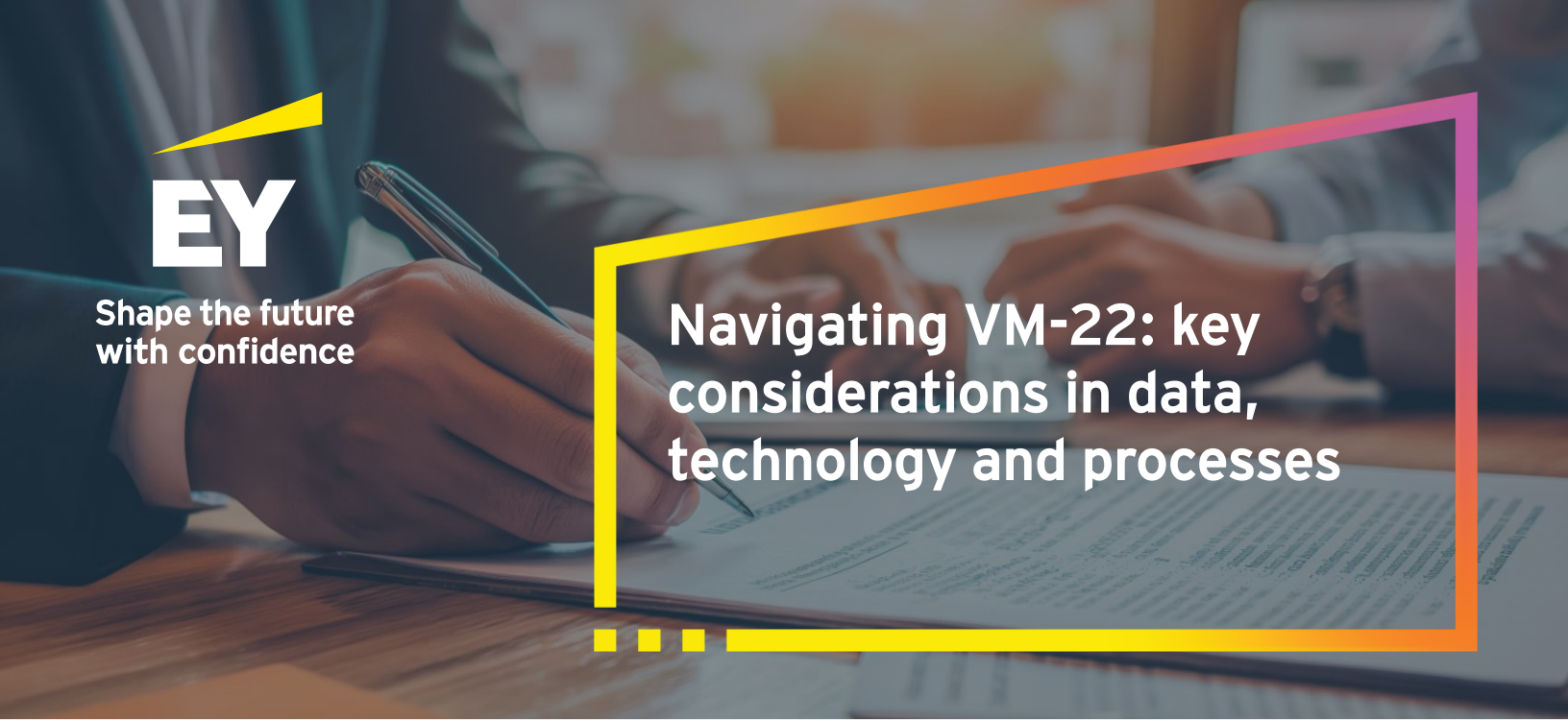


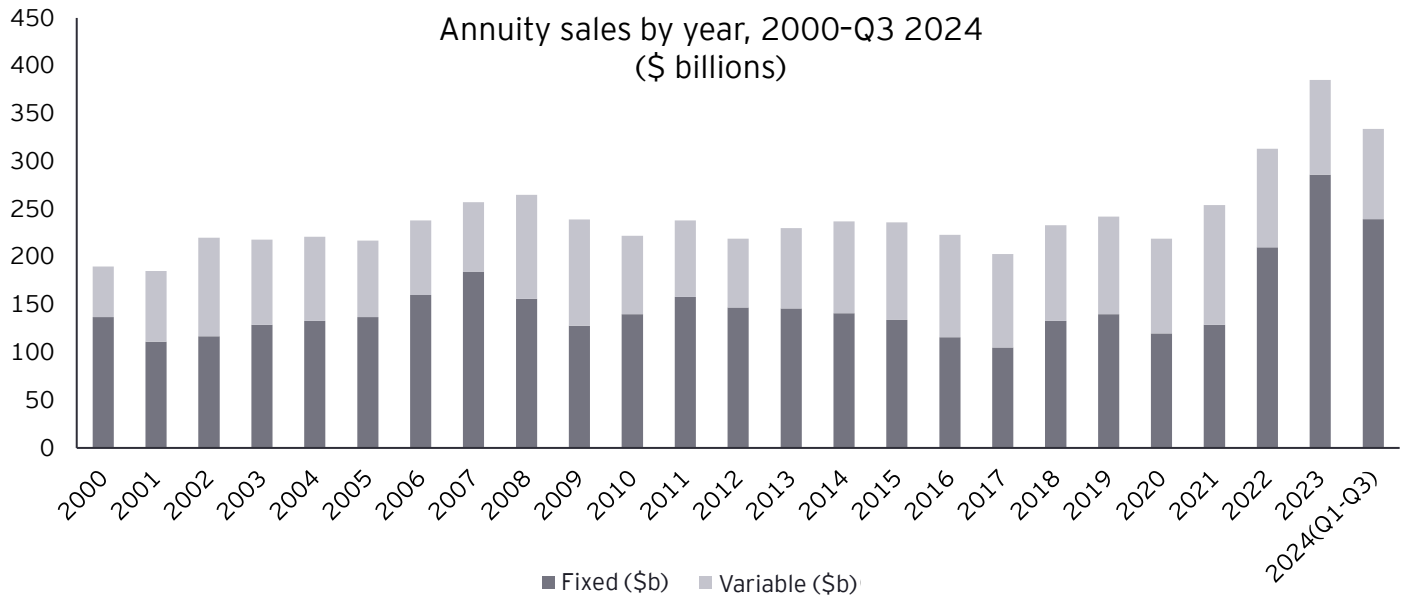
Shape the future with confidence

Navigating VM-22: key considerations in data, technology and processes

Introduction

The US individual annuity market continued to experience significant expansion in 2024, with sales soaring to $303 billion during the first three quarters (Figure 1). During Q3, sales grew less than 5% from the previous quarter and were up 30% year over year. Fixed annuity sales surpassed $240 billion during the first three quarters, accounting for over 75% of total annuity sales. This increase is largely credited to high interest rates, strong equity performance (for index products) and principal protection. Variable annuity (VA) sales lagged in 2023, with purchases of traditional VAs with guaranteed living benefits falling more than 20% and investment-focused VAs more than 23%, with a shift toward risk-averse annuity products. A rebound was seen during the first half of 2024, due to unexpected strong equity performance, but overall sales remained below historical trends.

Figure 1: Annuity sales by year



This article is being published before VM-22 is officially adopted by the NAIC and while there are ongoing discussions around the requirements which may lead to changes compared to what is referenced in this article. For the most current information refer to the NAIC's page *https://content.naic.org/committees/a/valuation-manual-22-sg. This article was written as of April 10th, 2025. Future updates on the proposed VM-22 requirements are not included.*

Looking ahead, the US annuity market is positioned for sustained growth through 2026, supported by a powerful combination of demographic and economic factors. Based on a LIMRA study, by the end of 2026, the US is projected to have nearly 5 million more people aged 65 and older than there are currently, significantly increasing demand for reliable retirement income solutions. A wave of fixed deferred and indexed annuity contracts will reach the end of their contingent surrender charge period, prompting substantial reinvestment activity within these product lines. With interest rates projected to remain favorable for attractive crediting opportunities, these annuities likely remain appealing to those seeking stable returns.

In conjunction with these favorable market conditions for fixed deferred and indexed annuity products, regulatory developments are introducing financial changes for insurers. The National Association of Insurance Commissioners (NAIC) Valuation Manual (VM)-22 introduces significant changes to the calculation of statutory reserve requirements for non-variable annuity contracts. Companies must recognize the impact VM-22 will have on data, technology infrastructure and operating processes. This proposed regulatory change is more than a compliance checkbox — it's a transformative event that demands careful consideration and proactive planning from business and technology teams.

