



Institute
and Faculty
of Actuaries

Are Transformations Driving Reserving Towards a Cliff Edge

Presented by William Diffey, Arun Vijay, Amerjit Grewal, Apollos Dan
on behalf of members of the TORP Working Party
26 September 2019



Institute
and Faculty
of Actuaries

Work undertaken by members of the Towards Optimal Reserving Process (TORP) working party

William Diffey (Chair)
Apollon Dan
Fergal Dolan
Laura Hobern
Matthew Arishibowa
Alastair Lauder

Arun Vijay
Asif John
Cedric Morin
Satraajeet Mukherjee
Loan-Anh Nguyen
Amo Grewal

Metul Parekh
Thomas Sithole
Olivia Zhang
Tarun Israni

ertise
ponsorship
Thought leadership
progress
Community
Sessional Meetings
Education
Working parties
Volunteering
Research
Shaping the future
Networking
Professional support
Enterprise and risk
Learned society
Opportunity
International profile
Journals
Support

Are Transformations Driving Reserving Towards a Cliff Edge

'Business process transformation (BPT) is an umbrella term that describes the act of radically changing the series of actions required to meet a specific business goal. ... Compliance regulations, as well as changes in the economy, often drive business process transformation' – Whatis.com

- Drivers of transformation
- Impacts on reserving
 - Process
 - Data & systems
 - People
 - Methodology
- Case studies
- Implications: Reinventing the reserving actuary

Focus of 2019 Transformation review

2019 TORP Working Party review covered Key topic of (Reserving) Transformations

Focused on 10 key areas:

- 1) What was the driver (*M&A/cost and efficiency/Regulatory (solvency 2, IFRS 17)*)?
- 2) Aim of the transformation
- 3) Use of technology
- 4) Time frame?
- 5) Use of external consultants
- 6) Impact on Reserving function
- 7) Overall success or otherwise
- 8) Any unsuccessful elements of transformation
- 9) Lessons learned
- 10) Any other aspects

Themes are explored and analysed further in the following section. This is achieved by treating 'Reserving' as a single system and by looking at each component in turn

Following were the key themes identified by the TORP Working Party:

- Impact of “environmental” changes in ownership /structure/Brexit/IFRS 17 as catalyst to fundamental re-looking of process
- Success depends on identification of target operating environments and process enhancement
- Centralisation vs decentralisation of data/information architecture are key
- View of reserving process as a single system with combination and UW/admin/data systems consolidated (explored on following slides)
- Importance of technological custodianship/pools – SQL; SAS; R; BI; Cloud etc
- Automation vs Legacy; controllership; ownership;
- Linkage to broader “Actuarial Function transformation”
- Definition of future state and “end” point for legacy

Survey Question - <https://tinyurl.com/TORP2019>

Has your company previously/currently undertaken a reserving transformation?

1. Yes
2. No



Survey Question - <https://tinyurl.com/TORP2019>

Do you see the benefit of reserving transformations?

