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Actuarial Data Governance

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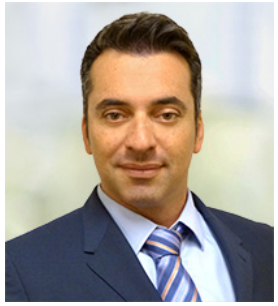
With You Today



Alex is a Director at the Risk Analytics practice of KPMG LLP. He has over 12 years of experience with consulting, insurance and reinsurance firms. His actuarial experience includes transformation engagements, actuarial modeling and model enhancement projects, pricing and valuation, actuarial software conversions, actuarial audits, experience analysis, product and assumption development. Alex has helped multiple clients across North America build, implement and maintain their model governance frameworks around actuarial modeling. Alex is a Fellow of the Society of Actuaries, Member of the American Academy of Actuaries and Associate of the Canadian Institute of Actuaries.

Alex Zaidlin, FSA, ACIA, MAAA
Director, Actuarial and Insurance Risk

Ben is a Director in KPMG's Risk Analytics practice with over 15 years' experience in the life insurance industry. His current areas of focus include financial transformation, business analytics, model validation and risk analysis, and actuarial audits. Ben has also worked to develop a new model governance framework as part of transformation projects and reduce the model risk that has existed with legacy model processes. He is a Fellow of the Society of Actuaries, Member of the American Academy of Actuaries and CFA charter holder.

Benjamin Farnsworth, FSA, MAAA
Director, Actuarial and Insurance Risk

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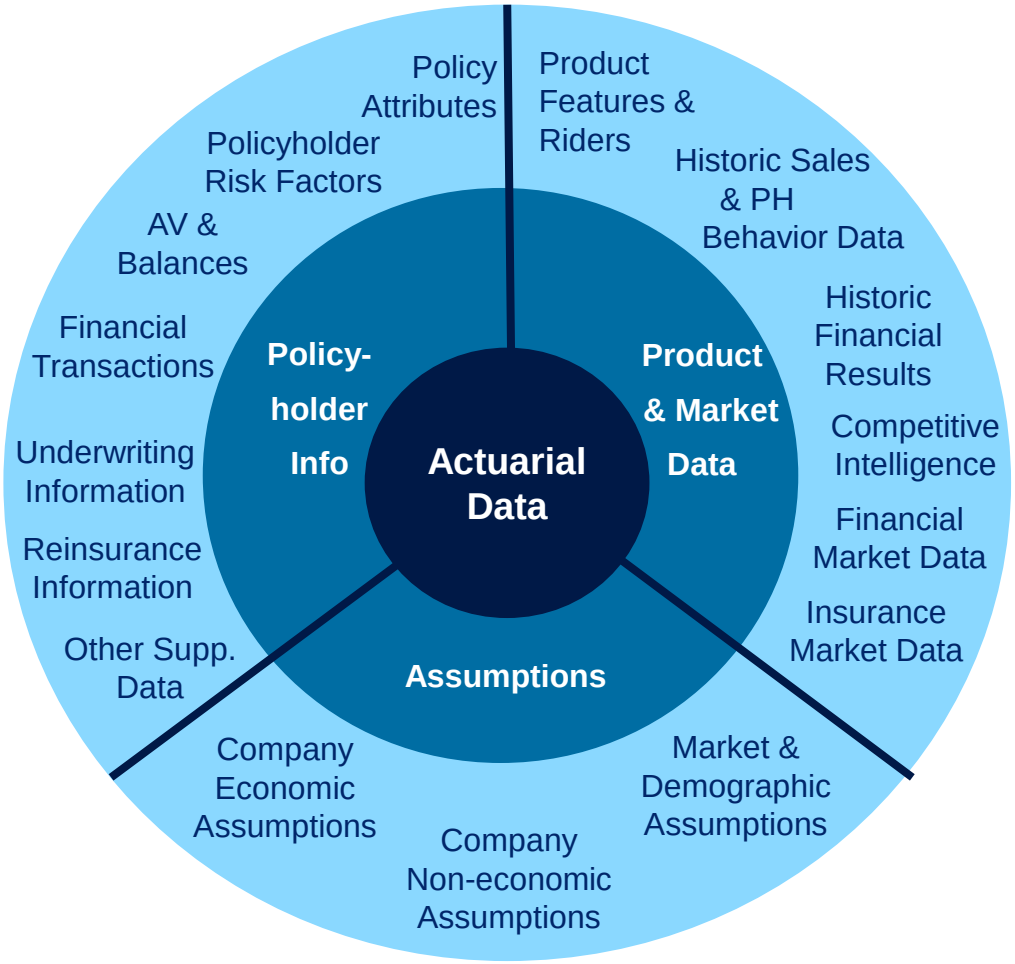
Actuarial Data

Actuarial Data

Actuarial data is a segment of the overall company data that is meant to support actuarial operations including experience analysis, modeling, valuation and financial reporting.



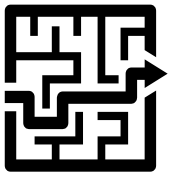
Pitfalls in Actuarial Data Management

Due to the breadth and complexity of actuarial data, it can be often misused, misinterpreted, miscommunicated and incorrectly modified.