This article introduces the proposed scope and framework of VM-22 as of the date it was written (April 10, 2025), outlines the VM-22 adoption timeline and discusses the high-level implications for data, technology and processes. It also highlights key considerations in these areas and recommends actionable approaches to prepare for VM-22 operational readiness.

VM-22 scope and framework

VM-22 follows VM-20 and VM-21 as the most recent development in the principle-based reserving (PBR) framework, applicable to non-variable annuity contracts. EY and the American Academy of Actuaries aggregated, analyzed and presented the industry field test results in early 2025, gaining valuable insights into the regulatory change and its impact. Formal adoption is expected in 2025, and VM-22 is expected to become effective on January 1, 2026, for all non-variable annuity contracts issued on that date or later, with a three-year optional transition period through 2029.

Product scope and reserving categories

VM-22's scope includes annuity products that are not covered by VM-20 or VM-21. Under VM-22, annuity products are categorized into three proposed reserving categories: payout annuities, longevity reinsurance agreements and accumulation annuities (Figure 2). On April 9, 2025, the VM-22 working group voted to allow the aggregation between payout and accumulation products pending certain criteria a company would be required to meet. Additionally, companies should perform exemption testing (e.g., small company annuity PBR exemption) to determine if they are subject to VM-22 requirements.

Figure 2: VM-22 product scope

Non-variable annuity products in scope of VM-22*

1 Payout annuities	2 Longevity reinsurance agreement	3 Accumulation annuities	
		Deferred annuities w/ GLBs	Deferred annuities w/o GLBs
▪ Single Premium Immediate Annuities (SPIAs) ▪ Pension Risk Transfer (PRT) ▪ Deferred Income Annuities (DIAs) ▪ Structured Settlement Contracts (SSCs)	▪ Assuming company assumes longevity risk of annuity payment under retirement plan(s) ▪ Ceding company retains assets and pays ongoing premiums to assuming company	▪ Fixed Indexed Annuities (FIAs) with Guaranteed Living Benefits ▪ Fixed Deferred Annuities (FDAs) with GLBs	▪ FIAs without GLBs ▪ FDAs without GLBs ▪ Multi-year Guarantee Annuities (MYGA) ▪ Market Value Adjustment Annuities ▪ Two-tiered Annuities

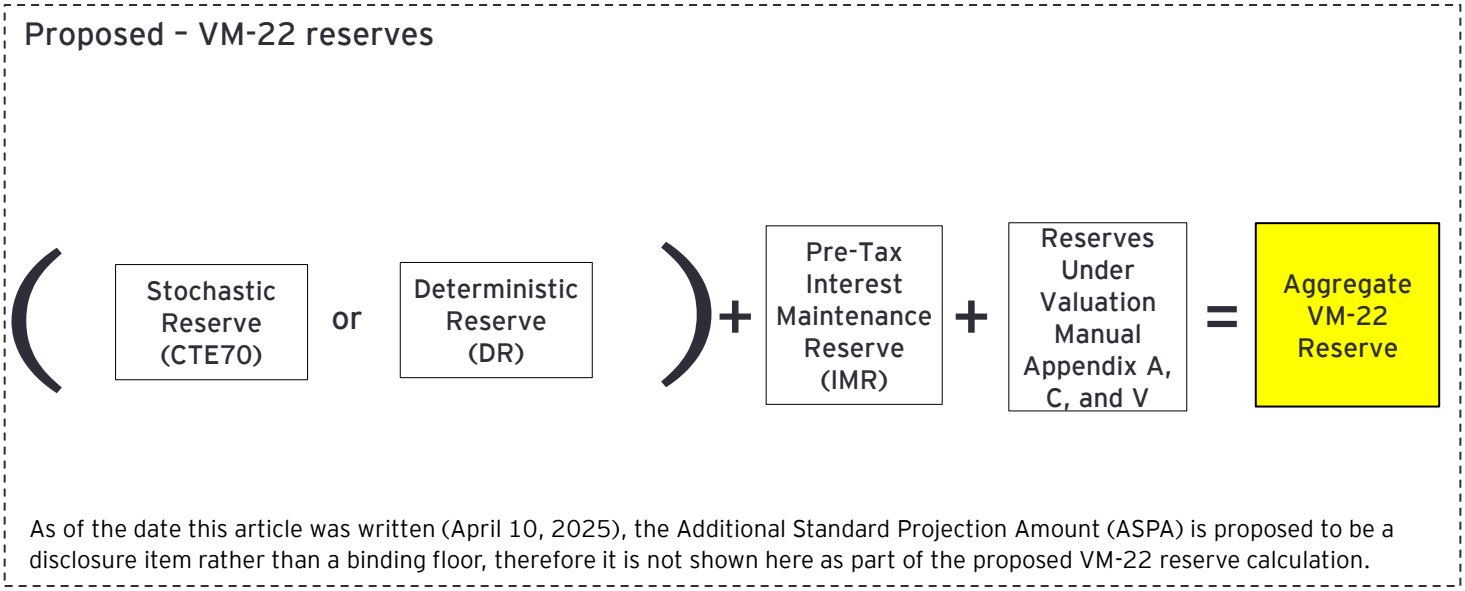
*Not an exhaustive list.