1. Yes
2. No



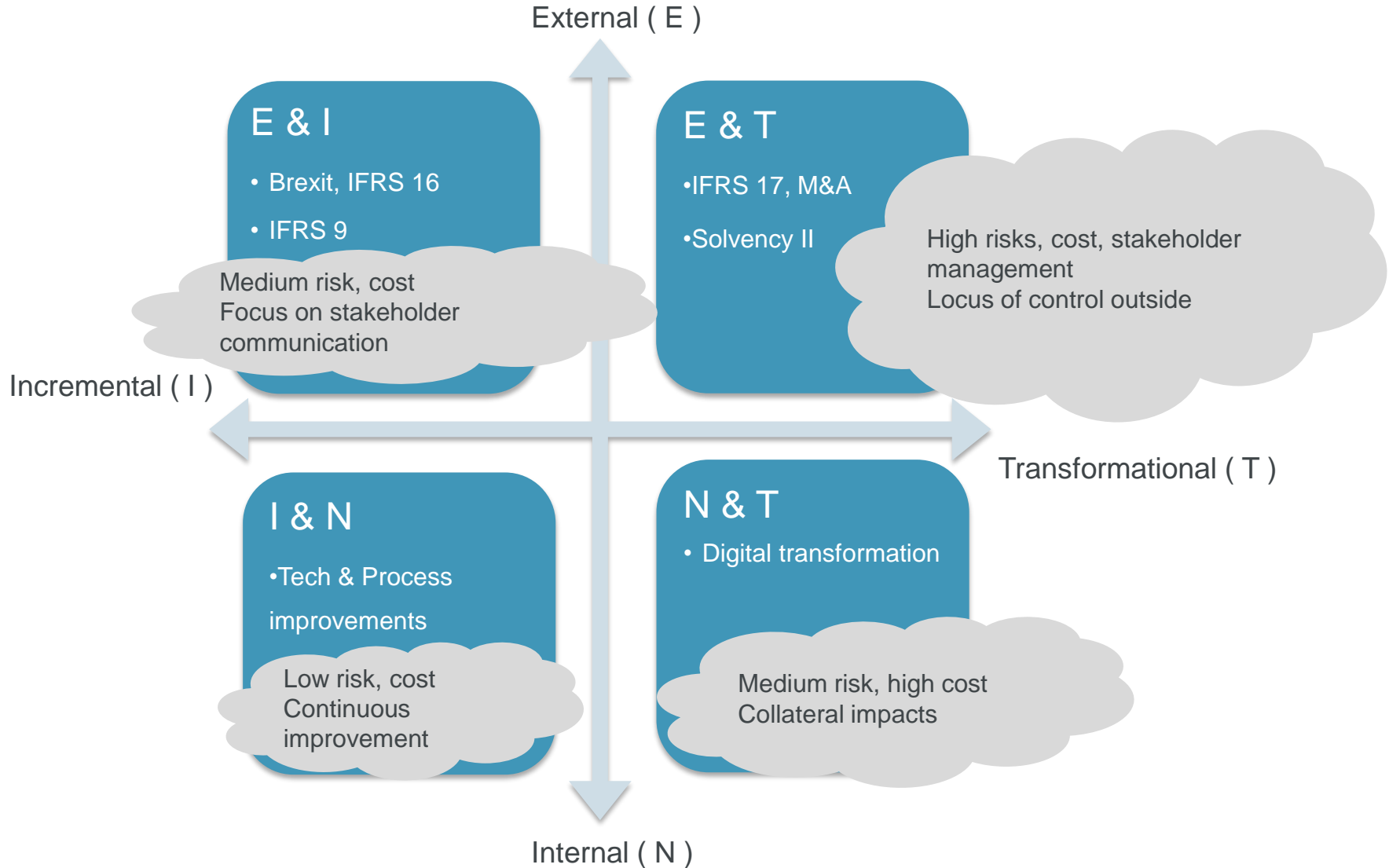


Institute
and Faculty
of Actuaries

Are Transformations Driving Reserving Towards a Cliff Edge? Drivers of Transformation



Drivers of transformation: Are these leading to a cliff edge of change?



Survey Question - <https://tinyurl.com/TORP2019>

Which is the approach to transformation within your organisation?

1. External , Incremental (E & I)
2. External, Transformational (E & T)
3. Internal, Incremental (I & N)
4. Internal, Transformational (N & T)



Impact on data and technology

IFRS 17 and Solvency II impact

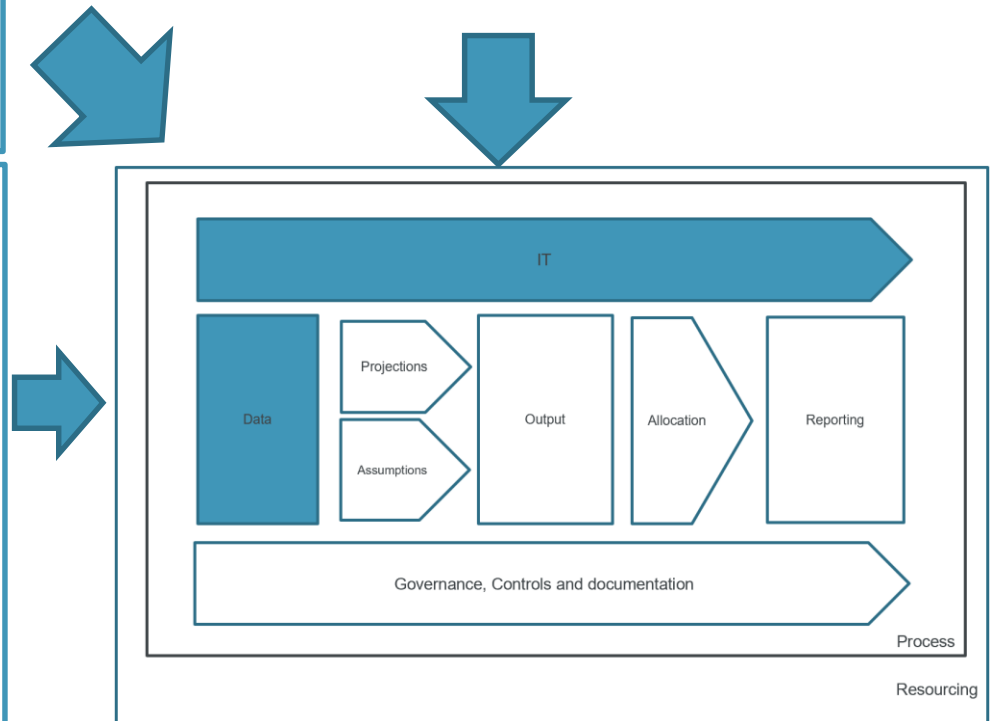
- Accentuates need for
 - meta-data management
 - cataloguing available data
- Centralisation or consistent definition of data across functions
- Flexibility in aggregations, manipulation
- Meeting the requirement of IFRS 17 engine
- Assumptions management: company-wide, systematic

