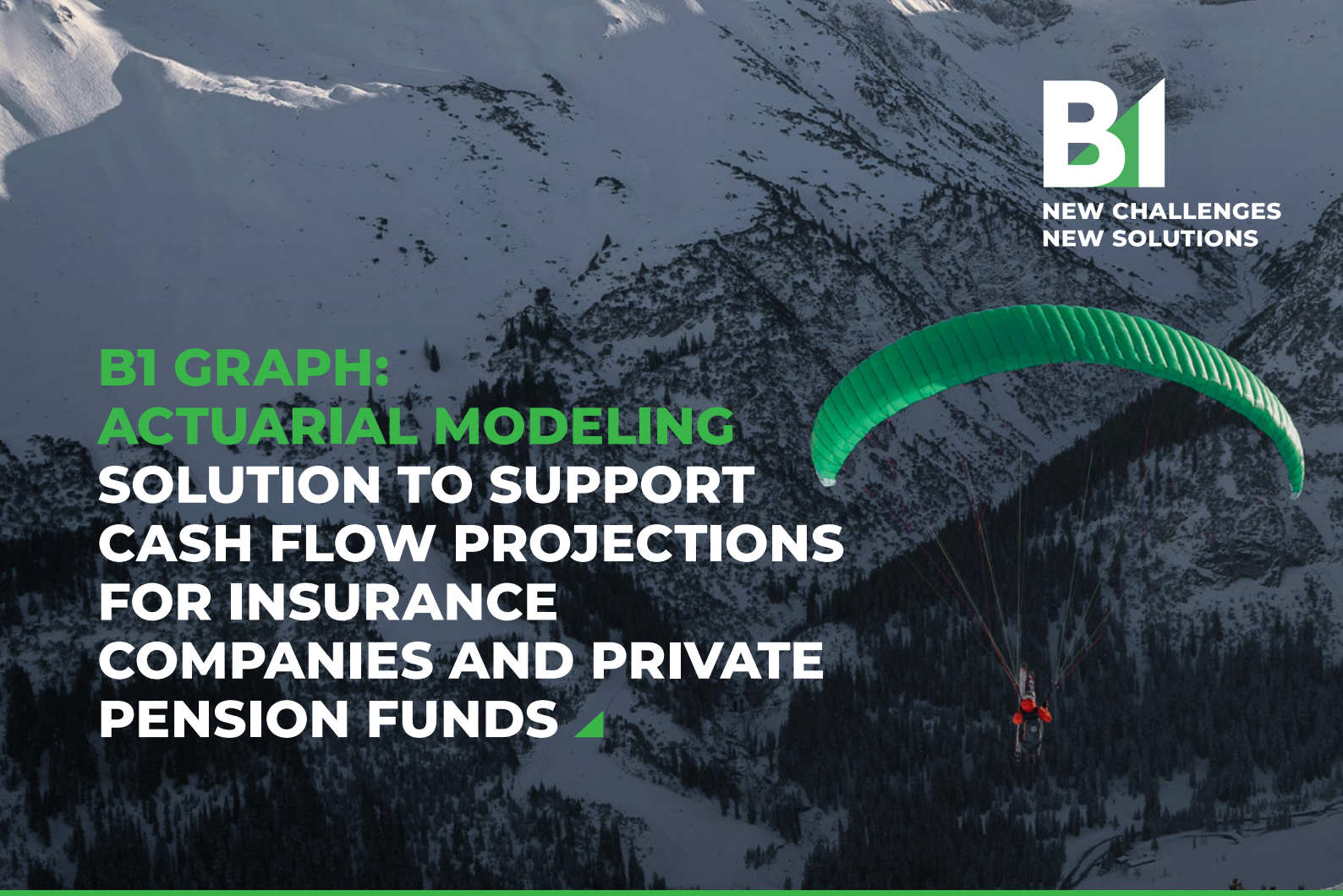


NEW CHALLENGES
NEW SOLUTIONS

B1 GRAPH: ACTUARIAL MODELING SOLUTION TO SUPPORT CASH FLOW PROJECTIONS FOR INSURANCE COMPANIES AND PRIVATE PENSION FUNDS

B1 GRAPH (B1 GRAPH MATHEMATICAL COMPUTATION TOOL) IS A POWERFUL CROSS-INDUSTRY PLATFORM DESIGNED TO PERFORM LARGE-SCALE COMPUTATIONS IN MINIMUM TIME. IT BECAME THE BASIS FOR B1 GRAPH: ACTUARIAL MODELING, AN INDUSTRY-FOCUSED CASH FLOW FORECASTING AND LOSS RESERVING SOLUTION FOR INSURANCE COMPANIES AND PRIVATE PENSION FUNDS (PPFS).

