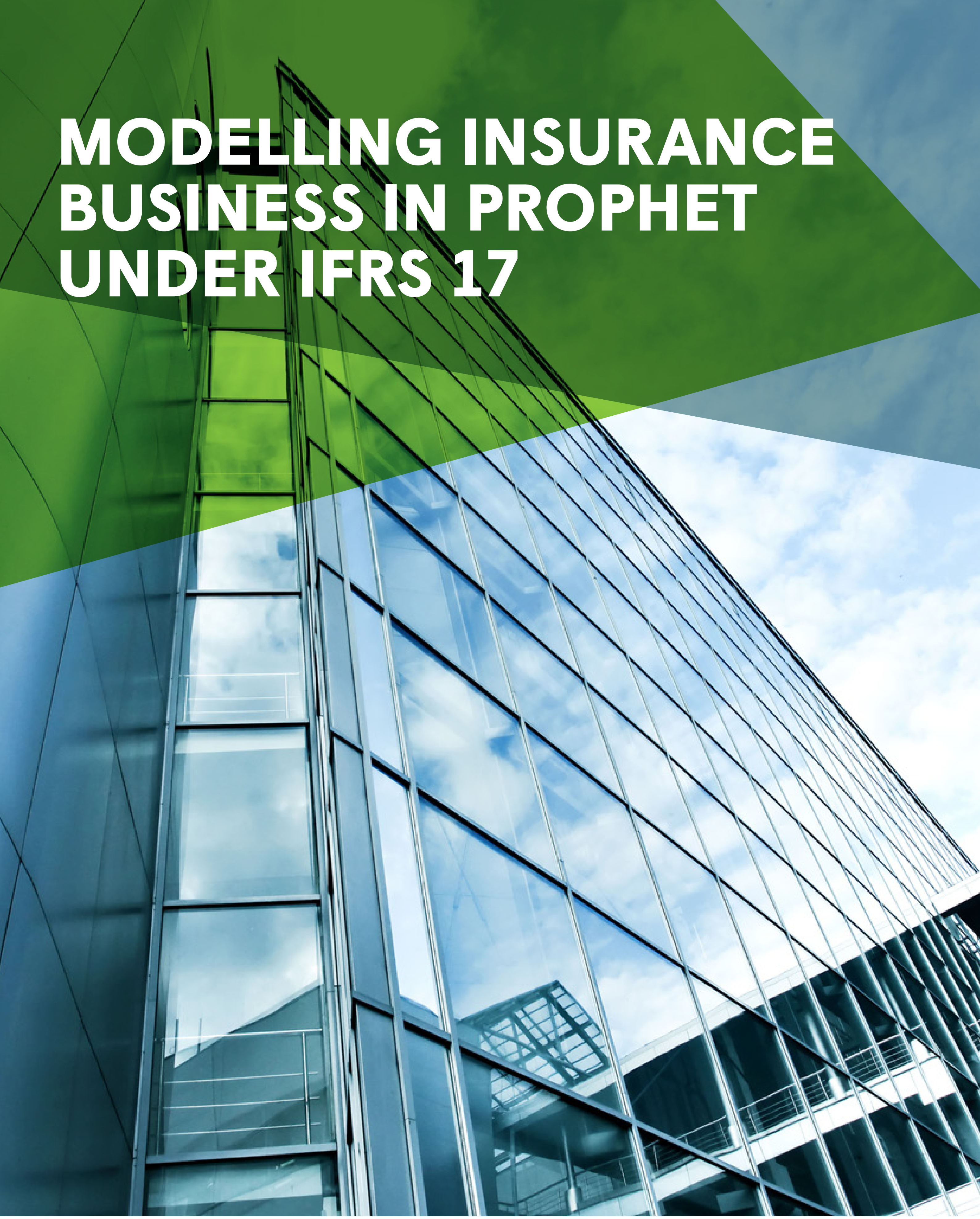


MODELLING INSURANCE BUSINESS IN PROPHET UNDER IFRS 17

Empowering the Financial World

FISGLOBAL.COM

Insurers globally are considering how their actuarial systems must adapt to meet the requirements of the International Financial Reporting Standard for insurance contracts (IFRS 17).

Introduction

The International Accounting Standards Board (IASB) published the final draft of IFRS 17 in May 2017. The new accounting standard represents a significant step forward in reporting for insurance contracts and will require changes to existing systems and processes.