Internal drivers impact

- Responsiveness to new information and data
- Separation of run environment
- Industry moving towards technologies that are
 - Cloud hosted
 - SaaS
 - RPA & AI enabled

Brexit and M & A impact

- Impact on reserving groups and data
- Centralisation of information flow
- Challenges from legacy systems
- Change in data granularity for the different entities
- Increase in workload because of the demands from internal reporting, external & SII reporting for new entities, rework of business plan and projections
- Impact of uncertainties
- Challenges to data quality



Impact on reserving processes

IFRS 17 and Solvency II impact

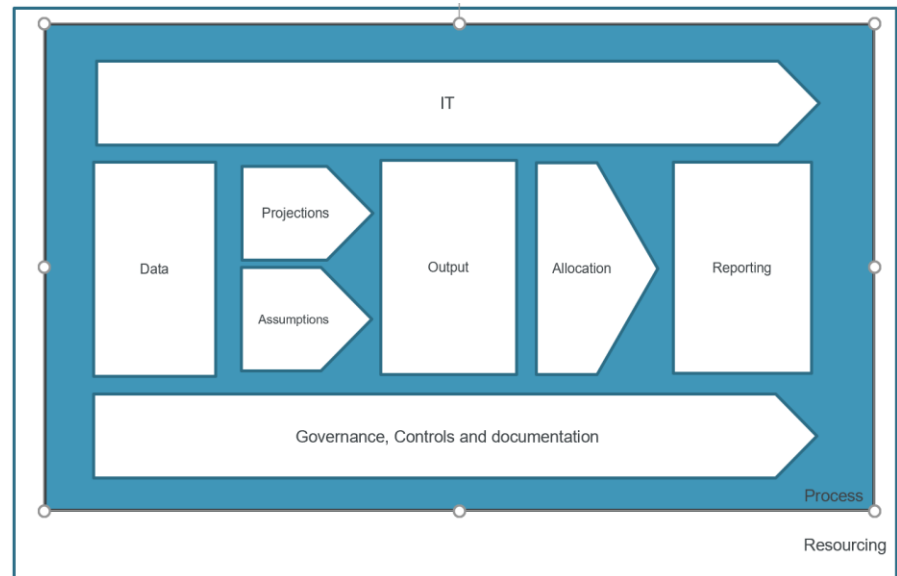
- Accelerated timelines
- Closer integration with finance
- Changes to controls
- Existing processes disrupted

Internal drivers impact

- Processes that facilitate automation
- Better deployment of expert resource
- Provide options for process delivery
- That are scalable & flexible for future demands
- Optimised critical path for production

Brexit and M & A impact

- Group consolidation challenges
- Difficult workflows across entities & geographies
- Changes to reporting structures
- Need to reengineer processes to a different granularity
- More regulatory demands and increased pressure



