



The Actuarial Profession

making financial sense of the future

Implementing Audit Safe Actuarial Practices

Examples from Reserving

Markus Stricker, Intuitive Collaboration
GIRO 2009, Edinburgh

Challenges

More than just actuarial calculations.

The processes should be supported by tools which are:

- Operationally safe
- Efficient
- Auditable

What are the requirements of an actuarial workbench to satisfy these conditions?

Operational Safety ^(1/2)

- Who needs access to which data?
 - Authorisation of users with roles
- Avoid copy-pasting
 - Access to risk database / risk data warehouse
 - Support for data versioning
- Process support
 - Commenting data directly in the tool
 - Automatic input data locking if derived result/report exists

Operational Safety (2/2)

- **Transparency**

→ Complete access to all actuarial components; not just documentation, also code and test cases

- **Fully testable components and models**

→ Automated testing to ensure upgrades don't introduce unwanted changes

Efficiency

- **Process support**
 - End-to-end support: Data integration, actuarial calculation, commenting/explaining data, reporting
- **Standard compliance**
 - Use of established IT infrastructure (database, application deployment, access rights, back-up, reporting)
- **Fully testable components and models**
 - Automated testing to ensure upgrades don't introduce unwanted changes

Auditable

- All results must be fully reproducible
 - All data which is required to reproduce a result are automatically captured and saved with the result
- Who did what and when?
 - Proper use of an enterprise IT infrastructure
- Open access and fully testable
 - Not a requirement for auditability, but makes the audit process much more efficient

PillarOne

- Driven by a community with dedicated resources – **open source**
- It is an **enterprise software suite** for actuarial applications, e.g. reserving, risk modeling/management and pricing/profit testing
- A **community** which encourages the exchange of concepts, methods and implementations around enterprise risk management

Software
Platform



Community

Risk Management meets Open Source

Insurance

An actuarial workbench for **reserving, risk** modelling/aggregation, ALM, reinsurance optimization, profit-testing. [More...](#)

ERM

A risk management infrastructure to consolidate all different **ERM applications** usable in a stand-alone or multi-user, client-server mode. [More...](#)

Open

Commercially supported by renowned firms, but **free to use and extend** - open source. [More...](#)

Screencasts
Reserving
RiskAnalytics

Try it online!
Reserving
RiskAnalytics

Download!
Reserving v1.5
RiskAnalytics v2.2

· Print · Email

NEWS

RiskAnalytics: New Screencasts available
15.08.2009

Latest entry on longlist by Insurance, Risk & Capital
22.05.2009

[More news...](#)

EVENTS

PillarOne - Integrationsfähige Risikomanagement-Plattform
29.09.2009 11:15 - Vienna

Two workshops at GIRO Convention 2009
07.10.2009 10:00 - Edinburgh, Scotland

[More events...](#)

BLOG

The one who shares wins
27.05.2009

Germany and France significantly increase Open Source adoption
22.05.2009

[More entries...](#)

