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Driving ESG Innovation with AI

Next-Generation Cover Pools: AI Automation for ESG Compliance

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Founder / CEO



DIGITAL PROFESSIONAL PERSONAL

Made in Germany

ASSET DATA GAPS BLOCK ACCESS TO ESG COMPLIANCE AND COVERED BONDS



GOALS

Comply with EU Taxonomy, CSRD, CRR/CRD regulatory reporting requirements

Access cheaper funding and attract more investors via covered bonds

Reduce reporting costs and detect asset risks in real time

OBSTACLES

🚫 80% of ESG-related data is missing or locked in non-digital formats

🐢 1–2 costly releases per year from outdated cover pool management systems

🧾 50% of data still processed manually in Excel or legacy systems

* Results of the detailed interviews with >25 european banks

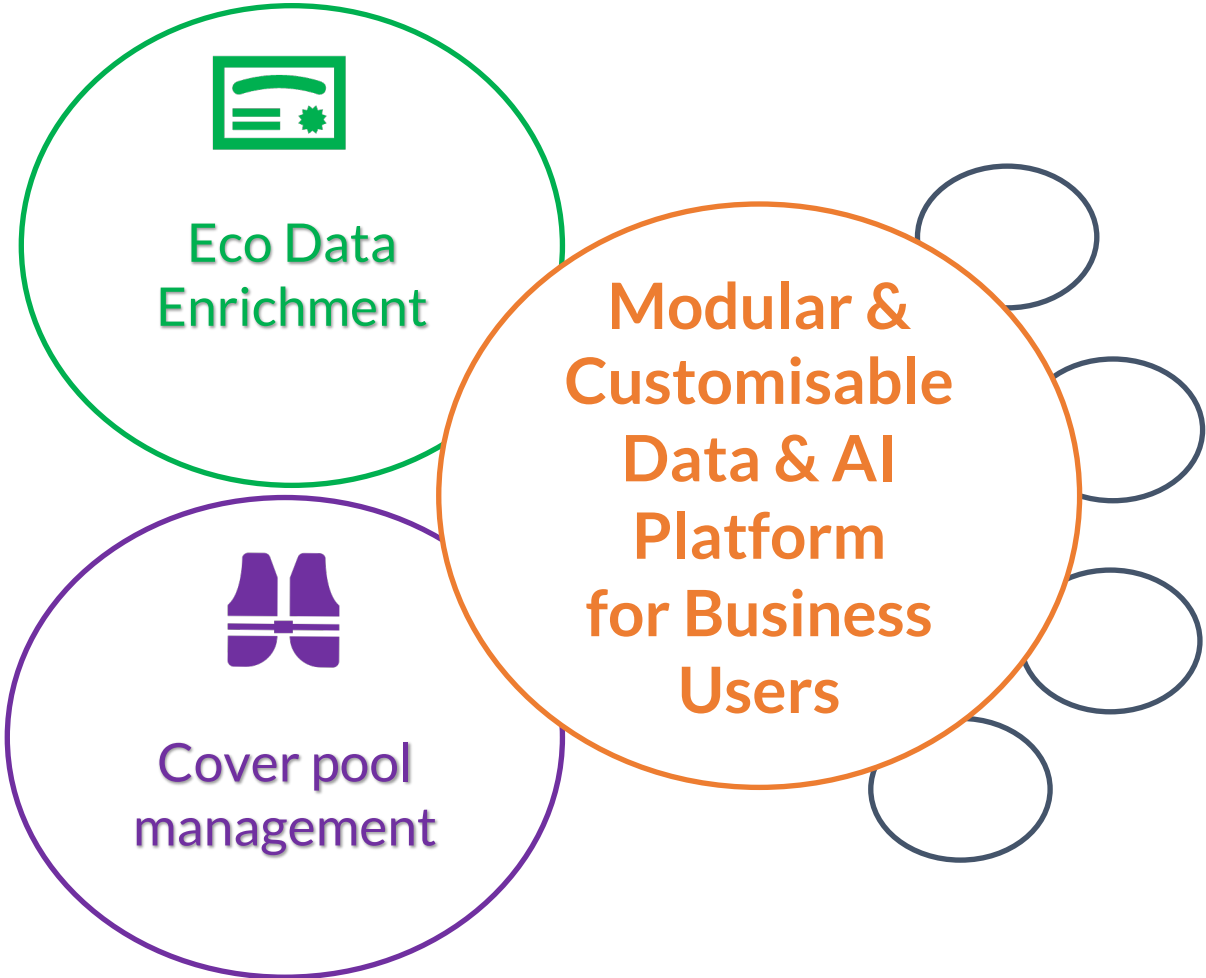
Achieve ESG compliance, unlock covered bonds and cut costs through automation

