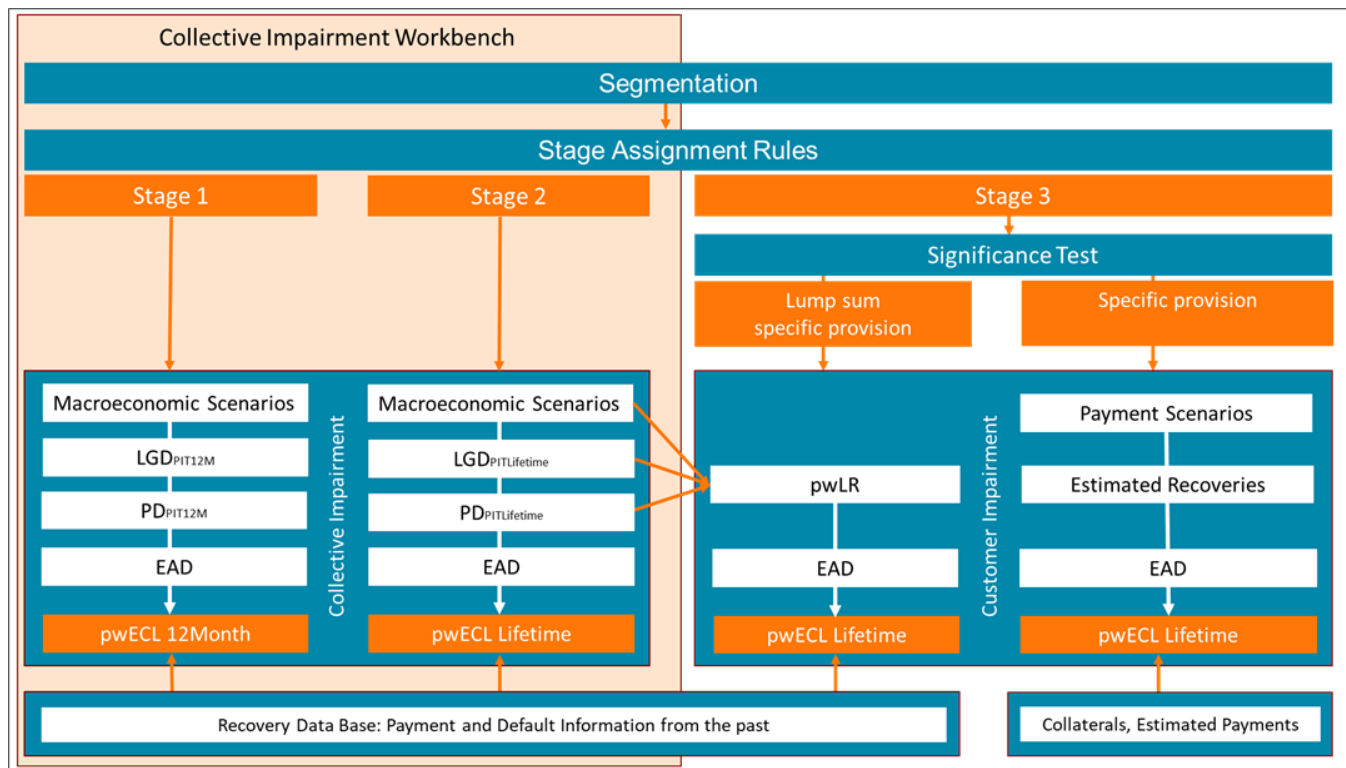


The Collective Impairment Workbench is a modular solution that calculates probability-weighted Expected Credit Losses (pwECL) in line with GAAP and regulatory requirements. For IFRS 9 this includes the calculation of 12-month ECLs for stage 1 as well as lifetime Expected Credit Losses for assets assigned to stage 2.

It can be used as integrated module in an end-to-end solution for financial accounting built with Jabatix Components.

Alternatively it can be used as a stand-alone solution which solely takes care of pwECL.