FAST IMPLEMENTATION

1-3
months

with pre-configured actuarial models

HIGH CAPACITY

2.2
trillion metrics

calculated in **3.5** hours (**8.7** million contracts and **1,200** periods)

HIGH SPEED

2×
as fast

as comparable systems

BUSINESS LINES

- General insurance
- Life insurance
- Mandatory pension insurance
- Private pensions
- Long-term savings program

BACKGROUND

Under the recently adopted IFRS 17, ISAS[1] and Regulations No. 781-P[2] and 836-P[3], insurance companies and PPFs are required, within a relatively short time, to re-engineer their accounting and reporting processes and modify their actuarial methodology.

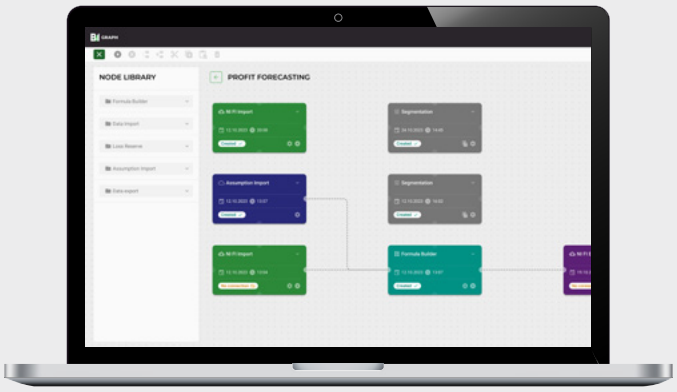
The new standard for insurance contracts (IFRS 17) has been in effect since **1 January 2023,** and will become mandatory for Russian insurance companies and PPFs from **1 January 2025.**

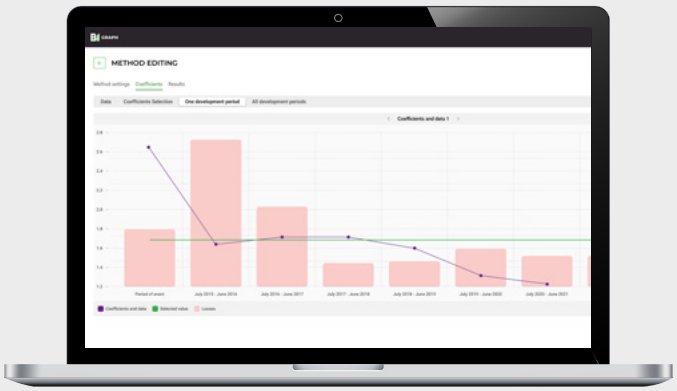
The new regulatory requirements for estimating insurers' loss reserves (Regulation No. 781-P) became effective on **1 January 2023,** and similar requirements for PPFs (Regulation No. 836-P) came into force on **1 July 2024.**

ADVANTAGES

WITH B1 GRAPH: ACTUARIAL MODELING ALLOWS TO:

1. Meet requirements for use of **localized software** and not be dependent on imported software
2. **Automate cash flow actuarial valuation** and predictive modeling to meet the needs of insurance companies and PPFs and the Bank of Russia's requirements
3. Compute **comprehensive, highly granular estimates** and dramatically reduce reporting times
4. Create and modify estimation models **without having to learn programming languages** by using a formula builder with an embedded math function library
5. **Integrate directly** with source systems (a built-in ETL tool[4])
6. Customize your **input data structure** (a visual tuning feature)
7. **Export outputs** to a B1 analytics tool or use the solution's embedded reporting
8. Create a **transparent modeling process** for users and auditors
9. Flexibly manage **access rights** and master models
10. **Group your projects** by period of analysis and business unit
11. **Manage contractual changes**
12. **Extend functionality** and use the B1 GRAPH platform to address other business needs





[1] Industry-specific accounting standards.

[2] Bank of Russia Regulation No. 781-P of 16 November 2021 *On the Requirements for Financial Stability and Solvency of Insurers*, as amended on 21 August 2023 (effective from 1 January 2024).