Common Actuarial Data Pitfalls

1. **"I can do it myself!" approach**
   Ad-hoc, undocumented data transformations that inadvertently get integrated into production process
2. **The quick Band-Aid solution**
   Top-side adjustments made to the data or "recycling" of legacy data processes for new purposes
3. **The Phantom table**
   Table replication for one-off need combined with inconsistent naming convention may create confusion in data repository
4. **Everyone in their own sandbox**
   Decentralization of data transformation and management and unavailability of sufficient hardware and software tools to manage data effectively
5. **Failure to clean**
   Lack of discipline of reviewing and removing outdated data tables and processes

Outcomes of Poor Data Management



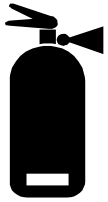
Unnecessarily complex and error prone transformation processes

Multiple unvalidated spreadsheets with overlapping functionalities

Time and resources wasted on resolving data issues and tracing back complex transformations

Multiple sources of information, but no single “source of truth”

Storage wastage due to multiple copies of the same data

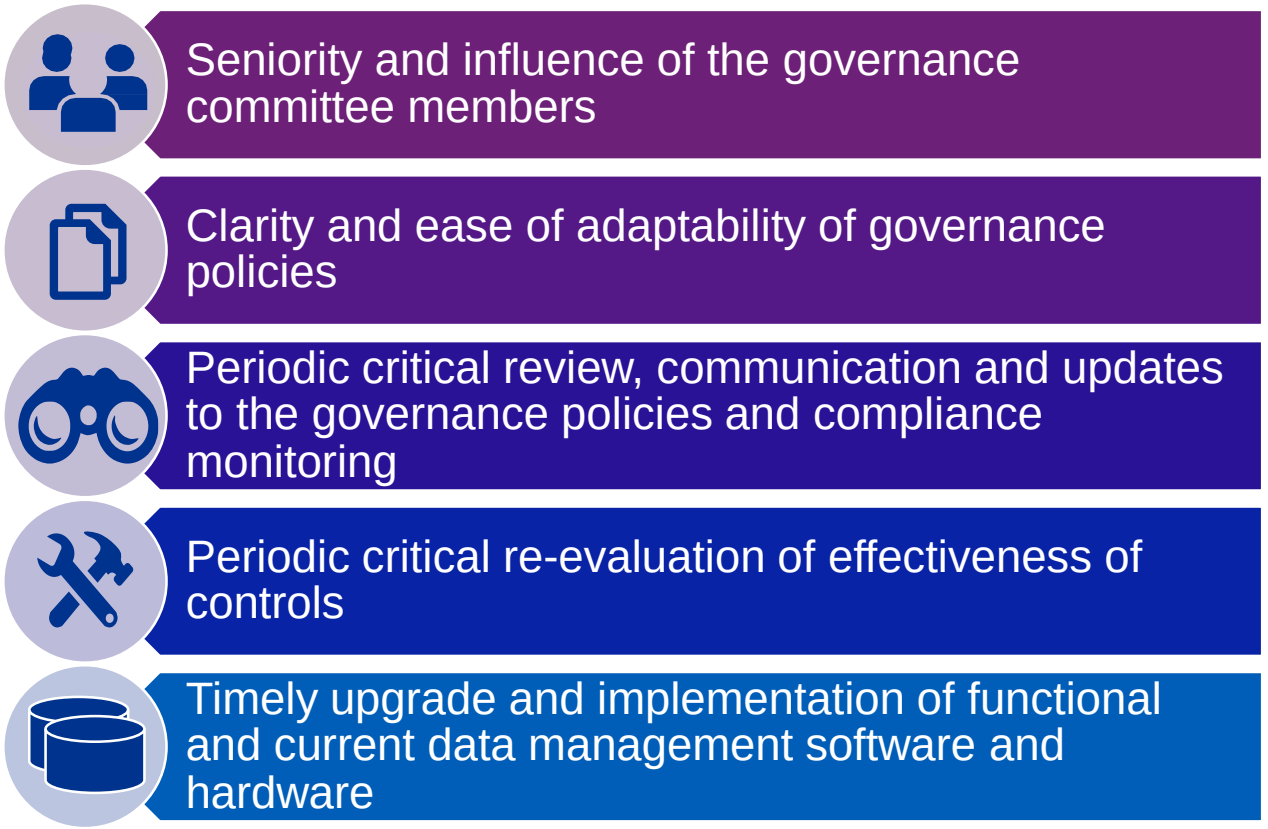


Production and process errors that can result in misstatements and delays in reporting

What is Actuarial Data Governance?