Impact on reserving methodology & philosophy

IFRS 17 and SII impact

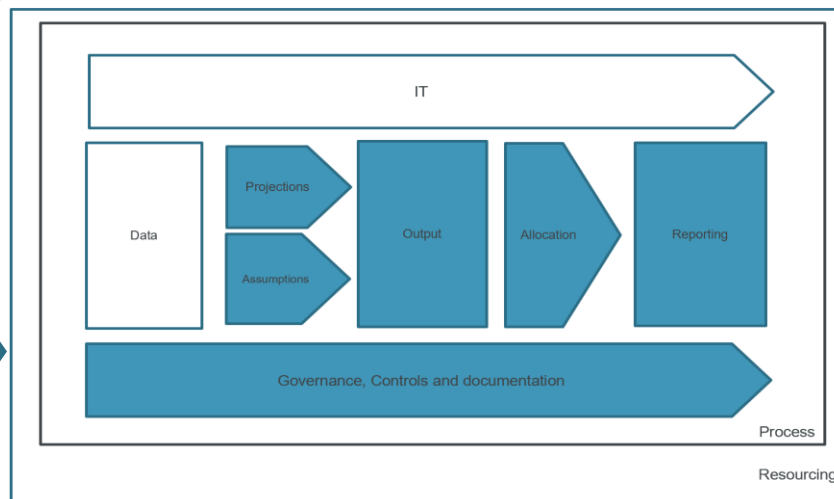
- Level of Aggregation & Onerousness impact on grouping and allocations
- Methodologies that enable automation
- Changes to metrics/ KRIs and plan inputs
- Changes to reporting basis
- Reserve margins replaced by risk adjustment
- Expectation for more transparency and disclosures
- Integration with analytics
- Need for assumption management at enterprise level
- Changes to earning factors/rules and associated systems
- More demands from planning
- Risk based reserving governance and control
- Maintaining new models onerousness, PAA eligibility etc
- Changes in SII requirements, assumptions

Brexit and M & A impact

- Cross functional links revisited
- Capital modelling, risks, audit
- Will the UK be Solvency II equivalent?
- Segmentation, reserving groups, materiality revisited
- Reinsurance and SII implications
- Approval & governance, controls
- Part VII transfer expertise
- Impact on expenses and claims inflation

Internal drivers impact

- Exploring the use of machine learning models, individual reserving
- Standardising and simplifying reserving models



Impact on reserving teams

IFRS 17 and SII impact

- Skill gap and training needs
- Overcoming the change fatigue
- Keeping up the momentum
- Ring-fencing the project resource

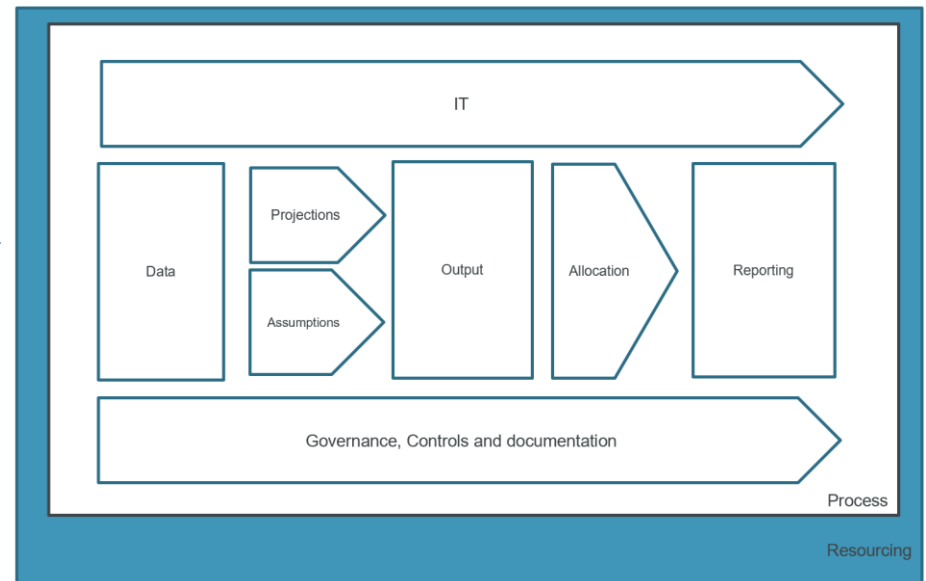
Internal drivers impact

- Collateral damages like attrition, fear
- Demand for specialised skills and capabilities
- Need for cross training, adaptability and fungibility
- Impacts on employee morale



Brexit and M & A impact

- Gaining employee engagement and buy-in
- Challenges in integrating teams
- Attrition and layoffs
- Managing the change management curve
- Challenges in organisation design
- Difference in culture, controls, governance



How to avoid a “transformation” cliff edge?

