Science Fiction - Coming to an Insurer Near You

Stephen Mills (PwC)
Abi Holloway (Phoenix Group)
David Zhang (PwC)

Your Presenters

Steve Mills, PwC
- Leads PwC Data & Analytics practice in the North
- 20+ years experience of working in data and analytics
- Recent experience of working in AI and advanced analytics
- Lives south of Chester

Abi Holloway, Phoenix Group
- Qualified actuary with 15 years' with Phoenix Group
- 10 years' experience within valuation reporting specialising currently in strategic projects delivery within Finance
- Lives in Birmingham following relocation from Liverpool

David Zhang, PwC
- Qualified actuary specialising in life insurance
- 4 years' experience with PwC, mainly working on life audits and AI projects
- Lives in Bristol and grew up up north in Nottingham
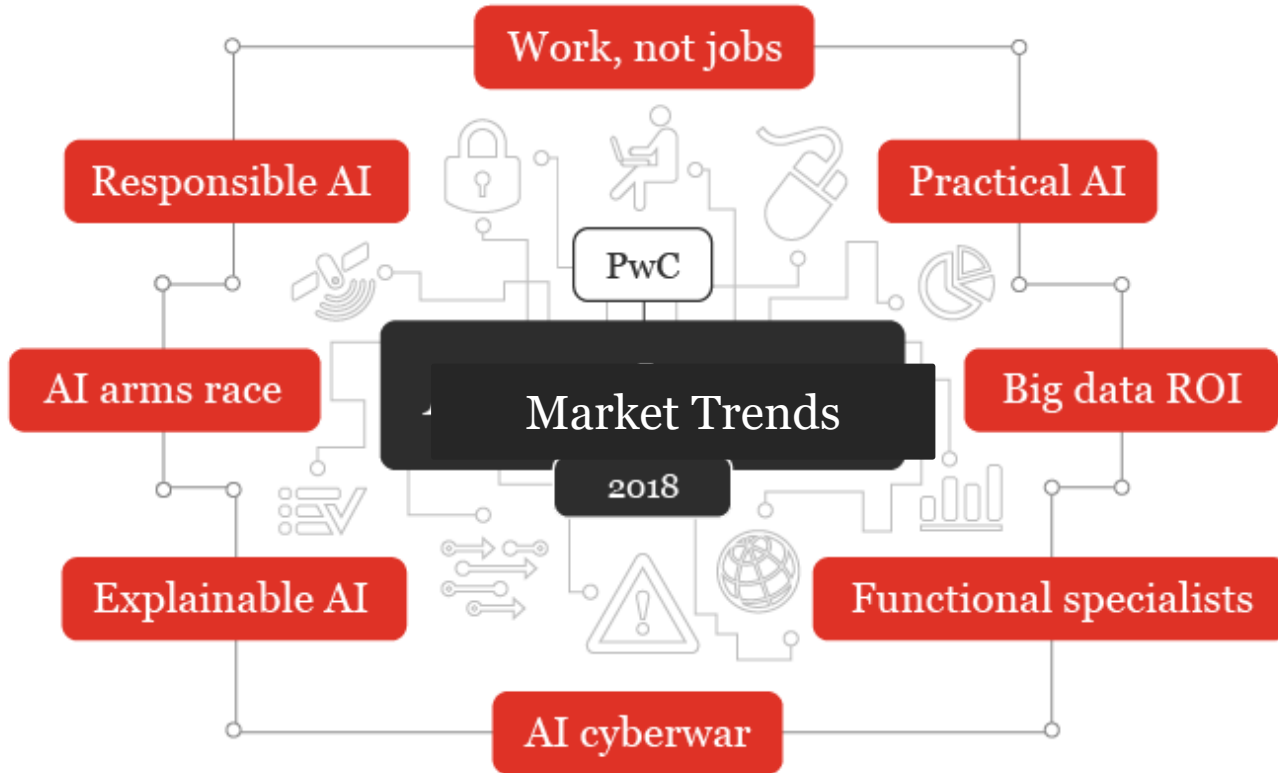- Big fan of all things computer-related!

