Session 114: Integrated FP&A Projections and "What-if" Analysis

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FP&A Modernization – A journey

October 25th, 2019



Disruptions across insurance require a proactive finance that is a true "business" partner

Failure to modernize finance will likely result in finance and the overall enterprise falling behind traditional competitors and new entrants, missing out on new opportunities and profitability enhancements, higher operating costs, and other groups becoming the strategic advisor to the business.

"The new hypothesis involves the CFO and finance leaders:

- playing a much more dynamic and facilitative role;
- moving from static and rigid processes and controls to adaptive, agile and resilient models which:
- require orchestration rather than execution and control ...

In the future, finance will have sharper analytical capabilities in the use of Big Data query analysis, social media monitoring, and real time dashboard creation



Source: PwC finance benchmark data

Finance creating value as a business partner

Finance and actuarial organizations can look forward and use disruption to find opportunities to use predictive models and scenario analysis to gain greater confidence around future decisions.

Finance must evolve from.....

Over 90% of organizations are working to enforce or execute their corporate level data strategy across finance

- Minimal involvement
- Problem finding
- Post-hoc critique
- Confrontational
- Technical compliance with external rules



- Organizational hierarchy driven
- Technology constrained
- Manually intensive & cumbersome
- Policy view
- Redundant



Decision support....

Requires role transformation



Business control Requires new processes



Reporting Requires new process & thinking



Data & transaction processing Requires better and faster integration

.....To

- Risk and scenario based analysis
- Strategic/market issues
- Problem solving
- Embedded
- Accountability
- · Cost/benefit sensitive
- Relevant to business.
- Information rich
- Integrated

organizations have 40% more FTFs in business insight roles than median

- Automated & streamlined
- Customer view
- Predictive



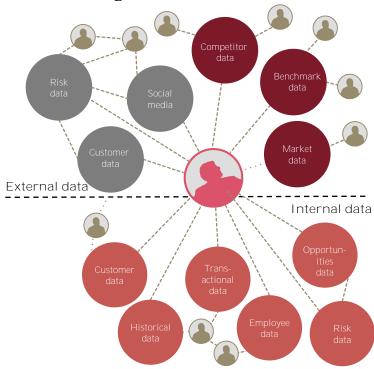




Integrating data analysis across finance & actuarial

Along with a unique opportunity to drive innovation with the business, finance and actuarial must also maintain their steward roles across a set of new expectations and value propositions.

Taking new sources of data...



Customer first big data analytics

...finding new ways of looking at the business

Growth/Investment decisions: Where to invest

- *Identify new* markets, channels, and partnerships
- Rationalize investment for innovation/R&D
- Validate *customer behaviors* and economic outcomes
- Challenge and refine business cases

Performance and profitability management

- Analyze *profitability* levers
- Assess effectivity of business strategies
- Analyze *customer acquisition* and distribution costs
- Deliver customer and segment *lifetime value analysis*
- Drive planning processes with *integrated analytics*

Managing risk

- Consistent performance measures
- Integrated stress testing capabilities
- *Collaboration* and stewardship with data governance and model risk management

...and answering questions like

- When is stock market volatility more likely to drive demand for annuities?
- When does a need for college savings compete with annuities?
- When is the loss of a job more likely to cause a policyholder to lapse?
- How do prolonged low interest rates impact withdrawals by retired policyholders?

42%

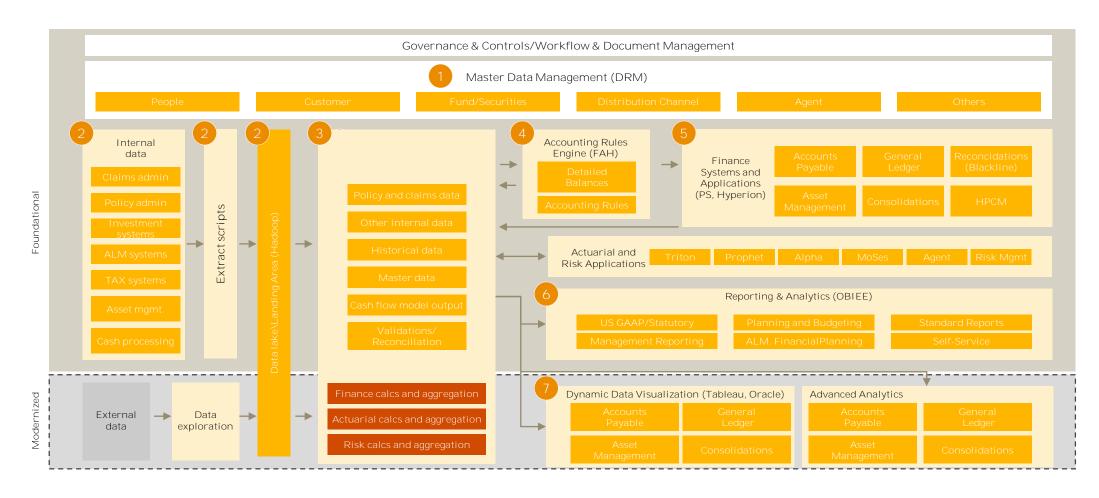
spend significant time gathering and verifying data vs. reporting, analyzing and forecasting, etc.

