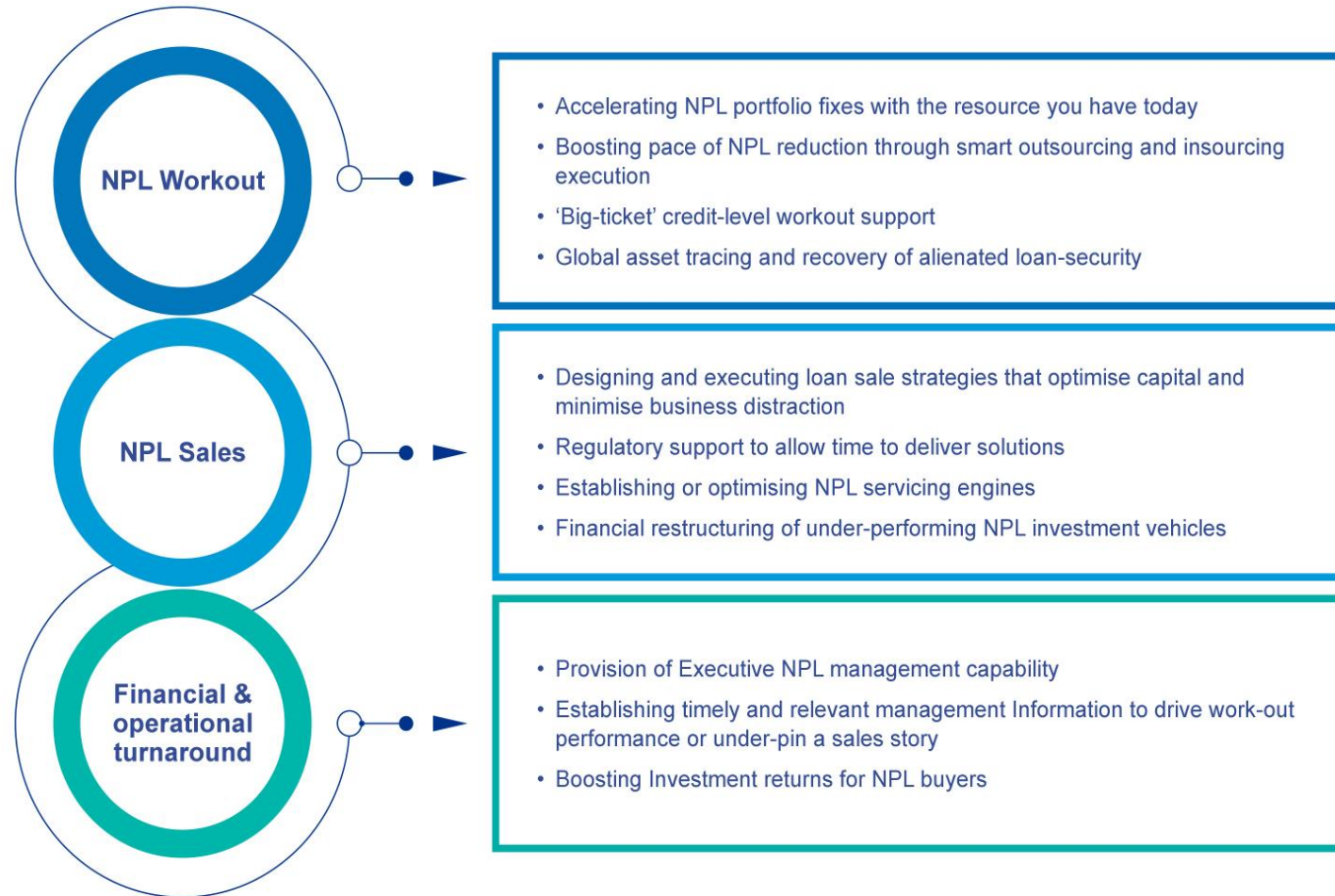


# NPL (Non-Performing Loans) Analytics Platform

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# NPL Business Management



Reference - NPL Business Management (3 Phase Cycle) - KPMG



# NPL 1.0 - Risk Assessment of Loans

## Re-alignment of Portfolio GRC

- Empower recovery and collections functions with advanced portfolio governance

## Re-Valuation & Insights

- Tools to create NPL portfolio value - data capture, analysis and visualization techniques to create and refine user-friendly NPL portfolio information and insight