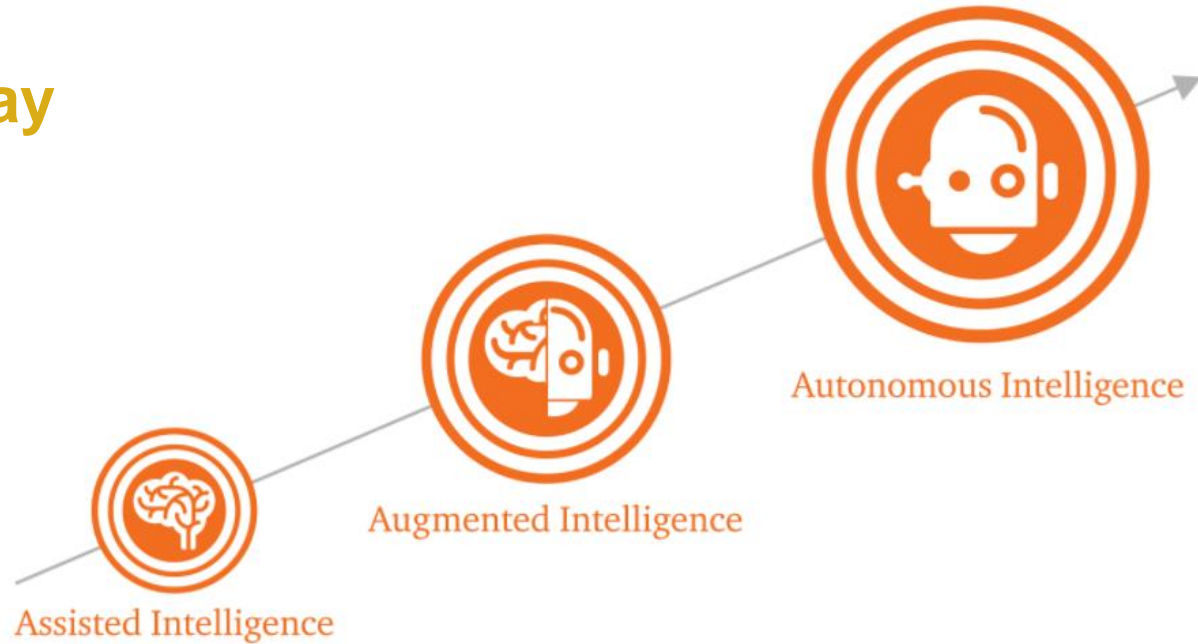Institute
and Faculty
of Actuaries

Part I – The AI Revolution

What's happened with AI in 2018?

AI Today

Assisted Intelligence
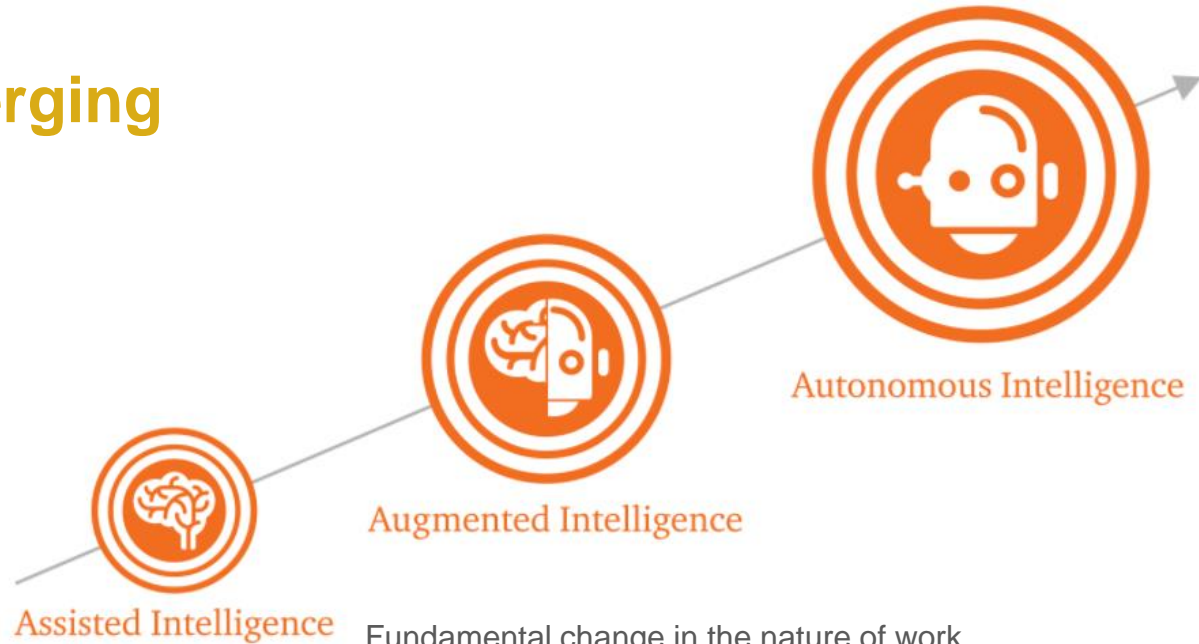
Augmented Intelligence

Autonomous Intelligence

Automating repetitive, standardised or time-consuming tasks and providing assisted intelligence.

