



Institute
and Faculty
of Actuaries

IFoA Life Conference

From spreadsheets to sparks: igniting
finance with Databricks

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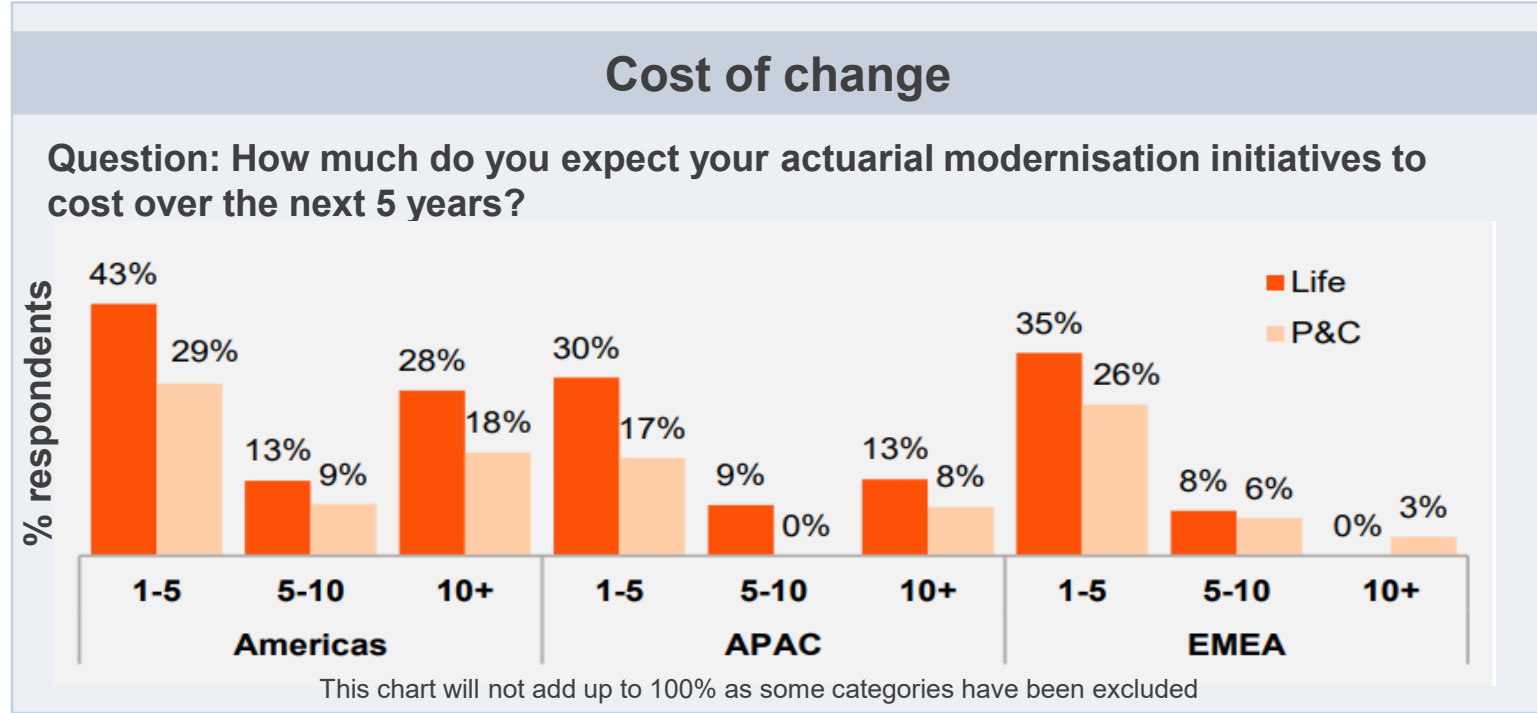