## Risk Analysis & Warning Models

- Early-warning and forward-looking models draw on predictive analytics to improve credit portfolio quality and increase repayment rates

## Recovery Monitoring

- Recovery monitoring through various options

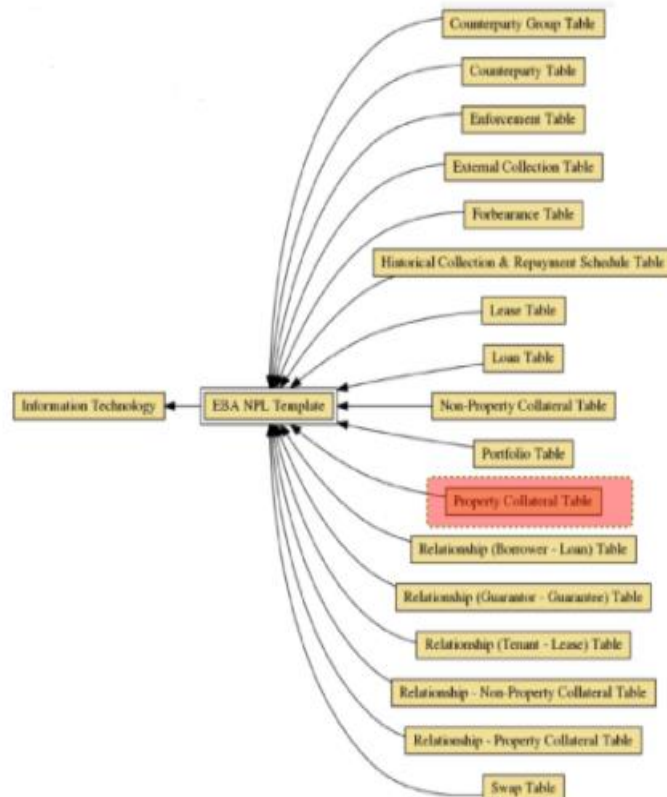
## Reach Out System

- Configurable contact process management along with communication channels- E-mail/ Phone/Letter aided by templates for standard notices



# NPL 1.0 - Risk Assessment of Loans

Table Name	Purpose
EBA NPL Counterparty Group Table	Data Fields relating to Counterparty Groups
EBA NPL Counterparty Table	Data Fields relating to Counterparties
EBA NPL Loan Table	Data Fields relating to Loans
EBA NPL Relationship (Borrower - Loan) Table	Data Fields connecting Loans to Counterparties
EBA NPL Lease Table	Data Fields relating to Leases
EBA NPL Swap Table	Data Fields relating to Swaps
EBA NPL Property Collateral Table	Data Fields relating to Property Collateral backing the Loans
EBA NPL Non-Property Collateral Table	Data Fields relating to Non-Property Collateral backing the Loans
EBA NPL Relationship - Property Collateral Table	Data Fields connecting Property Collateral to Loans
EBA NPL Relationship - Non-Property Collateral Table	Data Fields connecting Non-Property Collateral to Loans
EBA NPL Enforcement Table	Data Fields relating to Enforcement
EBA NPL External Collection Table	Data Fields relating to External Collection
EBA NPL Forbearance Table	Data Fields relating to Forbearance
EBA NPL Historical Collection & Repayment Schedule Table	Data Fields documenting historical collections
EBA NPL Relationship (Guarantor - Guarantee) Table	Data Fields connecting guarantees to counterparties
EBA NPL Relationship (Tenant - Lease) Table	Data Fields connecting leases to counterparties