Increased demand for STEM skills to build new tech ecosystem.

Institute
and Faculty
of Actuaries

AI Emerging

Assisted Intelligence

Augmented Intelligence

Autonomous Intelligence

Fundamental change in the nature of work. Humans and machines collaborate to make decisions.

Uniquely human traits (emotional intelligence, creativity, persuasion, innovation) become more valuable.

Institute
and Faculty
of Actuaries

AI Future

Assisted Intelligence

Augmented Intelligence

Autonomous Intelligence

Adaptive continuous intelligent systems take over decision making.

The future of humans at work is questioned

Institute and Faculty of Actuaries

Build Trust with Responsible AI

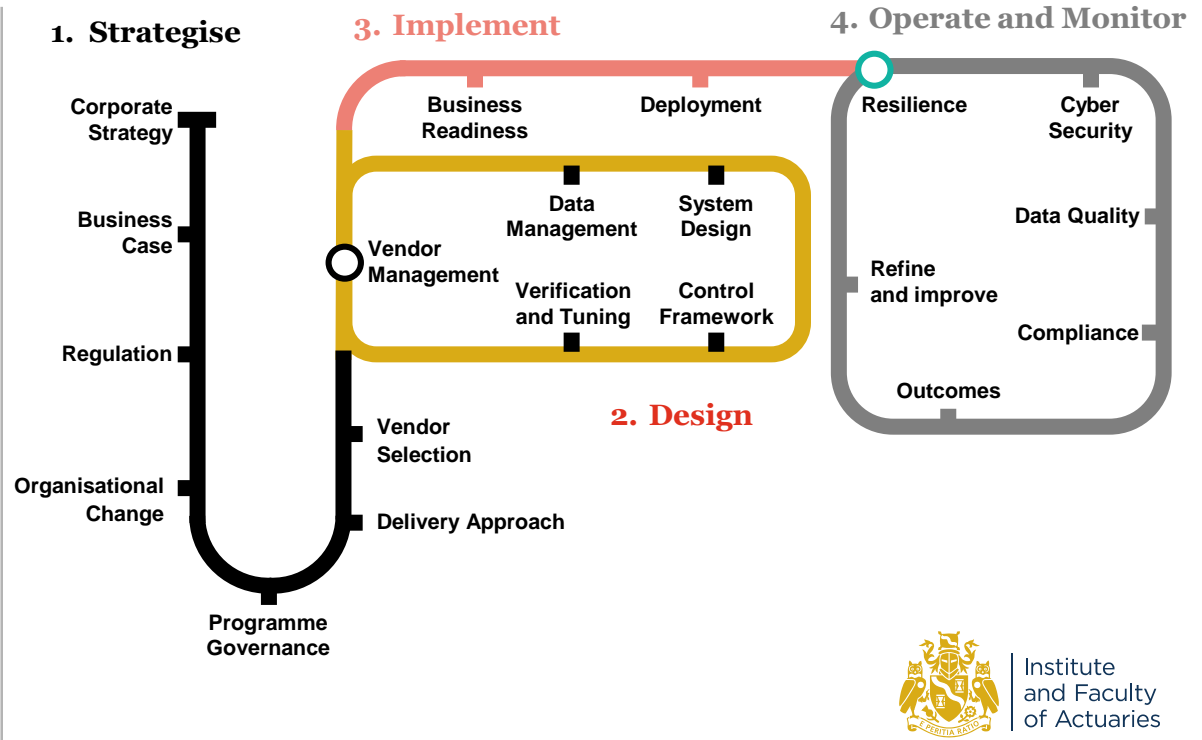Accelerating innovation
How to build trust and
confidence in AI

pwc

Read our point of view '*Accelerating innovation - How to build trust and confidence in AI*' for more information.

