



Institute  
and Faculty  
of Actuaries

# RoboActuary

## Separation of reporting and reserving

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# What are we going to discuss today?



1) Looking Backwards



2) What is happening now?



3) Looking forwards

# Looking backwards

Something fun

Before the UK Ogden discount rate was changed to -0.75% in 2017, in what year was the rate last changed?

H: 2001



T: 2009



# Looking backwards

Something fun

When was the Bornhuetter Ferguson Method first published?

H: 1975



T: 1995



# Looking backwards

Something fun

What was the primary reason for Independent Insurance's 2001 insolvency?

**H: Fraud**



**T: Manipulated case reserves**



# Looking backwards

## Something fun

What proportion of recent\* insurance impairments were due to under-reserving?

H: 65%



T: 45%



\*P&C Insurers 1969 through to 2014, Based on JLT's 2014 report.

# Looking backwards

Something fun

Is there such a thing as a reserving cycle?

H: No



T: Yes

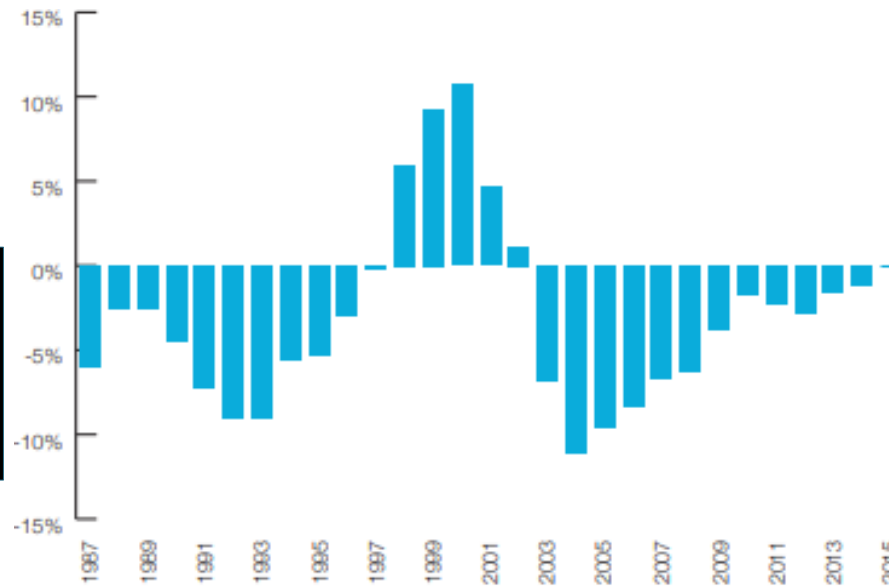


# Looking backwards

Something fun

What does the Y axis on the below graph represent?

**H: Annual change in UK  
actuarial average  
salaries**



**T: % change in ultimate  
from initial estimate, by  
Acc Year**





# Looking backwards

But what was the past?

IFRS  
17

More  
data

SII  
shortening

More  
MI

Change

Now you will need to do **MORE**

but with **LESS**

Re  
Interven  
activities

Products

Expense  
cuts

# Looking backwards

Where can we go from here?

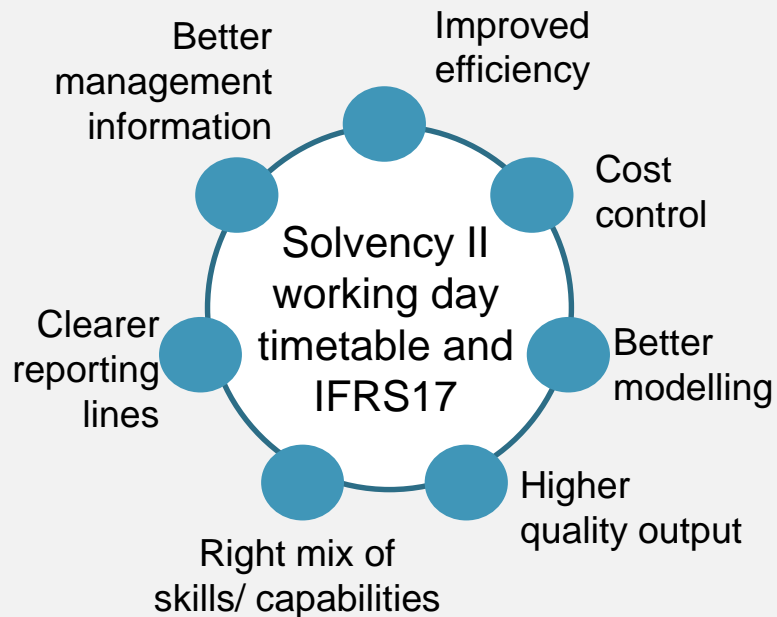


Have we reached **crunch** point?