Finance needs to work with the business to best understand where in the value chain they can have the greatest impact

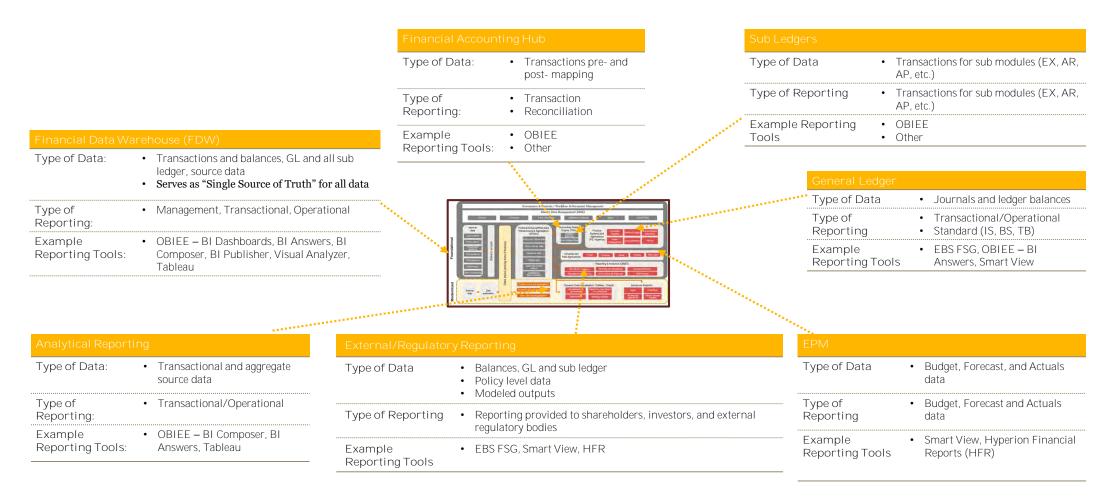
To properly define the vision, Finance must clearly articulate its role in the value chain. Furthermore, Finance must collaborate with the business to refine Finance's role and determine how Business and Finance will work together

Where do we have the potential As an incumbent how do How do we analyze and determine if Where do we position ourselves Which external we are selling right product to in operational efficiency across we measure our growth to convert claims into future factors, events and while capitalizing on right customers? the industry? sales opportunities, and indicators impact new opportunities? how much more revenue future results and How do we determine How effective and efficient is our will it bring? how? How do we identify the right capital allocation Distribution? to promote sales in markets with most potential to a particular product/channel? grow our business? Capital, Customer & Strategy & Claims Risk & Growth Marketing How do we identify customer segments How do we design products and services How will the more and more restrictive What is the cost with the most revenue/profit in order at the right price for the right regulatory rules impact our incurred by fraud annually, and to better service the customers? customers? business and bottom line, and How do we capitalize on innovations such as what actions should be taken how can we prevent it? How effective are we at data driven underwriting to reduce to respond? targeting customers to increase market share and measure improvements in underwriting costs and How do we monitor customer experience? increase accuracy? changes in economic conditions and the inforce portfolio to ensure alignment with risk appetite?

The traditional architecture model is now being supplemented with 'modernization' components



Modernized components supplement the reporting capability to address business needs



More powerful simulation modeling allows finance to gain deeper insights on what is driving the business

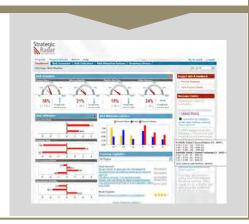
Traditional approach

Deterministic & Predictive modeling

Traditional approaches rely on statistical and AI algorithms to prescribe and predict actions based on historical data. Predictive modeling can be useful for forecasting aggregate outcomes, but it is not able to understand true drivers of the outcomes, such as how individuals make their decisions.