1. **Strategise**

3. **Implement**

4. **Operate and Monitor**

Corporate Strategy

Business Case

Regulation

Organisational Change

Programme Governance

Business Readiness

Deployment

Vendor Management

Data Management

System Design

Verification and Tuning

Control Framework

Vendor Selection

Delivery Approach

2. **Design**

Resilience

Cyber Security

Data Quality

Refine and improve

Compliance

Outcomes

Institute and Faculty of Actuaries

Part II – The Robotic Workforce

What does a Software Robot look like?

1

2

3

What is RPA and the Robotic Workforce?

- Based on the notion of **software robots** as workers

- The robots completes tasks on the computer **the same way a human would**

- Best for automating high volume, repetitive tasks across multiple systems (e.g. "swivel-chair activities")

Institute and Faculty of Actuaries

What are the benefits?

24/7

Robots never sleep and can operate 24/7, allowing for continuous monitoring and work

Scalability

The robotic workforce can scale to key, high-volume events e.g. year-end valuations.

Quality and compliance

Software robots can reduce errors and leave a digital audit trail for regulatory compliance.

Speed to delivery

Shorter cycle time and more accurate and timely reaction to demand.

Customer satisfaction

Increased customer satisfaction through a focus on quicker and a more integrated experience with fewer errors.

Speed to implementation

Avoids invasive traditional system integration. Takes weeks or months instead of years.

Value focused talent

Priorities of the human workforce shifts to innovation, insights, and other business development activities.

Cost reduction

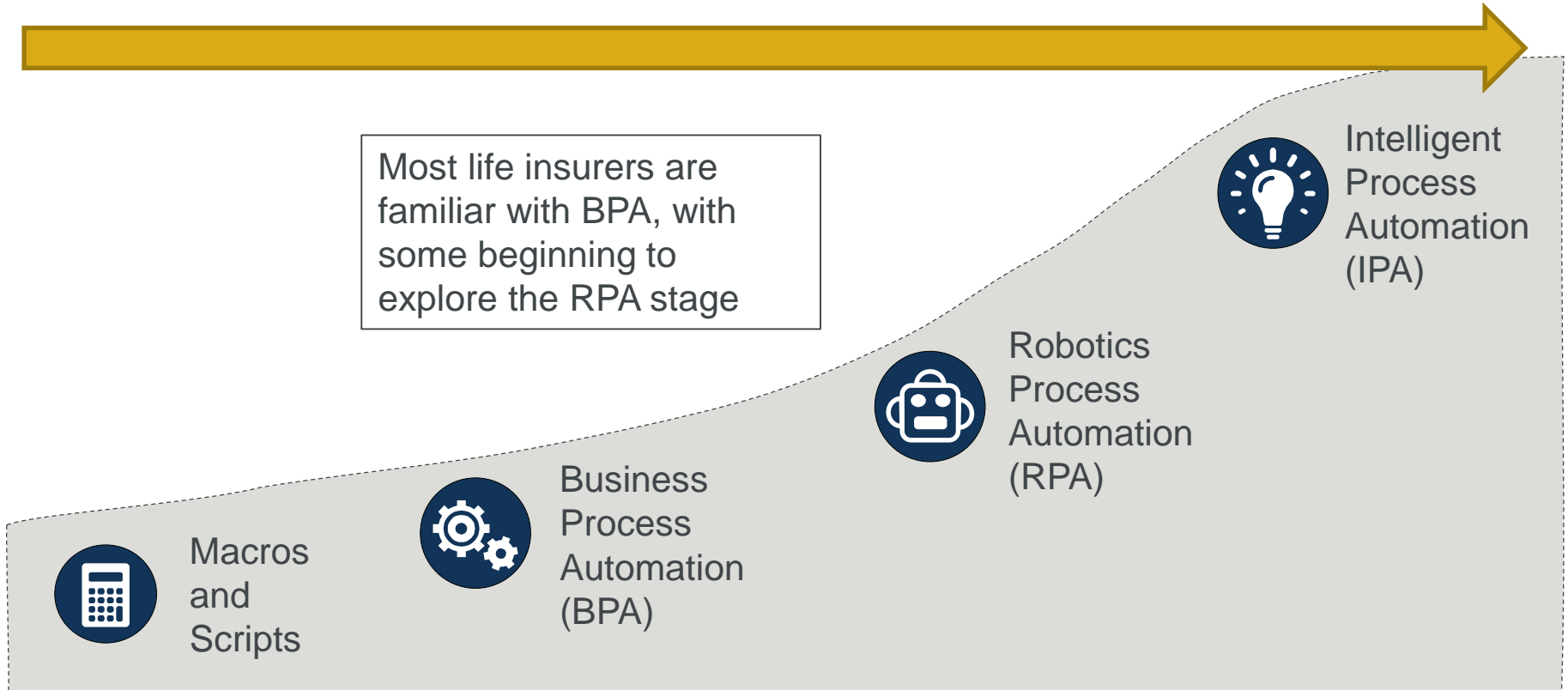Reduced costs on processes containing high volume, repetitive tasks.