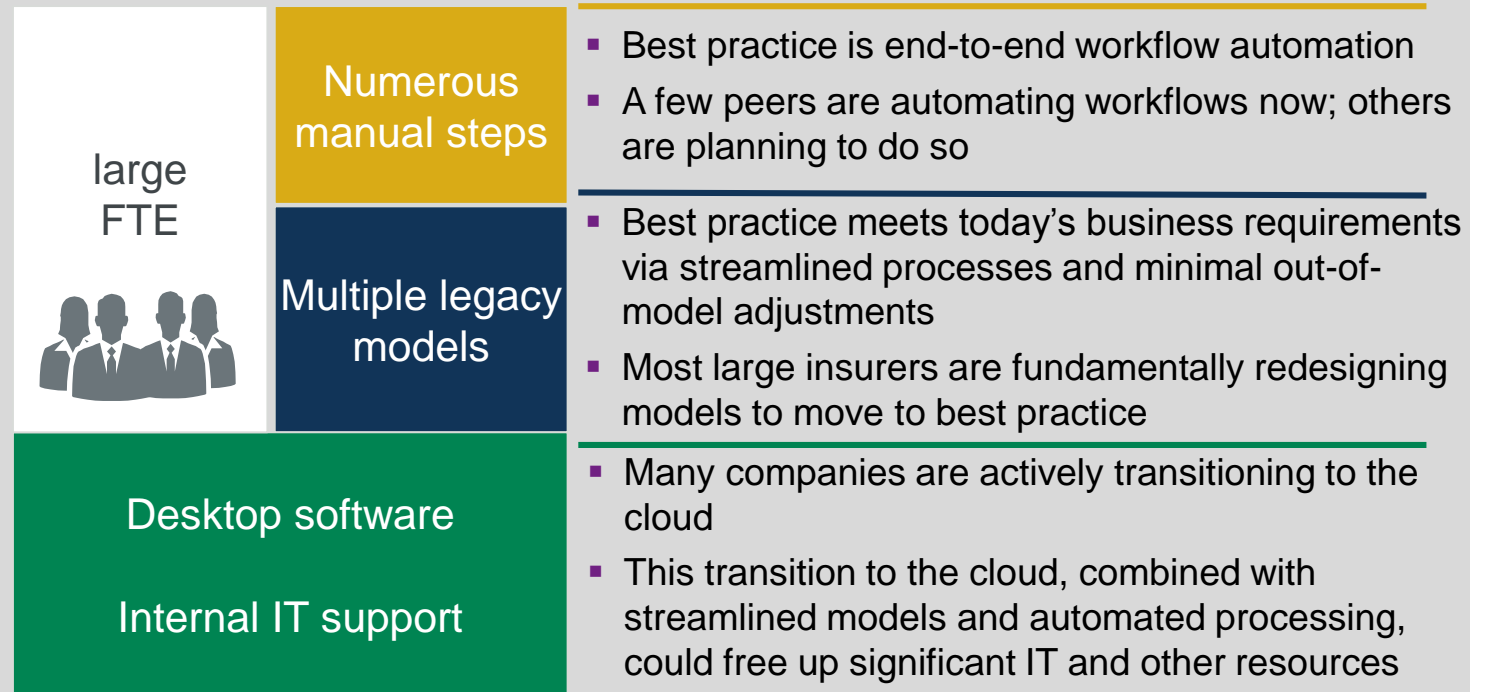
# Background

## What we see across the industry

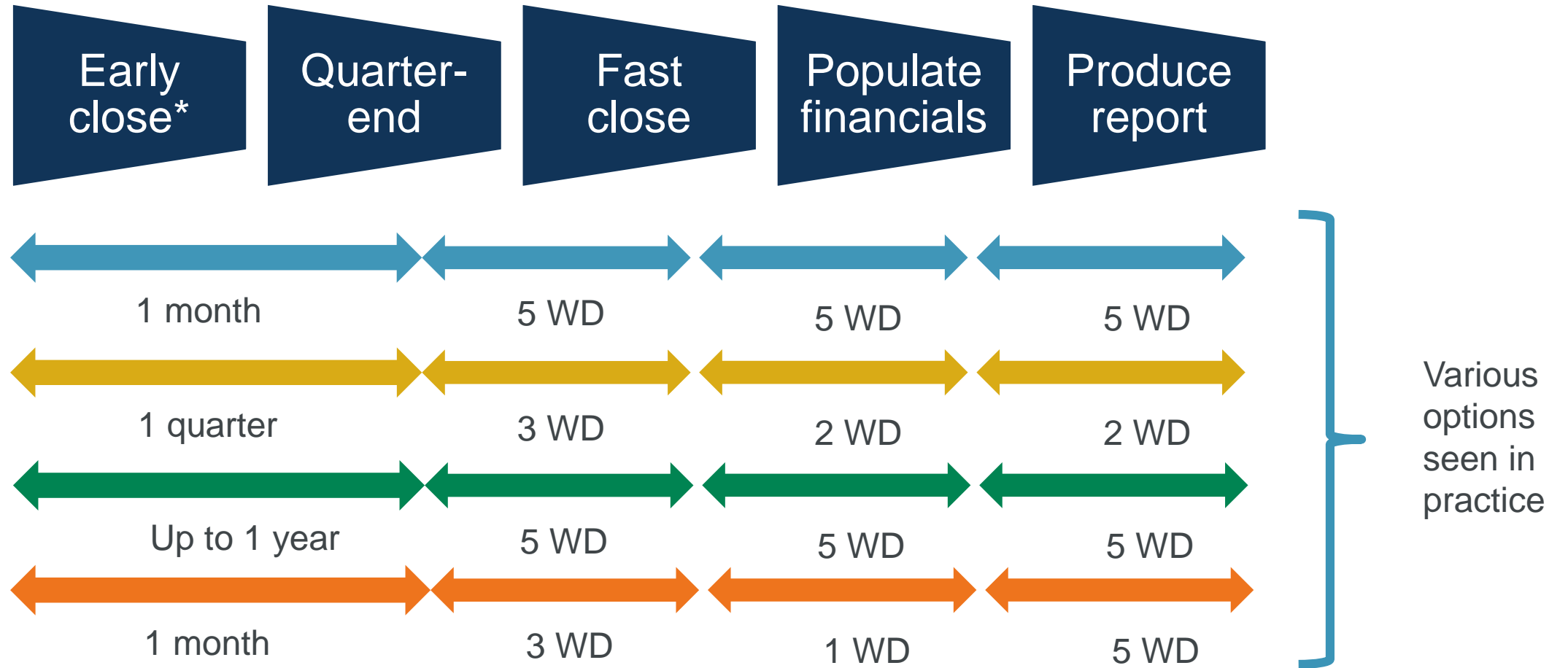
**The problem manifests in various different ways.**