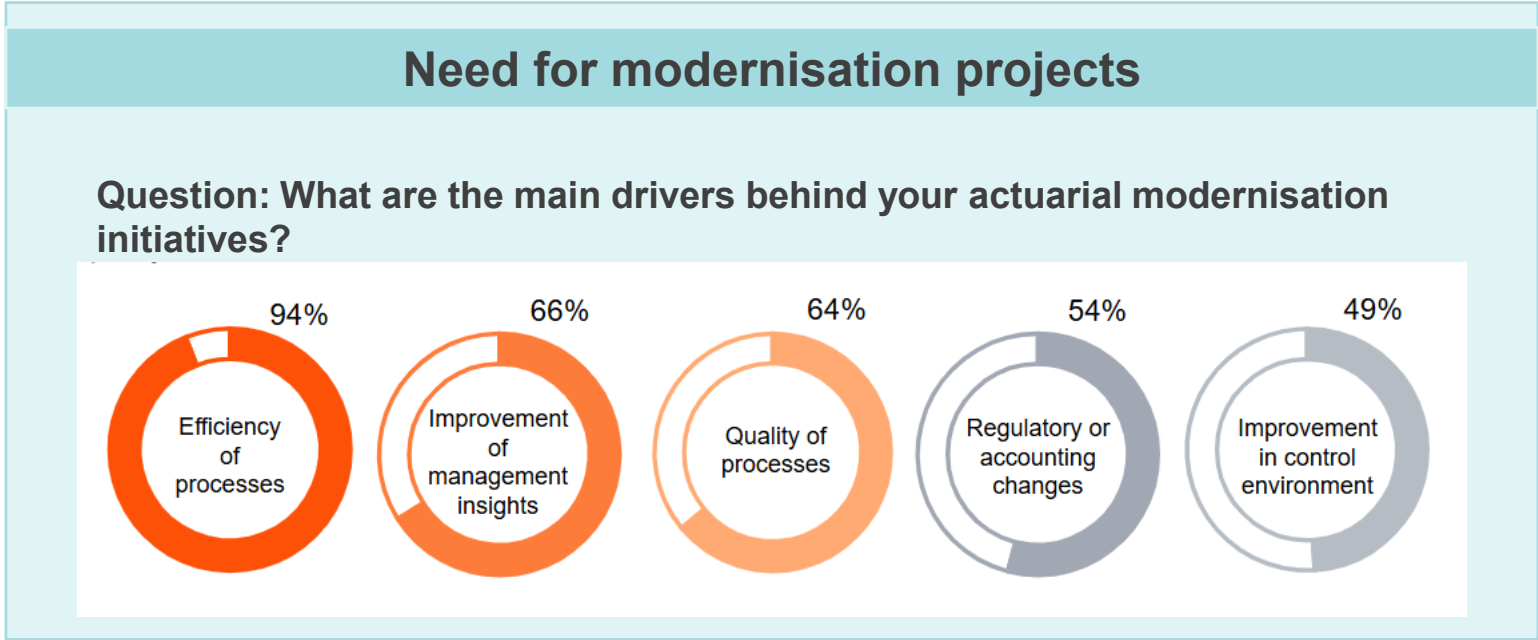
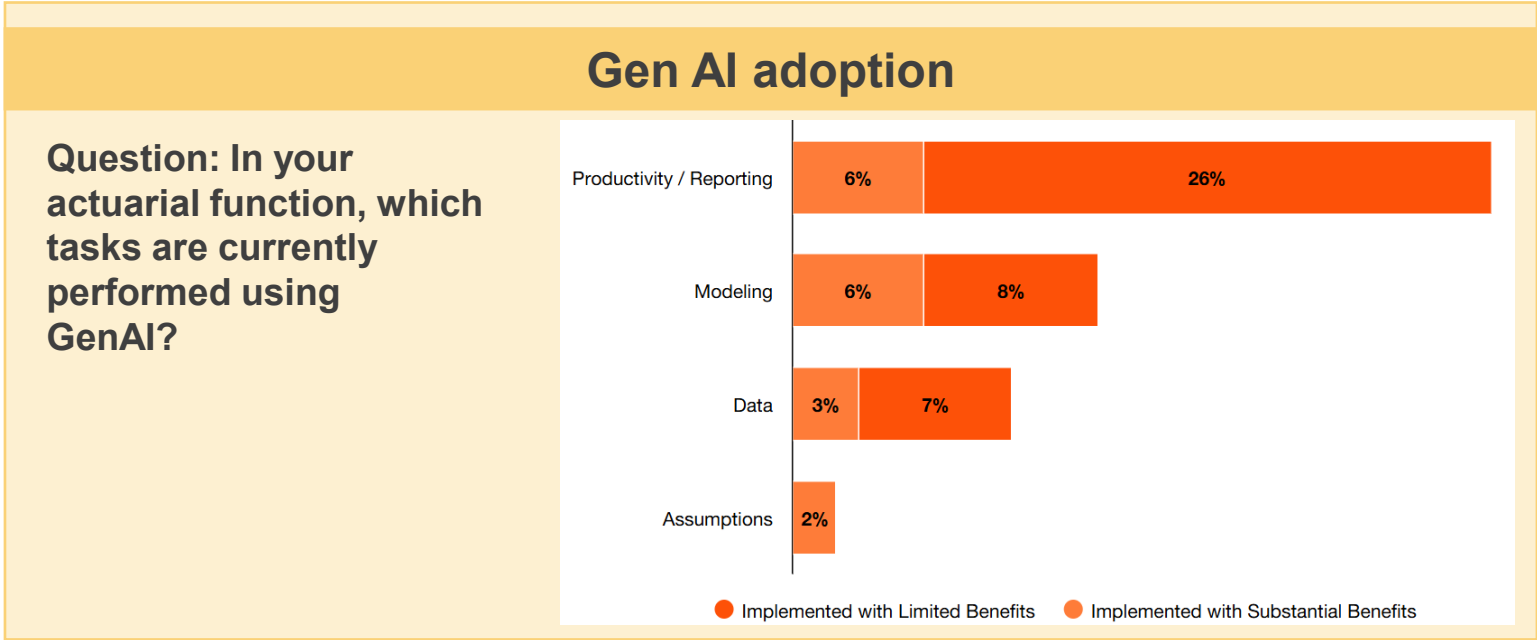
PwC UK

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Actuarial Modernisation – A Case for Investment?