Institute and Faculty of Actuaries

Software Robots vs Excel Macros

	Excel Macros	Software Robots
How is it built?	VBA coding	Drag-and-drop activities within visual flowcharts
How does it fit in with existing systems?	Must use existing software architecture and interactions	Can work with virtually any application and/or multiple applications
How transparent is it?	Not very transparent – unless you're very good at deciphering code!	Easier to read and understand due to flowchart-style presentation. Can be programmed to generate its own audit trail.
How is it triggered?	Triggered manually by hand	Usually includes a controller program so that robotics can be run according to a schedule.
What is the scope of the automation?	Usually automates one single task in one spreadsheet	Can automate entire processes across multiple systems
Where is it stored?	On a local machine / in the excel file itself	Can be stored on cloud to allow better scalability

Institute and Faculty of Actuaries

The Automation Continuum

Most life insurers are familiar with BPA, with some beginning to explore the RPA stage

Intelligent Process Automation (IPA)

Robotics Process Automation (RPA)

Business Process Automation (BPA)

Macros and Scripts

David's top three tips

1. Set up the right **ecosystem and culture** for robotics

2. A **collaborative effort** between IT and Actuarial

3. **Long term strategy** – e.g. roadmap for automation, Centre of Excellence, framework for assessing opportunities
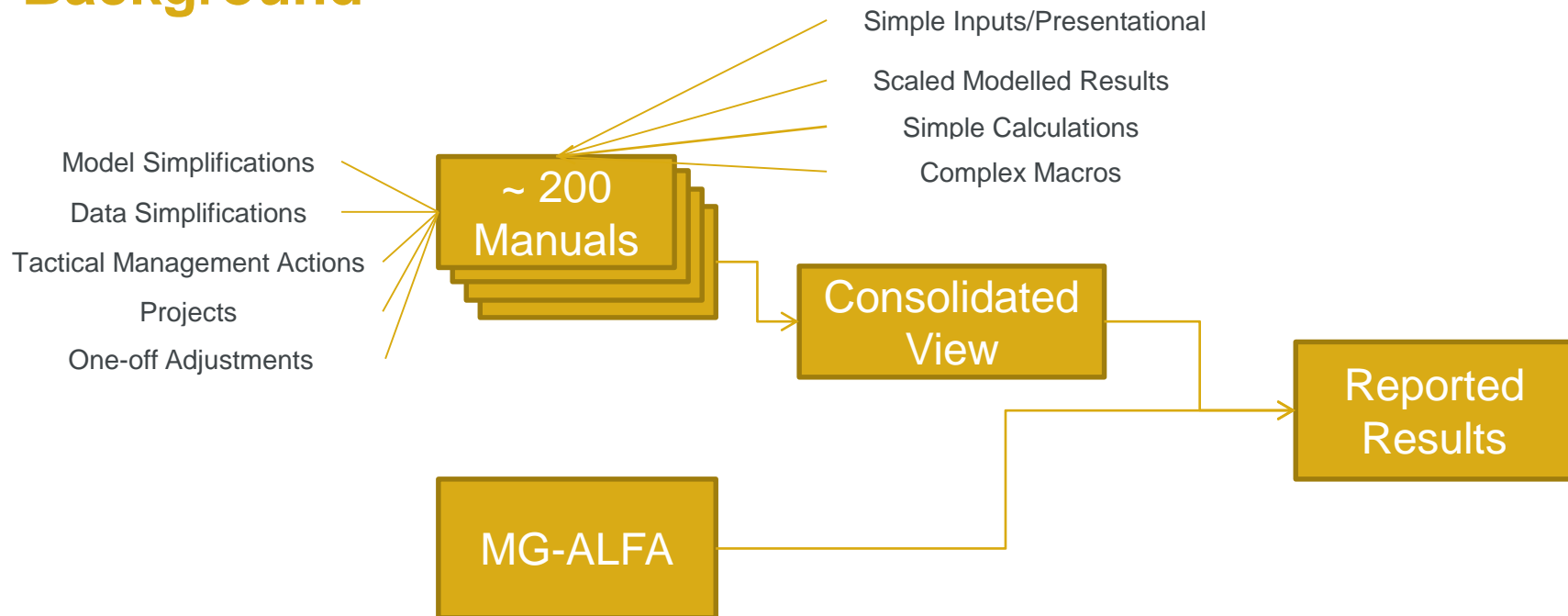
Institute and Faculty of Actuaries