**Current environments are usually summarised by the graphic below, alongside our observations on the larger insurers.**



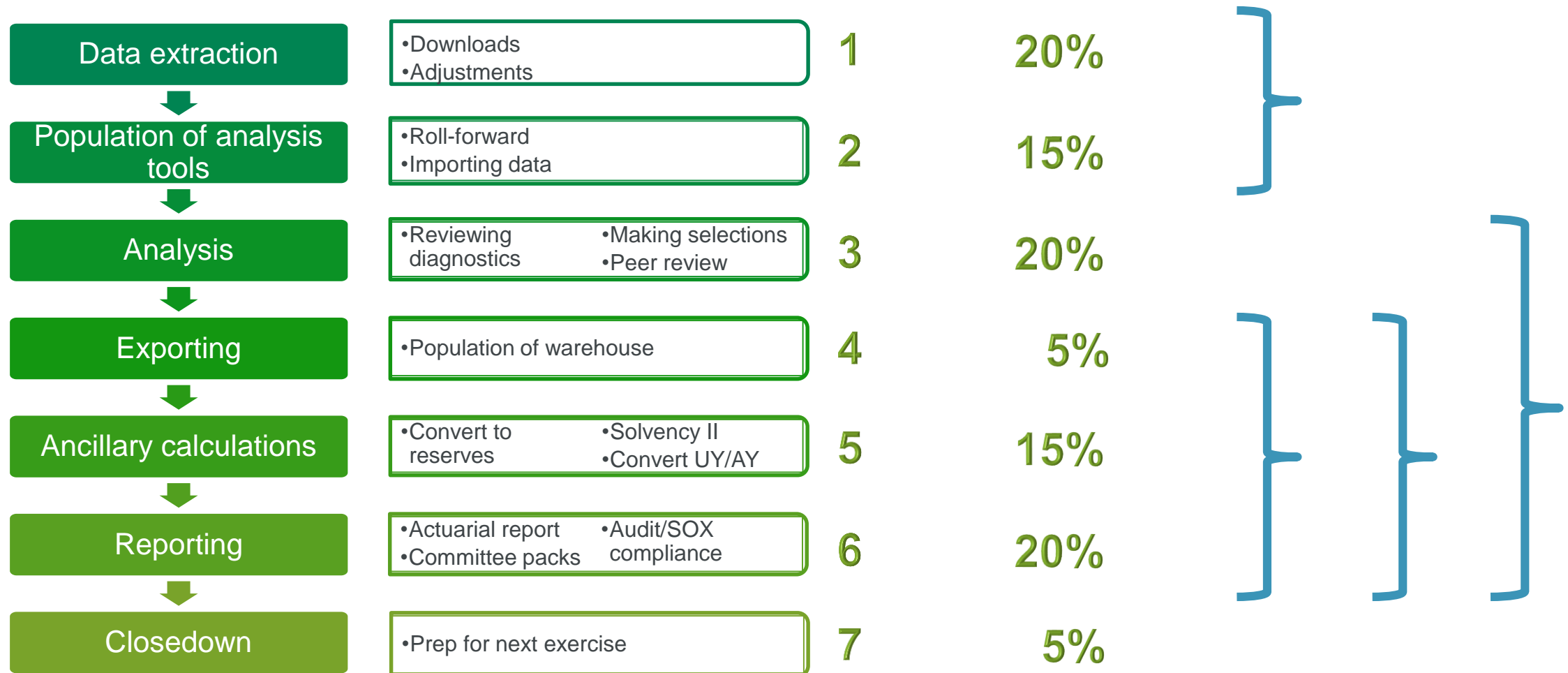
# It's all about timing



\*May be production of diagnostics only, or a sub-set of the book

# Reserving or reporting?

Where does reporting start?