1. Asia Pacific, 2. Europe, Middle East and Africa



Actuarial Modernisation – A Case for Investment?

Challenges

Over-reliance on excel



- Error prone
- Hard to scale

Key person risk



- Concentration of expertise and single-point failure

Slow model run time



- Longer processing and WDT

Cost Pressures



- Cost-driven trade-offs that drive inefficiency.



Capacity for change



- Insufficient capacity for strategic change

Lack of auditability



- Unclear workflow / pipeline traceability

Rise of data scientists



- Skill gap within evolving market

Poor quality data



- Inconsistent data and lengthy cleansing

Benefits

People



- Actuaries can add higher value insights

Technology



- Faster, scalable technology

Strategic change



- Support strategic change and “What if?” thinking

Scalability & flexibility



- Scalable analysis and capacity for growth or business change



Operational resilience

- Robust, repeatable pipelines reduce single points of failure.

Diversity



- Mixed skillsets increases versatility in modelling approach

Deeper insights



- Single source of truth and clearer insights.













Governance



- Clear, traceable pipelines
- Auditable, and resilient

Goals of the Modernisation Project

Finance Modernisation isn't just about faster numbers – it's about better understanding of long-term risk and value. To produce a set of goals for our project, we first understood the high value areas to address.

<i>High value areas to address</i>		<i>Key considerations</i>				
		Regulatory compliance	Improved analytics	Reduced WDT	Enterprise wide changes	Retention of staff
1	Proactive risk management, creating more resilience and better controls.					
2	Support strategic decision making with better insights, from periodic reporting to continuous insights					
3	Enhance the working day timetable: accelerate and reduce effort.					
4	Cost efficiency – free up more resource to work on project and change activity by reducing time needed to deliver QE results.					
5	Improve staff wellbeing: reducing overtime and increasing retention.					
6	Develop with scalability and flexibility in mind.					

Goals of the Modernisation Project

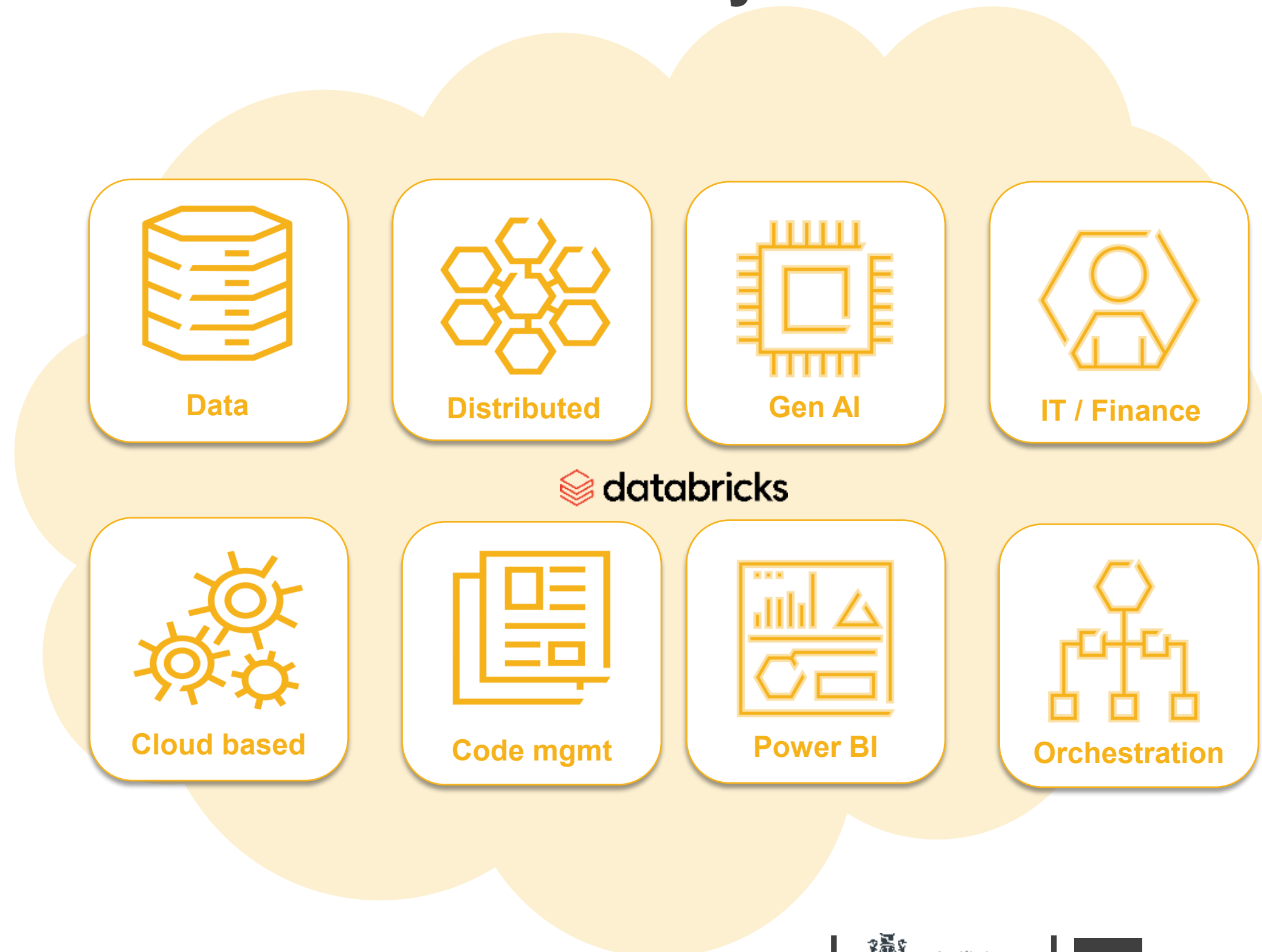
Aligning high value areas with strategic programmes to drive value creation and realise measurable goals.