Clearly defined objectives

- ⑩ Decide on the aims and the key benefits sought from the transformation
- ⑩ Ensure there is agreement on these aims
- ⑩ Clearly define the objectives and key milestones
- ⑩ Define success and how this will be measured
- ⑩ Ensure expectations of stakeholders are aligned
- ⑩ What is best handled as a continuous improvement rather than transformation

Appropriate resourcing

- ⑩ Ensure resource availability with the relevant expertise in line with plan
- ⑩ External consultants are often required - consider how to make best use of them
- ⑩ Collaborate - a partnership is likely to work better
- ⑩ Ensure sufficient knowledge transfer
- ⑩ Build a team that will work well together
- ⑩ Ensure team is agile and collaborative
- ⑩ Effective change management and engagement

Robust project management

- ⑩ Ensure good project management
- ⑩ Clear communication
- ⑩ Clear understanding of the outcomes and dependencies
- ⑩ Revisit the plan at regular intervals and be willing to reset if necessary
- ⑩ Learn from any mistakes along the way
- ⑩ Clearly define responsibilities/ownership
- ⑩ Virtuous feedback loops

Senior stakeholder

- ⑩ Must have senior stakeholder sponsorship and buy-in
- ⑩ Should be business driven not IT driven
- ⑩ Sufficient decision making resource with relevant expertise must be available early on
- ⑩ Consider strategy and the need for future proofing
- ⑩ Oversee the delivery of benefits of transformation
- ⑩ Culture that permits calculated risk taking, learning from experience
- ⑩ Storming, norming and performing

Strategies to ‘avoid the cliff edge’ will be explored further in Case Studies section....

Survey Question - <https://tinyurl.com/TORP2019>

Which type of transformation has had the most impact on your reserving processes?

1. Data/IT
2. Brexit
3. Robotic Process
4. Automation
5. Core/targeted reserving process
6. Other
7. N/A





Institute
and Faculty
of Actuaries

Are Transformations Driving Reserving Towards a Cliff Edge?

Case Studies



Case Study I: IT Transformation

Backdrop: Reasons for a data/IT transformation



Case study I: IT transformation

IT/data transformation	Detail
Main driver	<ul style="list-style-type: none"> • Regulatory change but decided to transform rather than minimal compliance • Improve efficiency (i.e. save time and money) • Process improvement/ streamlining • One version of the truth • Enhance risk management, governance and controls • Improve accessibility e.g. cloud services • Combine legacy systems/ M&A
Duration and budget	3 years and £ millions
Project	Project entailed complete redesign of IT infrastructure, data and MI, combining multiple legacy systems, redesign of processes across the business, including policy administration, underwriting, business intelligence, actuarial and finance.
Goals achieved	<p>Ultimately yes but with issues along the way. Main benefits:</p> <ul style="list-style-type: none"> ✓ Regulatory compliance ✓ Fewer IT systems to maintain ✓ Streamlined processes – more human resource spent on value add ✓ Same source of data for all analysis/reporting ✓ Improved MI for better decision making
Issues	<ul style="list-style-type: none"> • Unrealistic expectations • Key stakeholders involved too late in process – significant rework required • Time and budget overruns • Working in silos and lack of internal knowledge transfer
Lessons learnt	<ul style="list-style-type: none"> • Detailed realistic project plan required with individual tasks broken down and responsibilities defined • Senior business involvement essential, with key decision makers involved throughout the process • Consultants, contractors and internal resource must work together for efficiency and knowledge transfer

Survey Question - <https://tinyurl.com/TORP2019>

Has your company undertaken Brexit preparations?

1. Yes
2. No



Case study II: Brexit transformation

Part VII	Detail
Main driver	Brexit
Duration and budget	1 year and £K (with significant uncertainties)
Project	Project is about restructuring the business to line up with Brexit. For example, transfer all European business to the Irish legal entity of the group and transfer all UK business held within all European entities of the group back to the UK legal entity through a series of Part VII Transfers.
Goals achieved	<p>Following are the goals</p> <ul style="list-style-type: none"> ✓ Regulatory compliance ✓ New Operating Model ✓ New lines of business segmentation
Issues	<ul style="list-style-type: none"> • Slow start due to uncertainties in the political sphere about Brexit • Lack of engagement of key stakeholders at the beginning • Time and budget not clearly known from start. • Working in conjunction with other departments, e.g. Capital, Finance not always easy • Data issues – data from many legacy sources, reconciliation issues • Methodology – e.g. low volume of data in some LoBs, not ideal for chain-ladder based methods. Impact on historical patterns, BBNI composition, uncertainty in business plan assumptions • Perform multiple reserving projections according to the various scenarios under consideration for the Part VII transfers, pre and post transfer • Extra burden on reserving teams already stretched with BAU and other activities such as IFRS 17, Capital, etc..
Lessons learnt	<ul style="list-style-type: none"> • Timing of project was a moving target • Whether to go ahead with the Part VII, even if Brexit does not happen. Decision making from management was key to this project. • Collaboration between various departments should be at its best throughout • Engage with Independent Expert

