35 - US GAAP Targeted Improvements: Data Impacts and Plausible Solutions

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OLIVER WYMAN

SESSION 35 – US GAAP LONG DURATION TARGETED IMPROVEMENTS - DATA IMPACTS AND PLAUSIBLE SOLUTIONS

2019 Valuation Actuary Symposium
August 26, 2019

Vikas Advani, FSA

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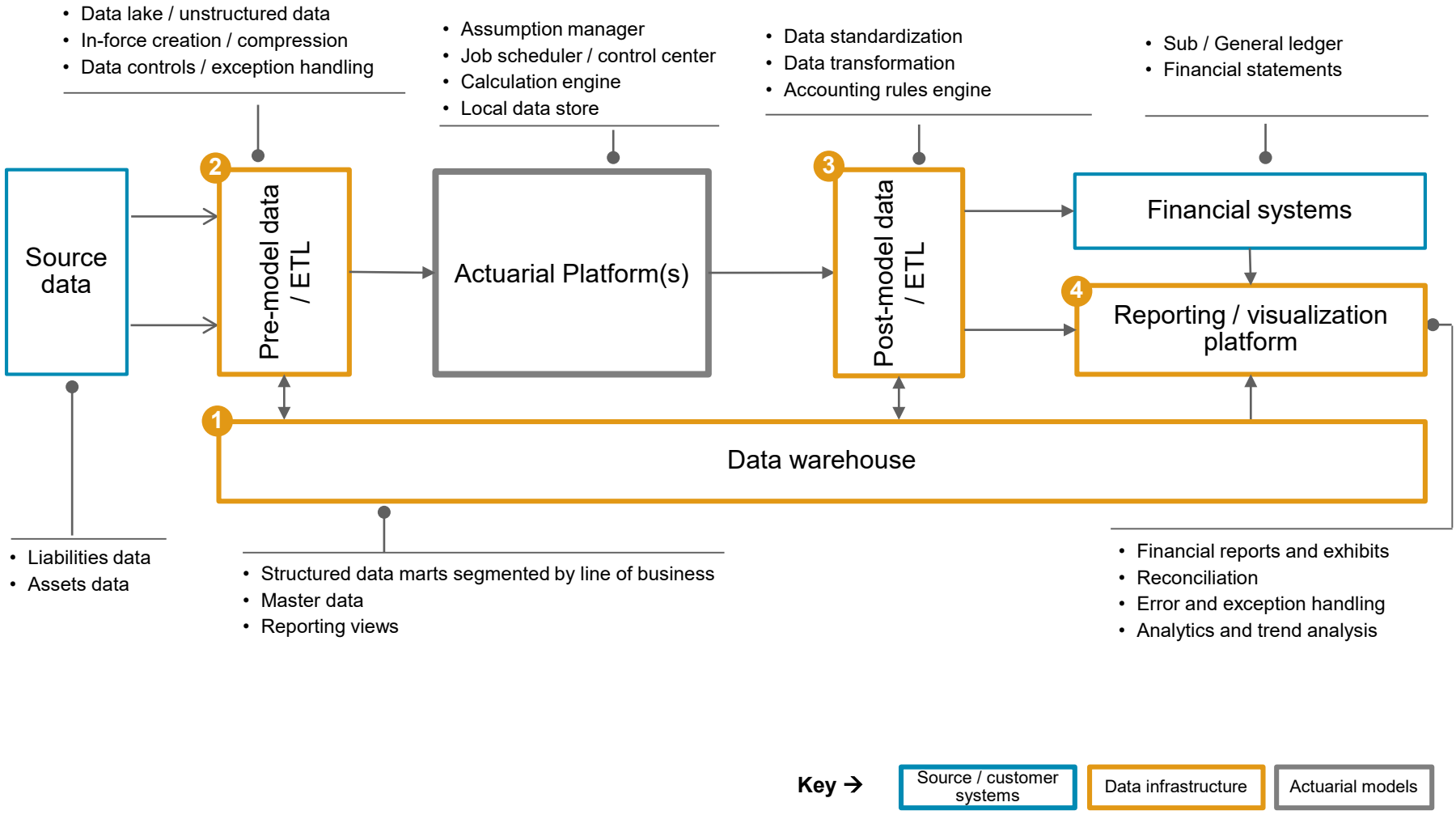
A modern End to End Architecture

Updates to the data infrastructure (in yellow) has been cited as one of the primary challenges in implementing LDTI and is the focus of this presentation



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Traditional liabilities implications

Deriving NPR and unlocking of assumptions will require significant build to Input ETL and Experience Analysis processes

Changes needed for the new accounting standards
Liability measurement includes actual cashflows • Increased data volumes with retention of actual historical cashflows (to derive NPR) • Update ETL processes to fetch actual cashflows from admin or GL • Segregating input data by issue year cohorts • Other updates to assumption tables and input data feeds (e.g. separating maintenance expenses from claim costs)
Assumption unlock • Storing two discount rates (at inception and current) • Update Input ETL processes to pull in both discount rates each valuation period • Automated or more robust experience analysis and assumption update process
Changes in interest rates are reported through OCI • At transition, update subledger / ledger to remove OCI attributed to shadow reserves • Update rules engine to capture difference in liabilities (current vs locked in) in OCI

Level of build required			
Data warehouse	Pre model data	Post model data	Reporting tools

Impact → None Low Medium High

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Deferred Acquisition Costs (DAC) implications

The simplification of the DAC measurement may provide an opportunity to move DAC calculations and reporting processes to more controlled platforms