Enabling Modernisation with a Unified Data Analytics Platform

What is Databricks?

- A unified cloud-native analytics platform for data engineering, analytics and machine learning.
- Manages compute, notebooks, pipelines, and a central data catalogue.
- Uses Apache Spark DataFrames to handle large datasets in a simple, table-like format with distributed processing behind the scenes.
- Built for scalable/distributed processing and collaboration
- Acts as a shared workspace for data, code and models across teams.
- One platform that facilitates data, compute and collaboration.



Enabling Modernisation with a Unified Data Analytics Platform

Bulk Marker solution



- Big data optimisation problem
- Solved using a combination of technology
- Distributed computing through databricks



Easy to set up excel sheets, to cope with flexible demands in pricing

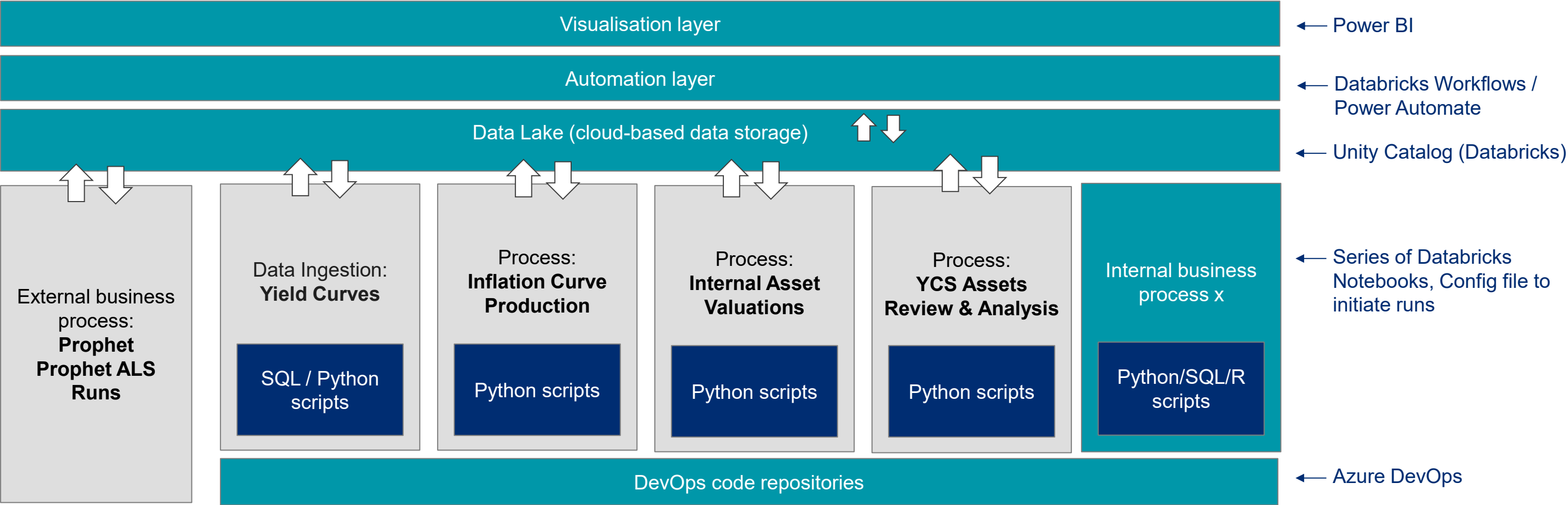


Enabling Modernisation with a Unified Data Analytics Platform



Yield curve service

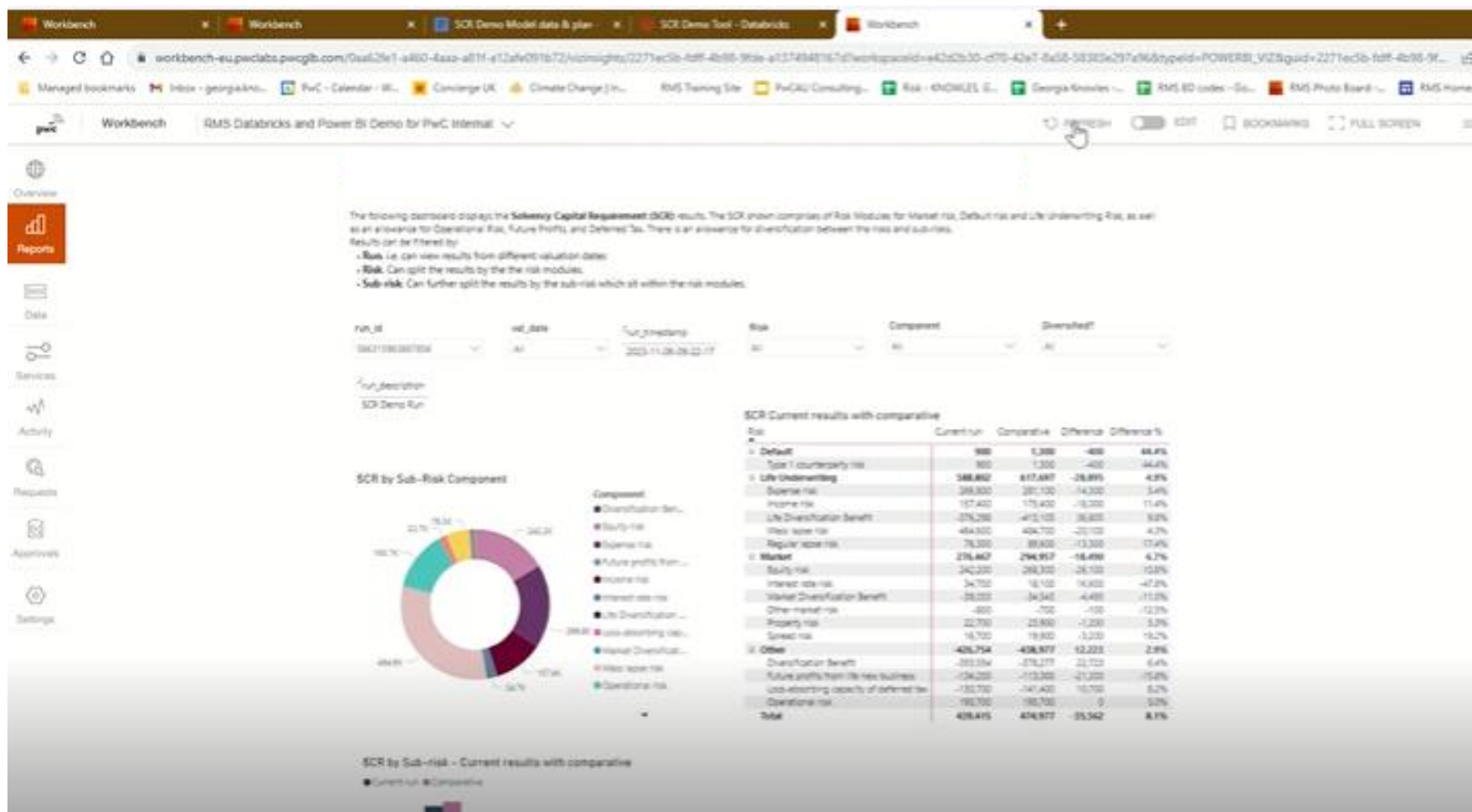
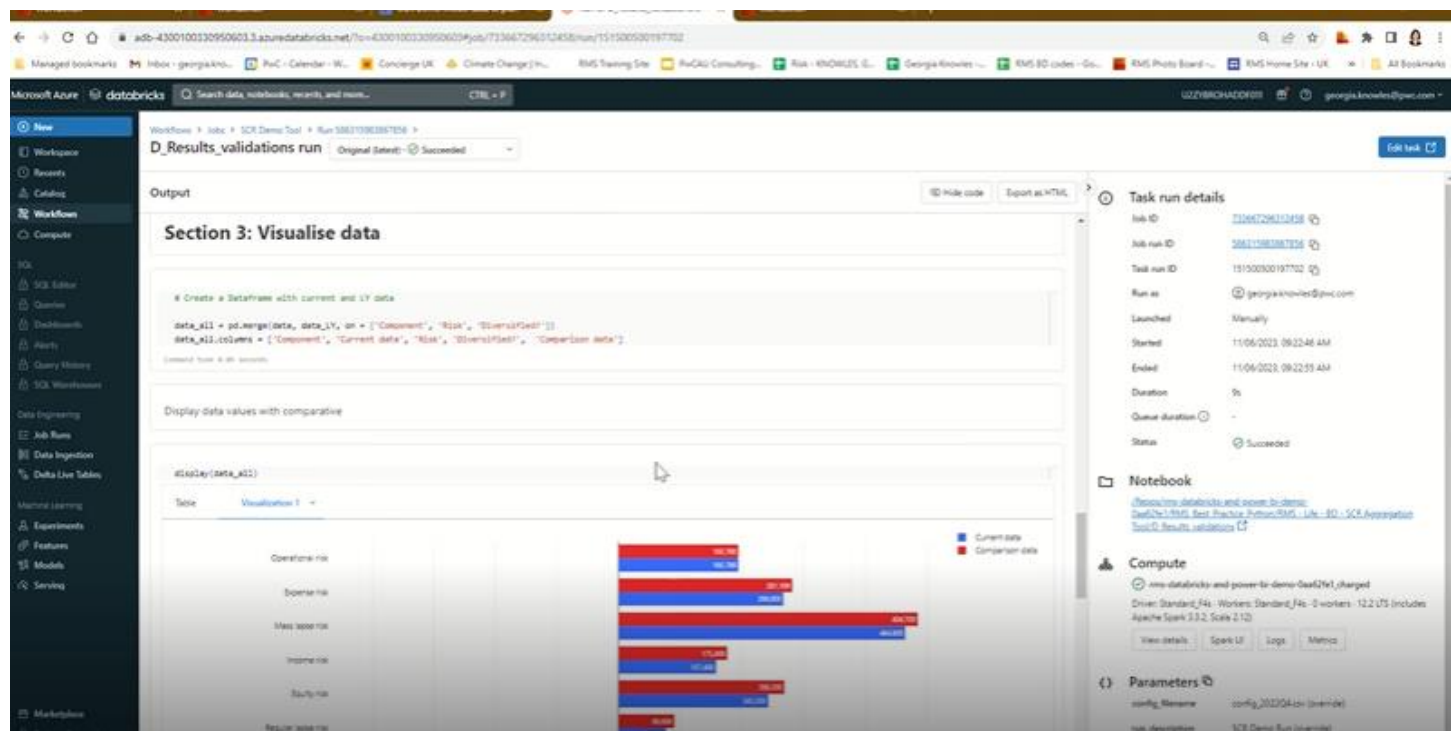
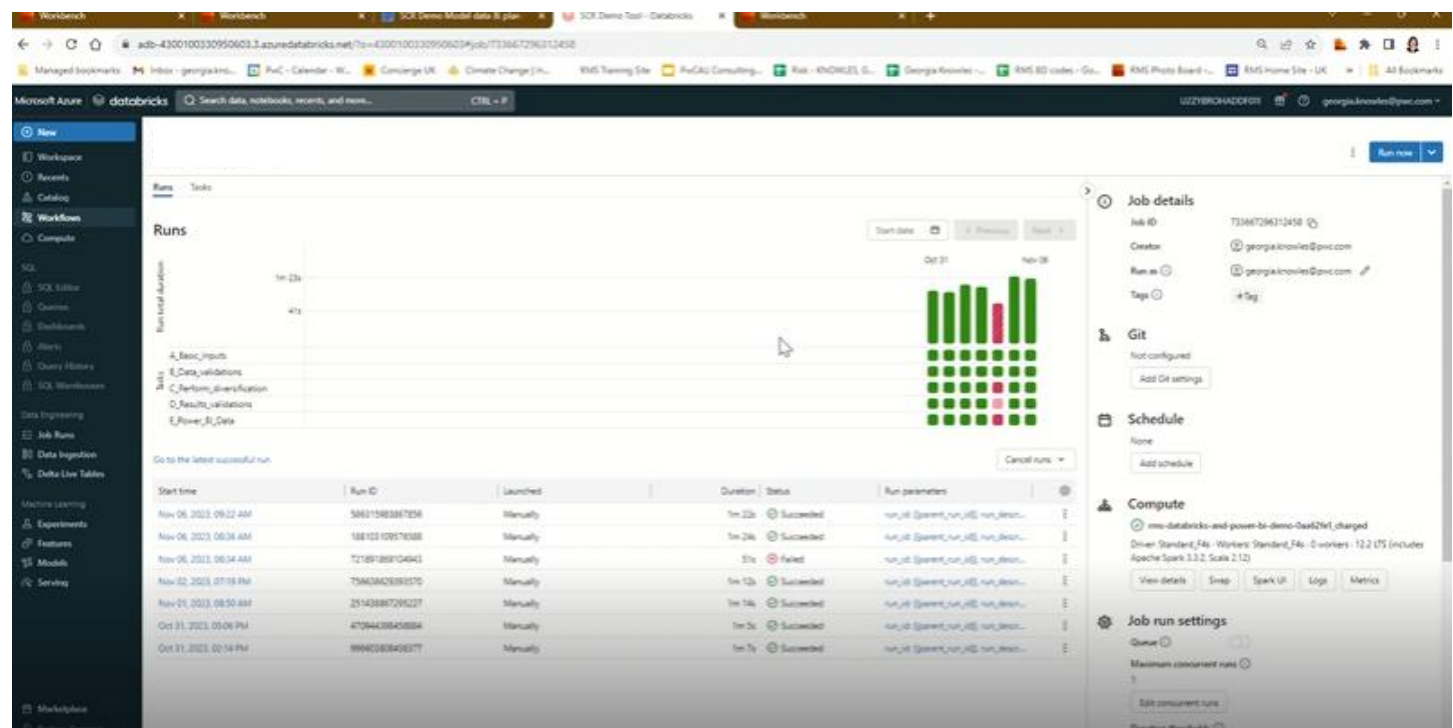
- New ecosystem for accelerating curve production
- Automated process that enhances WDT