"Dashboard view"

- Starts with data
- Data warehouses and marts
- Requires translation
- "Dashboard" (historical) view
- "Siloed" thinking
- Driven by large multi-year projects
- Static reports and graphs
- · Technology-led



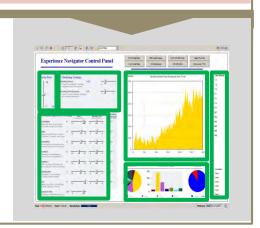
Simulation approach

Behavioral and simulation modeling

Simulate real-world relationships between consumers, providers, distributors, employers, and other system players. This approach is able to show how and to what extent internal (e.g., consumer attitudes) and external (e.g., rising inflation) dynamics can alter outcomes.

"Cockpit view"

- Starts with decisions
- Data-driven mash-ups
- Information in context
- "Cockpit" (forward) view
- "Systems" thinking
- Driven by iterative and agile projects
- Dynamic visualizations
- Business-led

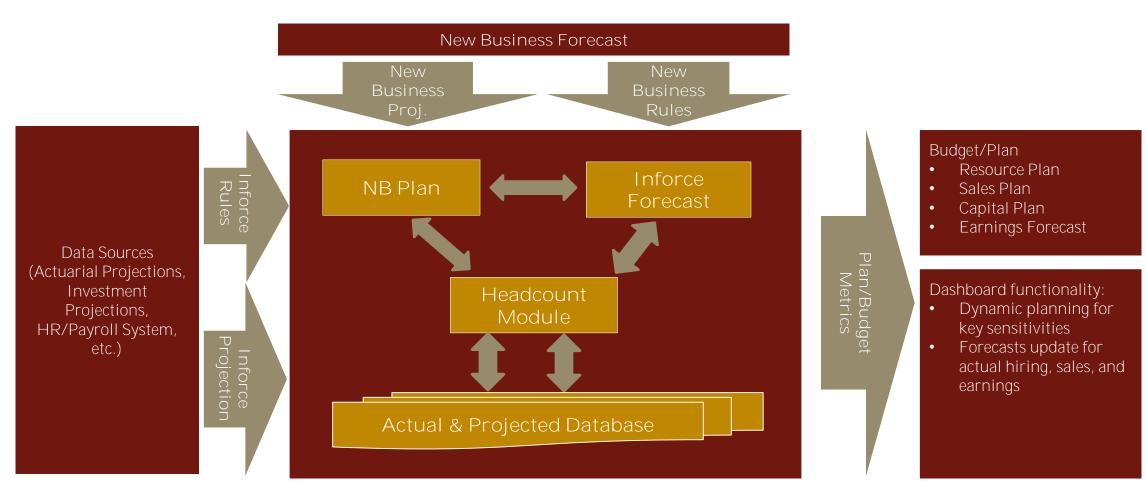


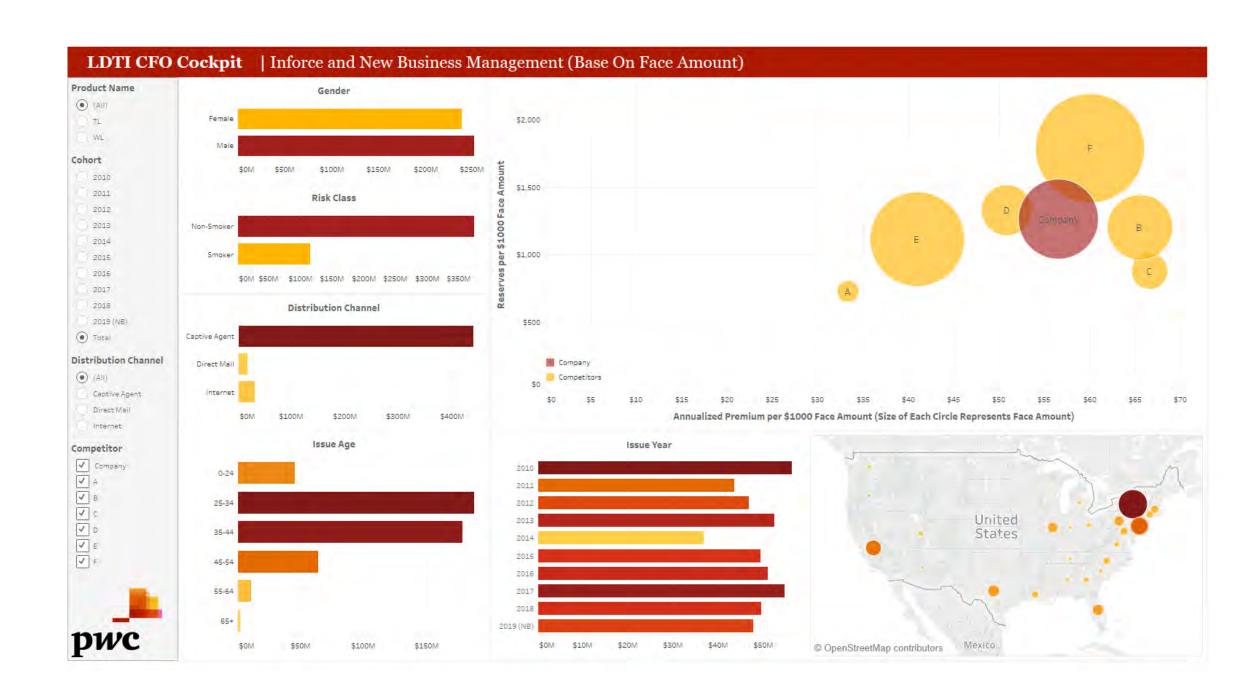
Simulation modeling strives to re-create real-world environments, employing scenario analysis to explore the full range of potential outcomes for a given strategy

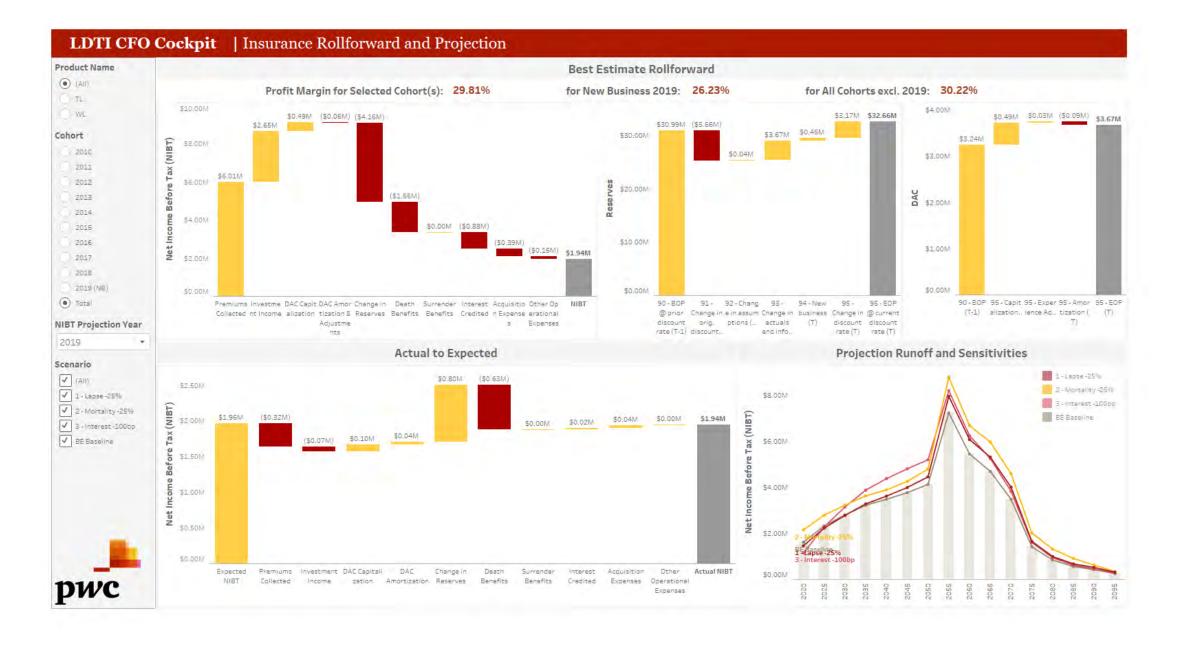
Key steps on the finance modernization journey