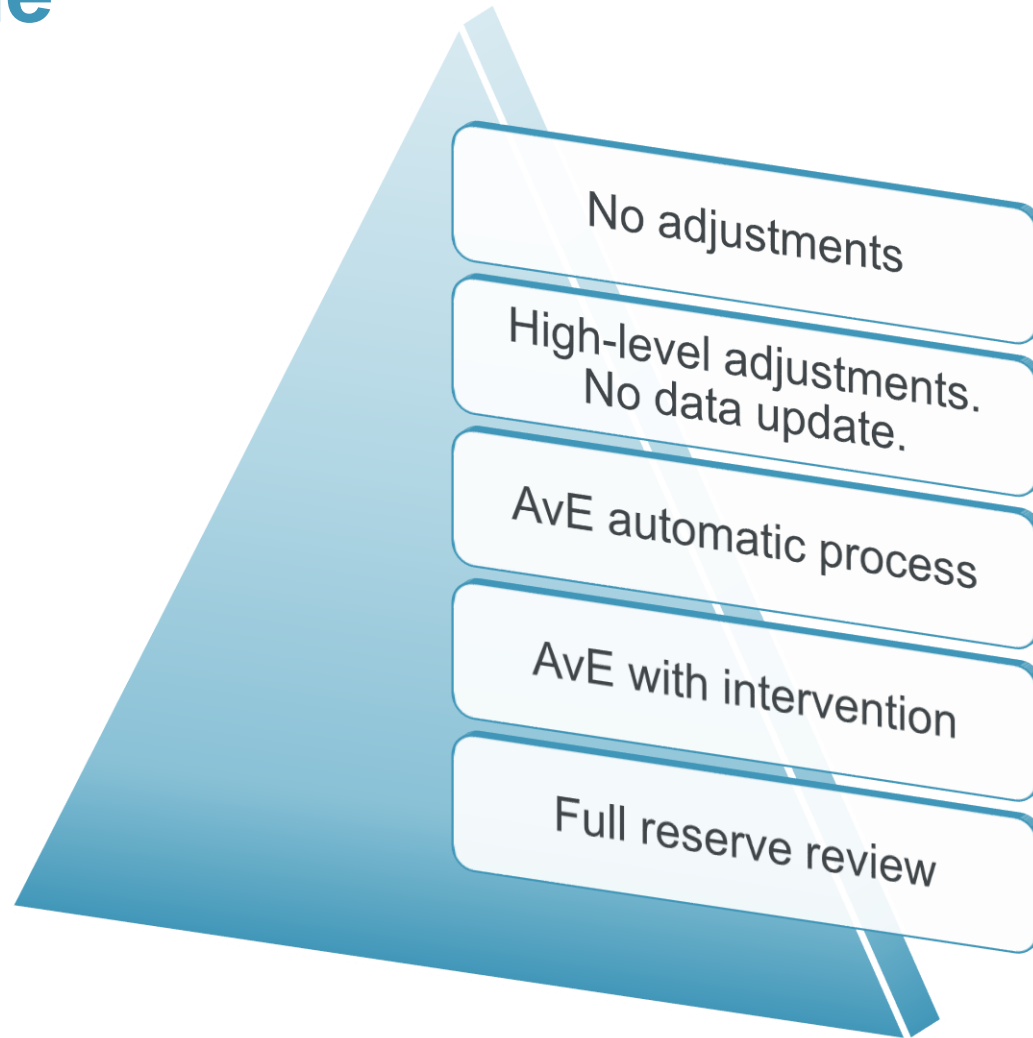
# Pros and cons

## Picking the right method for you

- Reporting is not actuarial
  - Automation of the fast close outside high-level judgements
  - Build a process that recognises what the stakeholders require

Option	Pro	Con
<i>Previous ultimates</i>	<ul style="list-style-type: none"><li>• Fast reporting</li><li>• Limited actuarial involvement</li><li>• No surprises</li></ul>	<ul style="list-style-type: none"><li>• Not responding to latest data</li></ul>
<i>Automatic roll-forward</i>	<ul style="list-style-type: none"><li>• Fast reporting</li><li>• Uses latest data</li></ul>	<ul style="list-style-type: none"><li>• May get unexpected movements due to unexpected or incorrect data</li><li>• May require more analysis for reporting</li></ul>
<i>AvE + review</i>	<ul style="list-style-type: none"><li>• Uses latest data</li><li>• Has opportunity to ignore spurious or suspect data</li></ul>	<ul style="list-style-type: none"><li>• Requires actuarial review</li><li>• Slower/more resource requirements</li><li>• Potential for surprises</li></ul>
<i>Previous ultimates + review</i>	<ul style="list-style-type: none"><li>• Fast reporting</li><li>• Limited actuarial involvement</li><li>• No surprises</li></ul>	<ul style="list-style-type: none"><li>• Not responding to latest data other than material issues</li></ul>

# Shades of blue



# Up-to-the-minute data or analysis

## What is the point of fast close?

**The purpose is usually to get results to senior management that:**

- **Contain all material issues that investors would expect to be included**
- **Be based on rigorous** (but not necessarily current) **actuarial analysis**
- **Be appropriately reviewed and signed off** (internally and externally where appropriate)
- **Only deviate from the expected position** based on prior detailed analysis **where material and justifiable**