Summary of the proposed VM-22 methodology change

VM-22 represents a proposed principle-based valuation framework compared with the traditional formulaic approach (commissioners' annuity reserve valuation method (CARVM)). The methodology requires stochastic projections of both assets and liabilities across a wide range of possible scenarios generated by the new NAIC Generator of Economic Scenarios (GOES), using company-specific assumptions with prudent margins. Stochastic Reserves are measured using cumulative tail expectations above 70% (CTE70). Additionally, VM-22 introduces the additional standard projection amount, a proposed disclosure item for the stochastic reserve to account for company assumptions that are outliers. It also offers the deterministic certification option of using a single deterministic scenario for non-variable annuity products that are not sensitive to economic conditions.

The formula below (Figure 3) outlines the key proposed reserve components for an aggregated view (not for a specific product or reserving category).

Figure 3: VM-22 aggregate reserve calculation illustration



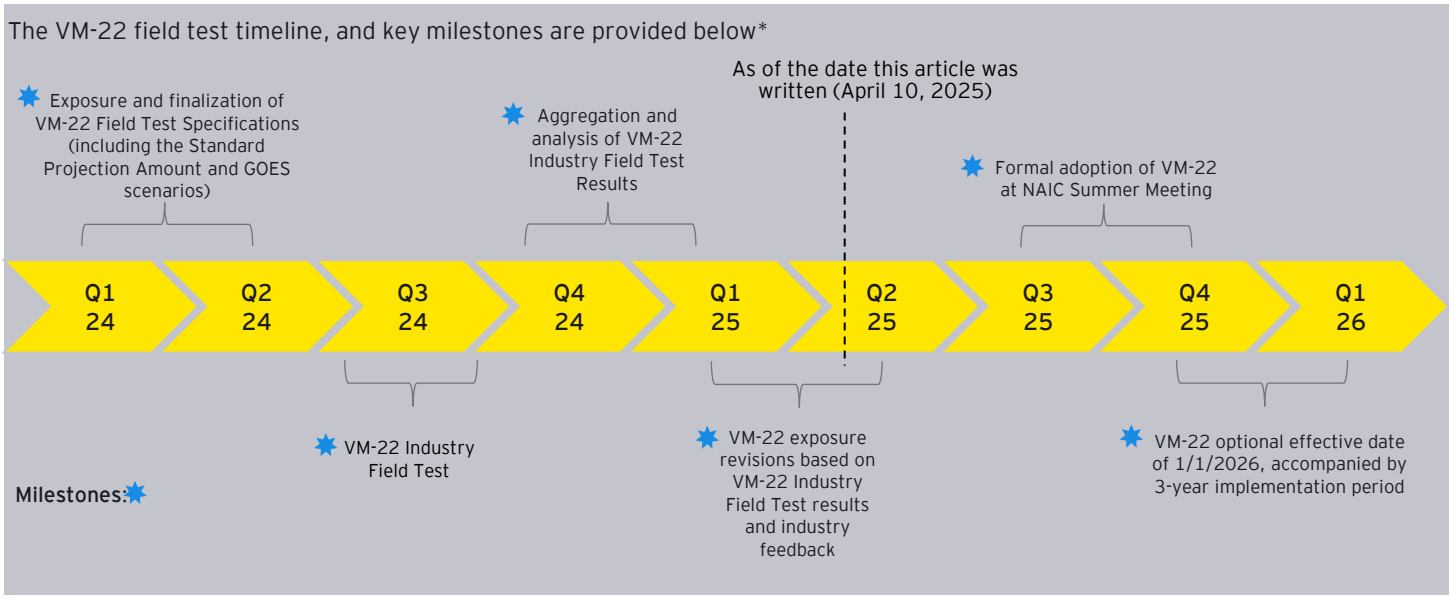
The aggregate VM-22 reserve, which is shown in Figure 3 above, is calculated on both a pre- and post-reinsurance basis.