**EBA NPL Property Collateral Table**

**Table Fields**

Field	Type	Definition
Protection Identifier	Text	Institution's internal identifier for the Property Collateral
Legal Owner of the Property	Text	Legal owner of the Property Collateral
Register of Deeds Number	Text	Registration number of the Property
Sector of Property	Choice	Sector which the property is used for, e.g. commercial real estate, residential real estate, etc.
Type of Property	Choice	Type of the Property, e.g. Apartment, Semi Detached House, Terraced House, Land, etc.
Type of Occupancy	Choice	Type of occupancy, i.e. owner occupied, tenanted, not tenanted
Purpose of Property	Choice	Purpose of the Property
Condition of Property	Choice	Quality classification of the property
Address of Property	Text	Street address where the Property is located at, including flat / house number or name
City of Property	Choice	City where the Property is located at
Geographic Region of Property	Choice	Province / Region where the Property is located at

**EBA NPL 11.003.Sector of Property**

**Definition**

Data Field 11.003: Sector of Property: Sector which the property is used for, e.g. commercial real estate, residential real estate, etc.

**Description**

"Sector of Property" is the sector which the property is used for.

**Field Characteristics**

The field type is a Choice field populated by. The following choices are available:

- (a) Commercial Real Estate
- (b) Residential Real Estate

The field's importance for the Loan Type is Important.

The field belongs to the EBA NPL Property Collateral Table.

The field applies to 4 of the 7 EBA NPL Asset Classes. It does not apply to Unsecured Loans, Auto Loans, Leading / Asset Backed Finance.

The field is applicable to all borrower types.

# NPL 1.0 - Mathematical Representation of Loans

Loans <span style="float: right;">+ Add Loan</span>								
6 total <input type="text"/> <input type="button" value="Filter"/>								
<input type="checkbox"/>	Contract identifier	Asset class	Channel of origination	Loan covenants	Current maturity date	Date of default	Final bullet repayment	Subsidy amount
<input type="checkbox"/>	Loan_yUjXzLreBi	Resi	(c) Broker	(c) Debt Service Coverage Ratio (DSCR) is the ratio of annual net operating income to debt obligations owed in the last 12m	Aug. 23, 2005	July 8, 2009	679	624
<input type="checkbox"/>	Loan_VKMb3cEfxq	Resi	(b) Internet	(a) Loan to Value (LTV) is the ratio of a loan to the value of the collateral purchased	May 26, 2011	July 14, 2005	957	162
<input type="checkbox"/>	Loan_q4osg92KER	SME/Corp	(d) Other	(b) Interest Coverage Ratio (ICR) is the ratio of earnings before interest and tax to the interest expense in the same period	April 16, 2006	April 16, 2001	225	988
<input type="checkbox"/>	Loan_9rszXlu720	Resi	(d) Other	(a) Loan to Value (LTV) is the ratio of a loan to the value of the collateral purchased	Jan. 22, 2006	Aug. 17, 2016	632	86
<input type="checkbox"/>	Loan_w7ktEYihEm	SME/Corp	(d) Other	(a) Loan to Value (LTV) is the ratio of a loan to the value of the collateral purchased	Aug. 2, 2015	April 23, 2014	173	661
<input type="checkbox"/>	Loan_Vr0cr4E2Vt	SME/Corp	(a) Branch	(a) Loan to Value (LTV) is the ratio of a loan to the value of the collateral purchased	Nov. 7, 2003	Jan. 1, 2011	467	567