Case Study II: How Brexit impacts reserving

- Changes in assumptions e.g.
 - BBNI – if it's a new entity can't simply use existing assumptions as the new entity might be 50% old business and 50% new business with different characteristics.
 - Need to blend existing patterns / use benchmarks if the business being written in the new entity will be different.
- Challenges in data quality and sourcing for the entities and different granularity requirements from before.
- SII requirements and reporting frequency will change depending on the size and location of the entities.
- Internal reporting requirements for newly created entities can be high despite data paucity during the initial quarters.
- Clash of deadlines and increase in resource strain from the newly created entities.
- Increase in workload from
 - Uncertainty in plans and strategy. E.g. reforecasting 5 year capital and balance sheet projections
 - Capital related work in terms of projected TP's Pre & Part VII.
 - Separate ORSA, AFR for the new entity.
- Challenges in intragroup and external RI optimisation for the new entity from uncertainties in UW plan, data etc

Brexit will lead to changes in SII TP and capital assumptions, requirements and workload. These challenges are compounded because of data challenges, uncertainties in business plans and strategies from Brexit

Case Study II: How Brexit impacts reserving

- **Part VII Transfer** – move European policies to European legal entities and UK policies to UK legal entities with bifurcation of reserving processes.
- **Additional overhead costs** – set up new entities, recruit staff, additional systems, etc. All these add to overheads and combined ratio might increase across the board, putting pressure on reserves and results.
- **Increased regulatory demand** - more reserving, reporting, audit and regulatory demands to handle. UK entities and European entities will follow different reporting and audit, meaning that there will be extra pressure on reserving teams, depending on the operating model (completely separated teams or same team doing the technical work for both UK and European entities) – language issues to consider too if a centralised UK based team is doing the technical work and reporting.
- **Will the UK be Solvency II equivalent or not?** – The Technical Provisions and Capital calculations might be impacted if the UK departs from Solvency II and change the way TPs and regulatory capital should be calculated and key assumption bases.

Brexit will lead to some transformation (Part VII Transfers) in many cases. Brexit will potentially put pressure on results, resources and systems. It is not clear yet if there will be a change in regulatory regime with further implications.

Case Study II: How Brexit impacts reserving

Motor

- Car parts will mostly be imported from Europe to the UK, meaning greater expenses
- Car hires and roadside assistance in Europe for UK customers travelling to Europe might become more expensive

Goods in transit

- Potential delays at ports of entries or at checkpoints might increase the likelihood of damage or lost of goods in transit

Business insurance

- If manufacturers increase their stocks in managing their supply chain to avoid shortage, that will increase their business insurance premiums, as sum insured will go up with the additional stocks of goods on the premises
- Claims can increase, as more stock on the premises means higher loss in case of fire, theft or damage (flood or other reasons)

Travel

- Emergency medical assistance to UK travellers in Europe will become more expensive as the European Health Card for UK citizens will cease to be valid after Brexit

Miscellaneous

- More complex supply-chain (customs checks, paperwork, etc.) might increase delays in deliveries and potentially increase business disputes and legal costs

Brexit can potentially have an inflationary effect and consequent impacts on claims and premiums for some lines of business; this needs to be considered when carrying out reserving