Target VM-22 adoption timeline

To prepare for the new framework, an industry field test was undertaken for VM-22 to quantify the impact of the methodology, review results from industry participants and assess open design decisions such as aggregation, reinvestment guardrail mix, stochastic exclusion ratio test (SERT) and ASPA.

The VM-22 adoption timeline, and key milestones are provided below in Figure 4. It is important to stay connected to remain current on the latest updates. As of early April 2025, the American Academy of Actuaries and Ernst & Young LLP (EY US) have independently aggregated, clarified and aligned the VM-22 field test results. EY US also presented a preliminary summary of field test results to the Life Actuarial Task Force (LATF) and the VM-22 subgroup.

Figure 4: VM-22 field test timeline and key milestones



Implications of VM-22 changes to data and technology

PBR will significantly impact reserving and capital requirements for non-variable annuity products. While valuation actuaries focus on interpreting new methodologies, modeling actuaries are responsible for implementing those changes through model development and execution. Forward-thinking companies should proactively engage with their business and technology teams to assess the potential impacts of VM-22 on data management, technology infrastructure and financial processes. It's imperative to ask, "Are we fully equipped to navigate an end-to-end VM-22 reporting cycle? If not, what proactive measures can we take to better prepare for the upcoming changes?" Critical questions for companies to consider include:

- With an increasing volume of data related to assets, scenarios and model outputs, how can we effectively manage the heightened complexity in our extract, transform, load (ETL) processes?
- Do we have the computational resources to handle the 1,000+ stochastic simulations now required by VM-22 for valuation, plus all the attribution/sensitivity runs needed to understand movements, compared with the fewer CARVM paths previously used?
- What reporting strategies can we develop to explain the stochastic simulations produced by the stochastic reserve CTE valuation and ASPA runs, along with providing detailed attribution analysis of change?
- Given increasing demands on cloud computing and storage, how should we plan our operating model with technology staff so that the proper bandwidth is available and associated costs are managed?
- How will the increased valuation complexity, longer runtimes and higher costs impact our ability to forecast the business, including pricing and capital planning?
- Are we prepared along the same dimensions for a potential shift to a CTE measure — similar to C3 Phase II — for capital requirements?

VM-22 requirements are expected to have significant impact on data and technology processes. Companies will need to manage and report on large data sets for valuation, projections and risk management, making it crucial to address these changes early. Without proactive measures, these impacts can compound over time, resulting in operational inefficiencies and increased risk of reporting errors. Collaborative planning across all affected functions is essential to support a successful transition.