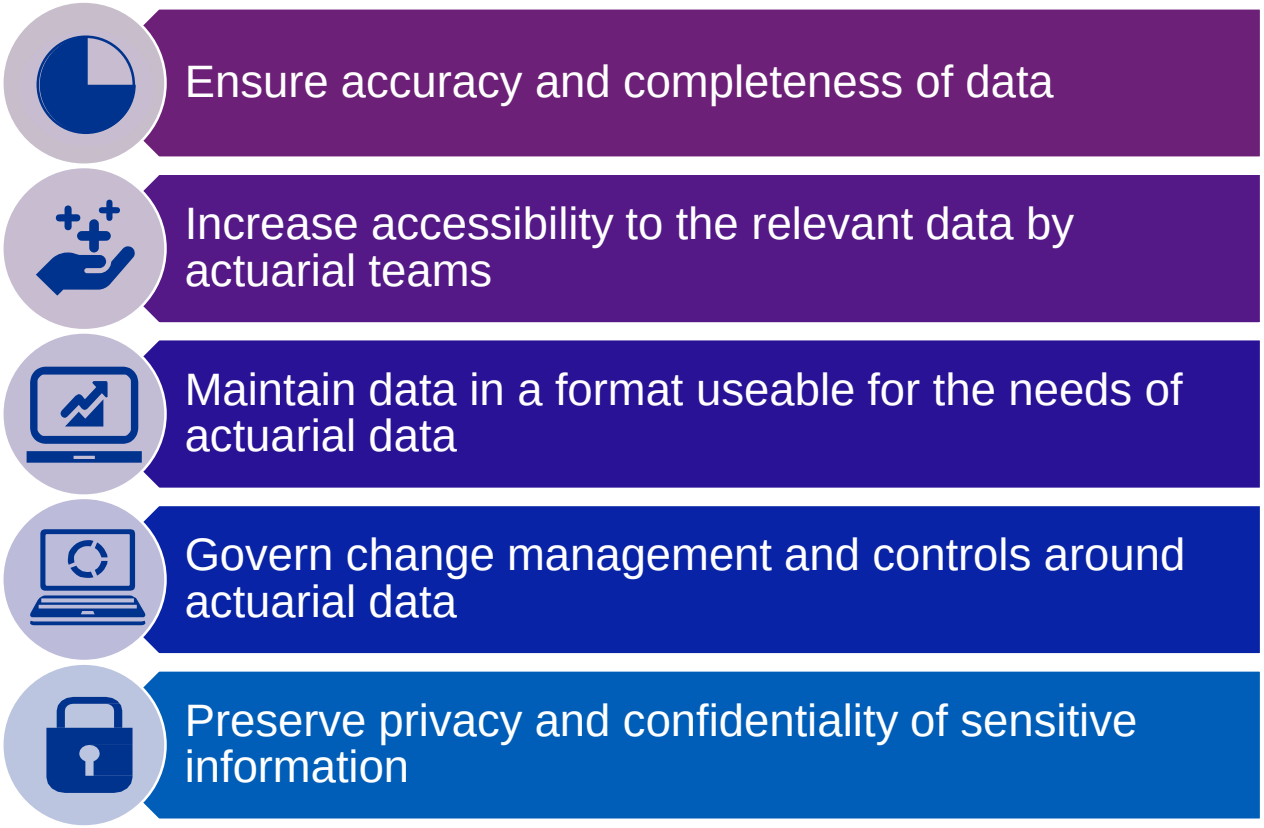
Actuarial data governance framework is the conglomerate of policies, processes and controls put in place to manage availability, usability, accessibility, integrity and security of data used by the insurance company.

Drivers of initial and continuous success for a sound actuarial data governance framework



