

Case Study



Company Profile

Generali in Germany is one of the leading primary insurance groups in the German market, with premium income of around €15 billion and more than 9 million customers. As part of the international Generali Group, Generali Germany operates under the brands Generali, CosmosDirekt, and Dialog in the life, health, and casualty segments.

Technologies

#novaPredict



Modernizing Actuarial Processes with novaPredict

Challenges

- Existing system reached technical limits in cloud-based calculations, particularly for IFRS 17 and SII annual financial statements as well as projection and planning calculations
- Limited degree of parallelization and restricted choice of suitable cloud machine types
- Use of spot instances involved high failure risks for long-running calculations
- High licensing costs associated with the existing system

Solution

- Development of a proof of concept to validate feasibility, performance, and reproducibility of results
- Implementation of novaPredict based on a cloud environment (AWS) for flexible utilization of available computing capacity
- Use of modern cloud technologies and DevOps practices to increase efficiency
- One-year parallel operation with multiple test phases and continuous performance optimization of the cloud solution

Benefit

- Significant cost savings: reduction of cloud costs by up to 90% compared to the previous solution, plus elimination of license fees
- High flexibility, extensive parallelization, and scalability: actuaries can work simultaneously and execute large numbers of simulations without limitation
- Efficient release and data management
- Vendor-independent system with reduced dependencies, increased flexibility for further development, and improved efficiency for actuaries

Generali Germany, one of the country's leading insurance companies, faced the challenge of making its complex actuarial calculations more efficient and scalable. With the introduction of IFRS 17, the previous system reached its limits. Performance was insufficient, migrations were costly, and alternative standard software solutions involved high licensing expenses. At the same time, improving performance within the existing cloud solution proved nearly impossible.

In addition, actuaries required the ability to calculate several thousand scenarios simultaneously, centrally manage large volumes of data, and design calculation processes in a more flexible and reproducible manner. Behind these processes lie hundreds of thousands of capital market scenarios and hundreds of actuarial sensitivities that must be managed and validated. Generali Germany therefore partnered with novaCapta to develop its own cloud-based calculation tool tailored specifically to the requirements of the insurance industry and actuarial practice.

novaPredict: A Cloud-Based Tool for Flexible and Scalable Calculations

With the joint development and implementation of novaPredict, a modern cloud-based calculation platform was established that can be operated on both AWS and Azure. Following a successful proof-of-concept phase – including three test stages – existing corporate models were gradually migrated into the productive environment.

The system enables virtually unlimited parallel execution of simulations (with restrictions determined only by the cloud provider), efficient processing of large data volumes, and DevOps-based model development. Actuaries can implement requirements and execute calculations in an automated manner, while release management, documentation, and reporting are largely automated. novaPredict is built on C#, enabling easier code creation and AI-supported code generation.

Release management – previously handled largely manually – is significantly enhanced and automated within novaPredict as it represents a core component of actuarial operations. Automated and time-efficient migration of code and table changes, as well as comprehensive, transparent, and traceable documentation, are central to the process. novaPredict provides strong support in these areas and significantly simplifies day-to-day work.

Further advantages arise from the optimized cloud usage. First, the selection of machine types is no longer limited to Microsoft-based instances; Linux machines can also be used, typically at significantly lower cost for comparable performance. Second, automated calculation restart mechanisms combined with

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**By using novaPredict,
we are able to manage
our enormous annual
calculation workload in
a time- and cost-efficient
manner.**

Walter Koch

Head of Modeling Life and Health
Generali Deutschland AG

intermediate result storage ensure high efficiency. This allows novaPredict to leverage cost-effective spot instances as a standard – even though these can be terminated at any time.

Greater Efficiency, Lower Costs, Better Control

Through migration to novaPredict, Generali Germany reduced its cloud costs by up to 90%, while eliminating dependencies on external licensing models and specialized third-party resources. Actuaries benefit from an intuitive, user-friendly interface that reflects familiar workflows and enables direct interaction with the system without requiring deep technical knowledge. Integrated AI functionality supports code writing and generation, significantly reducing errors and workload. A key advantage is the use of established standards that are easily integrable (e.g., Codex or GitHub).

“Since the 2023 annual financial statements, we have conducted all official calculations using novaPredict. The tool stands out for its user-friendliness, high performance, and significantly reduced cloud costs,” says Walter Koch. Generali Germany's internal service evaluation system confirms this success, awarding 9 out of 9 satisfaction points.

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