In both implementation scenarios, deals with similar credit risk characteristics will be grouped in segments and assigned (depending on their deterioration in credit quality) to an impairment stage.



The Collective Impairment Workbench provides a browser-based UI to design master scenarios.

A master scenario contains all the rule sets which shall be applied while calculating probability weighted expected credit losses for stage 1 or stage 2 assigned deals.

This includes the

- Rule set for segmentation and
- Rule set for stage assignment,
- Set of values for macroeconomic parameters considered in macroeconomic scenarios,
- Settings of bundles of models which shall be applied for specific combinations of segment and stage,
- Definition of individual models and underlying valuation elements.

Various master scenarios can be designed to check alternative settings, to perform simulation runs, to calibrate PDs etc.

A master scenario can be assigned to one or various parallel GAAP. It is possible to calculate one master scenario and consider the output in parallel GAAPs or for each GAAP a separate master scenario can be defined.

## Calculation of Expected Credit Losses (ECL)

The process chain of the Collective Impairment Workbench is designed in different steps. Each step has a clearly defined input/output interface. The modular approach provides various modules for each step. Depending on the data and scope available, a financial institution can select the appropriate module for each step, comprising a large number of predefined models. Among other things, these models are geared to the needs of the business types (e.g. loans, commitments, guarantees).

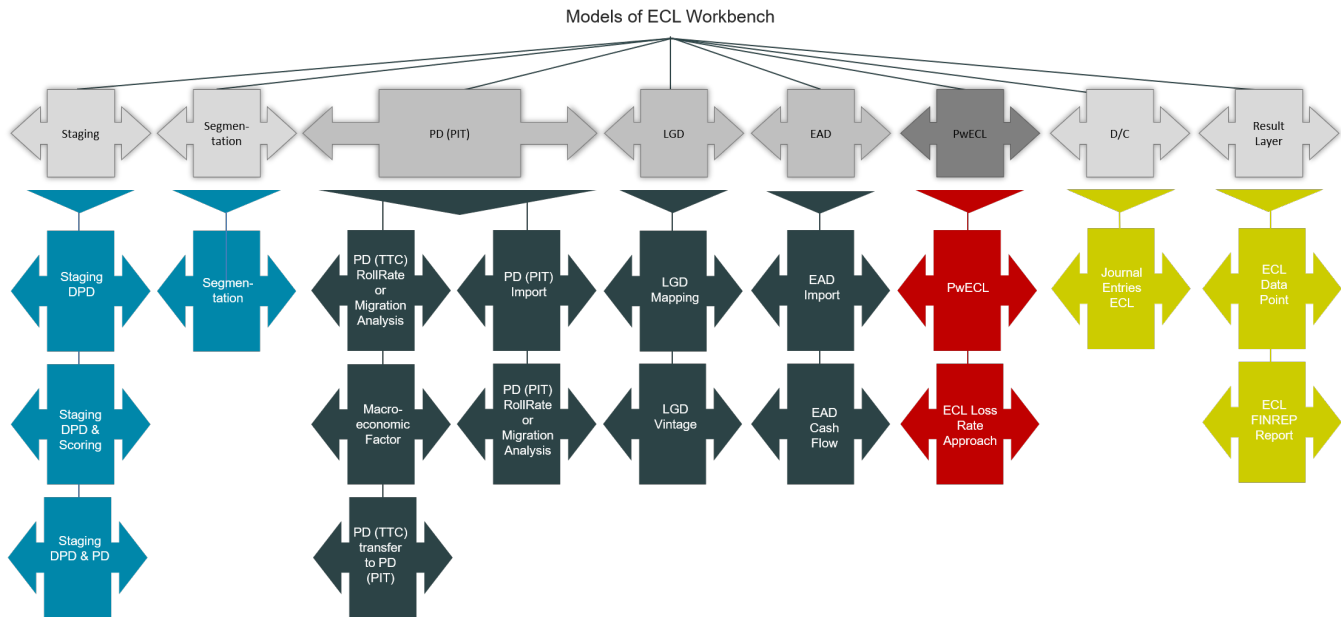


Diagram: Excerpt of components and models available for different process steps calculating probability-weighted expected credit losses

The module "Collective Impairment Workbench" supports the

- calculation of forward-looking, probability-weighted expected credit losses.
- definition and maintenance of calculation models, master scenarios considering probability-weighted economic scenarios

It also supports simulation and comparison of alternative models and scenarios as well as the tracking of the results of Expected Credit Loss calculation for audit and analysing purposes.