This brochure summarizes some of the calculation challenges that IFRS 17 introduces and the solutions we have developed to help our clients meet the standard's business requirements.

Building block approach

The starting point for the calculations is to determine balance sheet liabilities. For long-term business, the Prophet Life and Health libraries provide support for best estimate liability and cost of capital calculations. These provide the ***fulfilment cash flows*** *under the building block approach.*

Fulfilment cash flows comprise of three components:

- Future cash flows, representing the best estimate of cash flows expected on the contracts
- Time value of money, reflecting the effect of discounting to arrive at present values
- A risk adjustment, allowing for the uncertainty in timing and size of the cash flows under the contracts

The first two of these items make up the present value of future cash flows, a familiar concept in the modeling of long-term insurance business. The cash flows are on a best estimate basis and may need to be modeled stochastically to fully capture any non-linearity: where the best estimate inputs do not produce the best estimate output. The Life and Health libraries supplied with Prophet allow you to discount these cash flows to arrive at the required values.

The risk adjustment can be valued in several ways. One of these is the cost of capital method used by Solvency II and similar risk-based capital reporting regimes. Under this method, you project the capital requirements forward, multiply them by a cost of capital rate, and then discount them. The Prophet Asset Liability Strategy (ALS) and Summary libraries provide support for the cost of capital method in conjunction with the solution's Nested Structures feature. This allows for either a full calculation of future capital or an approximate projection using selected risk drivers.

Once calculated, you can allocate the cost of capital to the required level of granularity. The example IFRS 17 and Solvency Capital model that Prophet provides to clients shows this calculation being performed at a grouped contract level.

Existing modeling methods within Prophet can therefore be used to meet the requirements of modeling the fulfilment cash flows.

Contractual service margin

The only other major part of the balance sheet that requires modeling under IFRS 17 is the contractual service margin (CSM). This aggregate calculation allows you to defer profits for contracts that are profitable at inception. Prophet's IFRS 17 Group Calculations library provides support for these calculations.

You will need to revaluate the CSM in each reporting period using grouped contracts. On initial measurement, group individual contracts into portfolios and then break them down according to expected profitability and other factors such as issue date. Once grouped, you should perform all subsequent calculations at this aggregate level.

The IFRS 17 Group Calculations library reads aggregate results from Prophet's liability models or from external sources. It will read opening balances from a data source such as the Prophet Insurance Data Repository and update them as changes occur during the reporting period. Such changes will include accretion of interest, allowance for movements in the fulfilment cash flows and releasing a portion of the CSM to profit.

Variable fee approach

Prophet libraries also support the variable fee approach, a variation of the building block approach. This relates to contracts where cash flows depend on a clearly identifiable set of underlying items.

Here, by contrast with the general model, you apply a variable fee rather than an interest accretion to the previous CSM. This fee is determined by the change in the entity's share of the underlying items, along with any other changes to future cash flows that are not related to those underlying items.

Premium allocation approach

For certain short-term business, such as general insurance, IFRS 17 permits a simplified approach to measuring the liability for future insurance coverage.

The premium allocation approach can be used for unexpired premium risk on any non-onerous contracts whose coverage period is one year or less. This is largely the same as the unearned premium reserve approach that insurers have typically used until now. The building block approach still applies to incurred claim, reserve risk. But if you have applied the premium allocation approach, you do not need to apply an adjustment for future cash flows that you expect within one year.

Prophet's General Insurance/ Property and Casualty library functionality supports these calculations.

Bringing everything together

IFRS 17 calculations will generally involve several revaluations of each block of insurance business as movements in the liabilities are split between deferred profits and income.

Each period, you will need the value of fulfilment cash flows using different assumptions and contract information. You may also want to revalue the liability by varying selected basis items one at a time, so as to better understand changes across the two periods for disclosure purposes.

Prophet can perform these calculations using multiple runs and make use of the Prophet Enterprise, Assumptions Manager and Control Center applications to manage the overall process. The IFRS 17 Group Calculations library takes these liability valuations and generates the required income statement components to produce the insurance and investment results. Values are produced for each group of insurance contracts, which can then be stored in the Prophet Insurance Data Repository until the next reporting period. This should be sufficient to meet immediate reporting requirements.