Enabling Modernisation with a Unified Data Analytics Platform

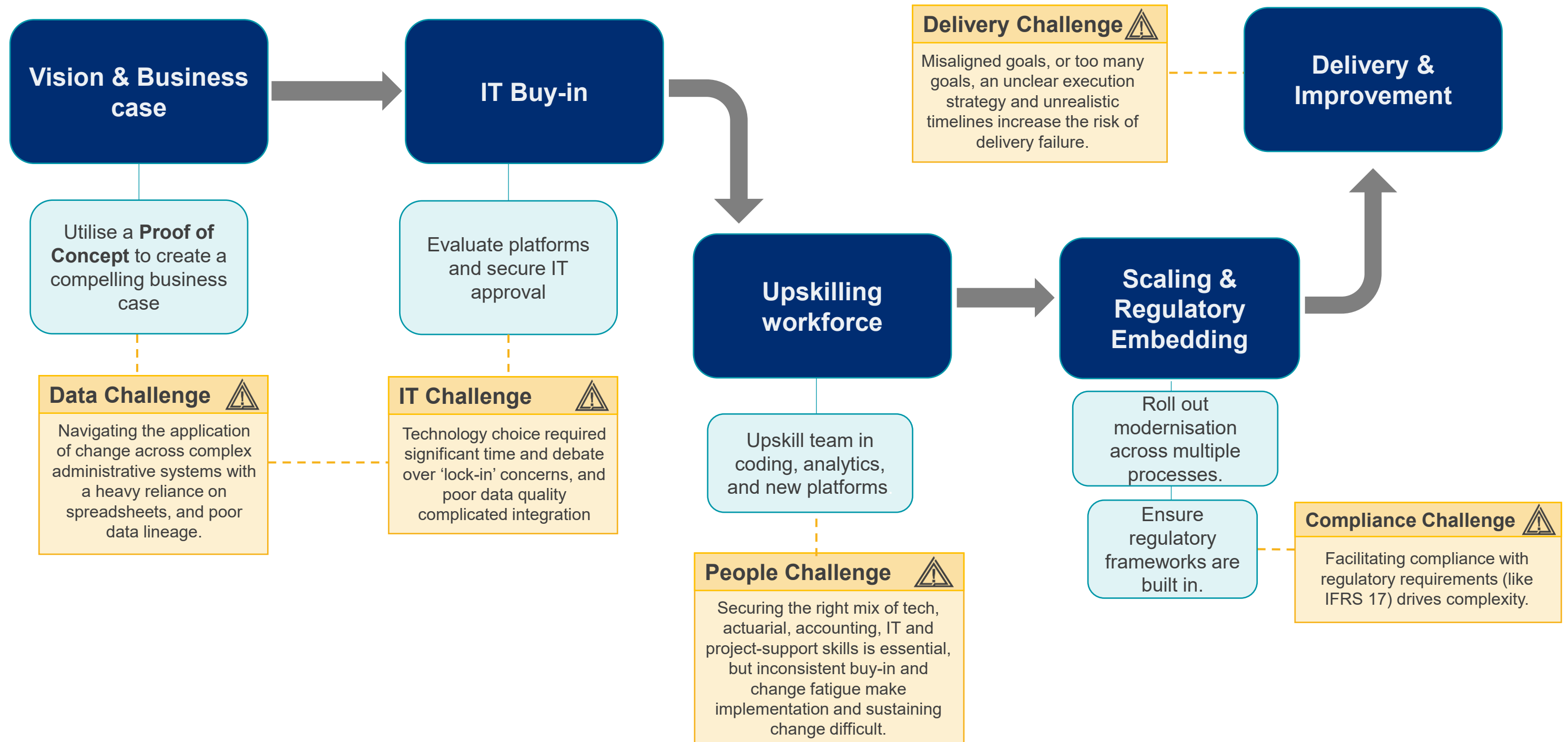
LICAT Capital Reporting

- Replaced RHS of models with automated workflow
- Reduced effort producing Group templates
- Stronger control environment