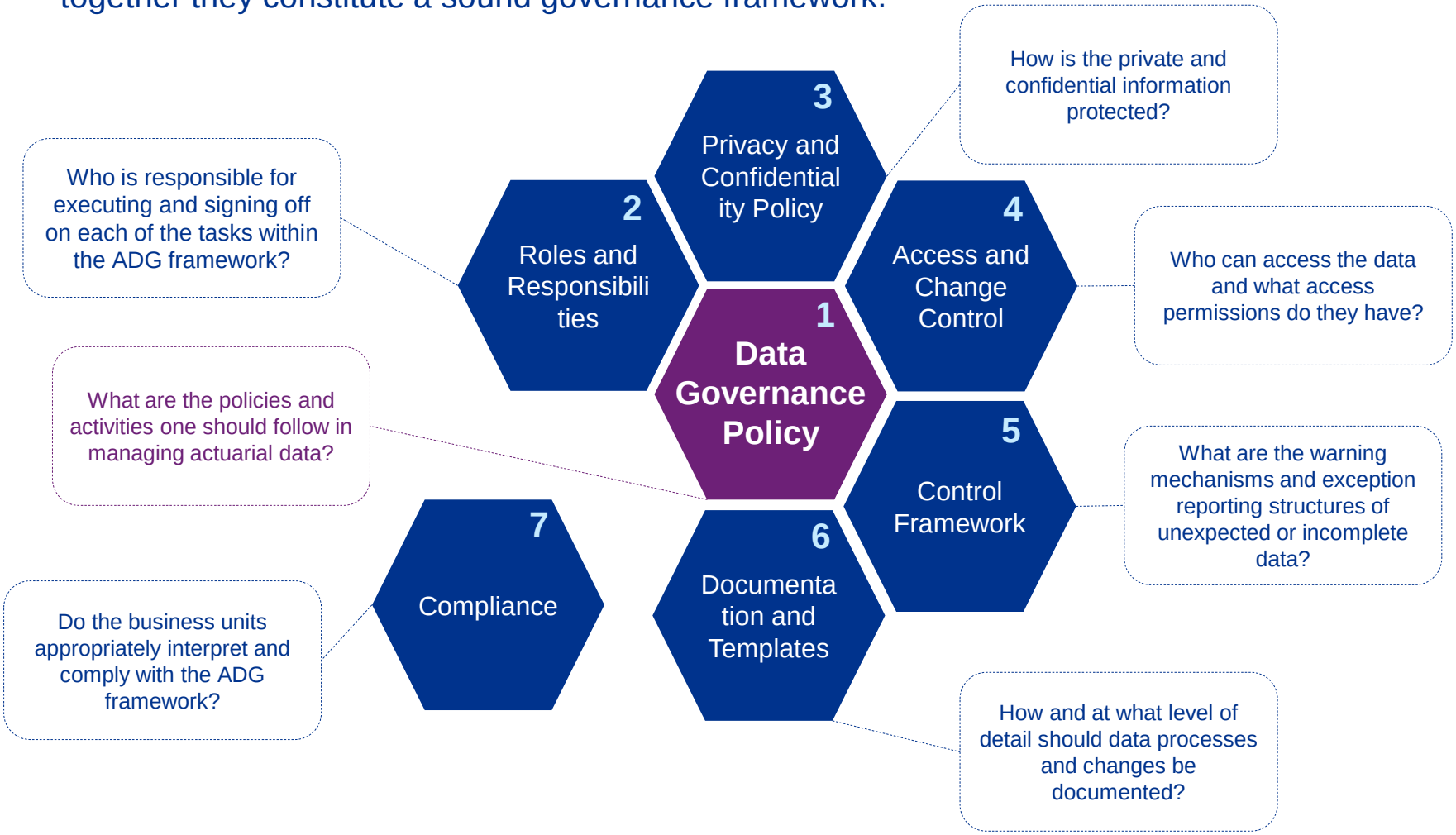
Goals of Actuarial Data Governance

The goals of implementing a sound ADG framework can be summarized in the following five mission statements:



Components of Actuarial Data Governance

With Data Governance Policy in the core, these components are highly interdependent, and together they constitute a sound governance framework.



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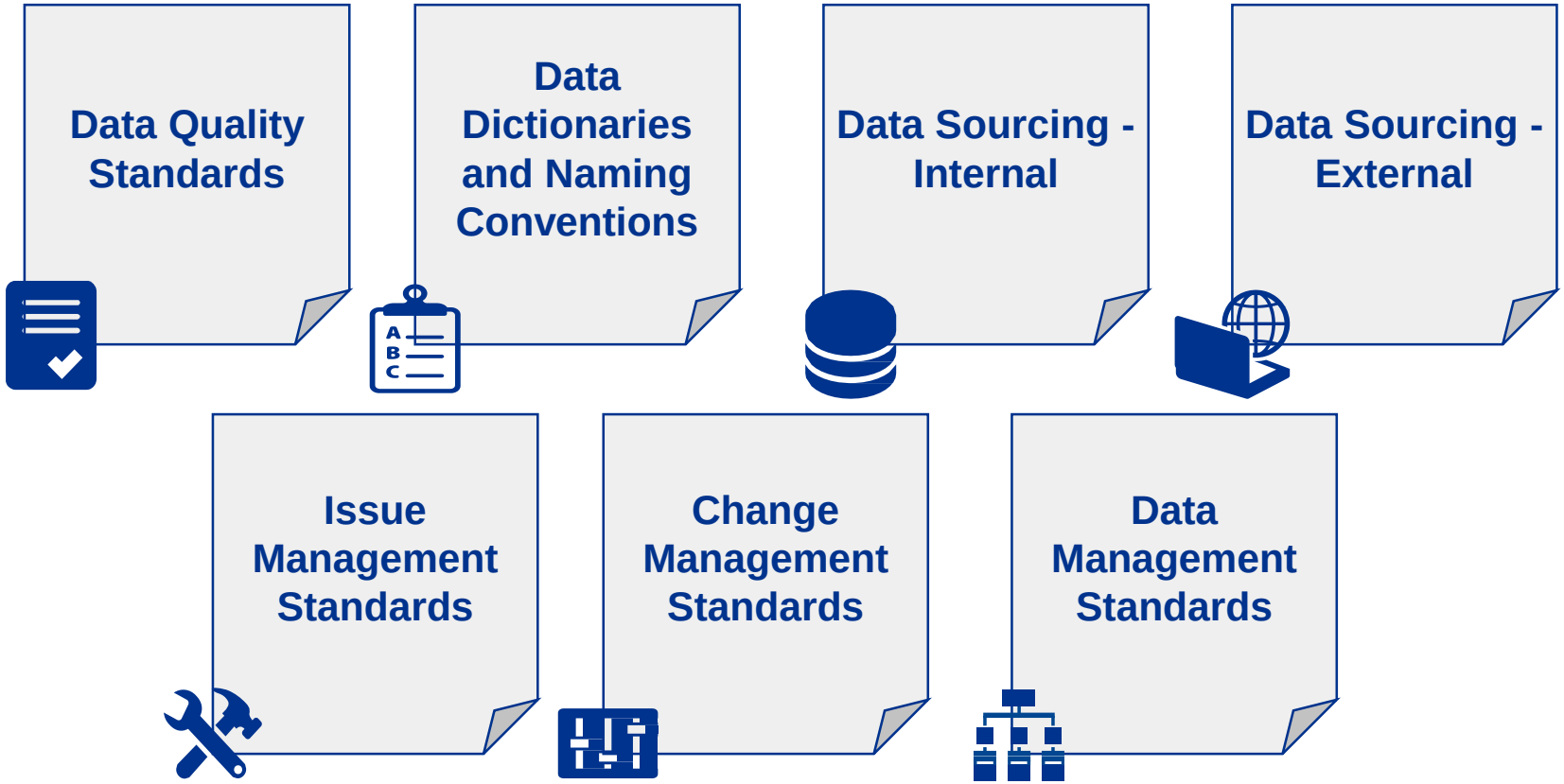
Deep Dive into Components of Actuarial Data Governance

Data Governance Policy

The data governance policy consists of a set of standards around retrieving, managing, transforming, preparing and archiving data. It also contains guidance around data validation, controls and documentation processes.