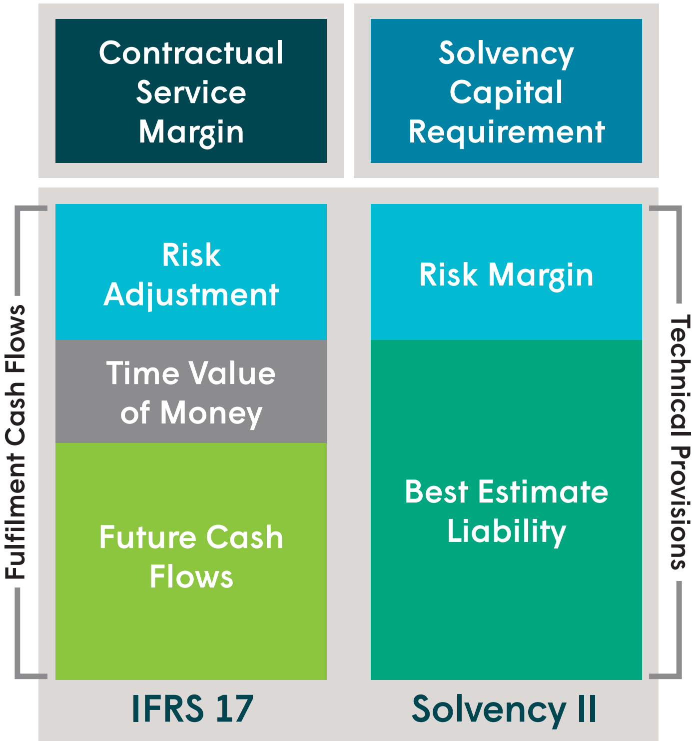
To gain a greater understanding of the business, insurers will wish to project the income statement and balance sheet into the future under several "what-if" scenarios. Prophet's Nested Structures feature allows you to embed one model within another; and our example IFRS 17 and Solvency Capital model supports forecasting by embedding an IFRS valuation model within a business projection model.

Nested Structures also allows you to run multiple scenarios at once, and therefore streamline the reporting process into a single run.

Use of existing models

IFRS 17 and Solvency II style reporting have several modeling components in common.

The diagram below illustrates how some of these calculation mechanics are shared between the respective models.



Under IFRS 17, you can calculate future cash flows and time value of money in the same way as best estimate liability, part of the technical provisions under Solvency II. Both can be revalued on multiple bases to model the unlocking of the CSM and other reporting items.

Additionally, you can use the cost of capital method of calculating the Solvency II risk margin to determine your IFRS 17 risk adjustment.

We believe that the best way to manage these extra calculations is by adding a layer on top of existing models built for Solvency II style reporting. Re-use of existing models can reduce both implementation efforts and subsequent maintenance costs, while decreasing the risk of future divergence between models when used for different purposes.

For regions where best estimate liability and risk based capital models are not commonplace, our example IFRS 17 and Solvency Capital model shows how to perform the calculations.

Governance and connectivity

Calculations are only a part of the modeling challenge under IFRS 17. We expect a significant portion of the overall effort to be in relation to governance and connectivity with other systems.

One implication of the new reporting standard is that actuarial models will be at the core of the financial reporting process for insurance companies. As well as the need for a faster close, the finance teams will expect the same standards of governance, control and connectivity that they apply to all systems that feed their published results. This will increase focus on the controls in place when setting assumptions and using models to generate the required accounting results.

Insurers also need to demonstrate that the creation of actuarial data, as to be consumed by the finance function, is well governed, so that:

- There is certainty that the inputs to the models are correct, and that the outputs being viewed are derived from the correct model and input assumptions.
- There is a secure and permanent data repository, so that data won't be accidentally lost or overwritten and can be accessed for the calculations of future periods. IFRS 17 requires the passing of actuarial data from one accounting period to the next, and it is essential that the data can be stored, readily identified and retrieved in the next period's assessment.
- All data and all actions relating to the production of published results are traceable and reproducible.
- The data produced from the models (and, for consistency reasons, the input data as well) can be readily consumed by other systems.

FIS provides several solutions for improving governance and connectivity, all of which can be installed on premise or in a public or private cloud using our Prophet Managed Cloud Service.

Glean

The switch to a best estimate liability calculation means the need for a larger variety of assumptions than may have been managed under previous regimes.

Glean is FIS' experience analysis and data mining tool for insurers, providing useful insight into the values for new assumptions. Perhaps more importantly, it provides justification for the values used in existing assumptions based on the experience of the business.

Assumptions Manager

Assumptions come under particular scrutiny as the new regulations take hold.

