Implementing Audit Safe Actuarial Practices

Examples from Reserving

Markus Stricker, Intuitive Collaboration
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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. reservierung, risk modeling/management and pricing/profit testing
- A community which encourages the exchange of concepts, methods and implementations around enterprise risk management
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...

- Print - Email
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

![Select Diagnostics]

The Actuarial Profession
making financial sense of the future
Reserving – Feature Highlights

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

- Comments to support a sign-off process
  → More efficient than email with attachments, better for auditing
Reserving – Feature Highlights

- Compare support
  -> Efficiency
Reserving – Roadmap

- Project resources/default definitions
- Flexible segmentation
- Compound methods
- Additional diagnostics

- Aggregation / reconciliation
- Tail patterns
- Reports

2009

Jan
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May
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Nov
Dec

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v0.5