Changes needed for the new accounting standards

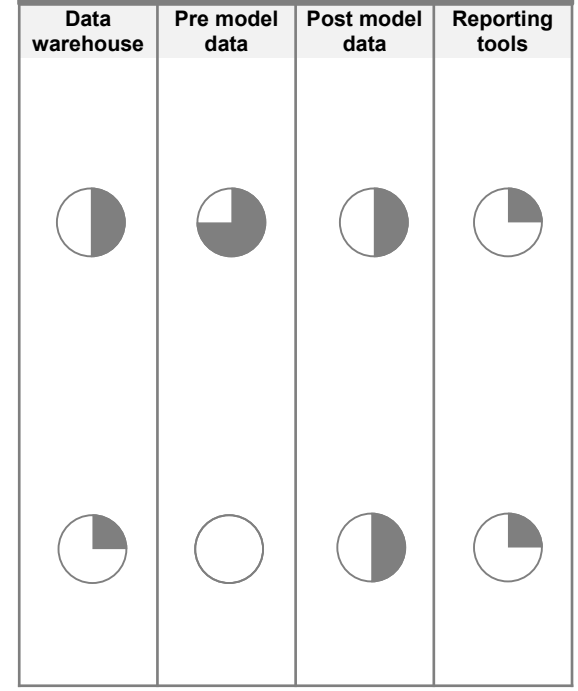
DAC amortization methodology is simplified

- Update data feeds, Input ETL and data warehouse to include:
  - Inforce amount / NAR (constant level basis)
  - Terminations / persistency
  - Incurred DAC expenses
- Update output ETL processes to exclude interest, shadow DAC
- Move DAC models from excel / access databases to a more controlled IT environment

Reporting and disclosures change due to new methodology

- At transition, update subledger / ledger to reverse Shadow DAC from OCI and record as DAC adjustment
- Update accounting rules engine and output ETL processes to reflect changes for
  - Experience adjustment and incurred expenses
  - Exclusion of interest and shadow DAC

Level of build required



Impact → None Low Medium High

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Market Risk Benefit implications

Implementing MRBs will require significant undertaking on data warehouse and rules engine applications

Changes needed for the new accounting standards	Level of build required			
	Data warehouse	Pre model data	Post model data	Reporting tools
Scope of guarantees at fair value increases • Update ESG applications and calibration processes for fair value (RN vs RW) • Update ETL processes with no cohort level requirement • Bundling of multiple MRBs in a contract may require additional handling				
Inception-to-date restatement is required1 • Gather data from disparate set of legacy applications and store in new databases • Process higher volumes of data in ETL processes • Potentially move data infrastructure to cloud solutions to increase speed / reduce cost				

Changes to instrument specific credit risk are reported through AOCI
• Classify MRBs in post ETL processes, data warehouse and reference data sets
• Update accounting rules engine for:
  • Instrument specific credit risk flowing through OCI
  • Derecognition of MRBs / OCI reversals on annuitization
• Update financial system hierarchies and reference data to for B/S and I/S presentation				

Impact → None Low Medium High

1. If data is available

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Disclosure implications

New disclosure requirements have a substantial cross-system impact and is an opportunity to introduce or improve workflow and governance structures

Changes needed for the new accounting standards	Level of build required			
	Data warehouse	Pre model data	Post model data	Reporting tools
Disaggregated rollforwards are required • Inputs: Data feeds will require updates to introduce granularity • Outputs: ETL, reference data and rule engine updates for additional granularity				
Several other disclosures are introduced • Add and update data warehouse, master data / reference datasets and ETL processes to support new quantitative & qualitative disclosures • Automating qualitative disclosures may require special handling • Design additional reports and update / rationalize existing ones on BI platform				

Impact → None Low Medium High

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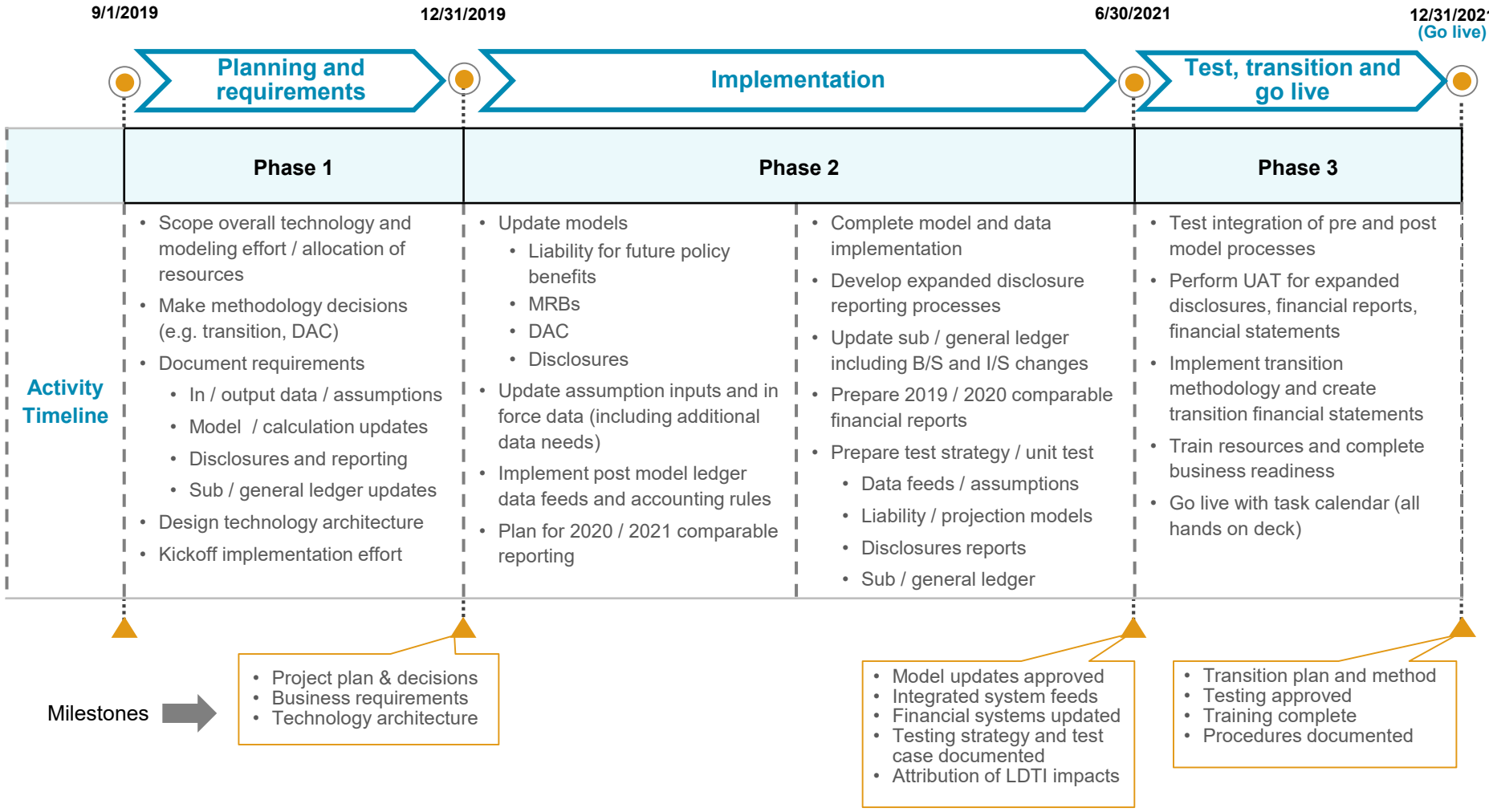
Illustrative LDTI implementation timeline[1]