www.pillarone.org

Reserving

Try it online!
Download
User Guide
Screencasts
Roadmap
Developer Guide

RiskAnalytics

Try it online!
Download
User Guide
Screencasts
Roadmap
Developer Guide

Services

Business Logic
Development
Integration
Consulting
Training
Maintenance
Agreement

Community

Join!
Forums
FAQ
News
Events
Blog
Core Team
Members

About

Vision
The open source approach
Sponsors
History of PillarOne
Technology Stack

© 2009 PillarOne

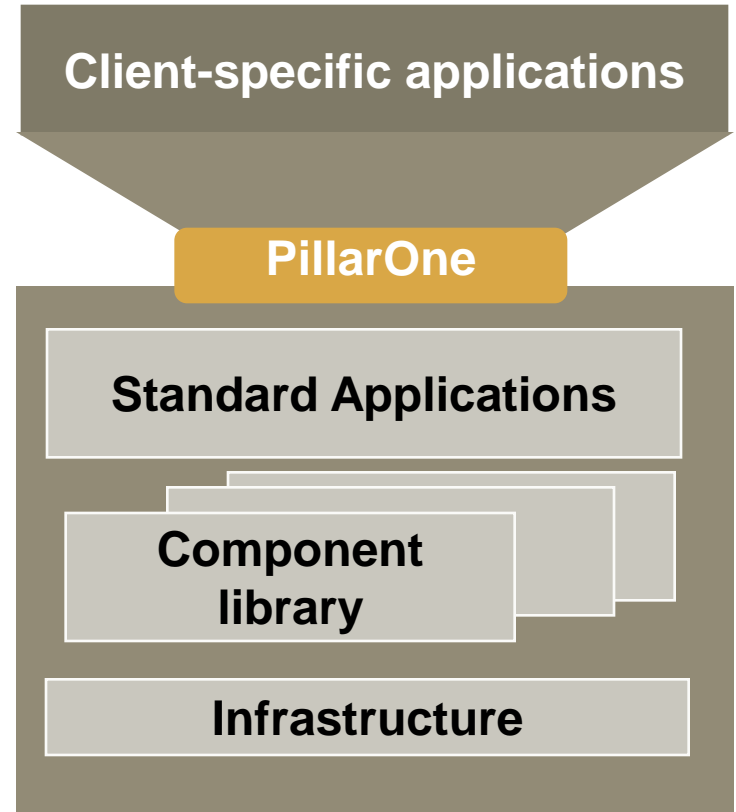
Powered by Zope & Plone
Webdesign by Pronaos.ch
Impressum
Terms of Use
Legal Notice

PillarOne – an Actuarial Workbench

The IT challenges are the same for all market participants. The standard, economical approach is to

→ To provide a common risk infrastructure as a professional base for an actuarial workbench.

→ To guarantee a high level of flexibility to implement company-specific models and tools



PillarOne Applications

- **Reserving**

P&C reserving application (see following pages for feature highlights)

- **RiskAnalytics**

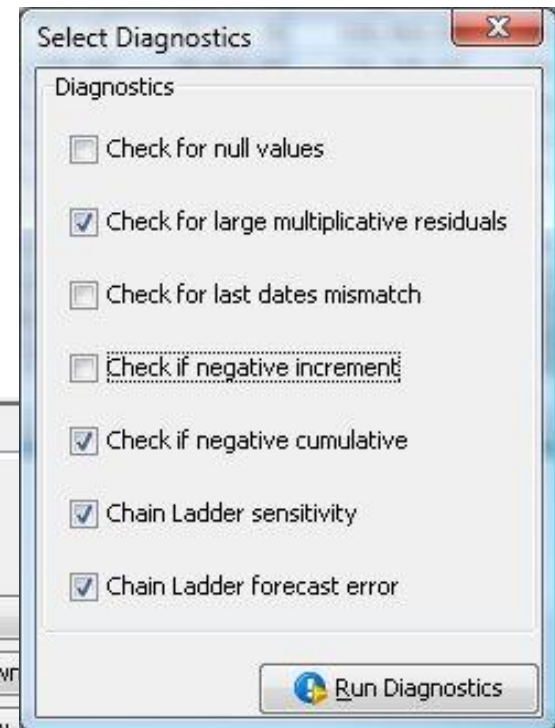
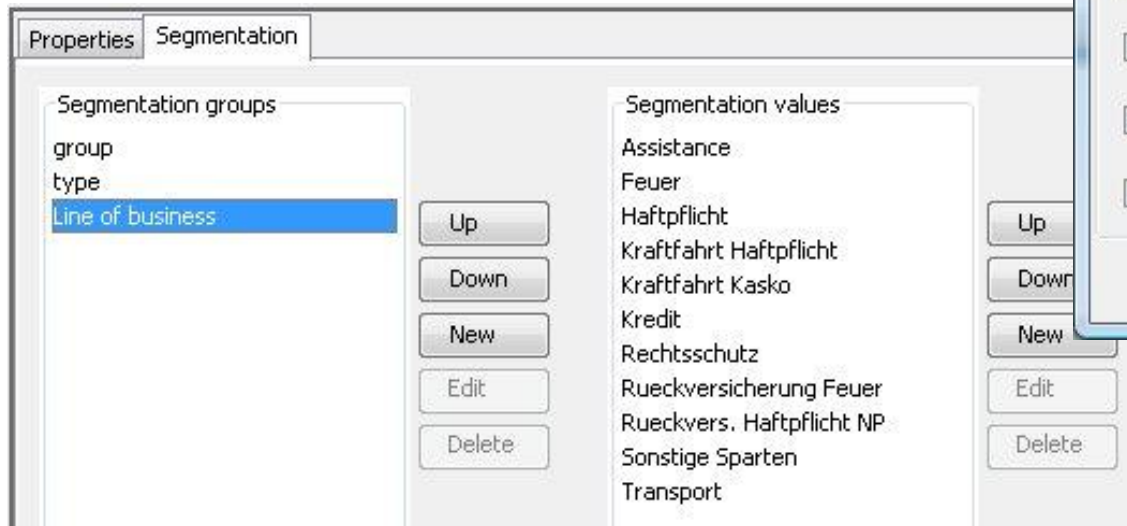
Simulation environment to build and run partial internal or internal risk and capital models (see Track E4 for features) – Solvency II, ICAS, Swiss Solvency Test, reinsurance optimization, etc.