Collective Impairment Master Scenario Results

Run: FTG Szenario Experimente Start: 2019-01-09 21:15:54.0 Posting: 2019-03-31 00:00:00.0 R Comparison Run: FTG Szenario Berechnung Start: 2019-01-09 21:16:57.0 Posting: 2019-03-31 00:00:00.0 R

Calculation of Master Scenario:

Master Scenario	FTG Szenario Experimente	Posting Date	Mar 31, 2019	Master Scenario	FTG Szenario Berechnung	Posting Date	Mar 31, 2019
ECL Calculation Setup	FTG ECL Experimente Setup	Run End	Jan 9, 2019 9:16:17 PM	ECL Calculation Setup	FTG ECL Berechnung Setup	Run End	Jan 9, 2019 9:17:11 PM
ECL Value (EUR)	-2,761.08	Status	Ready	ECL Value (EUR)	-2,077.20	Status	Ready

Drill Down:

Macroeconomic Scenario	Weight	Stage	Segment	Model	ECL Value (EUR)	Macroeconomic Scenario	Weight	Stage	Segment	Model	ECL Value (EUR)
BASELINE	0.75	HEALTHY			-1,973.06	BASELINE HOTEL ESTATE EEO CPI OIL DATA	0.75	HEALTHY			-1,141.08
			Mortgage Loans	FTG Kredit ECL	-1,479.04				Mortgage Loans	FTG Mortgage Loan ECL Kalkulation	-781.08
		SENSITIVE			-434.02			SENSITIVE			-360.00
			Personal Loan	FTG Kredit ECL	-434.02				Personal Loan	FTG Personal Loan ECL Kalkulation	-360.00
ADVERSE	0.25				6,305.15	ADVERSE HOTEL ESTATE EEO CPI OIL DATA	0.25				-4,885.54

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Collective Impairment Master Scenario Results ECL Calculation Setup Results

Master Scenario: FTG Szenario Experimente Economic Scenario: BASELINE Posting Date: Mar 31, 2019 Model: FTG Kredit ECL ECL Value (EUR): -1,479.04

Master Scenario: FTG Szenario Berechnung Economic Scenario: BASELINE HOTEL ESTATE EEO CPI OIL DATA Posting Date: Mar 31, 2019 Model: FTG Mortgage Loan ECL Kalkulation ECL Value (EUR): -781.08

Deal ID	W	ECL Value (EUR)	Deal ID	W	ECL Value (EUR)
LN-001_Ratenkredit	56.21	LN-001_Ratenkredit	19.77		
LN-002_Ratenkredit	56.23	LN-002_Ratenkredit	20.44		
LN-003_Ratenkredit	40.36	LN-003_Ratenkredit	21.23		
LN-004_Ratenkredit	46.05	LN-004_Ratenkredit	16.19		
LN-005_Ratenkredit	0.00	LN-005_Ratenkredit	0.00		
LN-006_Ratenkredit	56.26	LN-006_Ratenkredit	281.46		
LN-010_Hypothek	500.59	LN-010_Hypothek	176.03		
LN-010b_2_Hypothek	100.43	LN-010b_2_Hypothek	35.32		
LN-011_Hypothek	498.48	LN-011_Hypothek	175.29		
LN-011b_2_Hypothek	100.43	LN-011b_2_Hypothek	35.32		

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Diagram: Comparison of simulated results and results in "production" including drilldown from an impairment stage and segment down to Expected Credit Loss at individual deal level.