Implementing changes to comply with ASU 2018-12 will be a multi-year process that will require significant planning, development, and testing



1. Illustrative timeline assumes January 1st, 2022 effective date for SEC filers

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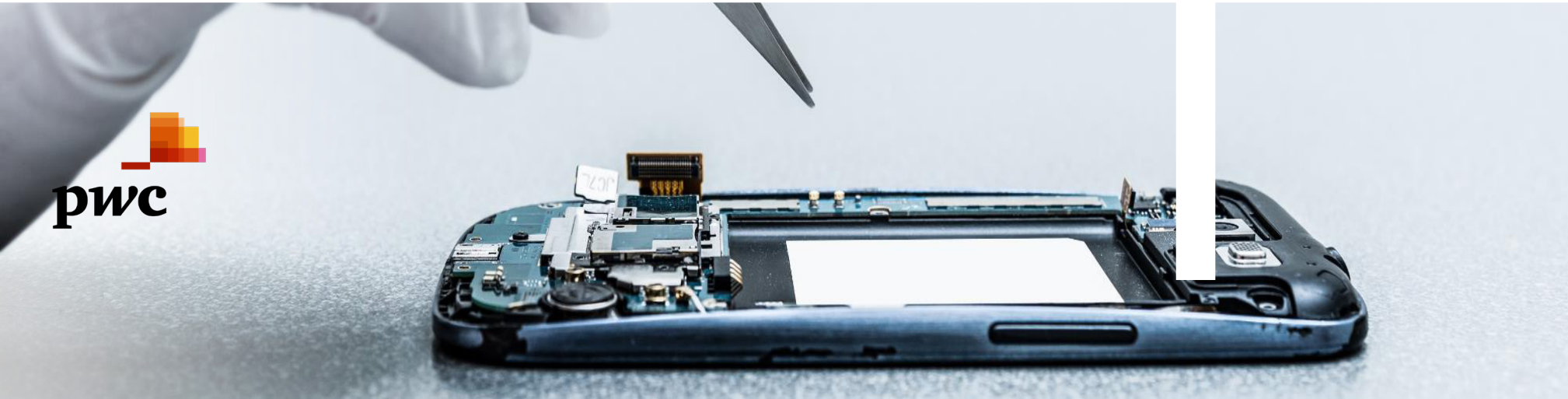

Agenda

Defining your data strategy

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Delivering the data workstream – Planning through execution

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LDTI as a catalyst for modernization

Objectives

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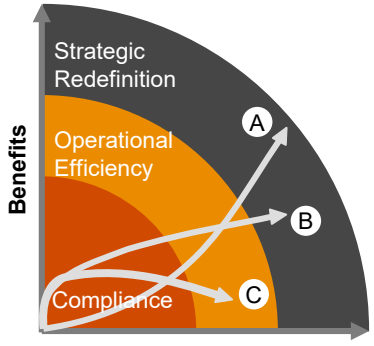
Implementation approach



A **Strategic Path**
Some firms are taking this opportunity to transform their finance function-re-defining finance, actuarial and risk functions, establishing the operating model, tools and capabilities to support the business use of the new metrics that are emerging.

B **Operational Efficiency Path**
Some firms are building the foundation necessary to support future transformation efforts to finance in parts, with the focus on addressing compliance requirements today.

C **Compliance Path**
Some firms may seek to **address the new requirements in a low-cost compliance manner**, either through work-around solutions or by increasing resources.

Key questions?

- What are the potential business impacts of the changes?
- What is your implementation strategy?
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- Do you have sufficient internal and external resources with the appropriate skills required?
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Planned System Deployments – PwC LDTI Survey (April 2019)

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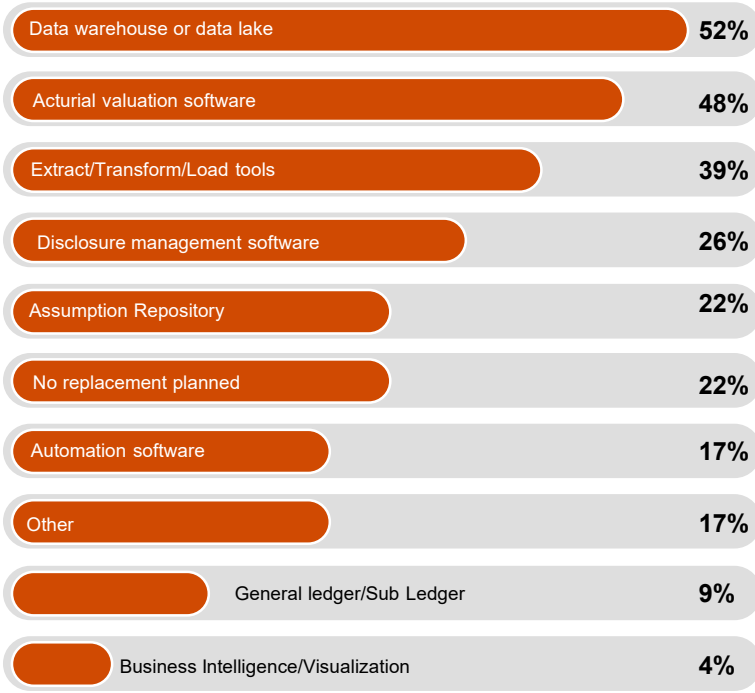

