND5 allowe	FORMAT	Building block 0: Minimum level of fields for	Minimum Safeguards	Section 7.7.1 - EPC class	Section 7.7.1 - Top 15	Section 7.7.2 or 7.1 - PED 10% lower NZ	DNSH 7.7	DNSH 7.1
		NO	NO	{ALPHANUM-28}							
		YES	YES	{ALPHANUM-1000}			N	N	N		

	EREC1	EREC2	EREC3	EREC4	EREC5	EREC6	EREC7	EREC8	EREC9	EREC10	EREC11	EREC12	EREC13
Section 7.7.1 - EPC class A		Y	Y	Y	Y	Y		Y	Y	Y			
Section 7.7.1 - Top 15%		Y	Y	Y	Y								
Section 7.7.2 or 7.1 - PED 10% lower NZEB		Y	Y	Y	Y				Y				

	EREC14	EREC15	EREC16	EREC17	EREC18	EREC19	EREC20	EREC21	EREC22	EREC23	EREC24	EREC25	EREC26
Section 7.7.1 - EPC class A												Y	
Section 7.7.1 - Top 15%								Y		Y	Y		
Section 7.7.2 or 7.1 - PED 10% lower NZEB	Y				Y								

	EREC27	EREC28	EREC29	EREC30	EREC31	EREC32	EREC33	EREC34	EREC35	EREC36	EREC37	EREC38	EREC39
Section 7.7.1 - EPC class A													
Section 7.7.1 - Top 15%													
Section 7.7.2 or 7.1 - PED 10% lower NZEB													

We have transparently indicated per economic activity which data fields the ENGAGE Portal applies in the TSC assessment.

Guiding documentation – an excerpt

Information Classification: Internal Use

ENGAGE

3.1 Acquisition and ownership of buildings (section 7.7 of Annex I of the Climate Delegated Act)

According to section 7.7 of Annex I of the Climate Delegated Act, the Substantial Contribution Criteria to climate change mitigation are met if:

- For buildings built before 31 December 2020, the building has at least an Energy Performance Certificate (EPC) class A or the building is within the top 15 % of the national or regional building stock expressed as operational Primary Energy Demand (PED) and demonstrated by adequate evidence, which at least compares the performance of the relevant asset to the performance of the national or regional stock built before 31 December 2020 and at least distinguishes between residential and non-residential buildings.
- For buildings built after 31 December 2020, the building meets the criteria specified in Section 7.1 of this Annex I that are relevant at the time of the acquisition.

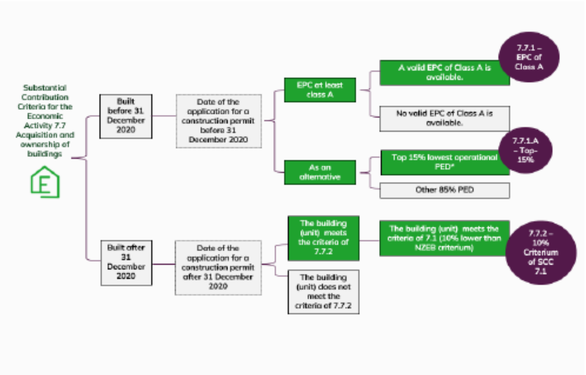


Figure1: Summarised decision tree

Information Classification: Internal Use

ENGAGE

The figure above shows that for buildings built before 31 December 2020 two conditions are given to determine if the SCC are met: either the building has an EPC class A, or it is within the top-15% of the national or regional building stock expressed as operational Primary Energy Demand of buildings built before 31 December 2020. For buildings built after 31 December 2020 the 10% criterium prescribed in section 7.1 applies.

In this context, the European Commission clarified in the CDA Q&A of 2023 that to determine the date in which a building was "built" under section 7.7, the date of the application for a construction permit should be used[9]. For instance, for some buildings that were built in 1950 or 2005 it is apparent that the building meets the criteria for buildings built before 31 December 2020 because the date of the application for the construction permit is clearly pre-31 December 2020. However, for some buildings that were constructed or finalised in 2021 or 2022 it is relevant to verify if the application for the construction permit is dated before 31 December 2020 or thereafter.