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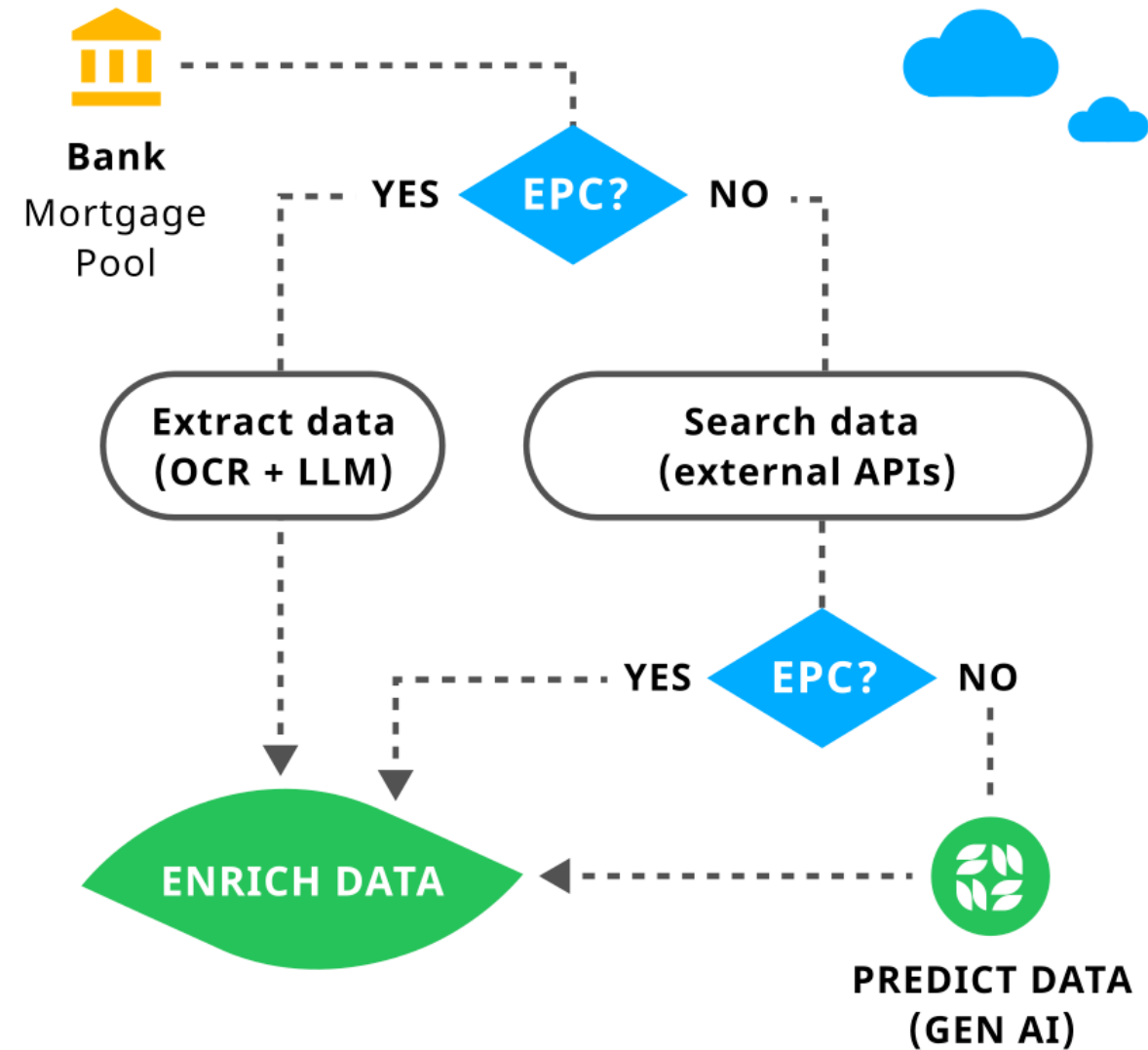