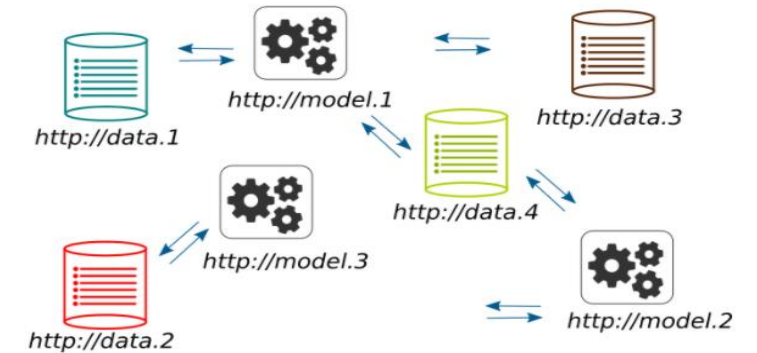
Mathematical Representation

$$\text{brown square} \leftarrow M_1(\text{red}, \text{teal}, \text{yellow})$$

$$\text{orange square} \leftarrow M_2(\text{red}, \text{teal}, \text{yellow})$$

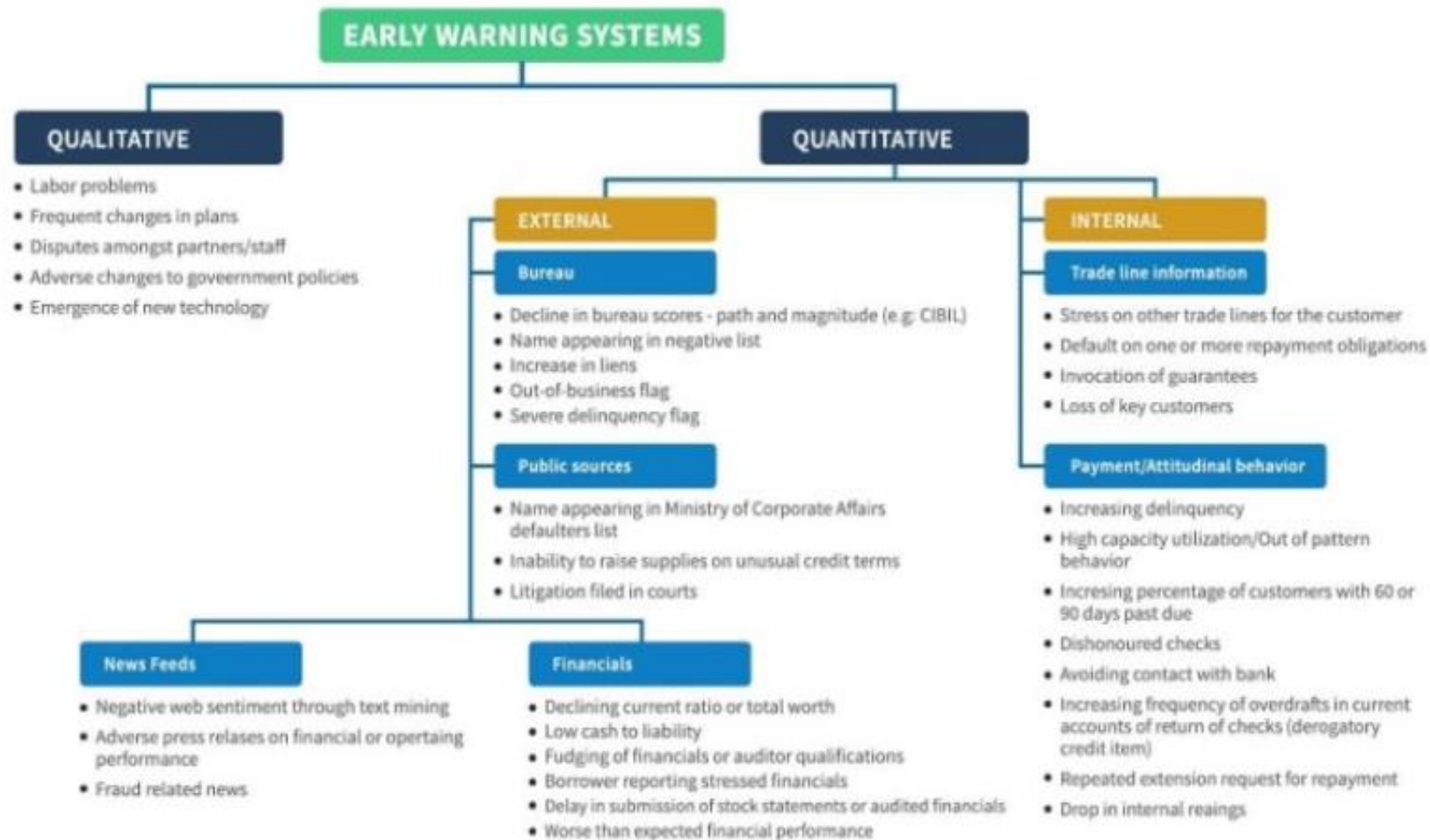
$$\text{blue square} \leftarrow M_3(\text{brown}, \text{orange}, \text{red})$$