Therefore, for a loan to be regarded aligned with the Substantial Contribution Criteria under section 7.1 of Annex 1 of the Climate Delegated Act, the requirements of section 7.1 of the Climate Delegated Act will be applied if the borrower is an (corporate) undertaking, whereas either the requirements of section 7.1 or the equivalent section 7.7(2) will be applied if the borrower is a (residential) homeowner.

The DDA Q&A of 2023 addressed on the topic of new constructions a credit institution should consider its client's contractual relationship underlying the building. Therefore:

- Where the contract of the client is for construction of a new building, the credit institutions should assess the exposure against the criteria in Section 7.1 of the relevant Annex to the Climate Delegated Act;
- Where the contract of the client is a purchase contract, the credit institution should assess the exposure against the criteria in Section 7.7 of the relevant Annex to the Climate Delegated Act.

When financing a loan towards a (future) residential homeowner, where the agreement specifies that the loan is used to pay the construction company it could be regarded as a 7.1 loan. However, in this situation it could be interpreted that answer 144 of the CDA Q&A of 2023 suggests this is a loan for the homeowner, thus 7.7 can be applied. In cases of doubt whether to apply 7.1 and 7.7, it is up to the discretion of the template user to select the criteria that it regards most appropriate.

[9] See Answer 143.

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Guiding documentation is available, detailing EU Taxonomy data requirements

Guiding documentation – an excerpt

ENGAGE for ESG

3.1.1 Summary of regulatory assessment and data requirements for the SCC applicable to the EPC class A criterium

Substantial contribution to Climate Change Mitigation of Annex I
For buildings built before 31 December 2020, the building has at least an Energy Performance Certificate (EPC) class A.
Interpretation: • At the reporting or assessment date the EPC of the Building Unit should be of Class A. • The application date of the construction permit is needed to assess if the building is *built* before 31 December 2020. • An Energy Performance Certificate (EPC) of Class A is needed (A, A+, A++, A+++, A++++ also satisfies this condition). • A certificate should be present with a *valid* validity date, as of the assessment date, irrespective of the methodology. • A credit institution should consider its client's contractual relationship underlying the building.

- Notes and considerations
  - The application date of the construction permit is needed to assess if the building is *built* before 31 December 2020.
  - A credit institution should consider its client's contractual relationship underlying the building.
  - Note Answer 104 of the CDA Q&A of 2023: "*EPC methodologies differ per country or sometimes within a country. Some jurisdictions use energy demand instead of energy consumption. As long as it is an official Energy Performance Certificate this does not matter*".
- ENGAGE Templates data fields

Based on the above assessment, the ENGAGE Templates request the fields below to assess alignment with the criterium EPC class A set forth in section 7.7.1.

Field Code	Field Name
RREL1	Unique Identifier
RREL2	Original Underlying Exposure Identifier
RREL3	New Underlying Exposure Identifier
RREL5	New Obligor Identifier
RREL6	Data Cut-Off Date

Information Classification: Internal Use

ENGAGE for ESG

RREL30	Current Principal Balance
RREC2	Underlying Exposure Identifier
RREC4	New Collateral Identifier
EREC3	Collateral Identifier Building block 0
EREC4	General Activity Designation
EREC5	Construction Year
EREC6	Construction permit application date
EREC7	Energy Performance Certificate (EPC) Class
EREC8	Estimated or officially produced EPC
EREC9	Issuance date of most recent EPC
EREC10	EPC original validity
EGFF1	Unique Identifier
EGFF11	Environmental Objective
EGFF15	DNSH Compliance Reference

Table 2: ENGAGE data fields for compliance with the SCC for section 7.7.1 (EPC class A criterium) in green

In green we have indicated the fields that we have identified for the assessment of this check that are identified on a building (unit) / collateral level. RREL1, 2, 3, 6, 30 are fields that are needed to identify the loan, timestamp and corresponding amount per loan. EREC4 is used to identify the type of activity and field EGFF10 -part of the Minimum Safeguards section- is in indicator for the environmental objective[10].