Small changes to key assumptions can cause volatility in the balance sheet and profit and loss account, which needs to be explained and justified. Combined with a larger volume of assumptions to store, the increased emphasis on governance over these changes will put more stress on the business processes surrounding the assumptions. Insurers must be able to trace back results clearly to specific assumptions, explain the impact of assumption changes and minimize tolerance for error when applying assumptions to a model.

Assumptions Manager adds versioning, security and auditability, and allows insurers to manage assumptions independently from the models in which they are used – simplifying the control of the values, but also significantly aiding consistency between models. Additionally, Assumptions Manager helps automate sensitivity testing and explain movements in key metrics, by automating the analysis of change from one period to the next.

Nested Structures

Nested Structures is a new component of our modeling framework that allows the embedding of models within one another.

Updated models may be of varying degrees of complexity and ambitiousness depending upon the nature of the insurance products being modeled, the modeling resources available and the scope of the business and risk management strategy.

Nested Structures enables multiple stand-alone actuarial models to interact and run as a single model. This opens up the ability to perform detailed projections of the business invoking IFRS 17, solvency and other calculations as required.

Prophet Enterprise

IFRS 17 introduces the need for additional Prophet model runs to obtain the required results. But the new standard will also bring greater scrutiny to the modeling process.

Prophet Enterprise is Prophet's production platform, providing the governance framework for modeling runs that are core to the creation of published results. By "locking down" models, sets of input assumptions and results, Prophet allows you to subsequently analyze every facet of the model without fear of overwriting – and to fully reproduce results at a later date.

The volume of calculation runs under the new regime can vary depending on the size of the business and the level of grouping chosen. But with the potential for a variety of calibration exercises and one-off exercises such as transition, on top of the production runs themselves, the volume and complexity of runs may be on a significant scale.

And the more ambitious and interconnected your calculations become, the greater the need for the discipline and the power of Prophet Enterprise.

Prophet Results Database and Insurance Data Repository

Convergence of the actuarial and finance functions will result in unprecedented levels of data exchange

The ability to store large quantities of actuarial results for use across successive valuation periods is one of the greatest demands of the new calculation regime.

The Prophet Results Database and Insurance Data Repository facilitate the transfer of data by putting in place secure data "maps" that transform the actuarial data into forms that can be consumed by external systems. Critically, they also provide a governance framework to assure users that the correct data has been safely stored and is readily identifiable, and that the amendments between Prophet data and published data are traceable.

Prophet Control Center

Process governance will also come under the spotlight.

The finance function will expect financial results from the actuarial department to be created in an environment and culture that adheres to the same standards as any other system feeding into the general ledger.

Prophet Control Center is FIS' process automation system. It helps businesses both document and automate the processes that support the end-to-end reporting process, reducing the load on manual resources and the risk of operational errors forcing re-runs or missed reporting deadlines. Prophet Control Center keeps a full history of each business process, with electronic approvals, commentary and full logs of interactions with supporting systems.