Part III – The Phoenix Robotics Pilot

Background

Simple Inputs/Presentational

Scaled Modelled Results

Simple Calculations

Complex Macros

Model Simplifications

Data Simplifications

Tactical Management Actions

Projects

One-off Adjustments

~ 200 Manuals

Consolidated View

Reported Results

MG-ALFA

Why Use Robotics

✓ Remove Human Error

✓ Resource Needs Reduced

✓ Scalability

✓ Prohibitive Cost of Modelling Manual

✓ Strategic Solution

✓ Enabler for Strategic Projects

✓ Acquisition Ready

✓ Test Case for Phoenix
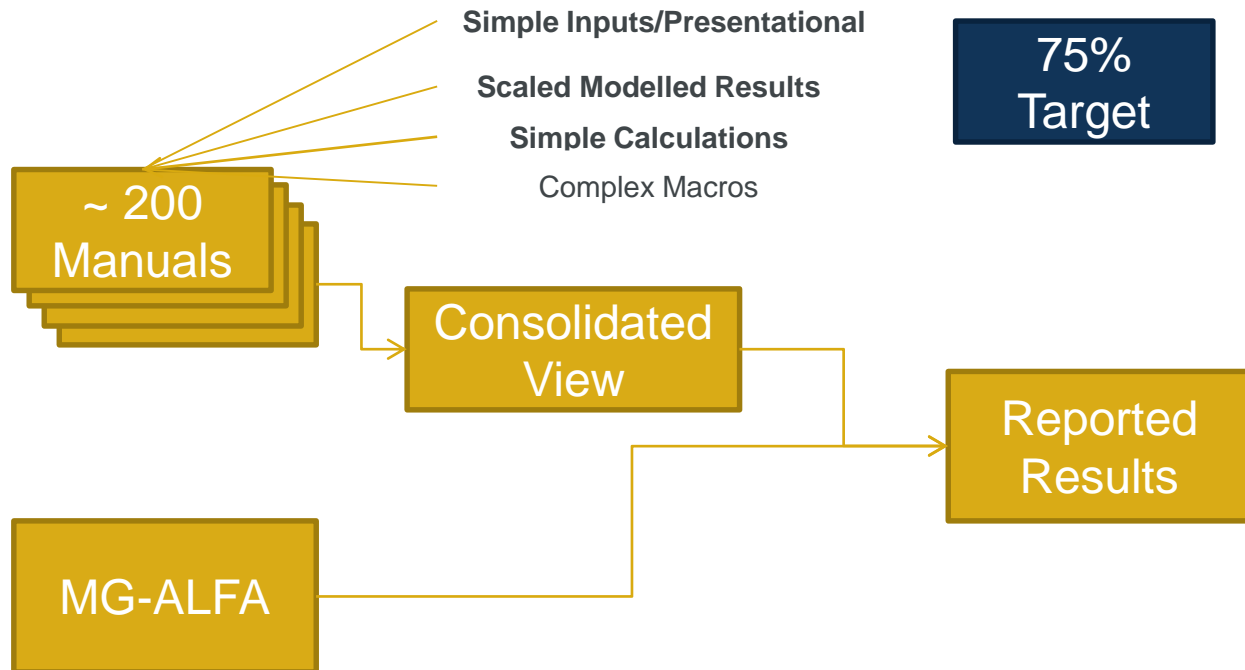
Institute
and Faculty
of Actuaries

What we did

- When chosen to use Robotics wanted a specific model in which we would partner with external experts to develop the system with us

- Project in partnership between the Actuarial Reporting and IT teams within Phoenix

- Identification of manuals as good candidates for use of robotics:
  - Aim for around 75% of current population

