End-to-end actuarial system implementation

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Agenda

- 1. Introduction
- 2. Objectives
- 3. Who are the key stakeholders?
- 4. System development life cycle (SDLC) organization
- 5. End-to-end view of the integrated system implementation
- 6. How do the stakeholders work together?
- 7. Systems implementation approach
- 8. Key activities and benefits
- 9. Lessons learned
- 10. Conclusions



Introduction

- Across the insurance industry, the demands on actuarial functions are increasing; leaders are facing the complex challenge of transforming their organizations to deliver additional higher-quality services with increasing cost effectiveness. Innovations in data, technology and managed services are driving the need for operational efficiency.
- Actuarial systems implementations or enhancements are often complex, multidisciplinary endeavors that benefit from standard methods and approaches in order to work cohesively across work streams.
- Implementing actuarial systems and processes requires a standardized approach to work effectively with cross-functional teams. This approach can apply to models, data feeds, data warehouses, general/subledger, experience studies, hedging and risk systems: all systems that involve coordination with actuarial.



Objectives

- This presentation describes a standard approach for end-to-end actuarial system implementations and helps address the following:
 - How to create an approach aligned to a typical systems development life cycle (SDLC) for a consistent, quality-controlled approach to actuarial system implementations?
 - What are the activities and deliverables that bring structure and definition to the processes of an actuarial system implementation?
 - What is an example of a standardized approach to defining clear work products, clear definitions of completeness and the work breakdown structure of an end-to-end actuarial system implementation project?



Who are the key stakeholders?

 Below are some of the users, suppliers, beneficiaries and parties that have a vested interest in the integrated (coordinated) process:

Stakeholders
Actuarial teams (valuation, projections, risk/asset liability management, pricing, etc.)
Vendors (model platform, finance and risk systems, etc.) and other system integrators
Information technology (architecture, data etc.)
Modeling Center of Excellence, Project Management Office (PMO), Change Management Office (CMO) and Testing Center of Excellence
Finance, Accounting, Risk, Treasury, Corporate, Reinsurance, Model Risk Management

System development life cycle (SDLC) structure

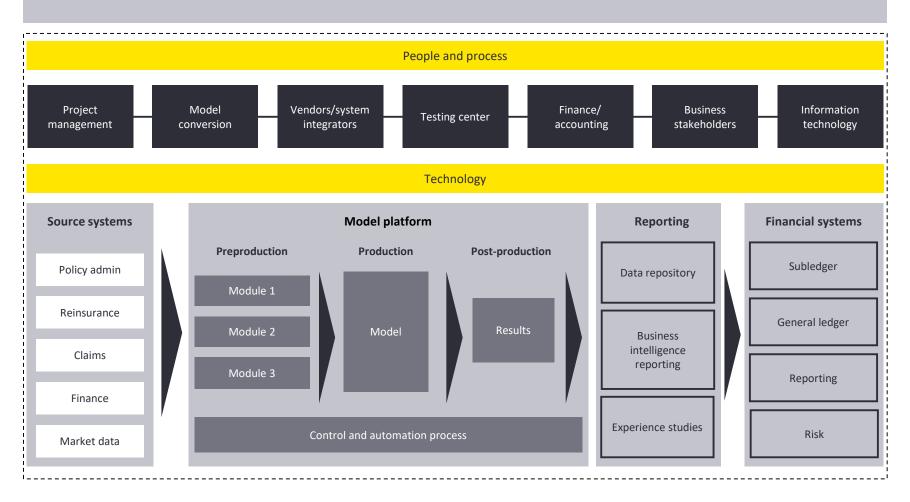
SDLC

- SDLC is a multi-step, iterative process, structured in a methodical way. This process is used to provide a framework for technical and nontechnical activities to deliver a quality system that meets or exceeds business expectations.
- This approach provides standardization to actuarial system implementations. Within each phase, there are activities that bring structure to the process.
- The list below is not exhaustive but provides a summary view of this approach.