Summary

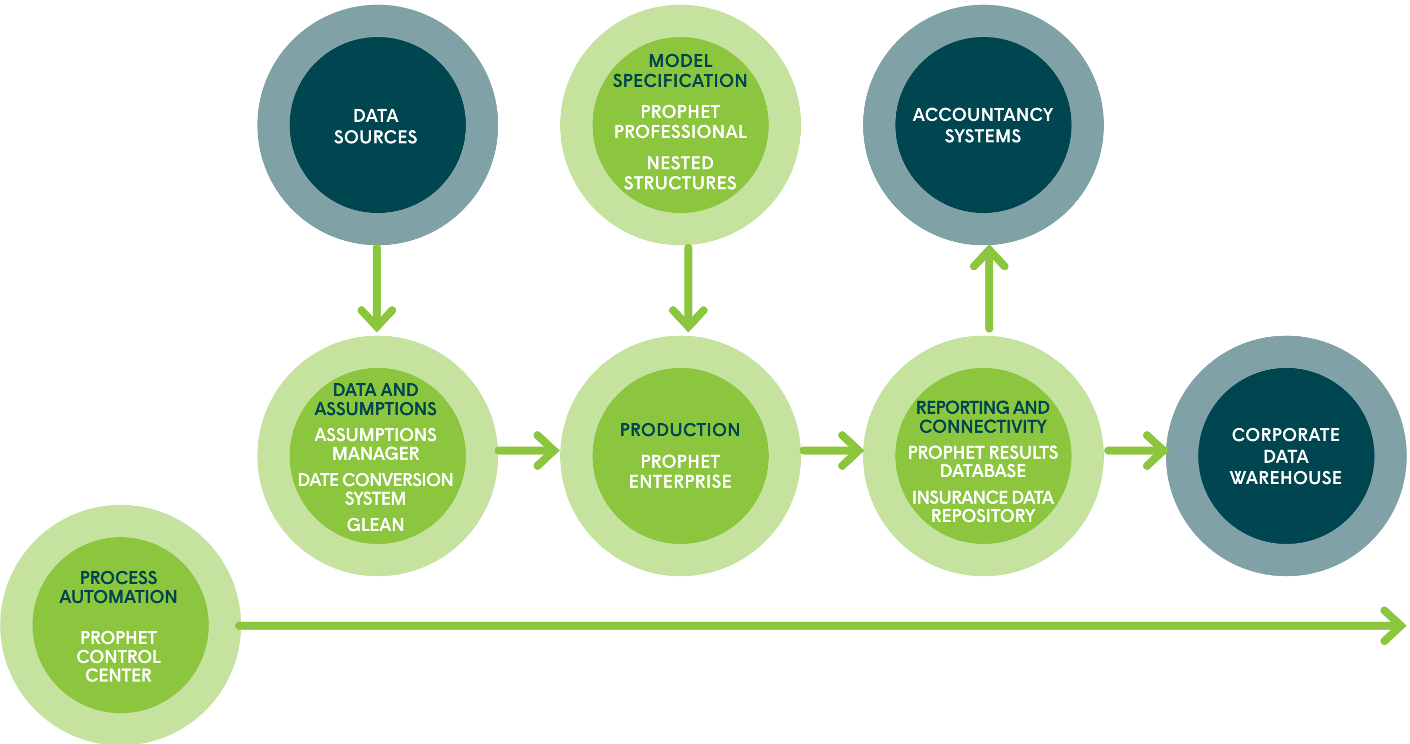
The Prophet IFRS 17 suite of solutions will help clients meet the calculation and governance requirements of the new accounting standard. It gives insurers the advantage of being able to both report and forecast results, allowing them to manage their business within a single platform.

FIS is committed to helping clients satisfy the demands of IFRS 17, and will continue to update products and communicate findings as insurers begin their implementations.

In addition to the solutions covered in this brochure, we provide comprehensive services to assist with implementation, covering actuarial or technical support, project management training and other managed services.

Turn the page for a full description of the packages we have created to help insurers streamline the reporting process.

IFRS 17 Packages



The Core Package

Aimed at meeting regulatory commitments at a lower cost.

The Governance Package

Focused on automation and control of the actuarial process.

The Calculations Package

Focused on the calculations and more sophisticated models.

The Enhanced Package

Aimed at making the transition from compliance to adding business value. A complete set of risk tools needed to manage insurance business.

Product	Core	Calculations	Governance	Enhanced
Glean	✓	✓		✓
Assumptions Manager	✓		✓	✓
Nested Structures		✓		✓
Prophet Enterprise		✓	✓	✓
Prophet Results Database	✓	✓	✓	✓
Insurance Data Repository	✓	✓	✓	✓
Prophet Control Center			✓	✓

Contact us

Get in touch with your local FIS representative, or email **getinfo@fisglobal.com** to learn more about how our solutions can accelerate the implementation of IFRS 17 and help you manage your business.

About FIS' Prophet solution

Prophet is a leading enterprise-wide actuarial modeling system that helps insurance and financial services companies meet reporting responsibilities, improve risk management and develop more profitable products faster. Prophet uses customizable actuarial libraries for all major product types, including regional variations. It provides the transparency, performance and control required by today's actuaries and risk managers through integrated financial modeling and data management capabilities. Prophet is used by more than 10,000 users at over 860 customer sites in more than 65 countries.

About FIS

FIS is a global leader in financial services technology, with a focus on retail and institutional banking, payments, asset and wealth management, risk and compliance, consulting and outsourcing solutions. Through the depth and breadth of our solutions portfolio, global capabilities and domain expertise, FIS serves more than 20,000 clients in over 130 countries. Headquartered in Jacksonville, Florida, FIS employs more than 55,000 people worldwide and holds leadership positions in payment processing, financial software and banking solutions. Providing software, services and outsourcing of the technology that empowers the financial world, FIS is a Fortune 500 company and is a member of Standard & Poor's 500® Index. For more information about FIS, visit **www.fisglobal.com**

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