Actuarial Data Governance Policy Standards



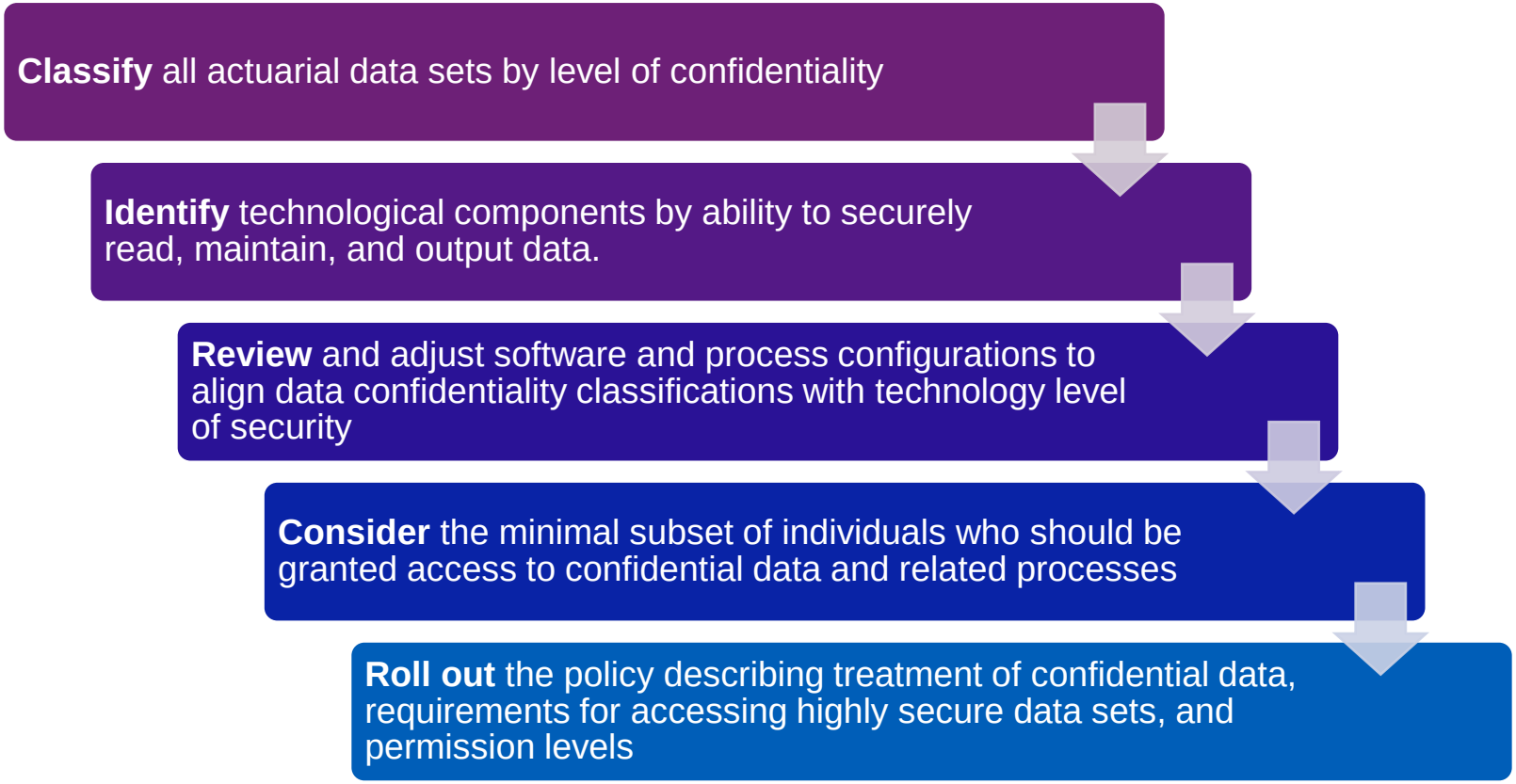
Roles and Responsibilities

Life insurers should aim to build a strong foundation for their enterprise-level data governance framework, and have ADG embedded in the overall policy as one of the segments.

Roles	Members	Responsibilities
C-suite Oversight	Chief Data Officer Chief Actuary Chief Information Security Officer	Data management strategy, security and governance at enterprise level
Data Governance Committee	Head of Data Governance Business Unit Leadership C-suite Representation	Management, oversight and approvals of all data governance activities and programs within the organization
Business Unit Data Working Group 1 Business Unit Data Working Group 2 Business Unit Data Working Group 3	Data Stewards Process Owners Data Owners	Policy interpretation, definition and management of data requirements and processes at business unit level
Business Unit Data Team Business Unit Data Team Business Unit Data Team Business Unit Data Team Business Unit Data Team Business Unit Data Team	Data Architects Data Management Teams Application Owners Policy Owners	Data architecture, extraction, management, transformation and preparation.

