

# Risk Aggregation



## Insurance

### + Risk: How does it affect you? Can you profit from a thorough, bottoms-up risk management solution?

External imperatives like market uncertainty, increased competitiveness and a strong regulatory environment have forced insurance companies spend millions of dollars every year calculating and managing their corporate risk. These large complex organizations need an aggregate view of risk, to be able to accurately model correlations, and better align regulatory capital and true economic risk, all in order to prevent sub-optimal investment decisions. Unfortunately, risk officers must contend with:

- Lack of data and inconsistency of data
- Local, legacy systems that can compromise aggregation calculation

- Complex structures comprising many individual business units, each with their own IT and databases

In order to stay a step ahead of the competition, make optimal business decisions and meet regulatory requirements, risk officers need a risk aggregation solution that provides:

#### Data Connectivity

to connect disparate systems and data sources to ensure a complete view of all risky assets.

#### Transparency

to provide sufficient granularity and visibility for the regulators to review and audit risk models.

#### Sophisticated Statistics

to meet the demands of advanced risk analytics.

#### Flexibility

to quickly implement and deploy risk models.

#### Dynamic Scenario Analysis

to easily apply what-if scenarios important for proactive business decision making.

#### Reporting and Data Visualization

to easily view loss distributions across various dimensions and store the results of the aggregation to compare to different scenarios.

### + Meeting the Need: Case Study

#### Swiss Solvency Test

A major European insurance company needed better visibility of their aggregated risk and to meet the requirements of the Swiss Solvency Test (SST).

The risk aggregation solution from Insightful provides the risk management team with comprehensive statistical functionality including:

- Tuning of copulas
- Monte-Carlo simulations, including generation of random variables and aggregations
- VaR, ES, EVT and experimental cdf

The team was able to quickly and efficiently create their simulation models using the S-PLUS® platform. The models are run automatically and allow for:

- Building of meta data, reading of input data and parameters
- Streaming of data, optimizing memory usage
- Calculation of statistics and production of graphics

Through automating the calculations and aggregation across their entire corporate structure, the company is confident that they are facilitating the optimum use of their capital. The graphics produced by the system provide clear and comprehensive results that are easily understood by non-technical audiences, allowing for easy communication across multiple audiences. They have met the requirements of the SST ensuring compliance and delivering a competitive advantage for their company.

## + The Insightful Risk Aggregation Solution

Built using the award-winning S-PLUS platform, the Insightful Risk Aggregation Solution provides specialised multi-dimensional functionality to perform sophisticated risk calculations and risk aggregations for insurance companies.

Standard features include:

### Risk Data Input

- Store and read input and output data in a database format
- Rich metadata library to ensure consistency across all risk data objects, calculations and reports
- Seamless integration with Excel

### Modeling & Analytics

- Both Gaussian and advanced copula libraries
- Can implement market risk, credit risk, and operational risk models
- Sensitivity analysis for risk aggregation

### Workflow

- Model specification through web-based GUI
- Execute multi-step calculation process via web interface
- Linking and comparing various simulation results

### Risk Aggregation Output

- N-dimensional risk hyper cube Store and view aggregations across multiple dimensions
- Store and view aggregations across
- Array graphics library, closely integrated to the risk hyper cube
- Easily browse hyper cube through GUI

## + Insurance Business Benefits

- + Faster Decision Making
- + Risk Aligned Capital Management – Realize convergence between regulatory and economic capital
- + Improved External Ratings
- + Improved Risk-Adjusted Measures

+ For more information please visit [www.insightful.com](http://www.insightful.com) or email [info@insightful.com](mailto:info@insightful.com)



#### Global Headquarters:

Tel: 206.283.8802, 800.569.0123 ext. 479

Fax: 206.283.8691

[info@insightful.com](mailto:info@insightful.com)

#### Insightful Switzerland:

Tel: +41 61 717 9340

Fax: +41 61 717 9341

[info.ch@insightful.com](mailto:info.ch@insightful.com)

#### About Insightful Corporation:

Insightful Corporation (NASDAQ: IFUL) is a leading provider of predictive analytics and reporting solutions that provide companies the *knowledge to act™*. Insightful products allow companies to perform sophisticated statistical data analysis and data mining, and to create high-quality graphics from data. Insightful consulting services provide specialized expertise and proven processes for the design, development and deployment of customized solutions

#### Insightful UK:

Tel: +44 (0) 1256 339800

Fax: +44 (0) 1256 339839

[info.uk@insightful.com](mailto:info.uk@insightful.com)

#### Insightful France:

Tel: +33 0 5 62 27 70 60

Fax: +33 0 5 62 27 70 61

[info.fr@insightful.com](mailto:info.fr@insightful.com)

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