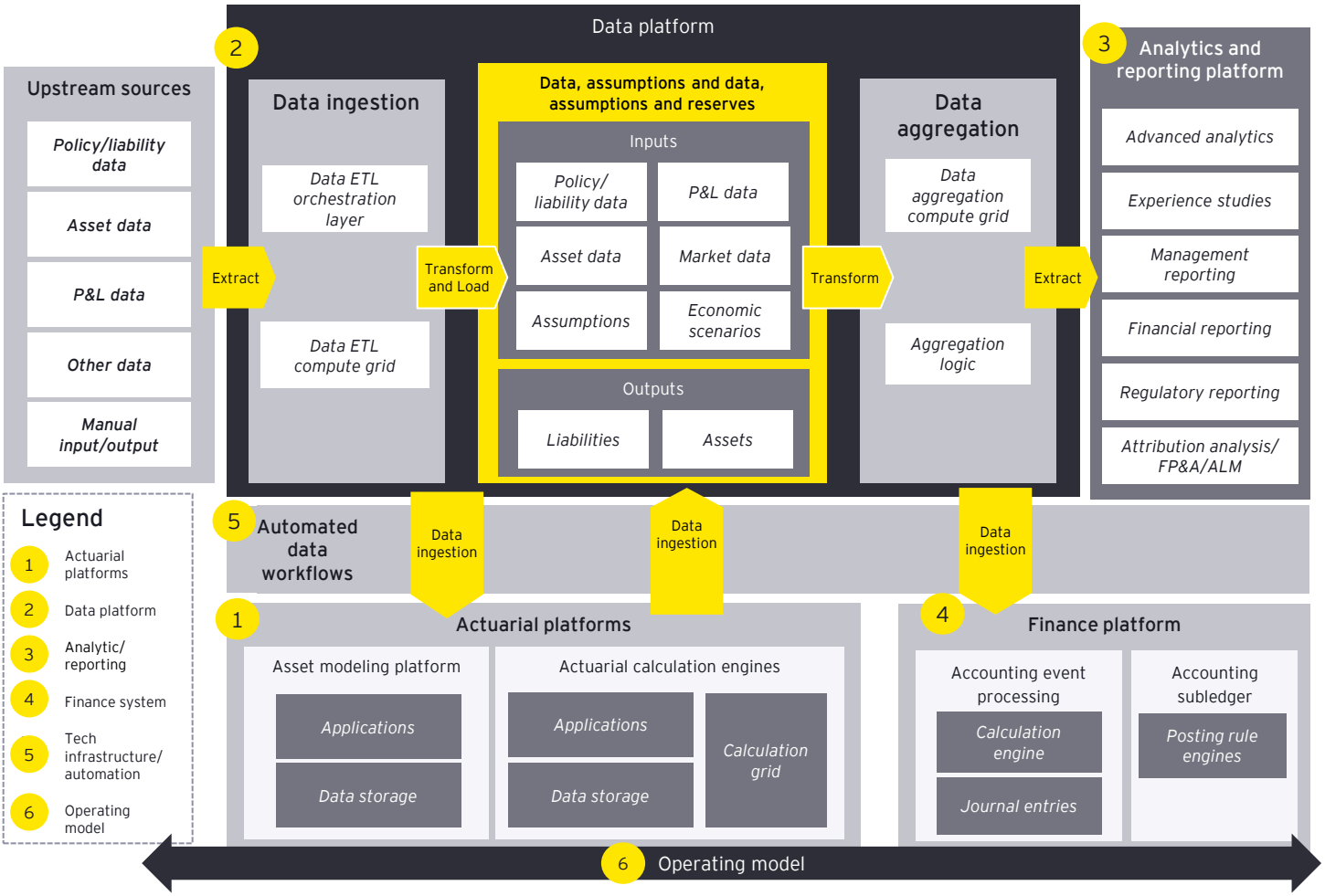
End-to-end considerations around data, technology and processes

To prepare for VM-22, businesses must adopt a holistic view of data sources, financial models, analytical and reporting platforms, and the infrastructure supporting the financial modeling and data ecosystem. An assessment of each component's readiness for VM-22 is critical.

In Figure 5, we present a conceptual blueprint of the end-to-end financial modeling and data ecosystem required to support VM-22 reporting processes. A description of each major component in this ecosystem follows for contextual purposes:

- Actuarial platforms are directly integrated and automated with feeds to and from the data platform for data transfer.
- Data platform streamlines ingestion from upstream sources into a centralized repository for downstream consumption and harmonizes data with consistent definitions. The platform serves as a source of truth for all data, stores raw model outputs with key metadata tags to preserve historical context and auditability, and is equipped with controlled functionality for submission of manual adjustments.
- Analytics and reporting platform consolidates reporting across divisions and functions; produces robust report sets on an automated basis; and is equipped with flexible self-service capabilities, including drill-down functionality.
- Finance ERP platform manages journal entry rules and generates not only general ledger accounting from approved actuarial figures, but also total controls and reconciliation.
- Automated data workflow streamlines ETL with flexible scheduling and parallel processing capabilities.
- Operating model spans end to end and outlines how the organization arranges its resources, processes and technology to work cohesively.