### How to achieve this?

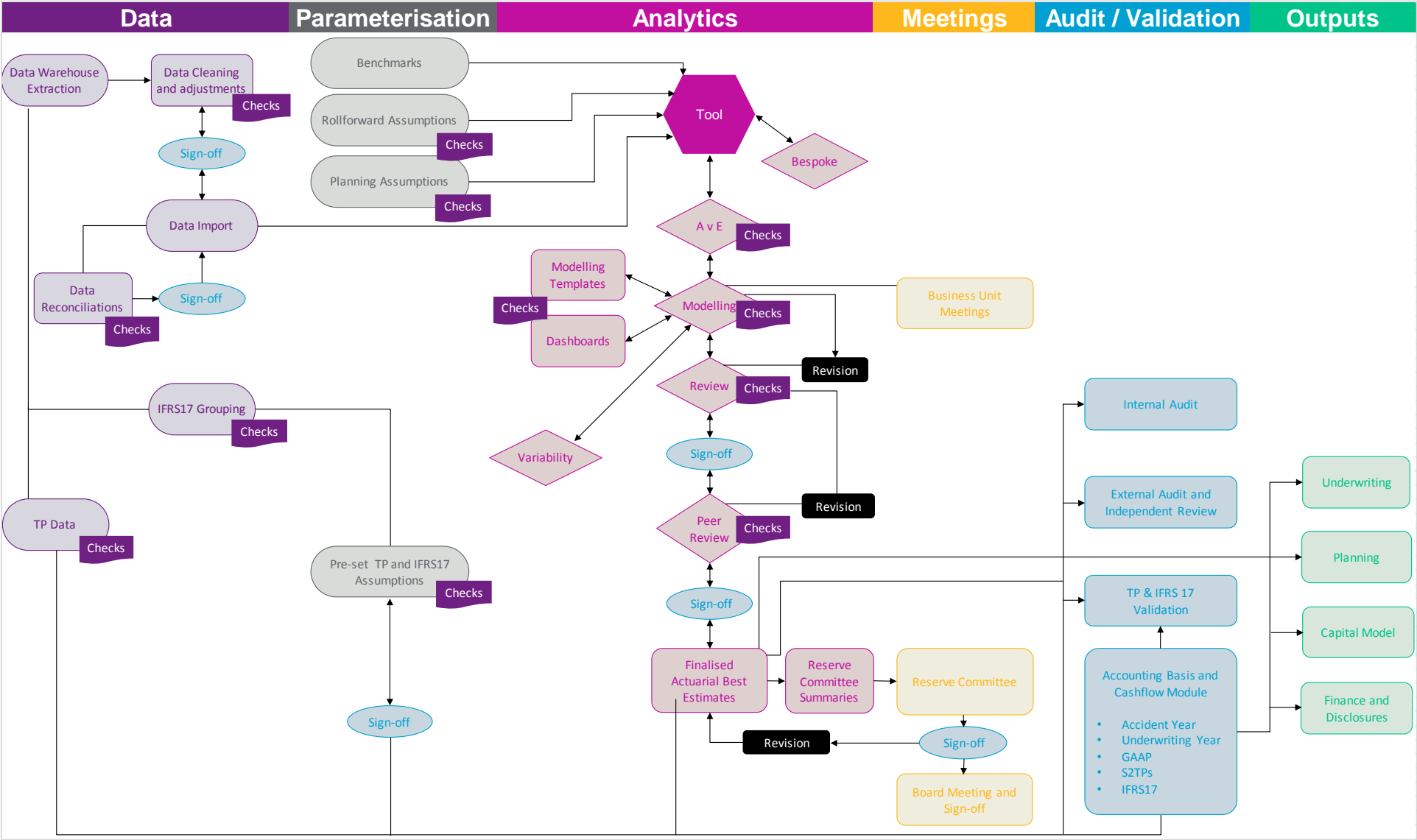
- Don't change ultimates
- Adjust only where previous analysis has indicated significant AvE
- Allow data to flow through existing models
- Don't fiddle!

### What's the problem?

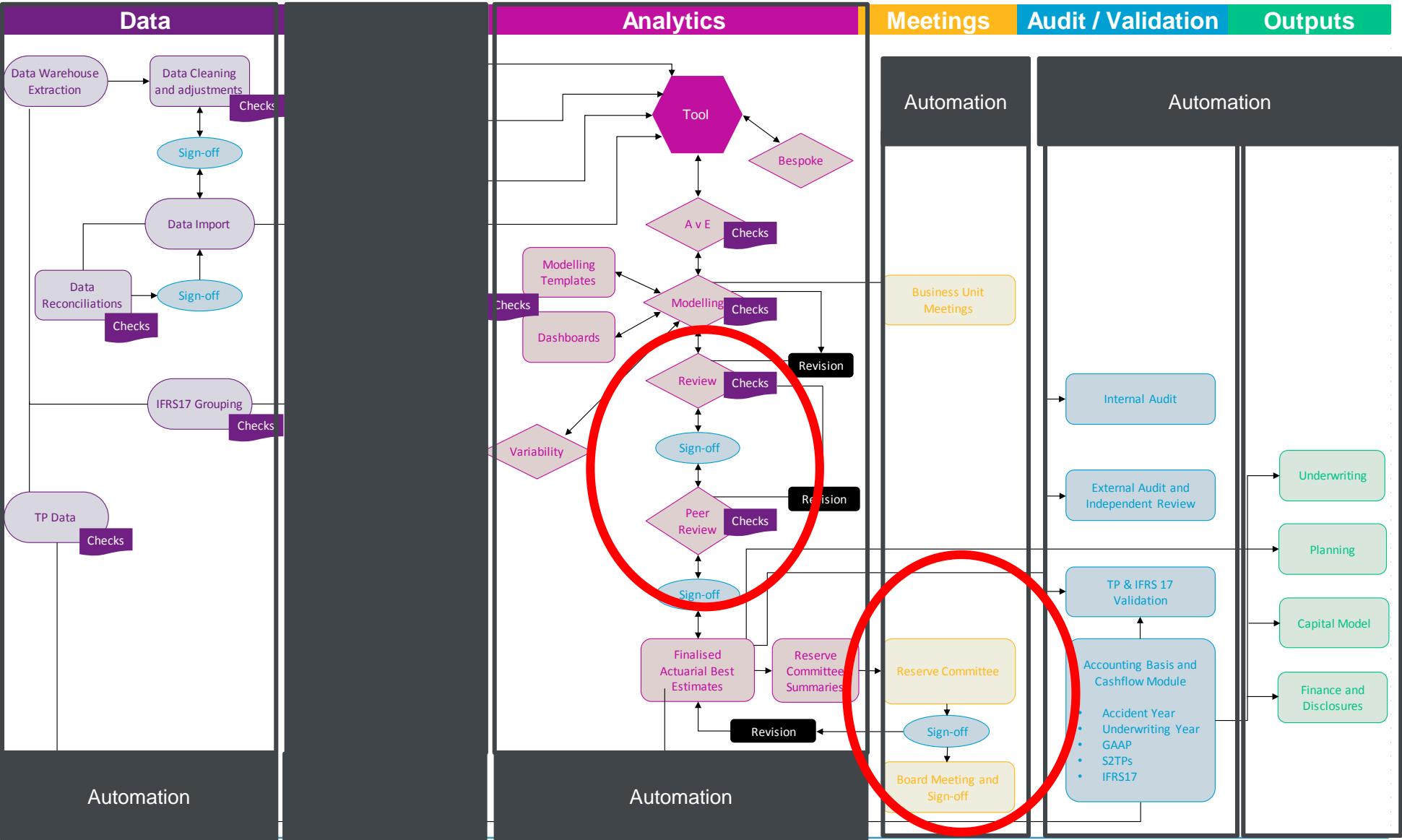
- Should small/medium movements late in the quarter affect the booked position?
- Reserve uncertainty means something
- Early warnings/ exceptional events etc can always happen, but how big do they need to be and is a full reserving process going to give a better answer with limited data