- Clearly articulating and understanding the key components of the business strategy and building the finance and actuarial strategies to support them.
- Identify key drivers of performance in the form of metrics and reporting.
- Maintain traditional skepticism, but collaborating more effectively with the rest of the business and seeing things through their eyes.
- Dispense with low to no value analysis and reporting.
- Improve the data environment by moving to strategic platforms and systems, eliminating complexity, and virtualizing data (especially where the benefit of converting history to new platforms is low to nonexistent). Creating "data lakes" and leveraging new technologies such as Hadoop and cloud technologies can allow for the quick combination of very large and disparate data sets while keeping costs low.
- Leverage advanced analytics, including predictive and prescriptive analytics and data visualization tools and techniques, to uncover hitherto unseen patterns and trends, as well as to facilitate scenario modeling and analysis
- Form close relationships with business, strategy, actuarial, data scientists, risk management, and others to deepen
 understanding of insights from expanded digitization.
- Creating a detailed and practical roadmap that promotes achievement of the company's vision.
- Continually assess, adapt, and improve people, processes and systems in order to stay relevant.

Sample - simplified -- Architecture for Forecasting







Thank you

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Integrated FP&A Projections and What-If Analysis

Youyou Tao, fsa, cera, mba Lead – Client Engagement, Americas Insurance Solution Moody's Analytics

1

Business Context

Forward Looking Insight Needs

Business Forecasting & Analysis



Common Challenges Organizations Face

Forward Looking Insight Needs



Why Challenging?

Stakeholders

Processes

Culture

Corporate Solutions



Multiple Stakeholders

Difficult to address different perspectives/needs across multiple stakeholders.



Data & Model Integration

Multiple model and data sources are used for corporate consolidations



Model Ownership

Difficult to re-run and consolidate multiple models where ownership decentralised.



Spreadsheets

Too much reliance on complex spreadsheets to meet an enterprise need.

Different priorities, requirements on timing, granularity of information

"Improvise" the corporate model: losing credibility of insights

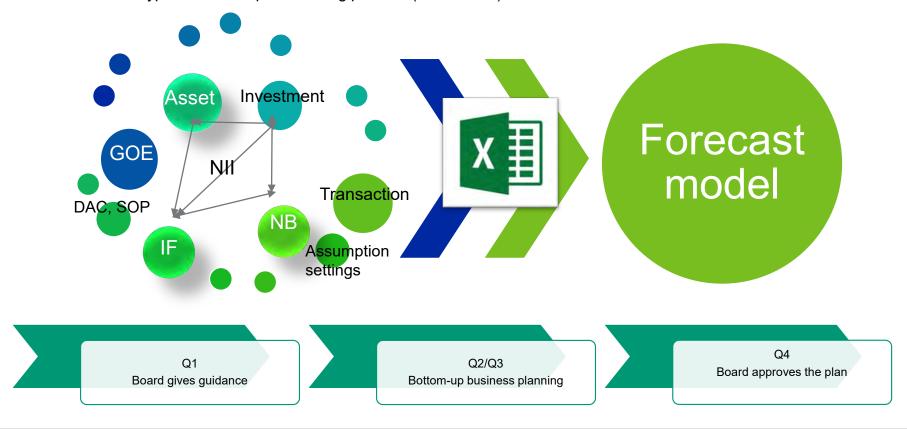
Not easy for corporate team to use or access, significant reliance on the heavy model re-runs Lack of governance and efficiencies

An Example of Excel Challenge

Fragmented Forecasting Processes

Audit trail goes cold fast, lack of governance and efficiencies, hard for investigation, expose to key man risk and model risk.

Illustration: a typical bottom-up forecasting process (1-3 months)



Advanced Modeling Framework

Enhanced Analytics

A Business Orientated Approach

Modelling Capability

Optimal balance between bottom-up and top-down modelling approaches.