Figure 5: Conceptual blueprint of an end-to-end financial modeling and data ecosystem



With upcoming VM-22 adoption, each of the reporting process areas above will be pressure-tested and challenged. The following sections provide key issues to be wary of. The degree to which a company may choose to adopt these concepts depends on its current data and technology capabilities, relative solution maturity and additional modernization ambitions. Key components mentioned in the above graphic are referenced in the following sections for more detail. Numbers in parentheses correspond to the legend.

Actuarial platforms (1)

Considerations

Modeling capabilities:

- **Design for the future now:** It is understandable that many companies that participated in the field test adopted a "get results quickly and optimize the model later" mindset to meet tight timelines and requirements. However, such impact assessment activities present an opportunity to re-evaluate modeling systems and assess the capability to incorporate more advanced asset modeling, optimize ALM model structure, and enhance runtime efficiency and performance via cloud or on-premises grids for computational distribution.
- **More than just time-zero:** While most companies are currently focusing on running time-zero reserve calculations for the field test, it is important to think ahead about how forecasting and pricing under VM-22 will be conducted. Companies should evaluate whether their current modeling system can meet the potential nested stochastic requirements; if not, alternative modeling approaches will need to be explored.
- **Prepare for GOES:** Companies should proactively consider how to integrate GOES into their modeling systems, especially forecasting applications. Given that it may take time for vendors of modeling software to incorporate GOES into their platforms to enable on-the-fly generation and calibration of risk-neutral scenarios for projected reserve calculations, companies may need to develop interim solutions or workarounds. Even for time-zero valuations, a process may be needed to convert GOES scenarios into a format compatible with modeling systems — particularly if proprietary file formats are required for model consumption.

Data, analytic and finance platforms (2, 3 and 4)

Considerations

- **Streamlining data sourcing and pre-processing:** As VM-22 reshapes non-variable annuity valuation, companies need to address the growing demand for granular liability data. This includes capturing detailed behavior information to model assumptions such as utilization and lapse rates accurately. Enhancing ETL processes to accommodate new asset and liability fields and associated business rules is essential. Timely sourcing of portfolio-level asset data will be key to avoiding delays in quarterly reporting, while historical data will play a pivotal role in calibrating assumptions for stochastic reserve CTE runs.
- **Meeting VM-22 reporting requirements:** Shifting from CARVM to VM-22 means actuaries now face new challenges, such as understanding stochastic reserves, ASPA and explaining reserve movements to answer critical business questions effectively. It's important to prepare for disclosures such as Blue Book PBR requirements, VM-31 reports, PBR supplements, and split reporting for existing CARVM business and new VM-22 business. These tasks require careful planning and coordination across teams to manage the complexities of aggregating and separating data across product lines and portfolios.
- **A single source of truth for reliable VM-22 data:** Bringing together asset and liability data, historical trends, actuarial assumptions and economic scenarios into one unified repository promotes greater consistency and quality. Seamless integration across different systems, such as policy administration, investment management and actuarial modeling systems, is essential to maintaining data consistency and quality.
- **Automation and workflow orchestration:** Platforms need to support end-to-end workflows that can be triggered to prepare input data, run model calculations and generate valuation reports. Orchestration needs to be aligned with close calendar deadlines. Companies already modeling PBR for VM-20 or VM-21 can gain a competitive edge by leveraging their existing systems to tackle VM-22 requirements head-on.

Technology infrastructure and operating model (5, 6)

Considerations

- **Future-proofing cloud strategy for VM-22:** When moving forward with VM-22, it's important to take a careful look at your cloud environment. Will it accommodate the growing data volumes and computational demands you're about to face? Flexibility and ease of data transfer between systems should be top of mind, as should the ability to expand resources as business grows. As quarterly reporting intensifies, so will the need for additional computing power. It may be time to re-evaluate your current cloud strategy — can it handle the increased workload without prohibitive costs, or should you consider other options to balance performance with cost efficiency?
- **Elevate data foundation:** As the data requirements expand, start by checking whether your data warehouse can handle the greater inflow and outflow of information. Consider the potential benefits of larger, more sophisticated data management solutions, such as a data lake or "lake house," which can efficiently process huge data sets. If you're not yet operating in the cloud, introducing these solutions may involve additional investment. Beyond just raw storage, think about your reserve repository as well — can it manage all the new data generated by the quarterly runs under VM-22?
- **More rigorous model governance:** With stochastic models, regular validation and testing will be important to confirm model result fidelity. Adoption of VM-G, which demands robust model governance, is a PBR requirement and can involve a lot of work, especially if PBR has not been adopted previously. Staying on top of model integrity might require forming new teams, expanding the bandwidth of existing teams, or assigning dedicated roles after the model was developed.