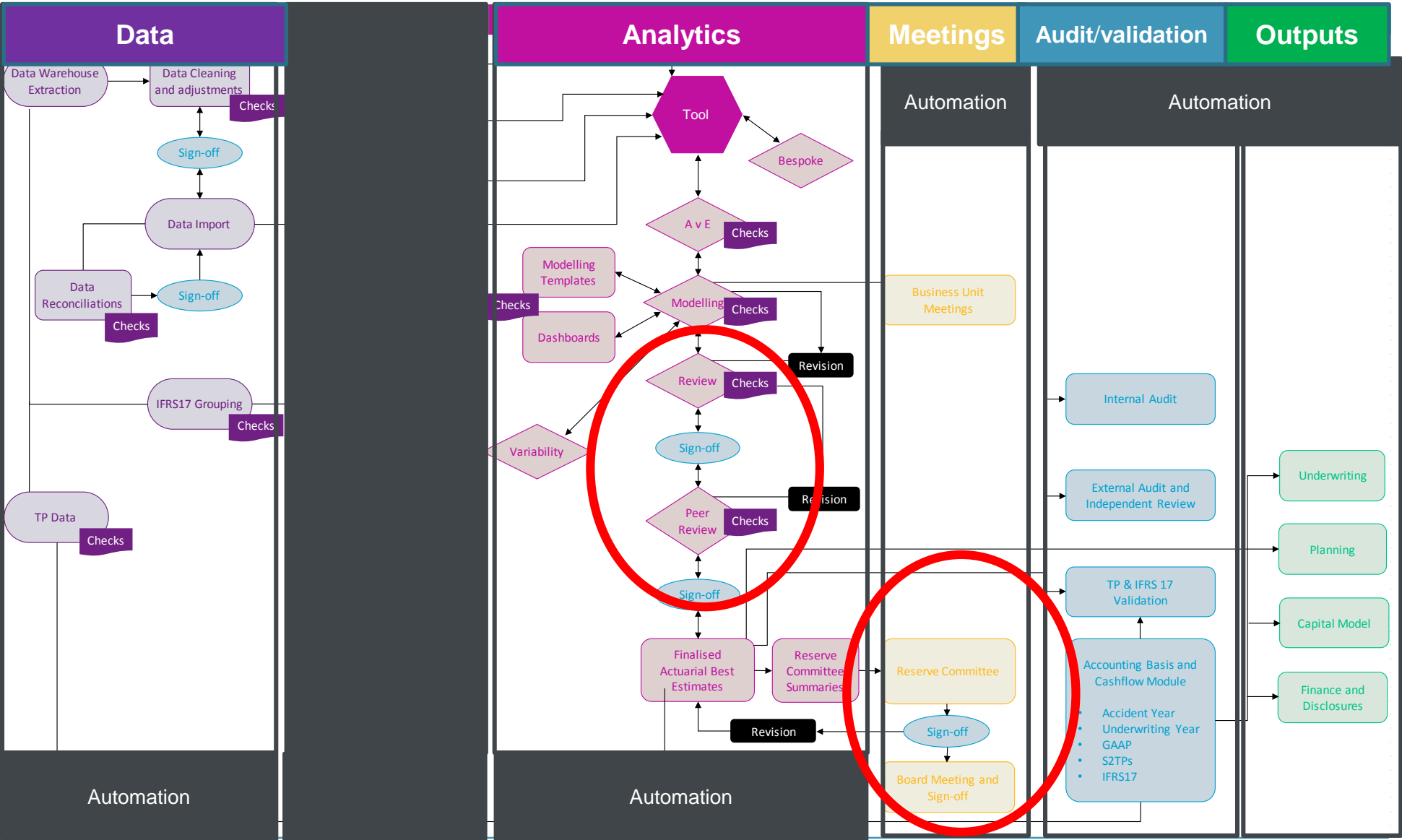
# Full reserving process



# Fast close reporting process



# Fast close reporting process



# Fast close reporting process

Data

Automated production and loading

Analytics

Automated refresh and diagnostics production

**Manual (peer) review of diagnostics on analysis and data movements and changes to selections**

Meetings

Automated creation of exhibits (not decisions!)

**Discussion/approval of results within meetings**

Audit/validation

Automated creation of reconciliations and audit trails

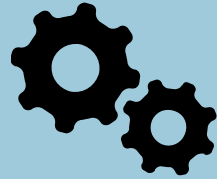
Outputs

Automated creation of uploads and conversions

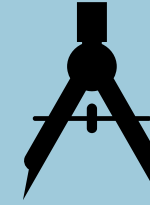
# How fast is fast?

