# R<sup>3</sup>S Non-Life Standard Code





Simplifying the complexity of actuarial, regulatory and risk-based implementations.

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### R<sup>3</sup>S Non-Life Standard Code

RNA Analytics has extended its established expertise in risk modeling and data management to the non-life industry with R<sup>3</sup>S Non-life Standard Code.

R<sup>3</sup>S is the brand name of our software suite and R<sup>3</sup>S Modeler is an actuarial modeling software platform that enables users to build their own model. It comes with an extensive library called Standard Code for various calculations and processes.

## What is Non-Life Standard Code in

## R<sup>3</sup>S Modeler?

The R<sup>3</sup>S Non-life Standard Code is a collection of the loss reserving calculation modules for Non-life (re) insurers.

It combines various actuarial reserving methods with our powerful modeling platform into an integrated solution which is completely modular and extremely flexible.

The Non-Life Standard Code will allow companies to reduce the time and efforts in preparing the data and model, therefore, you can focus more on analysing the model results.

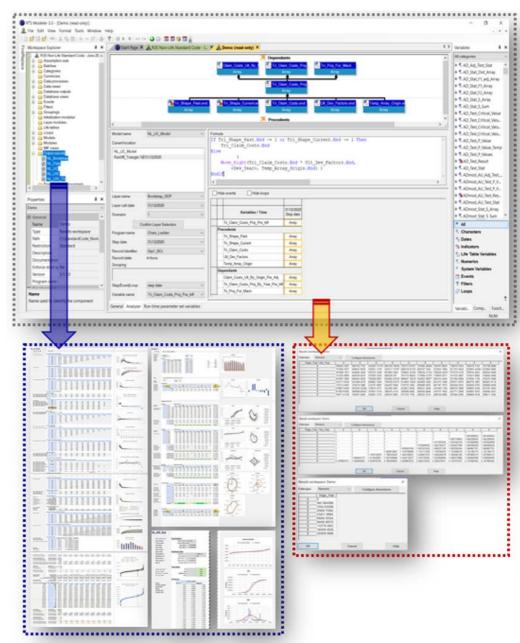
It can be used for core reserving applications and also can feed directly into our R<sup>3</sup>S IFRS 17 Package or/and R<sup>3</sup>S Solvency II Standard Code Package.



# **Key Benefits**

## R<sup>3</sup>S Non-Life Standard Code





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## **Structure Overview**

# Data Preparation (LIC & LRC) Read in historical data for LIC & LRC models

- Transforms record level claim data into Run-off triangles for LIC
  - > Triangle shape
  - Extended triangle
  - > Parallelogram

- ☐ Historic claim array for LRC
  - > Amounts by year (premium, claim, expense, etc.)
  - Ratios by year (loss ratio, expense ratio, combined ratio, etc.)

### Liability for Incurred Claims (LIC)

- □ Perform Data Analysis (Optional)
  - > Outlier analysis
  - > Trend analysis
- □ Loss Development Claims Reserving Process:
  - > Deterministic Reserving Methods for Best Estimate Liability
  - · Basic Chain Ladder
  - Link Ratio (average / worst case / weighted average)
  - Grossing Up (standard / average / worst case)
  - · Bornhuetter-Ferguson
- · Cape-Cod
- Paid Loss Development (PLDM) / Incurred Loss Development (ILDM)
- (Optional) Log Normal distribution
   (Optional) Average Cost
- (Optional) Inflation Adjustment
- Stochastic Reserving Methods for Reserve Variation (Optional)
- Mac Bootstrapping
- ODP Bootstrapping
- □ Risk Adjustment
  - Confidence level (VaR)
  - (Optional) Conditional Tail Expectation (CTE; TVaR)
  - > (Optional) Cost of Capital (CoC)

### Liability for Remaining Coverage (LRC)

- Fit Distributions to Historical Data:
  - > Normal
  - Log Normal
- ParetoWeibull

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- Gamma
- □ Parameter Fitting Method:
  - MME (Method of Moments)
  - MLE (Maximum Likelihood Estimate)
- Automated Goodness of Fit Test:
  - Chi-Square
  - Kolmogorov-Smirnov
  - Anderson-Darling (standard and modified)
- Stochastic Realisations of Selected Distribution(s)
- Risk Adjustment
  - Confidence level (VaR)
  - (Optional) Conditional Tail Expectation (CTE; TVaR)
  - (Optional) Cost of Capital (CoC)

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