- **Empower insightful PBR reporting:** Under VM-22, reporting tools likely need to do more than just generate standard output — they need to operate at scale and produce detailed insights. Since PBR often requires explaining reserve movements or dissecting stochastic results, tools that offer integrated analytics and visualization such as interactive dashboards and drill-down functionality can help actuaries understand reserve drivers.
- **People and roles:** Technology support may need to be re-evaluated. Think about how to increase involvement in supporting new requirements and automating emerging tools. It may also be helpful to redefine roles and responsibilities across the organization, possibly through a new RACI (responsible, accountable, consulted, informed) structure. By having the right people in the right roles, you can navigate these changes more smoothly and build a solid foundation for the future.

Next steps to achieving readiness for VM-22 adoption

As regulatory frameworks have evolved, along with increasingly complicated end-to-end modeling and data processes, it is mission critical for companies to stay ahead of the curve to maintain compliance while continuously seeking opportunities for transformation and improvement. This is particularly important for companies managing significant portfolios of non-variable annuity business while continuing to issue new business, as they face heighted demands to align process with the new VM-22 requirements while still needing to report under CARVM for existing blocks.

Considering these challenges, here are some recommended approaches and next steps for the VM-22 adoption journey, presented below in Figure 6.

Figure 6: For technology readiness, recommended approaches and next steps when preparing for VM-22

For companies early in the planning of their VM-22 implementation and want to holistically assess their capabilities	*For companies who have specific technology or capabilities they are looking to modernize*	*For companies who have a vision already outlined and are ready for implementation*
Comprehensive evaluation of readiness and target state recommendations	**Targeted vendor/technology assessment**	**Implementation of defined modeling and/or data solution**
Company profile: Companies looking to assess their current capabilities end to end, align them with requirements and develop a conceptual solution design.	**Company profile:** Companies seeking to modernize a particular technology or capability and require a comprehensive evaluation of current market solutions that best align with their needs.	**Company profile:** Company with future state technology vision in hand or narrow scope defined; ready to implement the solution.
Key objective: Develop a high-level roadmap and future state technology vision/strategy to address near- and/or long-term business needs.	**Key objective:** Refine and/or validate future state technology vision/strategy, provide high level roadmap to address near-/long-term needs.	**Key objective:** Execute a solution that has been thoughtfully designed based on key requirements captured from key stakeholders.

With adequate time, companies can pilot new tools and solutions, adjust strategies based on findings and ultimately build a solution tailored to their needs. Developing a clear roadmap helps so that all stakeholders (e.g., IT, actuarial, finance) stay on the same page, fostering collaboration and avoiding surprises.

- Right size your teams, balancing cross-functional resources to avoid the scramble of last-minute hires.
- Assess computational needs up front, so you can invest in scalable solutions or the cloud to handle the demands efficiently or consider exploring alternative strategies to keep the computing costs manageable.
- Make budgeting more transparent; you can phase in investments over time, keeping spending more predictable and aligned with business goals.
- Conduct thorough impact assessments on existing processes and systems, which could include identifying gaps in current processes, pinpointing areas where automation or technology upgrades can meet VM-22 reporting requirements and can yield long-term savings.
- Develop a plan that instills confidence in all teams' ability to successfully deliver on it.

Conclusion

VM-22 will place increased demands on technologies and operating models that support the VM-22 reporting and associated decision-making processes, due to more complex calculations and larger data volumes. Prior to adoption, start by empowering your IT and data architects to work in concert with their actuarial, finance and investment counterparts, so that all technology decisions support broader business goals. Revisit current infrastructures and select the platforms that scale for evolving needs. Seek out technology tailored to your organization's strategic objectives — there is no universal blueprint. Most importantly, embrace these regulatory changes and view them as an opportunity for transformation by actively exploring and investing in offerings and tools that modernize reporting processes and ultimately facilitate decision-making. In doing so, insurers can transform VM-22 from a regulatory hurdle into a catalyst for future-ready growth and having a competitive edge.

The views reflected in this article are the views of the authors and do not necessarily reflect the views of Ernst & Young LLP or other members of the global EY organization.

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