Privacy and Confidentiality Policy

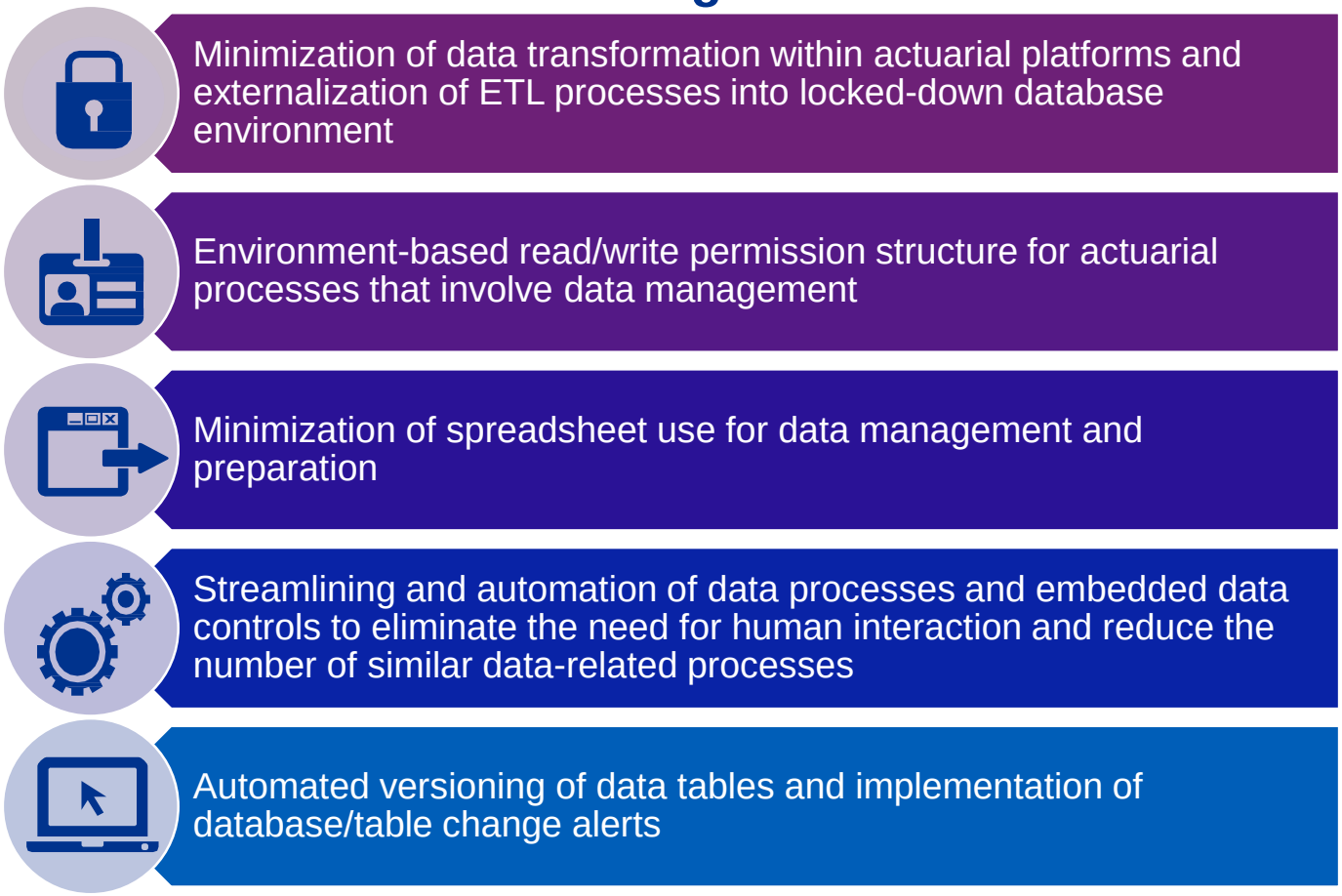
This policy is supplemented by access and change controls and is in place to protect private and confidential data from being viewed, used or removed by an unauthorized party.



Access and Change Control

Limiting the ability to access and change actuarial data is especially important when data contains personally identifiable information of policyholders or other confidential information.

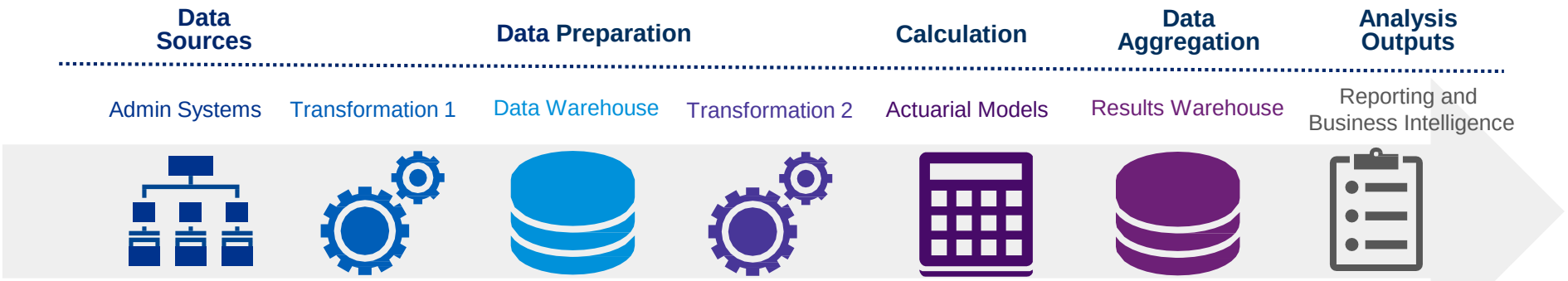
Leading Practices



Control Framework

Controls should be built into every stage of the actuarial data lifecycle and be viewed as a vital component of actuarial data processes. Depending on the criticality of data, both active and passive controls should be implemented into the data processes.