- **Life** (in progress)

Environment for embedded value and profit testing.

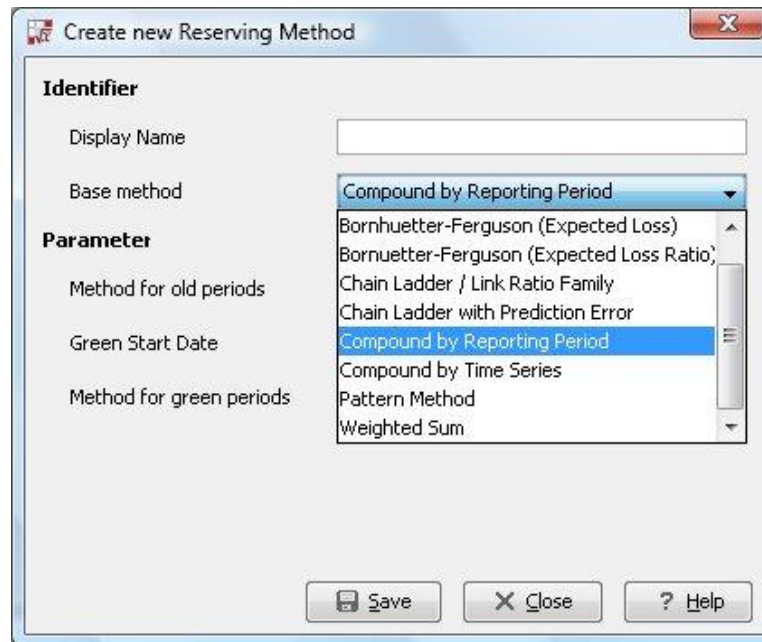
Reserving – Feature Highlights

- Custom data segmentation
 - Safety and efficiency
- Data diagnostics, extendable
 - Safety and efficiency