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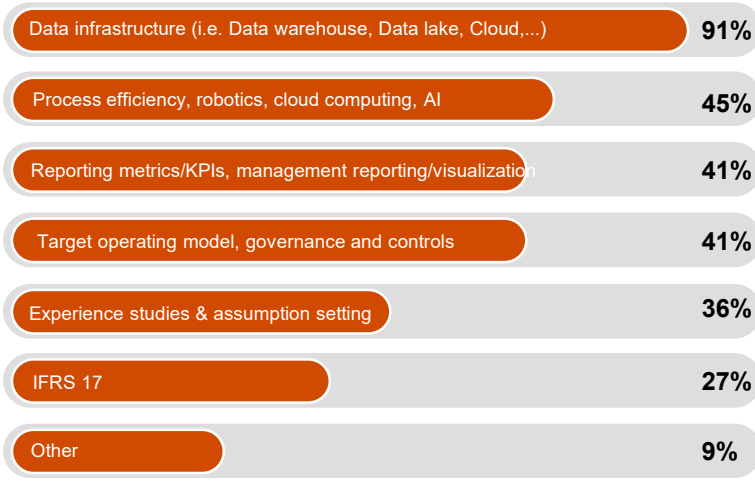
Initiatives leveraged for LDTI



- Data infrastructure initiatives are leveraged by almost all respondents (91%). In summer 2018 68% of respondents intended to leverage data initiatives.
- About 40%-45% of companies leverage process efficiency, reporting metrics and target operating model projects.
- IFRS 17 is leveraged at 27% of companies. In summer 2018 only 9% had intended to do so.
- 36% expect to leverage experience studies and assumption settings initiatives. This is a decrease from the 59% reported in 2018.

Delivering the data workstream

Planning through execution

Identify LDTI Data Requirements

- Define ‘data’ in the context of LDTI
- Identify requirements from end-to-end
- Work from right to left (Disclosures to source systems)
- Track requirements which depend on accounting policy decisions

Define Future state data architecture

- Conduct current state assessment – identify gaps and opportunities
- Assess potential architecture options in the context of the data strategy
- Develop vision of the future state – consider a pilot process
- Provide input to business case and financial plans

Delivering the data workstream (continued)

Planning through execution

Detailed design and build

- Execute a soft-design/pilot for specific enhancements
- Detailed identification of functionalities required
- Build data solution or refine existing solution to meet requirements
- Define / revise data governance requirements

Validate and Test

- Conduct validation of data solution
- Refine system as necessary
- Conduct dry-runs of reporting process

Delivering the data workstream (continued)

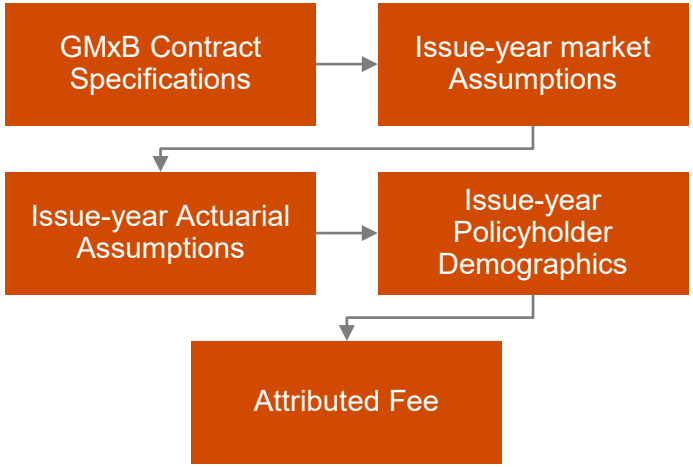
Key considerations and lessons learned

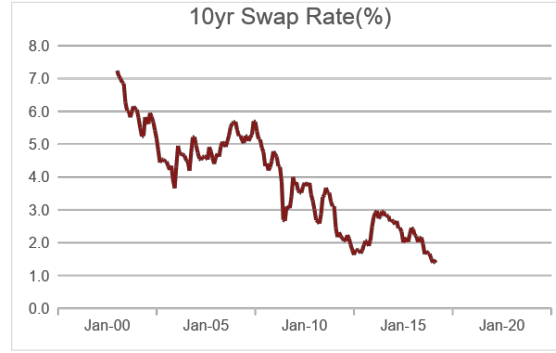
Align data infrastructure development with other in flight projects	• Consider other implementation timelines and integration with LDTI • Consider what is a temporary vs permanent solution • 'Build for change'
Consider a Data Quality / Readiness Assessment	• Address data issues at the source (or as close to the source as possible) • Implement a framework to identify, categorize, risk rank, prioritize, and address data quality issues: • Forces data issue resolution earlier in the implementation program, which decreases the risk of potential negative cost and timeline impacts during later phases of the program • Consider a tiering methodology to appropriately prioritize how data issues should be addressed in an efficient manner
Process and Technology	• Embed strong control: Target architecture must embed efficient and effective, prevent and detect, controls by design • Be pragmatic: Investments should avoid being unnecessarily technical or complex (apply 'Occam's razor')
Bring the appropriate skillsets to the table	• Data workstream requires actuaries, accountants and data/systems specialists involvement • Involvement of multiple functional areas adds to timeframe and can create risk • Involve internal audit and process / controls specialists throughout, and look to accelerate audit activities

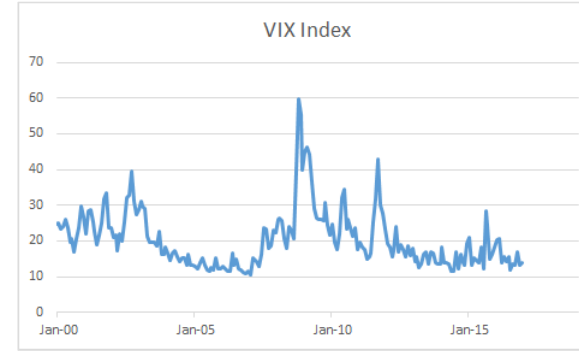
MRBs at Transition

Transition data requirements

Transition requires a one-time effort to determine the attributed fee for a MRB at contract inception. This creates potentially significant data challenges for older contracts