Network Representation

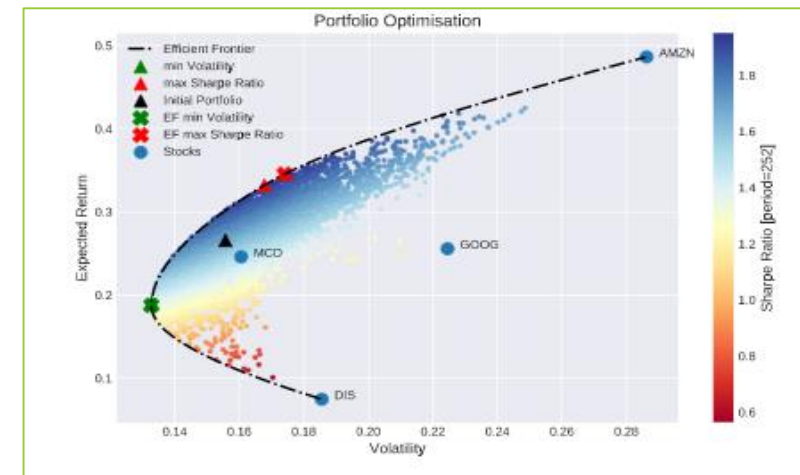
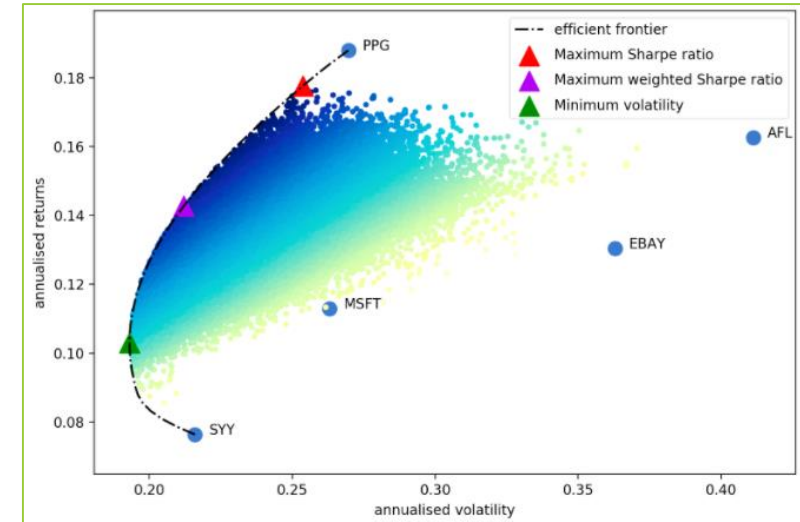
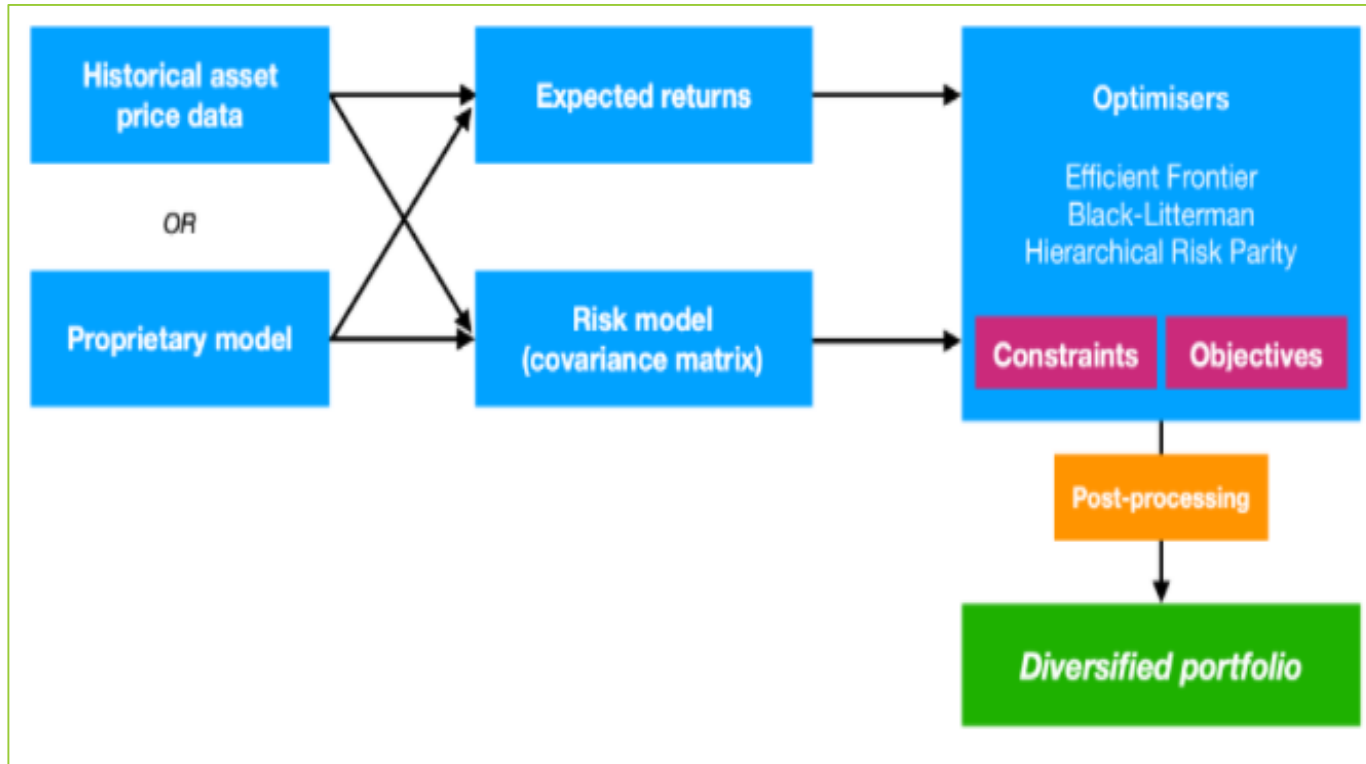


- NPL 1.0 is built on top of the Python Django framework
- NPL loan template recommendations of the EBA are implemented as distinct models in the database
- The UX uses built-in Django forms as those are rendered by the Grappelli skin
- The backend database is currently sqlite

# NPL 1.0 - Early Warning Systems



# NPMS 1.0 - NPL Portfolio Risks Analysis



# NPMS 1.0 - Technical Stack

Risk Graph (Loan)

Risk Model + Scoring + Rules – Integrated Engine

MDM Layer for NPL (Target System)

Insights

System1

System2

System3

System 4

System3

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# Thank You

Greenojō provides Automation, Analytics and AI solutions to  
enterprise customers

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