The ENGAGE Templates additionally request for this section optional fields that might be useful for a better description of the ESG characteristics of the building.

3.1.2 Summary of regulatory assessment and data requirements for the SCC applicable to the top-15% criterium

If all buildings built before 31 December 2020 had an EPC and a PED-value, the calculation of the top-15 could be easily undertaken through the ranking of buildings PED values from low to high and the selection of the Top-15% threshold value.

However, to the best of our knowledge, there is currently no jurisdiction in the EU with a full coverage of EPCs, let alone of Prime Energy Demand values. This is due to the fact that not all residential properties built before 31 December 2020 have an EPC, and therefore, a PED is not available for all building units. To perform the Top 15% analysis, an estimation approach and corresponding evidence (hereinafter, "**study**") is required to determine the (estimated) operational PED of all the residential building (units) of a given jurisdiction built before 31 December

[10] Climate Change Mitigation

Guiding documentation is available, detailing EU Taxonomy data requirements

Guiding documentation – an excerpt

ENGAGE

2020. All building units with an operational PED that is lower than the determined threshold value can then be considered to meet the alternative SCC of 7.7.1.

In this regard, there are two considerations to be observed in the top-15% study:

1) The study must relate to buildings built before 31 December 2020, meaning the application date of the construction permit must before or on 31 December 2020.
2) The study must distinguish between residential and non-residential properties.

The CDA Q&A of 2023 highlight the requirement that a study describing the Top-15% should be public and transparent ("*adequate evidence should be provided (e.g. a recent study*").

To the best of our knowledge, there are a range of varying estimation techniques available to perform a top-15% study. For instance, this can consist in assessing the building code through time whereas other studies or assess (model) the operational PED per building unit to gauge if it is in the top-15%. We have facilitated flexibility of the method in the ENGAGE template and we have emphasised the feedback of the European Commission in the CDA Q&A of 2023 that the methodology should be public and transparent.

Therefore, we have incorporated the numerator and denominator that is used in the top-15% assessment in the ENGAGE template and some background information so that stakeholders can understand the methodology and study that is applied.

➤ Notes & considerations
- The application date of the construction permit is needed to assess if the building is *built* before 31 December 2020.
- Note CDA Q&A of 2023, Answer 152: if a building unit is within the Top 15% at a certain date, it does not automatically mean that it is considered to meet the SCC during its full lifetime: when the Top 15% is recalculated, it could be that an individual building unit is no longer within the Top 15% (e.g. if the composition of the building stock (and thus the top 15% threshold value) has changed.
- Also note CDA Q&A of 2023, Answer 157 regarding heritage or protected buildings that are exempt from the EPC.
- We assume that the word "alternative" means that as an alternative to using the EPC of class A. Per building unit (reference asset) an alternative assessment of the Substantial Contribution Criteria can be applied. This could be an interesting alternative when no EPC is available.

➤ ENGAGE Templates data fields

Based on the above assessment, the ENGAGE Templates request the fields below to assess alignment with the criterium Top-15% set forth in section 7.7.1.

Field Code	Field Name
RREL1	Unique Identifier
RREL2	Original Underlying Exposure Identifier
RREL3	New Underlying Exposure Identifier
RREL5	New Obligor Identifier
RREL6	Data Cut-Off Date
RREL30	Current Principal Balance
RREC2	Underlying Exposure Identifier
RREC4	New Collateral Identifier
EREC3	Collateral Identifier Building block 0
EREC4	General Activity Designation
EREC5	Construction Year
EREC6	Construction permit application date
EREC21	Building unit in top-15% indicator
EREC22	Top 15% Explanatory Variable
EREC23	Top 15% Object Reference Value
EREC24	Top 15% Object Threshold Value
EGFF1	Unique Identifier
EGFF2	Top 15% Document Name
EGFF3	Top 15% Document Issuance Date
EGFF4	Top 15% Document URL
EGFF5	Top 15% Document Geographic Scope
EGFF6	Top 15% Numerator
EGFF7	Top 15% Denominator
EGFF8	Top 15% Methodology Description
EGFF11	Environmental Objective
EGFF15	DNSH Compliance Reference