Historical Attributed Fee Calculation is a key component of the MRB fair valuation at transition

MRBs at Transition

Approaching the data gap

Identify potential sources for actuarial and market assumptions or historical attributed fees	**Actuarial Assumptions** • Assumption memos • Experience Study data • Valuation Reports • Pricing reports • Previous Financial Statements • Similar products • Old valuation / pricing / projection models	**Economic Assumptions** • Recognized market data provider • Valuation reports • Pricing reports • Old valuation / pricing / projection models
Develop matrix of assumptions by product and by issue period and identify the data gaps	• Map assumption to identified source • Helps identify the magnitude of the data gap • Allows focus on material product issues • Facilitates effort estimation	
Where necessary, utilize hindsight	• Hindsight to be used as a last resort - look to minimize the use of hindsight • Use hindsight for assumptions which are '*unobservable or otherwise unavailable and cannot be independently substantiated*'. Potential sources could include: - Industry studies / papers - Independent experts to support proposed judgements	

Thank you

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JOHN FOWLER, FSA, MAAA

35, US GAAP Target Improvements: Data Impacts and Plausible Solutions

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- Do alert SOA staff and/or legal counsel to any concerning discussions
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Experience Studies - Background

- Best estimate assumptions will be updated regularly
- There are a number of assumption setting sources, including experience studies
- Auditors will be paying closer attention to assumptions
- Improvements in experience studies may be required to provide better governance or faster turnaround

Experience Studies – Background (Continued)

Experience Study Component	Data Intensive Steps
Data sources	Identification Interpretation Validation
Data Processing	Software selection “Traditional” vs Predictive Analytics
Decision making	Determine which data to use Mapping Selection of risk factors
Communication, documentation, and governance	Document data sources Auditability

Experience Studies – Data Sources

- Need to aggregate data from multiple sources: e.g. admin systems, finance
- Need to ensure data is consistent and being interpreted correctly
- Need checks for consistency and reasonableness
- Data sources may be changing for LDTI preparedness

Experience Studies – Data Processing

- Software selection
  - Data cleaning
  - Calculations
  - Data visualization
- Calculation type – traditional vs predictive analytics
  - Can create additional data considerations in terms of downstream model usage

Experience Studies – Decision Making

- Grouping and mapping data
- Need to filter data appropriately
- Which risk factors are important
  - Traditional approach: largely actuarial judgement
  - Predictive analytics: largely based on statistical methods

Experience Studies – Documentation, Communication, and Governance

- Documentation
  - High level documentation of data sources and data usage
  - Detailed (data dictionary) documentation of data sources
- Governance
  - Need enhanced auditability capabilities

Reinsurance Considerations: Data Administration

- Administration solution
  - Formal administration system
  - Ad-hoc administration
- If an admin system is used, new treaty data may not fit the structure
- Ad-hoc approaches may not scale well
- Depending on the complexity of the admin system, you may give up some accuracy in storage of the data

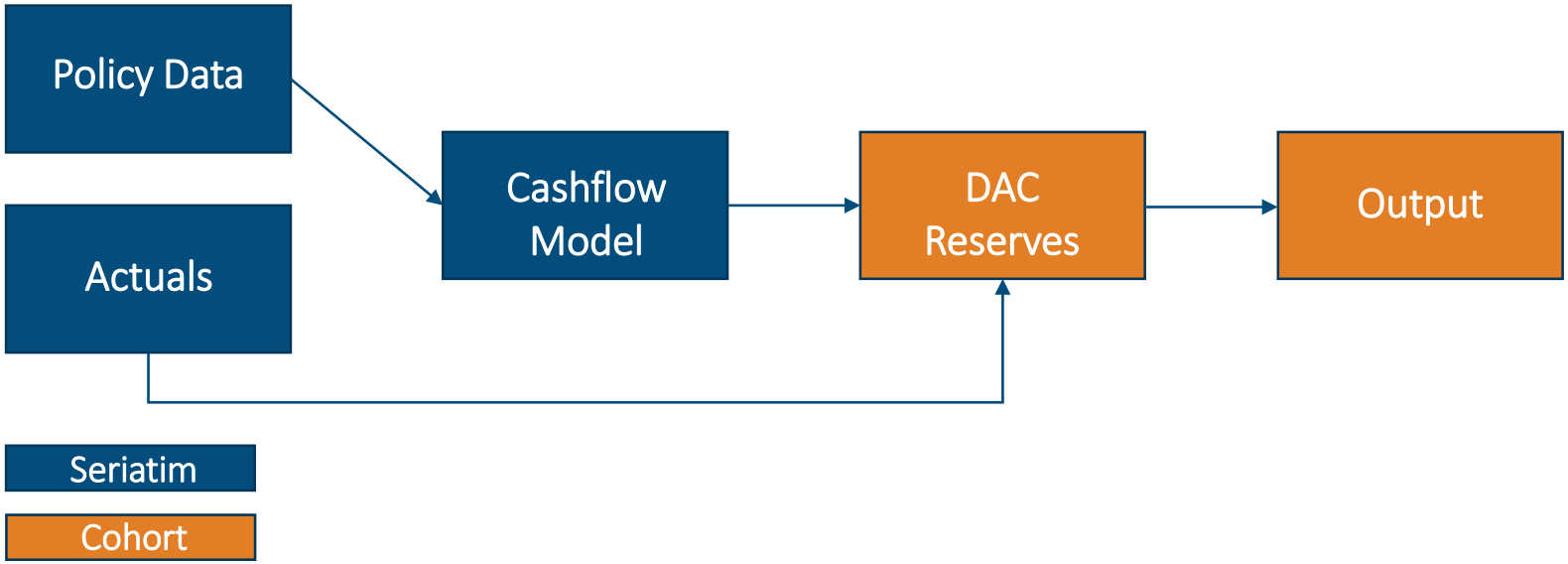
Reinsurance Considerations: Data Timing

- Data used for a given period might have an inconsistent lag
- Increased requirements may require an earlier start
  - If the data is not available need to get it earlier or use a larger lag
- Data timing can cause different issues depending on the cohort level of the business