These should be periodically evaluated for **adequacy**, **effectiveness** and **implications of failure**.



- **Trend Analysis** of periodic extracts
- Controls over **relationships of key variables**
- Identification of missing or unexpected format/values

- **Data reconciliation** controls
- **Missing or unexpected format/values handling** controls
- New value in fields reporting

- **Load and reconciliation** to source controls
- Reconciliation to last time period / same period last year
- Control totals

- **Data reconciliation** controls
- Missing or unexpected format/values handing controls
- Procedure error handling controls

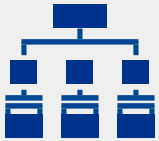
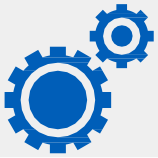
- **Data exceptions** controls
- **Unexpected data in calculations** controls
- Supplementary data evaluation controls

- **Load and reconciliation to source** controls
- Reconciliation to last time period / same period last year
- **Control totals**

- Reconciliation to past reports
- **Comparison to expectations**
- Controls over **relationships of key metrics**

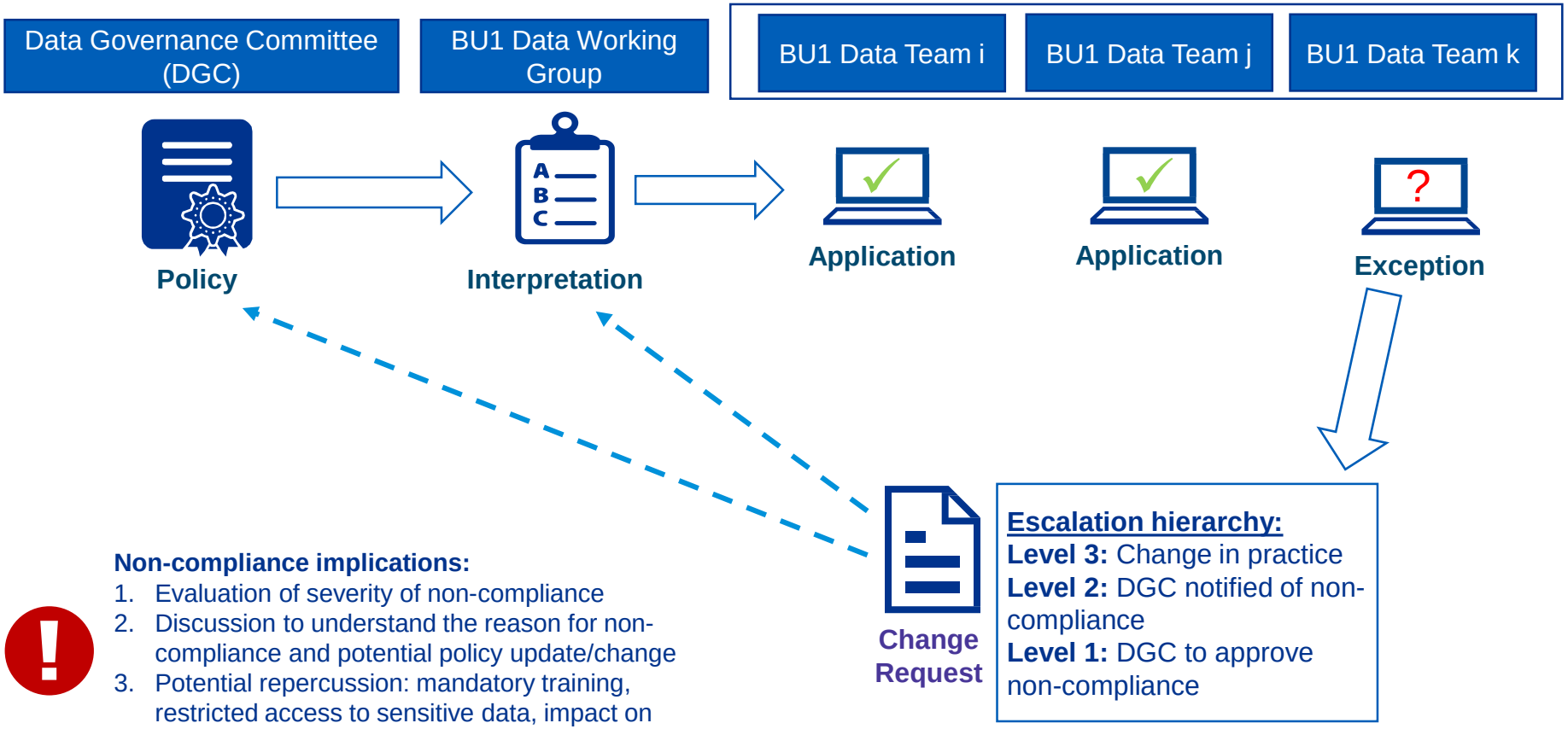
Documentation and Templates

From the very technical comments in the transformation code, to change requests and approvals, documentation is a key for a sound governance framework. To expedite and streamline the documentation process, templates are often created to ensure all the required information is populated.