Eco Data
Enrichment

AI-DRIVEN GREEN MORTGAGE DISCOVERY

1. Extract (with OCR + LLM*)
2. Search (API integration)
3. Predict (machine learning - neural networks)
4. Enrich

* EPC = Energy Performance Certificate
OCR = Optical Character Recognition (to read and convert text from scanned documents)
LLM = Large Language Model (Generative Artificial Intelligence)



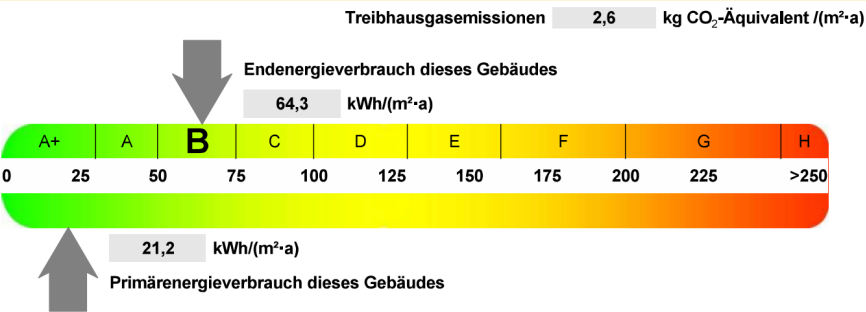
ENERGIEAUSWEIS für Wohngebäude

gemäß den §§ 79 ff. Gebäudeenergiegesetz (GEG) vom ¹ 16. Oktober 2023

Erfasster Energieverbrauch des Gebäudes Registriernummer: HH-2024-005251506

3

Energieverbrauch



Endenergieverbrauch dieses Gebäudes [Pflichtangabe in Immobilienanzeigen] 64,3 kWh/(m²·a)

Verbrauchserfassung - Heizung und Warmwasser

Zeitraum		Energieträger ²	Primär- energie- faktor-	Energie- verbrauch [kWh]	Anteil Warmwasser [kWh]	Anteil Heizung [kWh]	Klima- faktor
von	bis						
01.01.2021	31.12.2023	Fernwärme	0,33	123305	42336	80969	1,16

☐ weitere Einträge in Anlage

Des



EN DE		
No	Caption	Value
	Search	
1	12 id	0
2	ab file_name	1012000534_2.pdf
3	ab address	geiststraße 145, 10777 berlin
4	ab building_category	residential
5	ab building_part	ganzes gebäude
6	ab building_type	mehrfamilienhaus
7	ab building_usable_area	705.6
8	ab building_year	1954
9	ab certificate_type	residential
10	ab energy_level_class	b
11	ab final_energy_consumption	64.3
12	ab greenhouse_gas_emissions	2.6
13	ab heat_generator_year	2010
14	ab heating_energy_sources	fernwärme
15	ab hot_water_energy_sources	fernwärme
16	ab legal_act_date	16.10.2023
17	ab number_of_apartments	6
18	ab registration_number	hh-2024-005251506
19	ab valid_until	04.08.2034

DEMO: ECO DATA ENRICHMENT (LLM WORKFLOW + ONTOLOGY)

Workflow

ecoasset_nr Processing Module Workflow

Components

Filter

Quick access

Import

Database

Excel File

Megaladata File

Text File

XML File

Transformation

Calculator

Column Union

Cross Table

Date and Time

Enrich Data

Field Features

Grouping

Join

Lag

Replace

Row Filter

Sort

Ungroup

Union

Unpivoting

Control

Condition

Loop

Node Execution

Derived Components

Connections

Background pipeline: All certificates in the selected folder are processed. The results will be recorded in a local database.
To use certificate processing through LLM, you need to obtain an API key from the Openrouter.ai service and store it in the environment variable OPENROUTER_KEY1 or directly in the settings of the Openrouter.ChatCompletion component.