ENGAGE

Table 3: ENGAGE data fields for compliance with the SCC for section 7.7.1 (Top-15% criterium) in green

In green we have indicated the fields that we have identified for the assessment of this check that are identified on a building (unit) / collateral level. In purple we have identified the fields that are to be provided in the governance file. RREL1,2 3, 6, 30 are fields that are needed to identify the loan, timestamp and corresponding amount per loan. EREC4 is used to identify the type of activity and field EGFF10 -part of the Minimum Safeguards section- is in indicator for the environmental objective[11].

The complete list of these fields, with their description, is available in the ENGAGE template by selecting the option "N" in the column with the name "Section 7.7.1 - Top 15%". The ENGAGE Templates additionally request for this section optional fields that might be useful for a better description of the ESG characteristics of the building.

[11] CCM

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Guiding documentation is available, detailing EU Taxonomy data requirements

Only a limited number of data fields are actually needed!

Only a limited number of data fields are actually needed!

In this example, of the ENGAGE v1.2 EREC file we see that only a limited number of data fields is needed for the economic activity 7.7 assessment checks:

- **In green the minimum data needed for SCC checks**
- **In purple the DNSH check**
- **In light blue the PCAF / CO2 financed emissions**

	FIELD CODE	CONTENT TO REPORT	Section 7.7.1 - EPC class A	Section 7.7.1 - Top 15%	Section 7.7.2 10% lower NZEB	DSA P&P 2.1	Availble in EP-Online
Identifiers	EREC1	Unique Identifier					
	EREC2	Underlying Exposure Identifier Building block 0					
	EREC3	Collateral Identifier Building block 0					
	EREC4	General Activity Designation	Y	Y	Y		
SCC 7.7	EREC5	Construction Year	Y	Y	Y	Y	Y
	EREC6	Construction permit application date					
	EREC7	Energy Performance Certificate (EPC) Class	Y			Y	Y
	EREC8	Estimated or officially produced EPC	Y				Y
	EREC9	Issuance date of most recent EPC	Y		Y	Y	Y
	EREC10	EPC original Validity	Y				Y
	EREC11	EPC Methodology					Y
	EREC12	Energy Performance Certificate (EPC) Status					Y
	EREC13	EU-Equivalent EPBD-Regime					Y
	EREC14	Primary Energy Demand (PED) of the building			Y	Y	Y
	EREC15	Estimated or officially produced Primary Energy Demand (PED)					Y
	EREC16	Primary Energy Demand (PED) Based on Reference Building					Y
	EREC17	Primary Energy Demand (PED) Based on Building or Building unit					Y
	EREC18	Nearly zero-energy building (NZEB) theshold			Y		Y
	EREC19	Climatic zone code					
	EREC20	Geographic Region - climatic zone					
	EREC21	Building unit in top 15% indicator		Y		Y	
	EREC22	Top 15% Explanatory Variable					
	EREC23	Top 15% Object Reference Value		Y			
	EREC24	Top 15% Object Treshold Value		Y			
DNSH	EREC25	DNSH EO2 Indicator	Y	Y	Y		
	EREC26	DNSH EO3 Indicator					
	EREC27	DNSH EO4 Indicator					
	EREC28	DNSH EO5 Indicator					
	EREC29	DNSH EO6 Indicator					
Renovation SCC	EREC30	Balance for renovation of existing buildings					
	EREC31	Balance of IMR of EE equipment					
	EREC32	Balance of IMR of RE equipment					
	EREC33	Balance of EE equipment					
	EREC34	Balance of RE equipment					
	EREC35	Large new constructions					
Financed Emissions	EREC36	Financed CO2-emission	Y	Y	Y		
	EREC37	Surface Area	Y	Y	Y		
	EREC38	GHG Data Score	Y	Y	Y		
	EREC39	GHG Emission Factor	Y	Y	Y		