Reinsurance Considerations: Unit of Account

- There seems to be limited consensus in the industry
  - Issue year / treaty effective year
  - Treaty
  - Product type
  - Intra-company retrocessions
- Values can be calculated at the seriatim level or unit of account level
- Is there a desire to be able to report at a more granular level

Reinsurance Considerations: Unit of Account (Continued)



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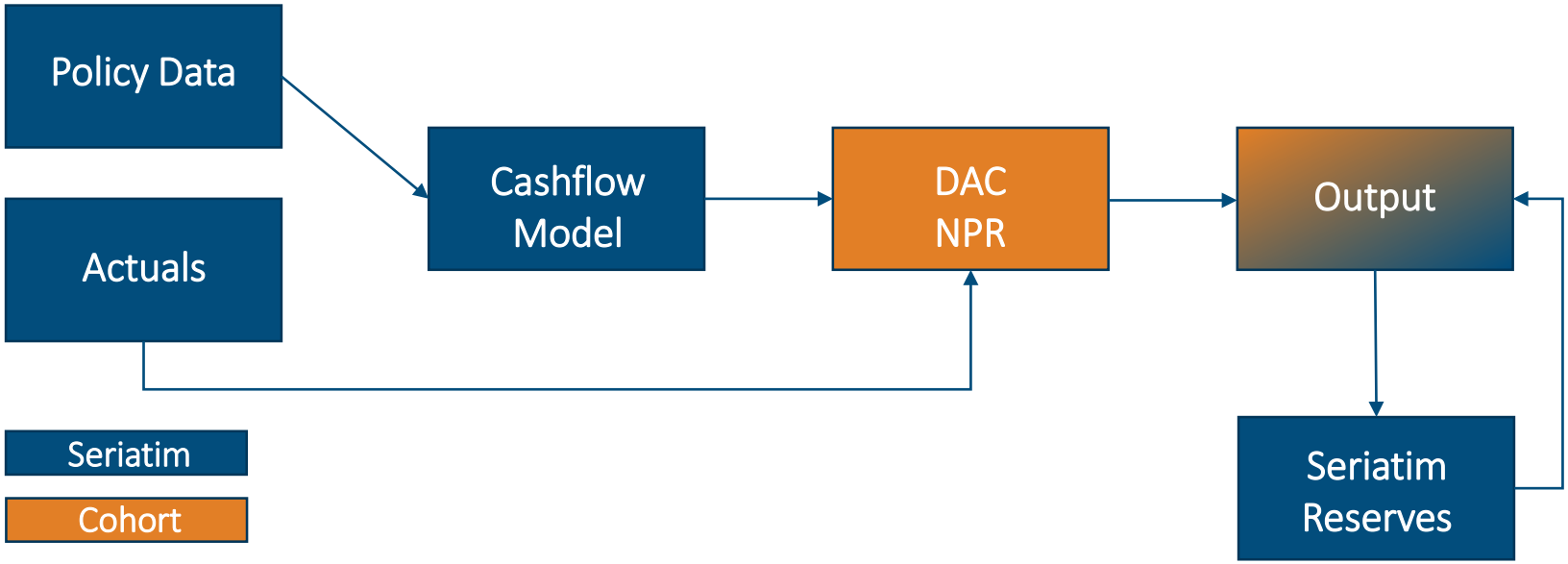

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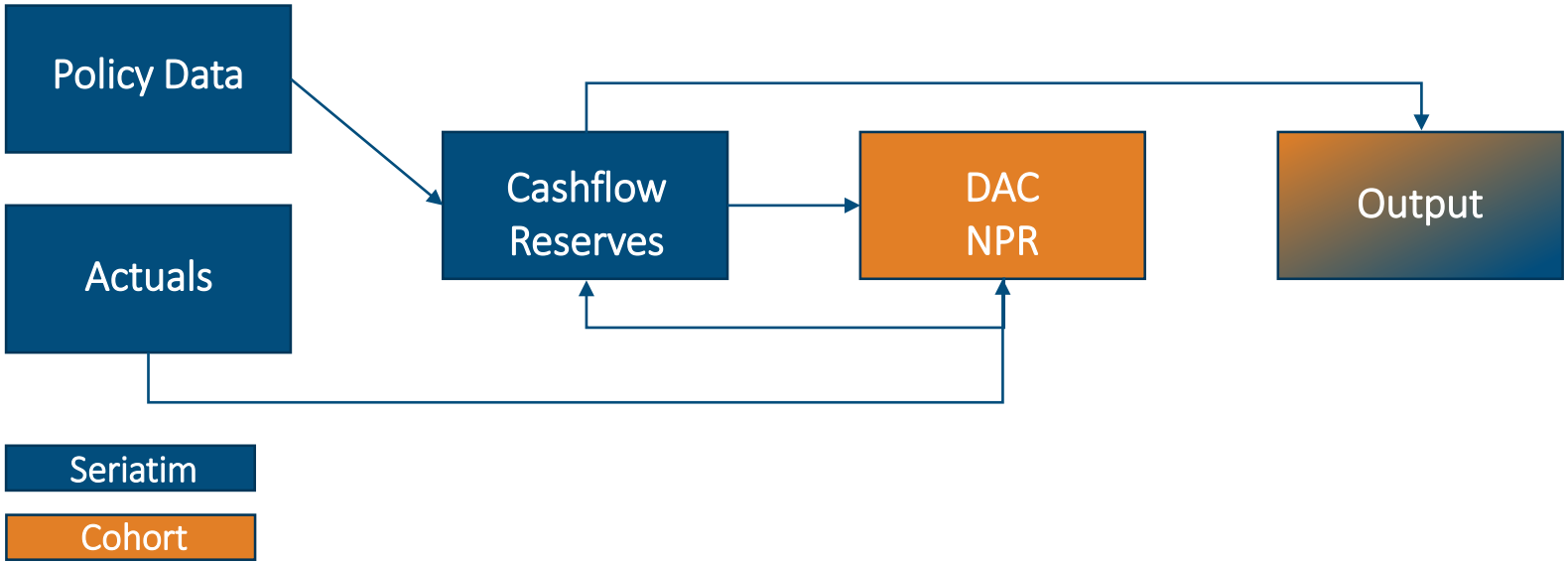