Read PDFs

LLM processing

OCR processing

Filename

LLM Results

Finish

LLM_Output

#	ab address	ab building_category	ab b
1	20095 hamburg, teststrasse 1	49: märkte mit sehr hohem anteil von kühlung für lebensmittel	nich
2	20095 hamburg, musterstr. 43	commercial	fach

Move out

Vision LLM Parser

Postproduction

Write to DB

Ontology

SQLite

Data set

Execution status

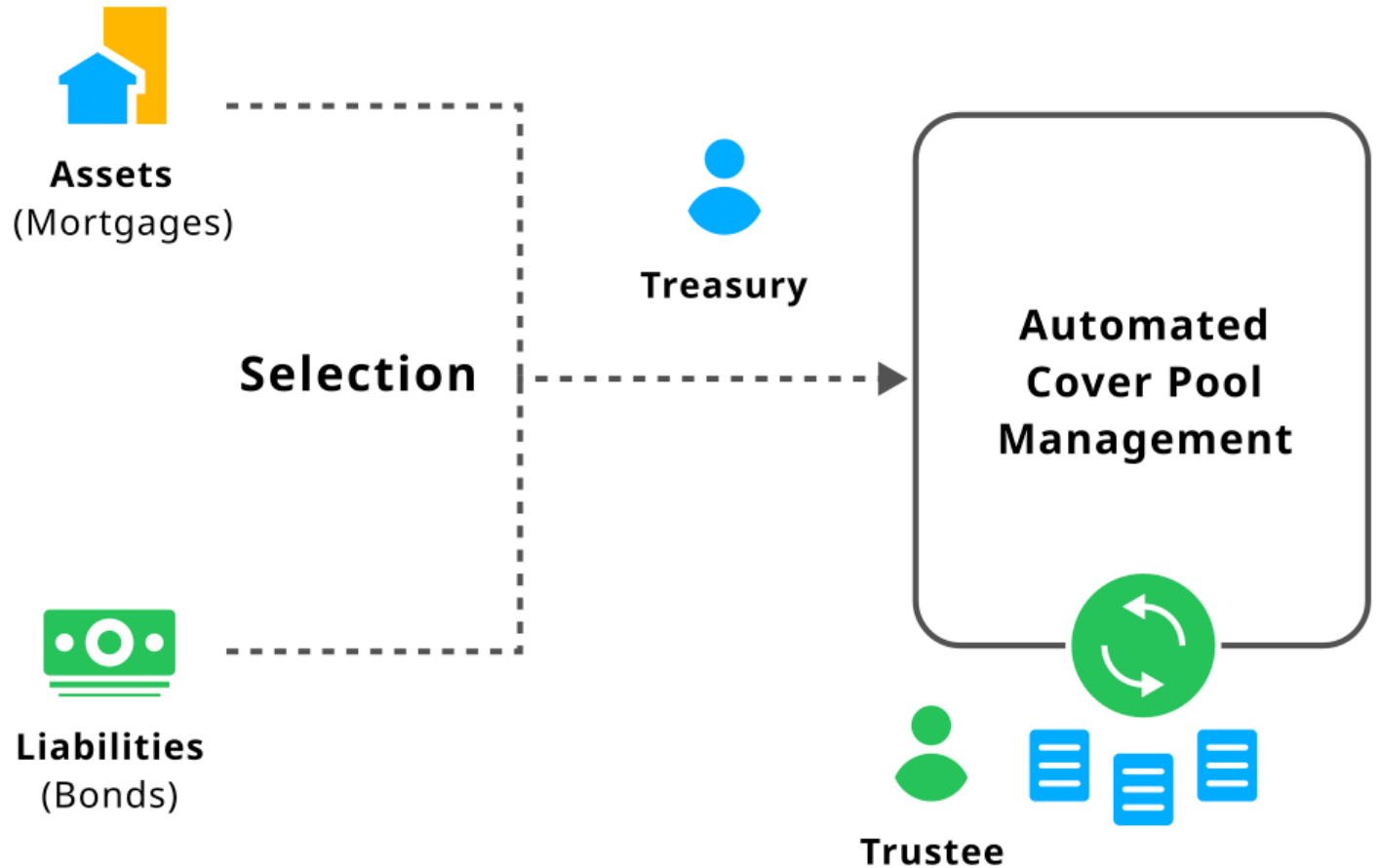
#	ab attr_name	ab attr_label	ab attr_datatype	ab attr_desc
1	certificate_type	ENERGIEAUSWEIS für wonngebäude/nichtwohngebäude	string	Type of certificate, one of residential/non-residential
2	legal_act_date	Gebäudeenergiegesetz vom	string	Date of the legislative act defining the form of the certificate in form...
3	valid_until	Gültig bis	string	Date of validity of the certificate in format DD.MM.YYYY
4	registration_number	Registriernummer	string	Registration number, example BE-2022-004262982
5	building_type	Gebäudetyp	string	One of values [freistehendes Mehrfamilienhaus, Wohngebäude, Meh...
6	building_category	Hauptnutzung/Gebäudekategorie	string	Building's primary function and classification, such as residential, co...
7	address	Adresse	string	Building address, example "Am Kleinen Wannsee 31B 31C, 14109 Ber...
8	building_part	Gebäudeteil	string	Part of the building, example "Gesamt"
9	building_year	Baujahr Gebäude	integer	Year in format YYYY
10	heat_generator_year	Baujahr Wärmeerzeuger	integer	Year in format YYYY