Planning			Execution		
Planning	Requirements	Design	Development	Testing	Deployment
 Current state assessment Software selection Team structure Implementation road map 	 Gather business requirements Define testing strategies Define model and process governance 	 Define architecture Technical design documentation Data, model and reporting design Process and automation design 	 Model development Assumptions management Data management and reporting Automation 	 User acceptance testing and system integration testing plans Test execution Defect triage 	 Operation support plan Implementation review Production cutover
		Program mana	gement		
Define program charter and governance		Monitor and report on program health		 Facilitate and address risks, assumptions, issues and dependencies (RAID) 	
		Change mana	gement		
Establish communication strategy		Develop training plan		 Identify and support people and process impacts 	

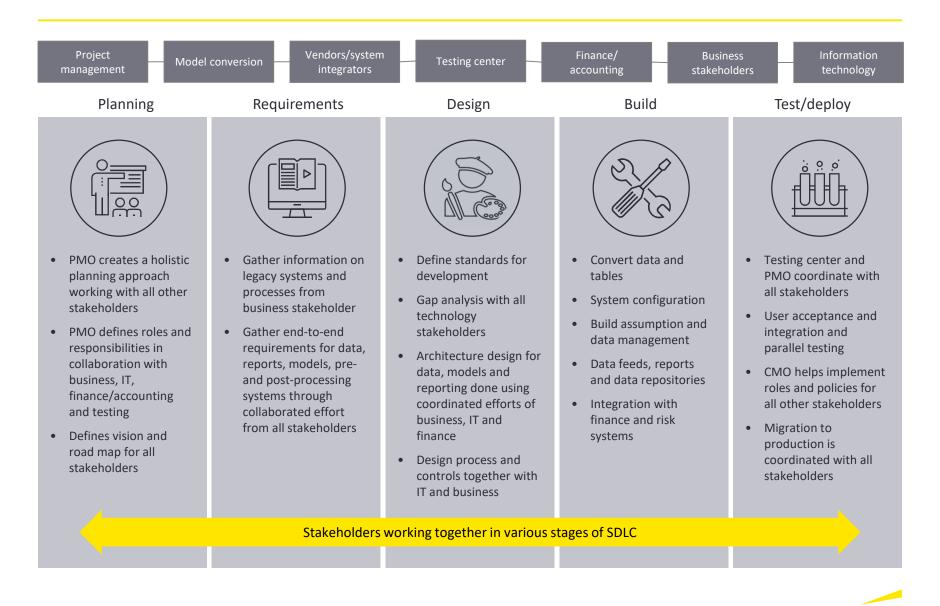
End-to-end view of the integrated actuarial system implementation

A successful actuarial system implementation requires an integrated (coordinated and unified) approach across work streams and components. An integrated transformation approach across people, process and technology should drive the planning and implementation work.





How do they work together?



Key activities and benefits

Stages	Benefits
Planning	Able to manage multiple efforts and large teams
 Define roles and responsibilities Define work streams and stakeholders Identify key risks, issues, dependencies and mitigating actions 	Increases coordination and collaboration across teams
Define road map Requirements	Builds consensus among stakeholders
Create business requirementsCreate traceability to requirements and processes	Centralized traceability of requirements (IT, business etc.)
Identify gaps in solutionsDefine test tolerances and strategy	Makes design and build processes more efficient
 Design Design the solution architecture 	Improves current processes
 Perform data mapping Technical documentation of the design for each process 	Efficiency in the build process
Build	Supports smooth testing of components
 Develop supporting data feeds, reports and end-user repositories Develop model configuration Documentation of the build 	Reduces defects
Execute unit and component test plans Test/deploy	Enhances knowledge transfer
Clear UAT and other test cycles Produce defect reports	Enhances operational support
Deliver training Set clear roles and responsibilities for production support	Supports post-implementation review



Page 9

Lessons learned

Planning

- Engage all stakeholders early
- Plan for resource gaps
- Plan for time constraints
- Identify subject-matter resources

Requirements

- Understand the critical path capabilities
- Develop training plans early on
- Understand and plan for all reports up front

Design

- Plan for all data integration up front
- Develop a pilot model basis

Testing

- Allow adequate user acceptance testing (UAT) time
- Create test automation processes

Deployment

- Test migrations from development to quality assurance to production domains early on
- Develop training plans early on

Build

- Design coding standards up front
- Reserve additional time for unanticipated complexity in the build



Conclusions

- Considering the complex nature of actuarial system implementations, leveraging the principles of a standardized system development life cycle (SDLC) structure can be an effective tool when it comes to delivering a high-quality, effective and cost-efficient actuarial system implementation.
- This does not only apply to model conversions, but also to several other actuarial transformations and implementations such as finance/accounting transformations (LDTI, IFRS), data analytics and experience studies, hedging/risk management projects, etc.
- Alignment and coordination of all key stakeholders throughout the SDLC is an important part of the process.
- A successful actuarial system implementation requires an integrated (unified/combined) approach across work streams and components. An integrated transformation approach across people, process and technology should drive the planning and implementation work.



Questions?



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