Timely

Within hours rather than weeks

BUSINESS ORIENTATION

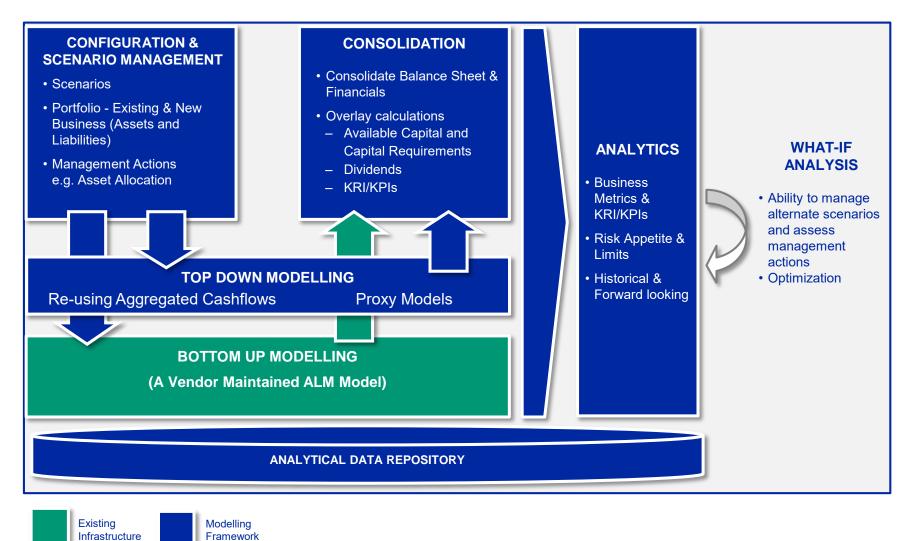
Focus on the senior management's business needs

Requires complementary modelling capabilities

TRADITIONAL MODELLING PERSPECTIVE

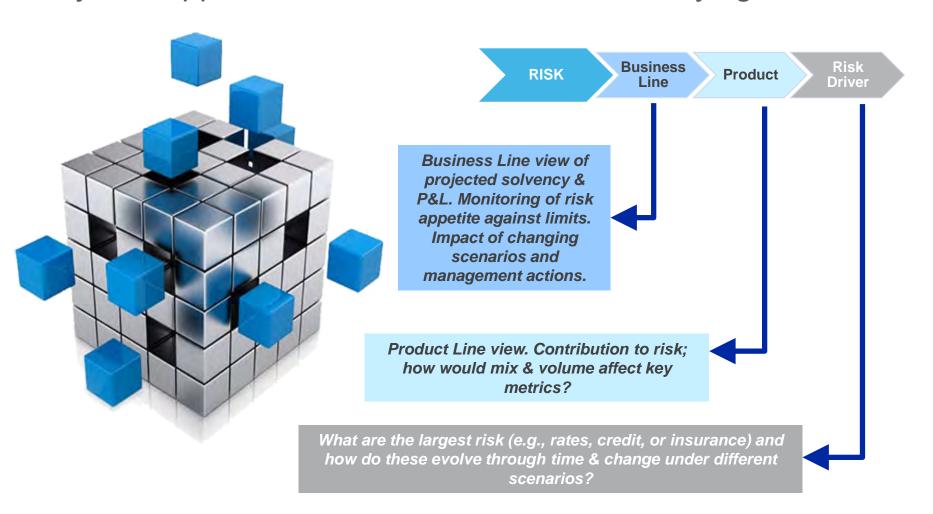
Focus on granularity & accuracy

Target Modelling Framework



Actionable Risk And Business Analytics

Layered approach with drill down to the underlying drivers

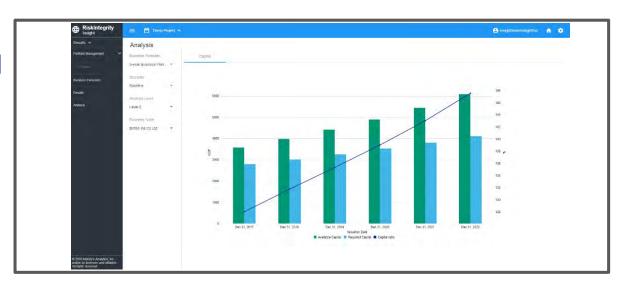


Empowering The Business

Business Orientated Solution

Configurable off-the-shelf modelling solution designed to project the:

- Income statement
- Balance sheet
- Solvency



Combination of Top-Down and Bottom Up Approach

The combination of Top down and bottom up modelling framework designed to **leverage output from existing modelling** infrastructure.

Strategic "What-If" Solutions

- Market stresses
- Insurance stresses
- NB planning
- · Asset balance

Layered Analytics

Designed to enable **multi-dimensional drill down** analysis to the relevant underlying drivers.

Flexible charting and **comparison analysis** out-of-the box.