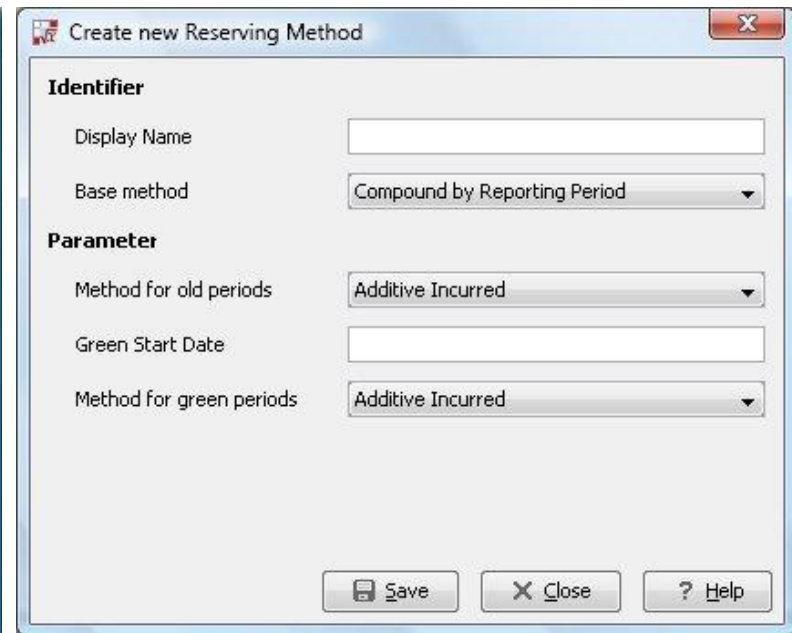


Reserving – Feature Highlights

- Powerful definition of compound projections
 - Avoid copy-pasting for post- or pre-processing
 - Safety and efficiency



The screenshot shows the 'Create new Reserving Method' dialog box. The 'Identifier' section has a 'Display Name' text box. The 'Base method' dropdown menu is open, showing a list of options: 'Compound by Reporting Period' (selected), 'Bornhuetter-Ferguson (Expected Loss)', 'Bornhuetter-Ferguson (Expected Loss Ratio)', 'Chain Ladder / Link Ratio Family', 'Chain Ladder with Prediction Error', 'Compound by Reporting Period', 'Compound by Time Series', 'Pattern Method', and 'Weighted Sum'. The 'Parameter' section has three text boxes: 'Method for old periods', 'Green Start Date', and 'Method for green periods'. At the bottom are 'Save', 'Close', and 'Help' buttons.



The screenshot shows the 'Create new Reserving Method' dialog box. The 'Identifier' section has a 'Display Name' text box. The 'Base method' dropdown menu is closed, showing 'Compound by Reporting Period'. The 'Parameter' section has three dropdown menus: 'Method for old periods' (set to 'Additive Incurred'), 'Green Start Date' (empty), and 'Method for green periods' (set to 'Additive Incurred'). At the bottom are 'Save', 'Close', and 'Help' buttons.

Reserving – Feature Highlights

- Comments to support a sign-off process
 - More efficient than email with attachments, better for auditing

The screenshot displays a software interface for 'Haftpflicht - Detail'. It features a navigation pane on the left with a tree view containing categories like Triangles, Projections, Patterns, TimeSeries, and Premium. The 'Claims paid' item is selected. The main area shows a table of 'Claims paid' data. A context menu is open over the table, offering options: 'Insert Row Comment', 'Insert Column Comment', 'Insert Cell Comment', and 'Insert Diagonal Comment'. Below the table, a comment box contains the text: 'in Claims paid [6;-1] from guest at 09.09.2009 09:20:48' followed by 'Joe, this looks inflated, please check.'

	12	24	36	48
1999	71,378.00	95,226.00	100,960.00	104,068.00
2000	73,275.00	96,461.00	101,395.00	104,490.00
2001	75,121.00	98,108.00	103,305.00	106,022.00
2002	74,202.00	96,544.00	100,089.00	102,525.00
2003	79,175.00	103,976.00	111,192.00	114,787.00
2004	78,035.00	101,887.00	107,989.00	111,302.00
2005	84,960.00	113,640.00	120,443.00	124,110.00
2006	83,475.00	109,828.00	114,727.00	
2007	78,934.00	106,142.00		
2008	77,614.00			

Reserving – Feature Highlights

- Compare support
→ Efficiency



Contact



INTUITIVE COLLABORATION

Markus Stricker
Managing Director
PhD, Actuary SAA

INTUITIVE COLLABORATION
Seestrasse 16
CH-8712 Stäfa
www.intuitive-collaboration.com

Phone +41.44.9261088
Mobile +41.76.4232667
markus.stricker@intuitive-collaboration.com