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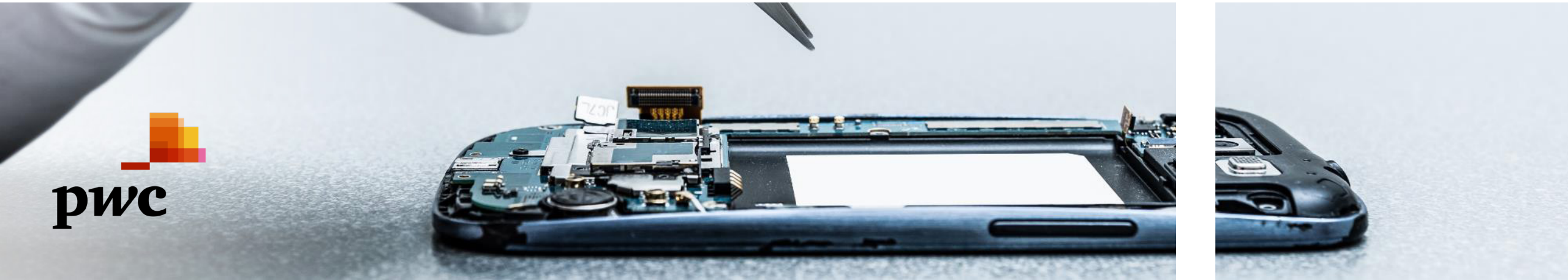

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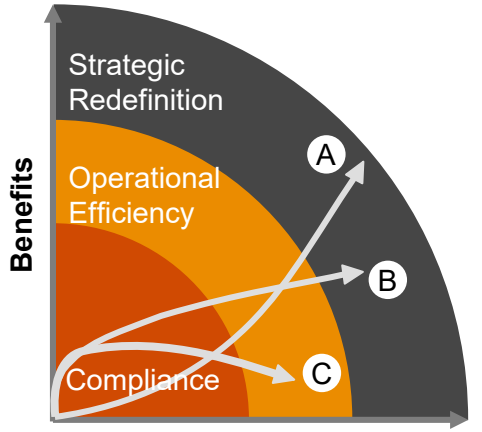

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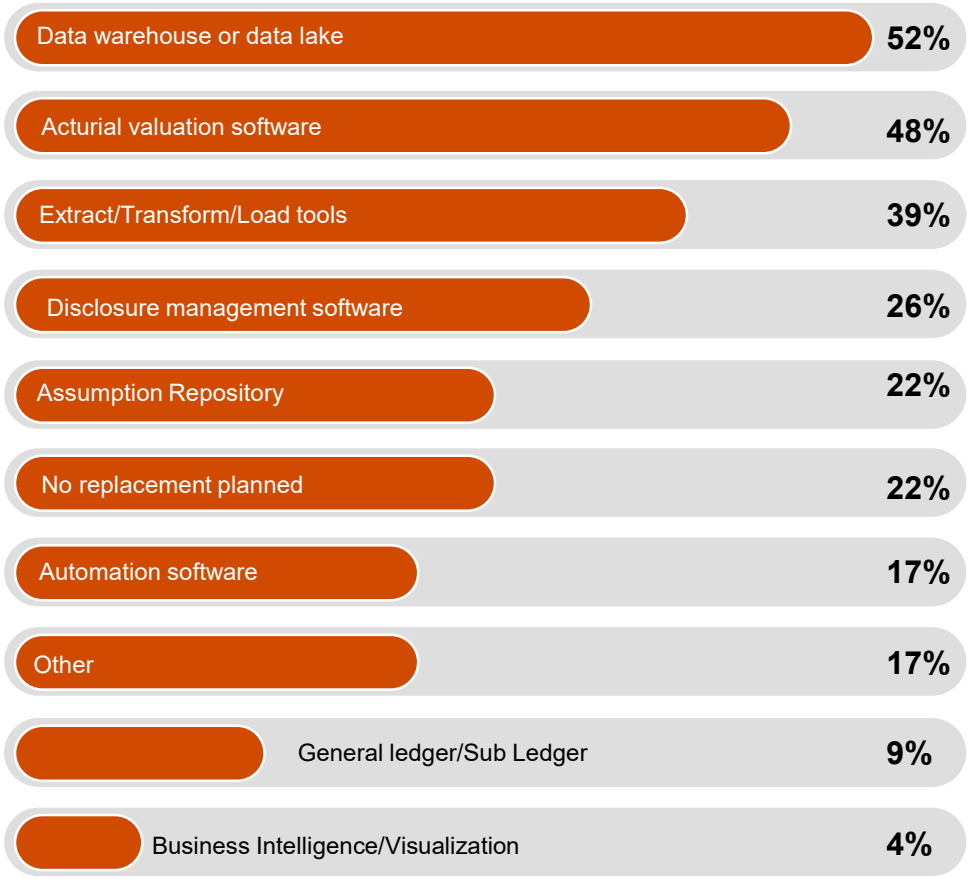

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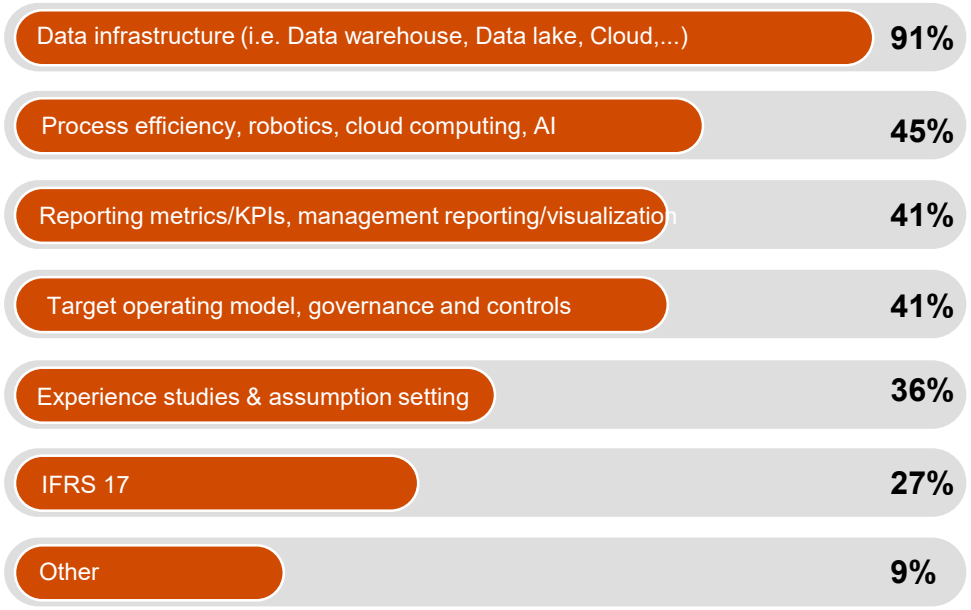