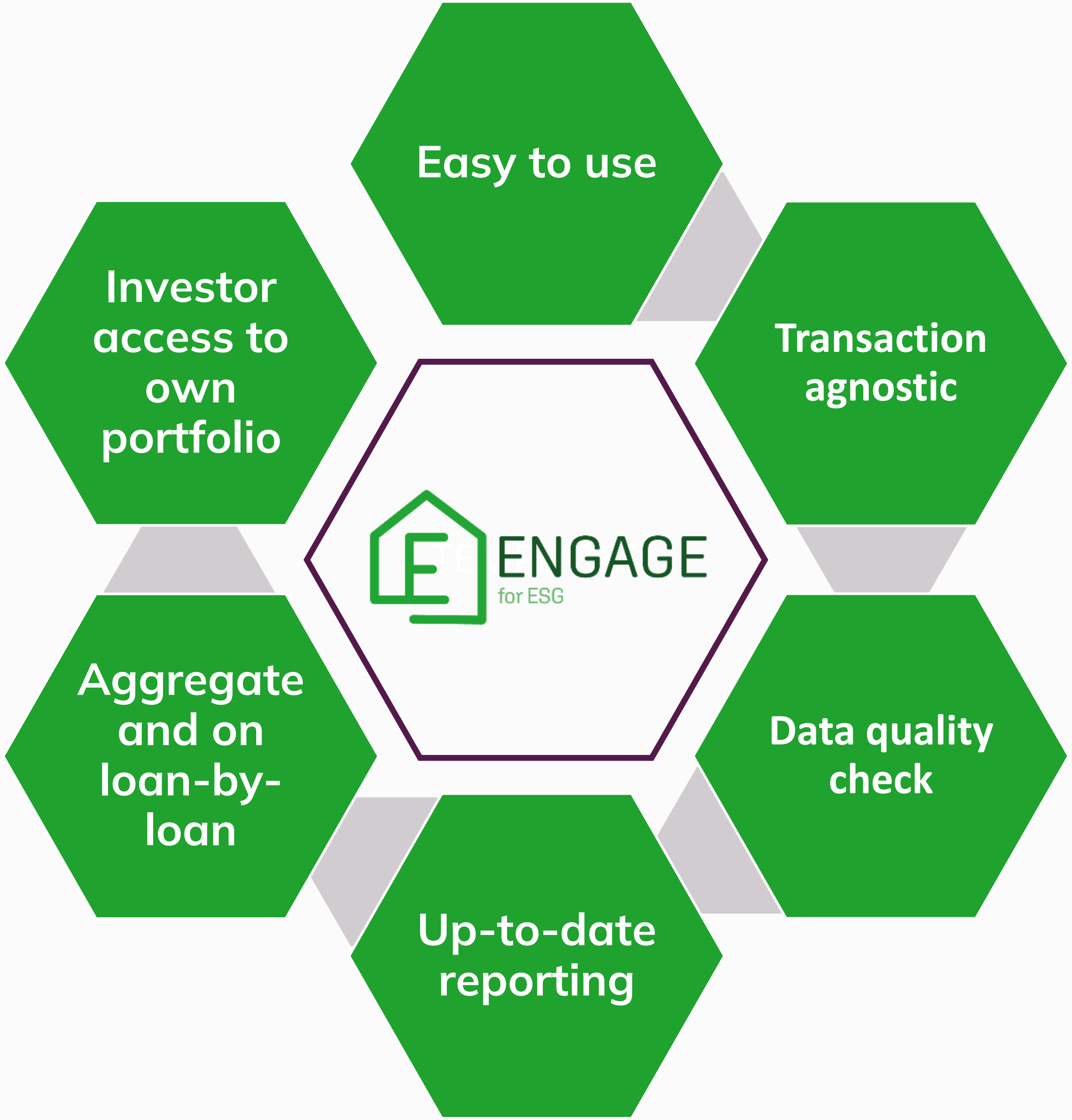
The perspective of NN

Martijn Breed
NN Bank

Green Premiums are needed

- A lot of homes in the Netherlands need to be refurbished to a better energy label
- Despite a lot of efforts, the consumer seems not be willing to do so
- Higher discounts on interest rates are needed to incentivize the customer
- Green premiums from investors are needed and teherefor benefits should be created for investors (i.e. lower capital charges, guarantee schemes)
- Reliable reporting is needed to prove a mortgage loan (portfolio) qualifies as green
- Engage for ESG provides the ideal tooling to do so
- We believe that Engage can be an important piece of the puzzle towards an energy neutral housing stock in Europe.