## Process design vs automation

### Automation



- Overnight processing of data
- Automatic population of diagnostics
- Automatic population of reserving models
- Population of exhibits
- Calculation of ancillary reserving bases



### Process design

- Limited actuarial involvement in reporting calculations
- Stakeholder management
- Use of pre-analysis/ early close

# Reserving or reporting?

## Potential effect of automation and redesign

		Full review	Automation	Reporting process
		<b>5 FTE</b>	<b>3.5 FTE</b>	<b>0.5 FTE</b>
Data extraction	<ul style="list-style-type: none"> <li>•Downloads</li> <li>•Adjustments</li> </ul>	20%	5%	
Population of analysis tools	<ul style="list-style-type: none"> <li>•Roll-forward</li> <li>•Importing data</li> </ul>	15%	5%	
Analysis	<ul style="list-style-type: none"> <li>•Reviewing diagnostics</li> <li>•Peer review</li> <li>•Making selections</li> </ul>	20%	50%	15%
Exporting	<ul style="list-style-type: none"> <li>•Population of warehouse</li> </ul>	5%	5%	5%
Ancillary calculations	<ul style="list-style-type: none"> <li>•Convert to reserves</li> <li>•Convert UY/AY</li> <li>•Solvency II</li> </ul>	15%	5%	15%
Reporting	<ul style="list-style-type: none"> <li>•Actuarial report</li> <li>•Committee packs</li> <li>•Audit/SOX compliance</li> </ul>	20%	25%	60%
Closedown	<ul style="list-style-type: none"> <li>•Prep for next exercise</li> </ul>	5%	5%	5%

# How can I do that?

## Realising the benefits

If you don't have to think, you don't need an actuary:



- **Data extraction:** collating and formatting data
- **Data check and manipulation:** exception reports; reasonability checks; preparing data for import
- **Analysis tools:** population of initial data and running of basic models (and potentially initial pattern and results selection depending on your methodology)
- **Extraction of ultimate selections into a warehouse**
- **Ancillary calculations:** conversions between bases
- **Reporting:** population of standard exhibits; analysis of change, waterfall diagrams

## The vision

**Reserving exercises:** Data checks, preliminary analysis with diagnostics and initial selections complete for initial review a day after data is available with no intervention required.

**Reporting:** no interventions required other than reaction to major events since the early close; population of all reporting bases and report exhibits a day after data available.

## An example

- Perform early close to update parameters including those for reporting. Use maximum automation in production of these results (see previous slide)
- Use large loss/ event protocols including claims department watchlists just prior to quarter-end to produce any high-level adjustments (defined at a detailed level) and update warehouse with these adjustments.
- Provide pre-quarter report update based on high-level adjustments
- Automatically extract new data from core systems at quarter-close, combine with previously loaded ultimates and high-level adjustments to derive all reporting bases
- Produce automatic reconciliation report where necessary (e.g. where reporting basis depends on cashflow position – SII, IFRS 17)



# Summary

## Automating processes

If you don't have to think, you don't need an actuary:



There are many areas of standard reserving and reporting processes that can be automated – save effort where it doesn't add value

### Reporting ≠ Reserving

- Make your reporting process as slick as possible, concentrate your resources on getting the best answer

### The vision

- **Reserving exercises:**  
Only get actuaries involved when there's analysis to do.
- **Reporting:** This is the production of standard packs based on actuarial assumptions, not actuarial work itself.

# Looking forwards

Where are we going next...