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Integrated FP&A Projections and "What-if" Analysis

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Actuarial Modernization: A first and foremost milestone on the FP&A Journey



What will be covered





Catalysts



Modernization efforts are critical to comply with new regulatory requirements and support future business needs in a cost effective way

System shortfalls

- Modeling processes were not scalable and had key person risk
- Systems could not deliver deeper and more timely insight to business partners
- Regulatory requirements compound complexity of modeling, audit and model risk management

Capabilities gaps

- 6 different actuarial systems, some homegrown
- Inefficient to run insightful forecasts (GAAP & SAP; Inforce and New Business)
- Added complexity of new reporting regimes – PBR, GAAP LDTI, EV





Vision



A single unified model that streamlines modeling, ensures consistent data usage and delivers a cost efficient operating model which creates capacity to provide better insights

Scope

- 1. Single modeling platform
- Integrated across all functional areas
- Modernized actuarial data feeds aligned with data strategy
- 4. Enhanced operating structure, governance and control environment

Capabilities delivered

- ✓ PBR compliance
- ✓ Streamlined actuarial modeling and controls across all products
- Capacity to perform insightful analysis
- ✓ Enhanced model risk management framework
- ✓ Cost effective use of actuarial resources – Right Resources doing the Right Tasks.



Guiding principles



Guiding principles provide fundamental vision and direction for project team

- 1. One Corporate Actuarial model per product line
 - A. across all actuarial functions
 - B. across inforce and new business
 - c. with one streamlined data extract
- Models built in accordance with Model Development Life Cycle and Model Governance Framework
- 3. Actuarial **Data Processes modernized** and aligned with the Finance Data Strategy
- 4. Models rebuilt, not converted where appropriate and cost effective
- 5. **Effective change management** process ensures that model owners receive quality models in line with business requirements

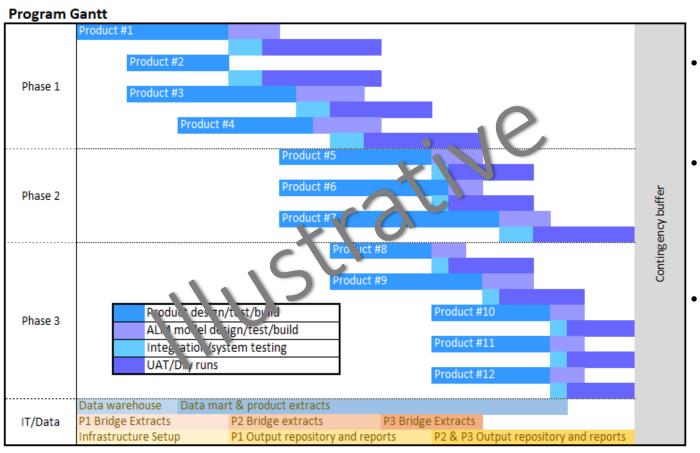




The journey ahead



Three phase project...currently midway through Phase 1, nearing phase 2 kickoff



- Each product workstream encompasses all actuarial functions
- Prioritization based on regulatory requirements, model complexity, and legacy system retirement plan
- Dual path for data modernization and model build for each product

Early successes



Early successes helped project and modernization efforts gain momentum

- 1. Early **executive buy in** and full **funding approval**, project seen as "Enterprise Blue Chip"
- Early actuarial stakeholder buy in into system selection and dedicated project team resources
- 3. Built and tested **proof of concept models.** This proves quality of requirement gathering and build processes
- 4. Already retired first legacy actuarial system
- 5. New **actuarial system is already in use** for PBR impacts to pricing and upcoming new product roll-outs
- 6. Key **methodology decisions agreed upon** across stakeholders
- 7. Financial impacts quantified and coordinated with accounting team





Lessons learned



Experience from past projects and ability to react quickly to new challenges is critical to our success

Lessons from past projects

- Fully dedicated project resources are a must
- Clear timeline with clear deliverables and agreement on definition of done
- Establish roles at the outset and ensure clear ownership for decisions
- 4. Gain commitments from teams outside core project.

Lessons from this project

- Lots of show and tells with owners to get early feedback
- 2. Deliver smaller components sooner to reduce complexity and provide clarity as well as value
- 3. Effective collaboration is critical to manage priorities and resolve dependencies across teams
- Lean out defect identification and remediation and sequence the testing across functions