Green Premiums are needed



Co-funded by the European Union

ENGAGE: introduction

ENGAGE *in short*

ENGAGE is a market-driven initiative, co-funded by the EU, aimed at developing and maintaining a future-proof standard for residential real estate loans and ESG data. Our primary focus is on aligning with the **EU Taxonomy**-related disclosures, a fundamental element of EU sustainable finance regulation.

We do this by developing and maintaining:

- **Template Add-ons**: Enhancing existing mortgage loan disclosure frameworks through a flexible system of *ESG add-ons*. These *add-ons* are market-designed and built with transparency in mind.
- **ENGAGE Portal**: Providing a platform where stakeholders can evaluate ESG criteria with complete transparency. The portal also functions as a secure data room and potentially as a repository for sustainable disclosures.

Scope: EU, Residential (mortgage) loans, EU Taxonomy, EIB, CSRD

URL: https://engage4esg.eurodw.eu/

Over 70+ **EU financial institutions** joined and requested the templates.

Consortium members

HYPOPORT

EUROPEAN DATAWAREHOUSE

woonnu

UCI

DEXAI ARTIFICIAL ETHICS

Università Ca'Foscari Venezia

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AI IN STRUCTURED FINANCE

VICTORYA DINEKOVA, MUFG

AI in Structured Finance

Victorya Dinekova

MUFG Bank Ltd.