Data Sources	Data Preparation			Calculation	Data Aggregation	Analysis Outputs
Admin Systems	Transformation 1	Data Warehouse	Transformation 2	Actuarial Models	Results Warehouse	Reporting and Business Intelligence
						
• **Standards and glossary** for open text fields • Admin system **data validation results** • **Data mapping** rules from legacy admin systems	• **Data dictionaries** and data aggregation approach • **ETL mapping** issue identification template • Technical ETL documentation	• Table and field **naming conventions** • Table inventory • **Process flows and table relationships**	• Extract file **change request** template • **Data dictionaries** • ETL mapping issue identification template	• Data focused **model documentation** • Supplementary data documentation • **Model data reconciliation and controls** documentation	• Table and field **naming conventions** • Table inventory • **Process flows and table relationships**	• Data related exceptions and limitations • Data sources and parameters • **Data visualization** and commentary

Compliance

Compliance with the ADG policies will ensure continuous success of the framework.



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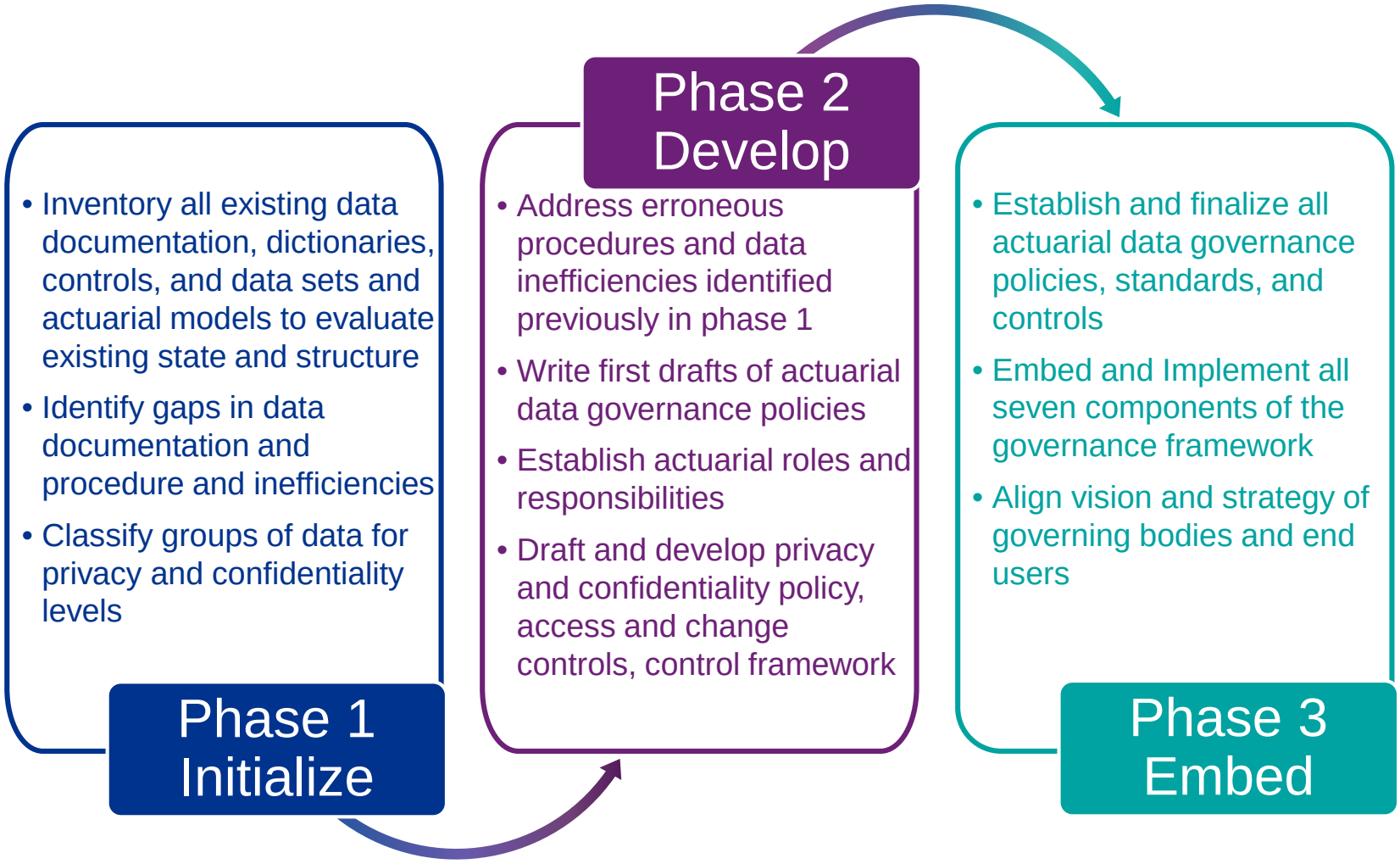
Actuarial Data Governance – Phased Implementation

ADG Implementation



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Thank you

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