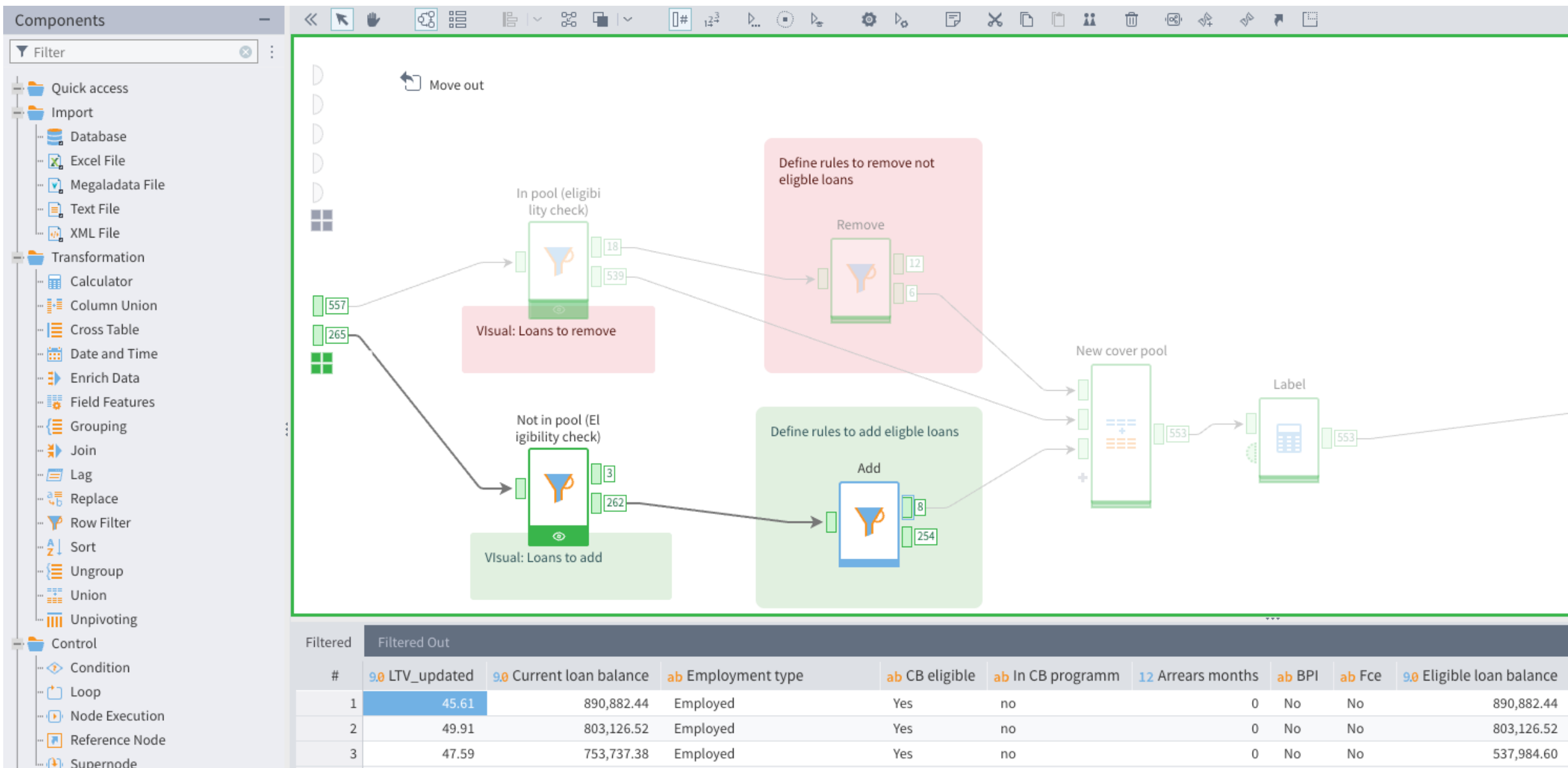
Cover pool management

1. Daily pool management & optimisation
2. Trustee services
3. Pre-defined and ad-hoc reporting for rating agencies and regulators (Moody's, HTT, §28 PfandBG)