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28 October 2025

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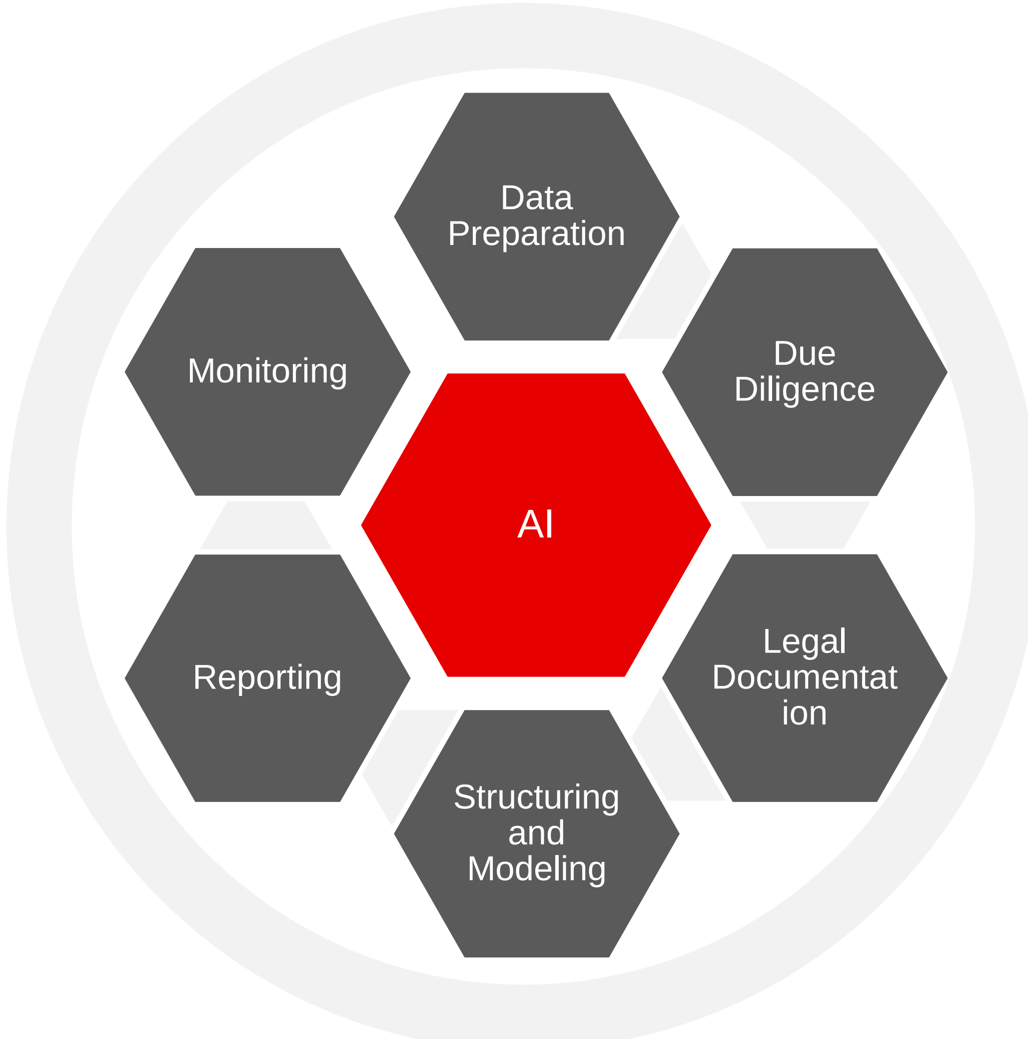
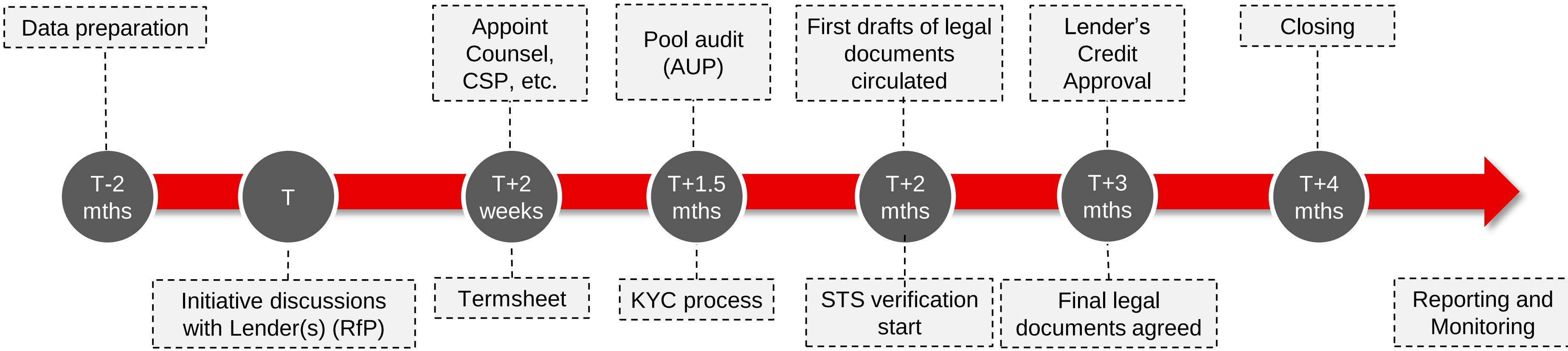
AI in Securitisations | Use Cases



AI can be embedded in every step of a transaction – from the moment a data tape is uploaded to the final investor report and transaction monitoring

Typical First Time Securitisation Timeline



Before

- Hours manual data cleaning
- Dozens of Excel templates
- Legal reviews across 200+ page of docs
- Manual data input, prone to error

After

- Automated or semi-automated data cleaning
- Automated clause extraction
- Predictive portfolio analytics
- Faster workflow and execution timeline

Reclaiming time from manual work to focus on pricing, risk and investor dialog

MUFG

Promise vs Risk | AI in a Regulated Market

Opportunities

- ✓ Faster data validation
- ✓ Improved accuracy
- ✓ Efficiency & availability
- ✓ Enhanced investor confidence

Risks

- × Garbage-in-garbage-out (data quality)
- × Model explanation & bias
- × Regulatory compliance
- × Over-reliance on automation

Governance, validation and auditability are as important as the model itself

CLOSING REMARKS

DR. CHRISTIAN THUN, EDW


THANK YOU

THANK YOU

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