Institute
and Faculty
of Actuaries

What We Did

Simple Inputs/Presentational

Scaled Modelled Results
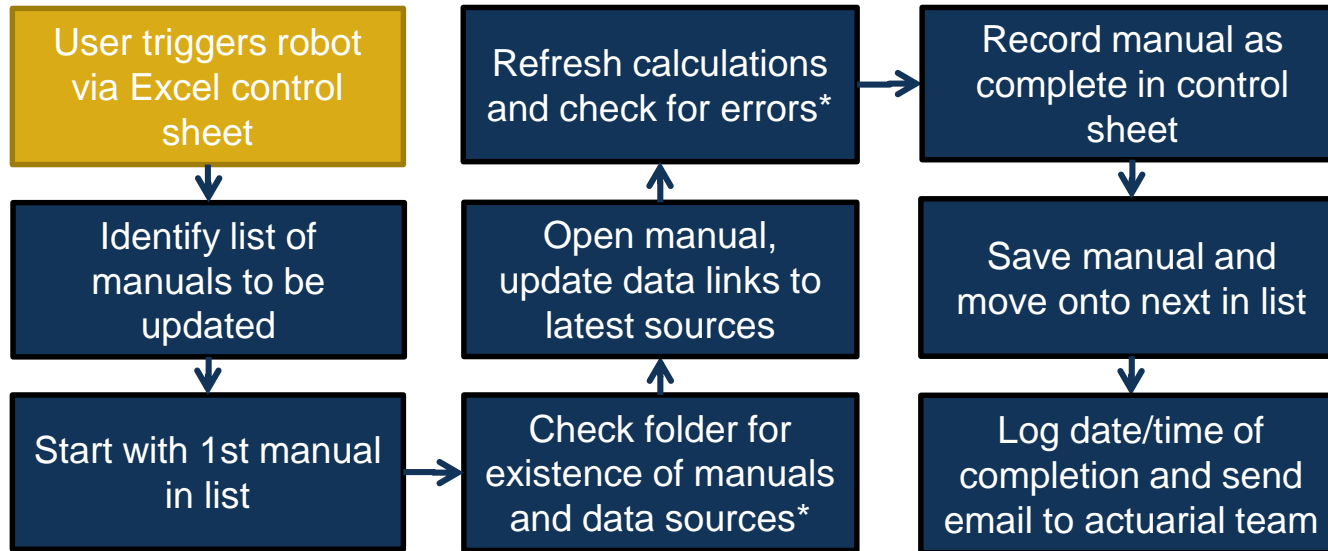
Simple Calculations

Complex Macros

75% Target

~ 200 Manuals

Clean-Up Exercise

- Remove hard-coded inputs
- Simplify links
- Remove links to Non-Excel Documents
- Formalise Inputs

Consolidated View

Reported Results

MG-ALFA

Institute and Faculty of Actuaries

The Solution

User triggers robot via Excel control sheet

↓

Identify list of manuals to be updated

↓

Start with 1st manual in list

→

Check folder for existence of manuals and data sources*

↑

Open manual, update data links to latest sources

↑

Refresh calculations and check for errors*

→

Record manual as complete in control sheet

↓

Save manual and move onto next in list

↓

Log date/time of completion and send email to actuarial team

Institute and Faculty of Actuaries

Next Steps for Phoenix

- Run process live at the YE18 reporting valuation

- Extend use for all business and ad hoc runs

- New manuals arising since exercise to be inducted into Robotic solution

- Focus on "fixing" or simplifying the 25% of manuals not utilising the Robotic solution

- Formalise end state maintenance model with IT

- Extend use to other areas in Phoenix
  - MI production, Solvency Monitoring

Part IV – Future Steps and Q&A

Questions

Comments

The views expressed in this presentation are those of invited contributors and not necessarily those of the IFoA. The IFoA do not endorse any of the views stated, nor any claims or representations made in this presentation and accept no responsibility or liability to any person for loss or damage suffered as a consequence of their placing reliance upon any view, claim or representation made in this presentation.

The information and expressions of opinion contained in this publication are not intended to be a comprehensive study, nor to provide actuarial advice or advice of any nature and should not be treated as a substitute for specific advice concerning individual situations. On no account may any part of this presentation be reproduced without the written permission of the authors.

Institute
and Faculty
of Actuaries

Your Presenters

Steve Mills, PwC
stephen.mills@pwc.com
07966 265 804

David Zhang, PwC
david.z.zhang@pwc.com
07808 799 439

Abi Holloway, Phoenix Group
Abi.Holloway@thephoenixgroup.com
020 3567 9682

Institute
and Faculty
of Actuaries