[3] Bank of Russia Regulation No. 836-P of 28 March 2024 *On Establishing Requirements for the Estimation by Private Pension Funds of Their Liabilities under Compulsory Pension Insurance Agreements, Private Pension Provision Agreements and Long-term Savings Agreements on the Basis of an Internal Document, Cases in Which the Estimate is Made and Requirements for the Internal Document.*

[4] ETL (Extract, Transform, Load) is a three-phase data integration process, where data is extracted from structured or unstructured sources, transformed into a suitable format, and then loaded into the target system.

FUNCTIONALITY

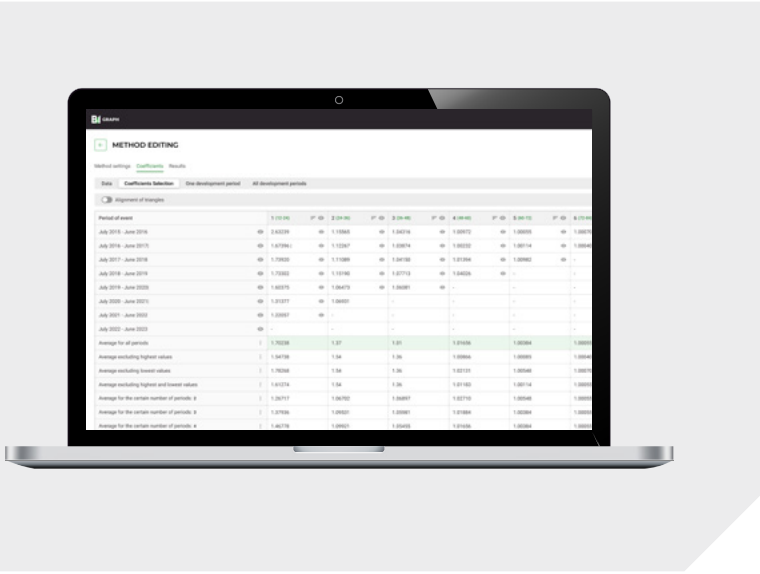
GENERAL INSURANCE

Loss reserve cash flow estimates can use deterministic and stochastic methods, including:

- Chain ladder
- Bornhuetter-Ferguson
- Frequency and severity
- Independent increments
- Bootstrap
- Naïve loss ratio
- Cape Cod

✓ All of these methods allow for alternative actuarial assumptions (i.e., various methods can be used to select development factors and other parameters).

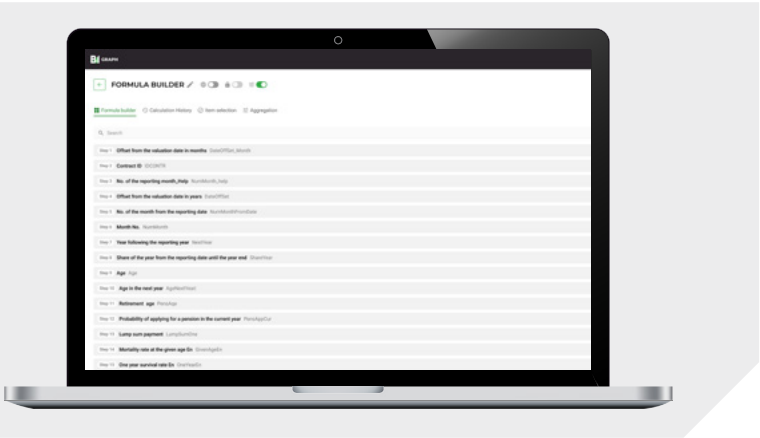
✓ The system will automatically group computation outputs into cohorts as required by IFRS 17 and incorporate them into cash flow projections.



LIFE INSURANCE

Using the formula builder in premium reserve cash flow projections:

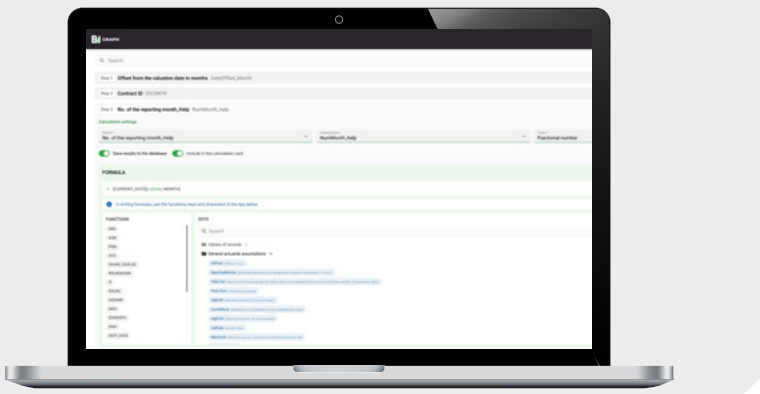
- Future earned premium calculation under the *pro rata temporis* and fraction methods
- A sequence of steps and pre-configured functions to help you build your cash flow forecasts
- Option to choose the forecast horizon
- Simple and transparent interface to modify actuarial assumptions and customize the standard computational model
- Option to use the assumptions derived from loss reserve estimates



PENSION PROVISION

For PPFs, the model takes into account the following cash flows:

- Pension contributions from members/investors or from the insured, as well as additional incentive contributions
- Earmarked contributions from corporate investors
- Redemption sums / transfers to other PPFs resulting from termination of contracts by members or the insured
- Death benefit payments to the insured's heirs/ successors
- Routine retirement benefit, recurring payments or lump sum payments
- Contract administration costs
- Management company, depositary/custodian and deposit insurance agency fees



IT PLATFORM

Architecture-wise, B1 GRAPH: Actuarial Modeling is designed to ensure immunity to sanctions, high productivity and security of information.

- The computational core operates on a high-performance DAG-based[5] technology stack.
- For high-speed performance, formulas are encoded as mathematical structures, so only parameter values need to be input during computation.
- The application supports complex and DAG-based iterative computations, eliminating the need for a distributed computing environment on multiple servers.
- ClickHouse database delivers blazing-fast data reading to keep computation times to a minimum.

> The B1 GRAPH architecture is designed to support high-speed computations with moderate server requirements. With B1 GRAPH, for example, a server running on a 64-core processor with 128 GB storage space will process **2.2 trillion** parameters in just **3.5 hours** – twice as fast as comparable systems. By comparison, with Excel or Access, the same computation would take up to several days to complete."

ANDREI KOUZMINE
B1 Partner, Consulting, Technology and Transactions Leader

IMPORT SUBSTITUTION

The B1 GRAPH (B1 Graph Mathematical Computation Builder) platform is registered in the unified register of Russian software (entry No. 20267 of 27 November 2023).

In terms of functionality and performance, B1 GRAPH: Actuarial Modeling competes successfully with both dedicated Western platforms (ResQ, Addactis, SAS, etc.) and domestic Excel-, Access-, Python-, MS SQL- and C#-based solutions.

DELIVERY OPTIONS

- **On-prem** (integration into your company's existing environment)
- **Cloud** (on a rented server or cloud-delivered by B1)
- **Hybrid** (cybersecurity, unparalleled speed and cloud-powered efficiency combined)

IMPLEMENTATION SUPPORT

- **Out-of-the-box solution:** in just **1 to 3 months,** you get a powerful tool with a wide range of pre-built features and functions.
- **Flexible implementation:** integration into source systems combined with a standard configuration adapted to your company's needs (**6 months** or longer to complete).

✓ B1 will provide ongoing maintenance support throughout the solution's lifecycle.

✓ B1 GRAPH: Actuarial Modeling is a user-friendly application with a clear and intuitive interface that only requires one-day user training.

GROWTH POTENTIAL

As a powerful cross-industry platform, B1 GRAPH is poised to address any big data computational task – from financial planning, budgeting and pricing to internal reporting and much more.

It features flexible and customizable computational models to suit any industry and requires no knowledge of programing languages.

[5] DAG – directed acyclic graph

ABOUT B1 GROUP

B1 Group offers a full range of professional services, covering assurance, strategy, technology, consulting, transactions, valuation, tax, law and business support.

In 35 years in Russia and over 20 years in Belarus, we have assembled a strong team of professionals with broad expertise and a wealth of experience in delivering challenging projects. B1 Group is based in 11 cities: Moscow, Minsk, Ekaterinburg, Kazan, Krasnodar, Novosibirsk, Rostov-on-Don, Samara, St. Petersburg, Togliatti and Vladivostok.

We help clients find new solutions, grow, transform and operate their business as well as strengthen their financial and human capital.

B1.RU | B1.BY

35 YEARS

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