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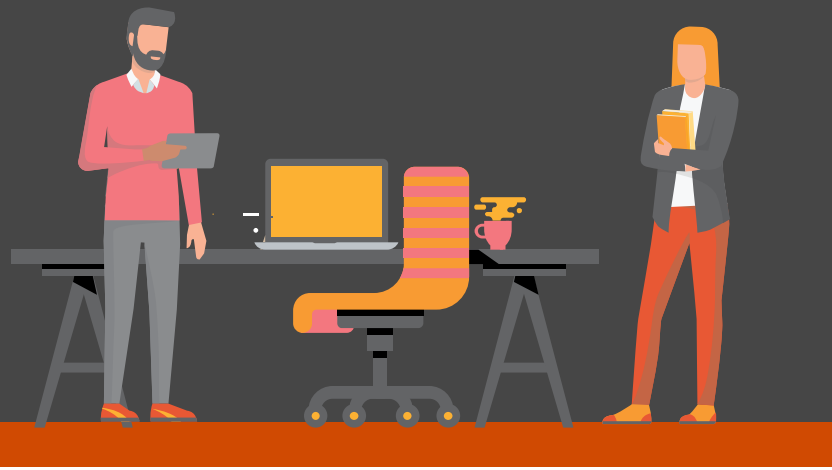

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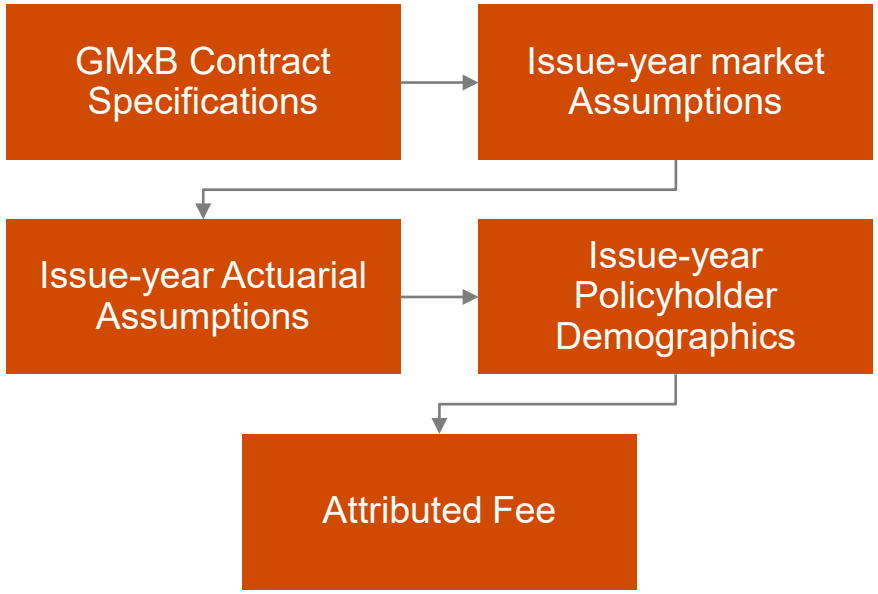
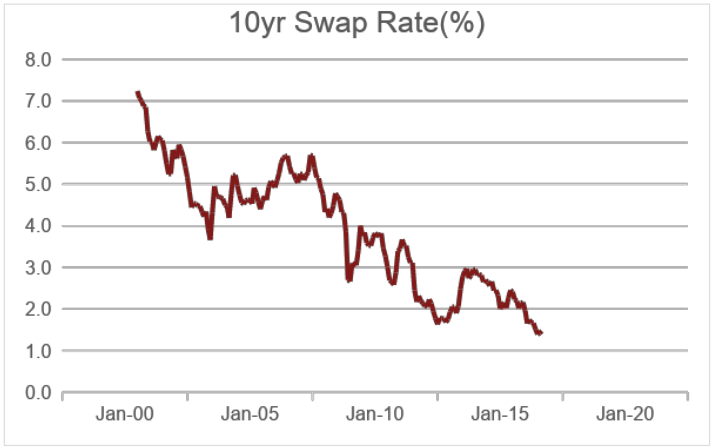
Transition data requirements

Transition requires a one-time effort to determine the attributed fee for a MRB at contract inception. This creates potentially significant data challenges for older contracts





Historical Attributed Fee Calculation is a key component of the MRB fair valuation at transition

MRBs at Transition

Approaching the data gap

Identify potential sources for actuarial and market assumptions or historical attributed fees	**Actuarial Assumptions** • Assumption memos • Experience Study data • Valuation Reports • Pricing reports • Previous Financial Statements • Similar products • Old valuation / pricing / projection models	**Economic Assumptions** • Recognized market data provider • Valuation reports • Pricing reports • Old valuation / pricing / projection models
Develop matrix of assumptions by product and by issue period and identify the data gaps	• Map assumption to identified source • Helps identify the magnitude of the data gap • Allows focus on material product issues • Facilitates effort estimation	
Where necessary, utilize hindsight	• Hindsight to be used as a last resort - look to minimize the use of hindsight • Use hindsight for assumptions which are '*unobservable or otherwise unavailable and cannot be independently substantiated*'. Potential sources could include: - Industry studies / papers - Independent experts to support proposed judgements	

Thank you

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