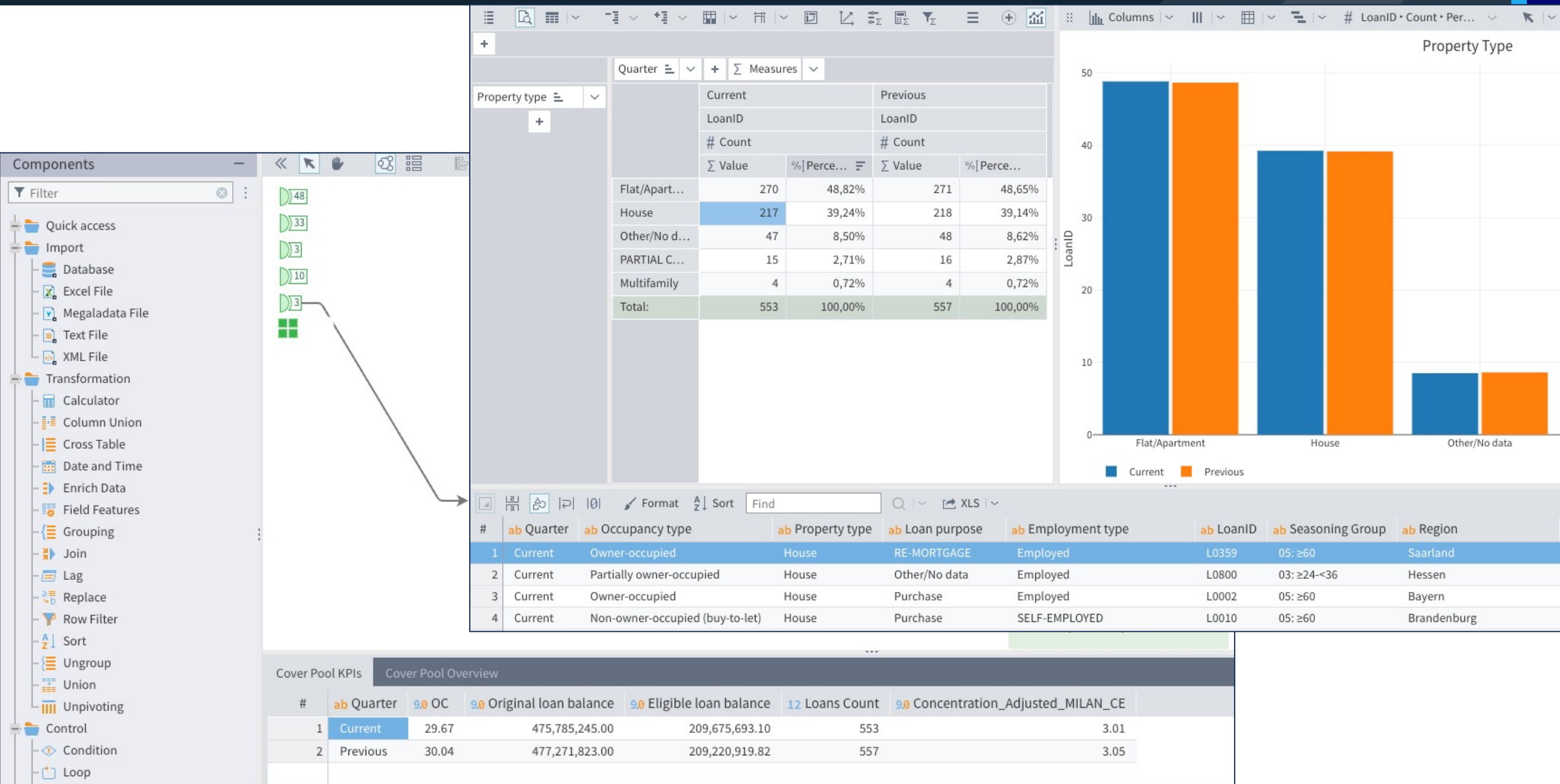
VISUAL POOL MANAGEMENT, OPTIMISATION & REPORTING

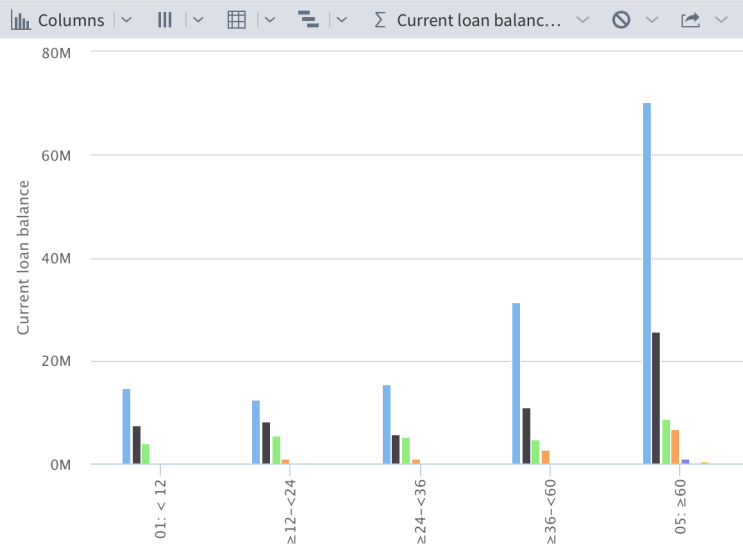


DEMO: COVER POOL MANAGEMENT (ADD/REMOVE LOANS WORKFLOW)



DEMO: COVER POOL MANAGEMENT (KPIs AND COMPARISON)





2. SEASONING	Total	LTV: 0-≤40%	LTV:>40%-≤50%	LTV:>50%-≤60%	LTV:>60%-≤70%	LTV:>70%-≤80%
(in months)	Total LOAN BALANCE	Total LOAN BALANCE	Total LOAN BALANCE	Total LOAN BALANCE	Total LOAN BALANCE	Total LOAN BALANCE
< 12	24.648.461	13.748.168	7.011.575	3.712.858	175.860	
≥12-<24	24.846.256	12.263.785	7.022.381	4.552.413	892.478	115.200
≥24-<36	26.233.685	14.943.054	5.561.483	4.731.648	997.500	
≥36-<60	47.272.735	30.556.172	10.438.154	4.161.533	2.116.875	
≥60	108.368.772	68.970.987	23.360.811	8.120.643	6.112.915	964.634
Total	231.369.909	140.482.166	53.394.404	25.279.095	10.295.628	1.079.834

Achieve your ESG goals using AI innovation

**Modular &
Customisable
Data & AI
Platform
for Business
Users**

+40%

Green Asset ratio
(EU taxonomy-aligned)

100%

Digitalised mortgage
portfolio

-50%

Funding cost reduction
(via issued CB)

-50%

Cost of cover pool
management

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COVERED BOND
LABEL
HTT

In collaboration with



FT LIVE



EMF - ECBC ACADEMY, TRAINING & MARKET UPDATE

SEVILLE | 15 - 17 SEPTEMBER 2025

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