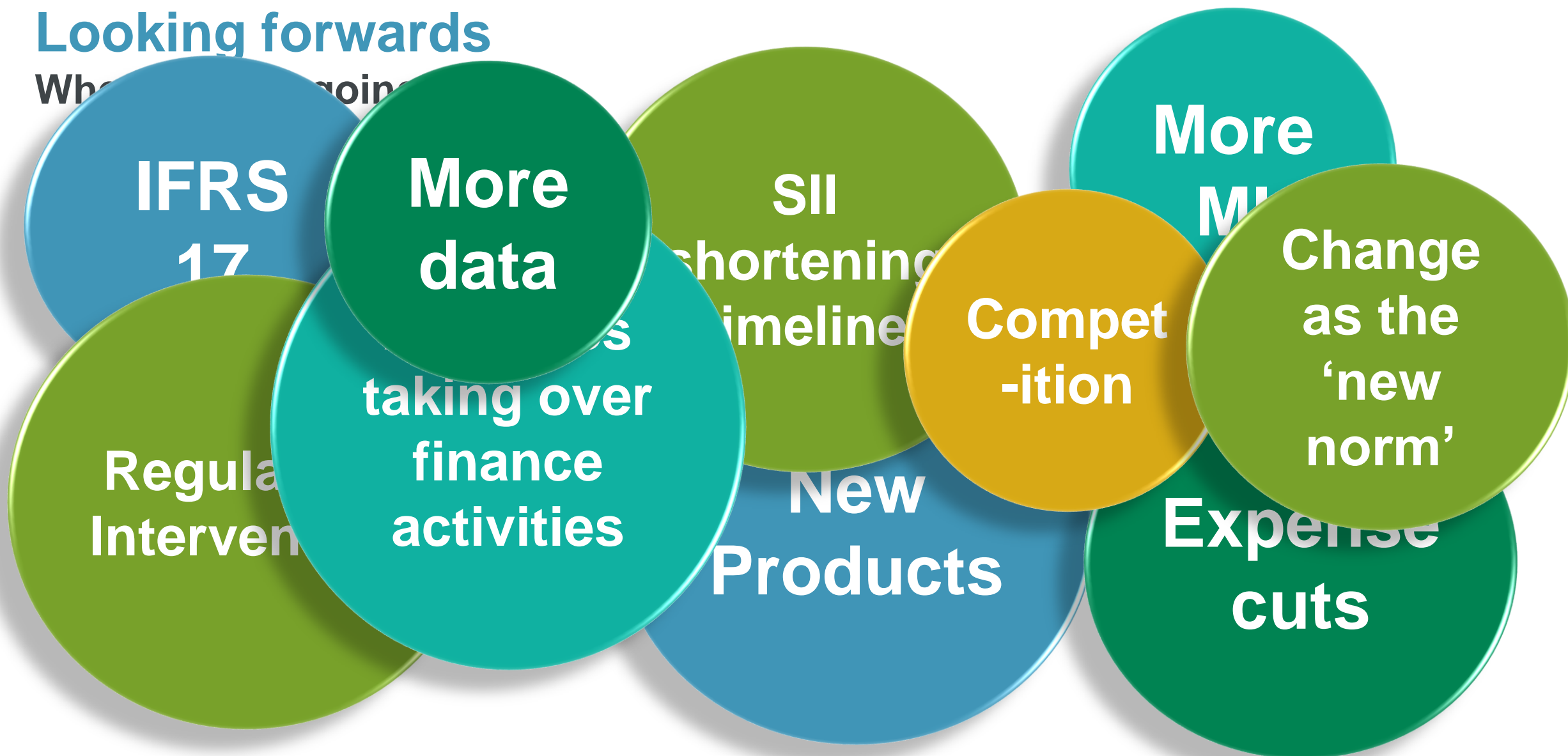


OR



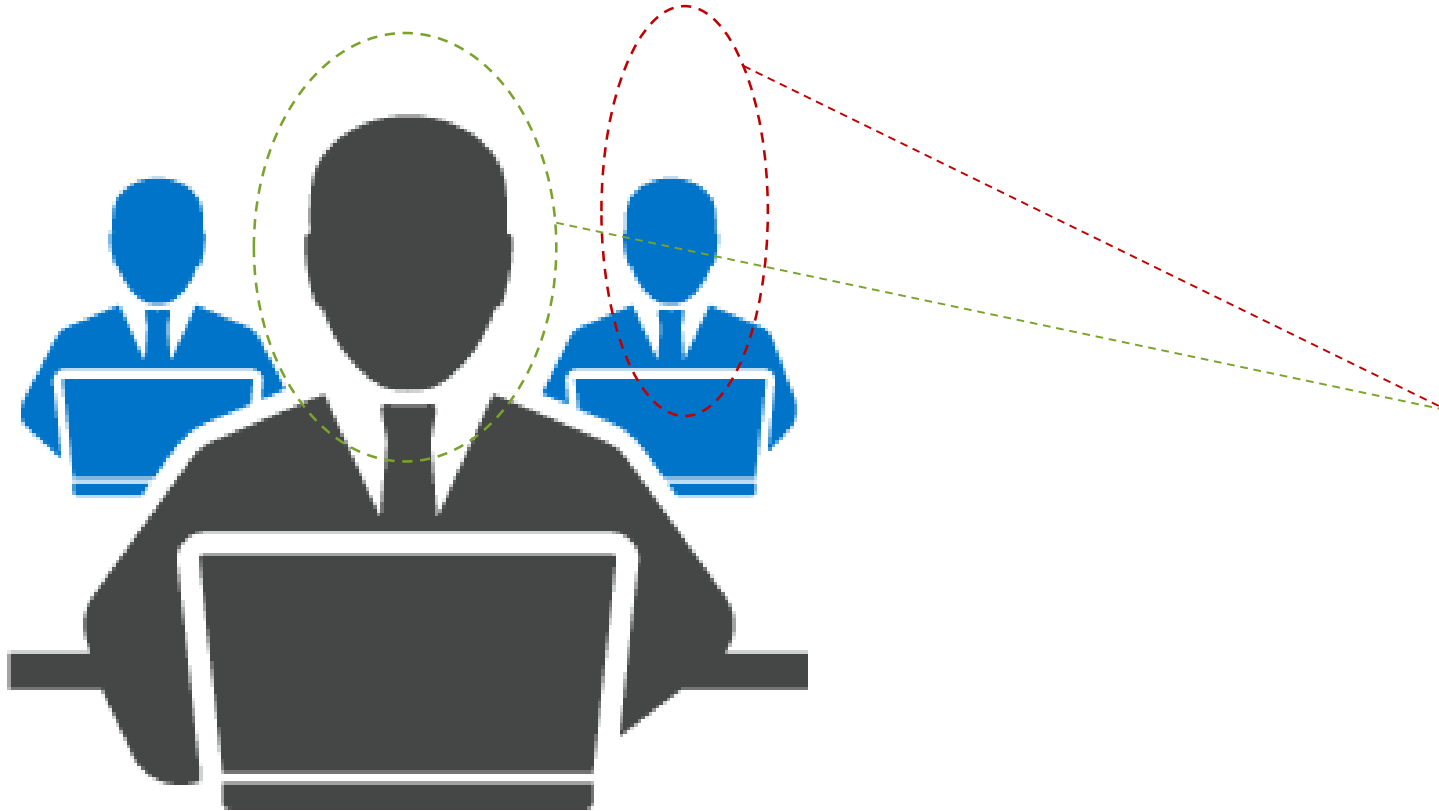
# Looking forwards

What's going on



# Looking forwards

Where are we going next...



*Where  
do we  
want to  
be?*



# Questions



# Comments

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