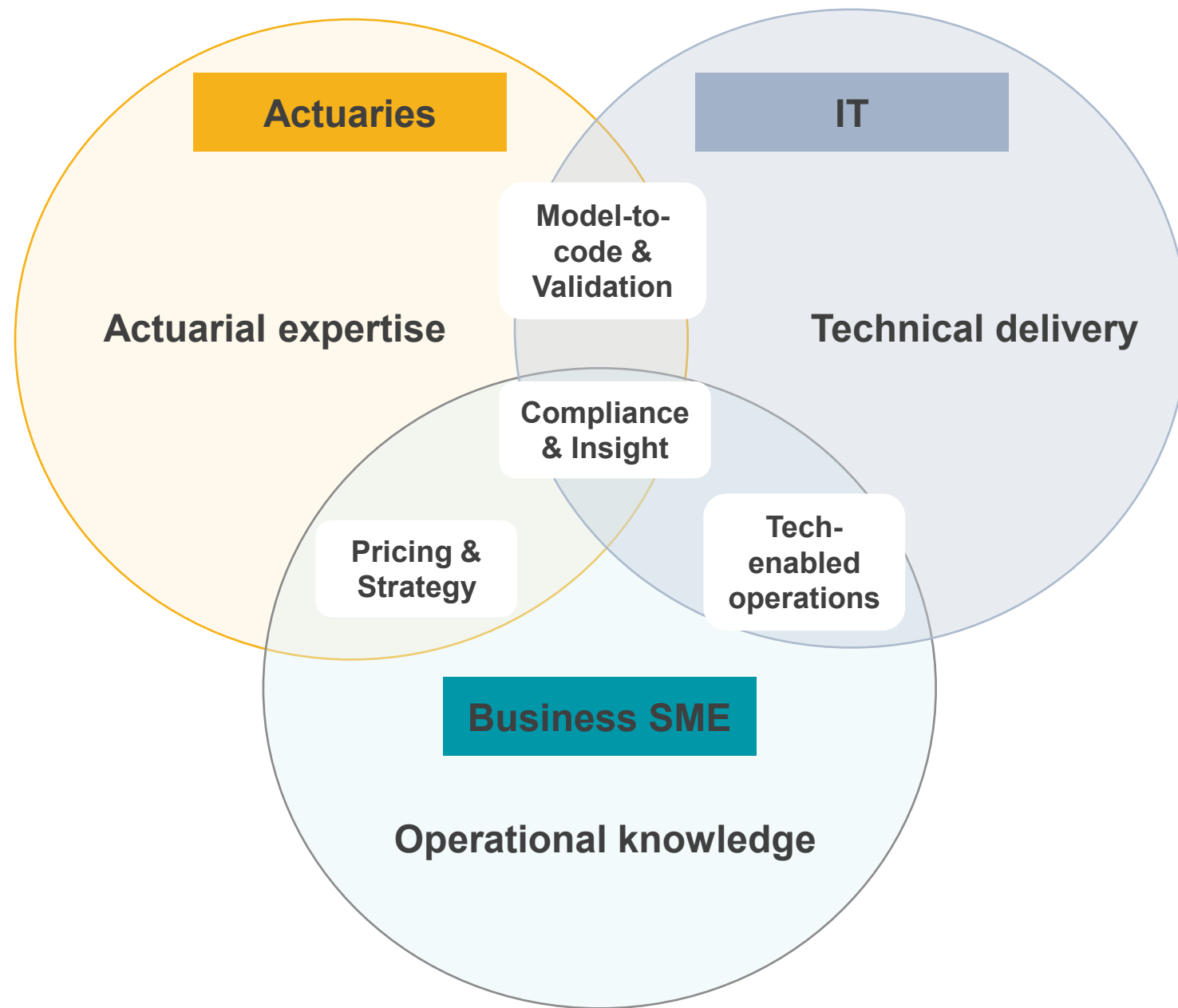
Where to Start

The path to actuarial modernisation follows these key steps...



What do Actuaries Bring?

It is impossible to solve the problem with just IT....



“Actuaries bring the insight and expertise so that modernisation delivers both compliance and insight.”

Actuaries bring domain specialisms:

- Deep understanding of the business
- Translate business needs into technical & process requirements
- Critical thinking & problem solving to unblock design issues
- Actuarial methods to feed into design process
- UAT and 2nd/3rd line checks
- Clear communication of actuarial requirements to IT, project teams and senior stakeholders

Actuaries of the Future

Core Technical

- **Advanced Analytics & AI:** Using machine learning, generative AI, and predictive models.
- **Automation & Workflow Orchestration:** Designing efficient processes with RPA/AI agents.
- **Cloud & High-Performance Computing:** Leveraging GPU clusters, scalable modelling platforms.
- **Data Mastery:** Integrating, cleaning, and governing data across silos.

Business & Strategic Skills

- **Commercial Acumen:** Linking actuarial insights to strategy and growth.
- **Communication:** Explaining complex risks in clear, decision-ready terms.
- **Collaboration:** Partnering across finance, product, risk, and technology.
- **Agility:** Adapting quickly to new regulations, market shifts, and technologies.
- **Customer Outcomes:** Translating insights into measurable value and fair customer impacts

Human Strengths

- **Ethics & Judgement:** Ensuring responsible AI and fair modelling.
- **Creativity & Problem-Solving:** Designing new products and approaches.
- **Leadership & Influence:** Guiding cross-functional teams and shaping organisational direction.
- **Risk, Audit & Assurance:** Embedding robust controls and governance, to ensure model integrity, regulatory compliance, and trusted outcomes.

TECH-ENABLED & MULTI-SKILLED



Questions?