Case study III: Reserving Kernel Optimisation

Part VII	Detail
Main driver	Operational stability of Reserving Process
Duration and budget	3 months including build and test
Project	Narrow scope of replace all spreadsheets and databases underpinning the core underwriting and optimising actuarial part of producing numbers from data in to data out including standard modelling techniques and actuarial selection of these
Goals achieved	<p>Following are the goals</p> <ul style="list-style-type: none"> ✓ New Operating Model ✓ Process optimisation
Issues	<p>Needed to focus on the following:</p> <ul style="list-style-type: none"> • Efficiency in production of regular reports • Impact of early close and roll forward AvE calcs • Interactions of project with Technical Provision (TP calcs) • Efficiency and optimisation of production of underwriting journal in finance • Production of MI for Decile 10 classes • Business plan production. <p>Approach was to systematise the reserving process from start to finish – replacing databases and spreadsheets used, to combine several underwriting/admin/data systems into one and therefore have one view of data that could feed into business processes, including policy fulfilment, pricing, reserving, capital, MI etc.</p>
Lessons learnt	<ul style="list-style-type: none"> • Timing of project was a moving target • Importance of avoiding big bangs • Incorporation of continuous incremental improvements in the above as a rolling program

Case study IV: M&A

- Bringing reserving processes together under M&A and actuarial transformation can seem to be like “Galaxies colliding” – this is due to differences in approach; culture; systems; processes and control.. Then moving towards a new steady state can take 2-3 years at least. This can be compounded by further transformation; additional M&A activity; Brexit and IFRS 17



- Success can be achieved by setting clear aims / objectives from Day 1
- The following key list of topics needs to be addressed / considered as part of any transformation of the reserving process
- Changes in team structure / role accountabilities
 - Actuarial function re-engineering project formation and implementation
 - Functional integration programs and planning
 - Dealing with attrition / team moral/ engagement
 - Identifying and following the change management curve Interaction and leadership with group Actuarial functions
 - Any Implications of Brexit and interactions with Brexit programs

Case Study V: Robotic Process Automation+ reserving

Robotics is an advanced automation tool which can automate tasks across multiple platforms and integrate with any software:

- It can automate any defined series of “mouse clicks” or “keyboard actions” which are routine and repetitive
- It can pull data into its environment, thereby seamlessly transferring data from one software to another
- This is especially useful for reserving software which may have very specific action buttons and may not be able to read data from all database platforms
- It also integrates with inbuilt automation functionality (e.g. VBA macros, R code)

Robotics can be implemented via several platforms such as Blue Prism, Pega, Automation Anywhere, etc. How it works:

- Processes are first broken down into specifically defined component tasks. E.g.: click button A, copy dataset B, etc.
- These process flows are then “mapped” out in the robotics automation platform according to the sequence of tasks
- The steps/objects in process flows are then coded to execute individual tasks. These can range from actions (e.g. click buttons) to decisions (if-then-else rules)
- RPA type can be surface or connector-based automation (terms defined below)

Case Study V: Robotics Process Automation – Working in Practice

RPA companies have developed defined ways for handling external applications using connectors, which allow RPA to directly use the software's functionality.

This method is often called "Connector Based Automation"

Pros:

- Connectors are easier to use without the hassle of simulating mouse clicks. The robot is more stable (mouse clicks depend on the window or screen size)

Cons:

- Connectors are not always available for all software, or all functionality within a software. They limit a robot's flexibility

When the Robot performs a task by just simulating or using the keyboard, mouse or clipboard etc. but not connecting directly to the application (specifically using the available connectors), then it is called Surface Automation:

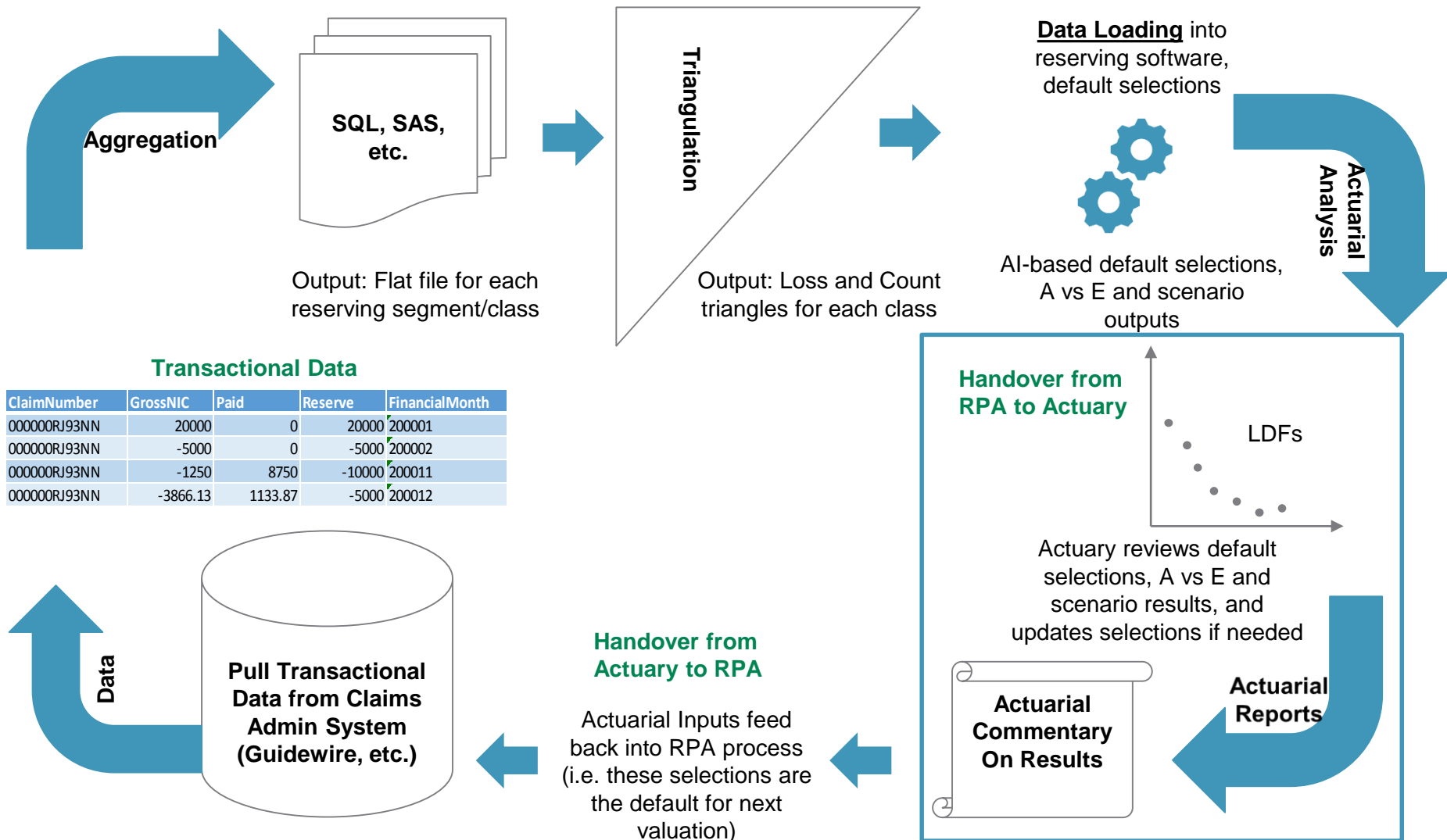
Pros:

- Allows for greater flexibility since it does not depend upon pre-defined connectors, and is not limited to the functionality of a specific software

Cons:

- If the window or screen size of the underlying software changes, the robot needs to be calibrated to point mouse clicks correctly (unless using keyboard)

Case Study V: Robotics Process Automation – Reserving



Survey Question - <https://tinyurl.com/TORP2019>

Which area has been most heavily impacted by reserving process transformation?

1. Speed of process
2. Resource requirements/intensity
3. Data adequacy
4. Controllorship
5. Business analytics / MI





Institute
and Faculty
of Actuaries

Implications: Reinventing the Reserving Actuary

Creating Reserving Function business value



Reserving function business value

Oversees valuation of reserves/TPs, assesses risk

- Valuation of liabilities and reinsurance assets for various purposes like Commutation, M&A, Part VII etc
- Measures reserve risk, recommends reserve strength, prevents reserve deterioration
- Evaluating experience against expectations and analysis of change
- Calculates Solvency II technical provisions and available own funds

Interprets and communicates results

- Communicates results to senior stakeholders and investors
- Identifies and explains the key drivers of past and future performance

Manages enterprise assumptions

- Contributes to pricing assumptions and provides independent challenge
- Provides support for capital parametrisation and provides challenge

Serves as thinktank and linchpin

- Contributes to claims trends, insights and analytics
- Contributes to capital management insights
- Contributes to reinsurance optimisation and risk mitigation
- Expertise in Solvency II, IFRS 17
- Investigates impacts of regulatory change

Contributes to performance measurement

- Allocation of liabilities
- Profit share calculations
- Contributes to metrics used for performance measurement

Provides insights on non-reserve risks


- Asset liability matching
- Liquidity management

Contributes to planning and strategy

- Develops financial plan assumptions, provides reality check
- Contributes to business strategy, capital generation and own funds projections

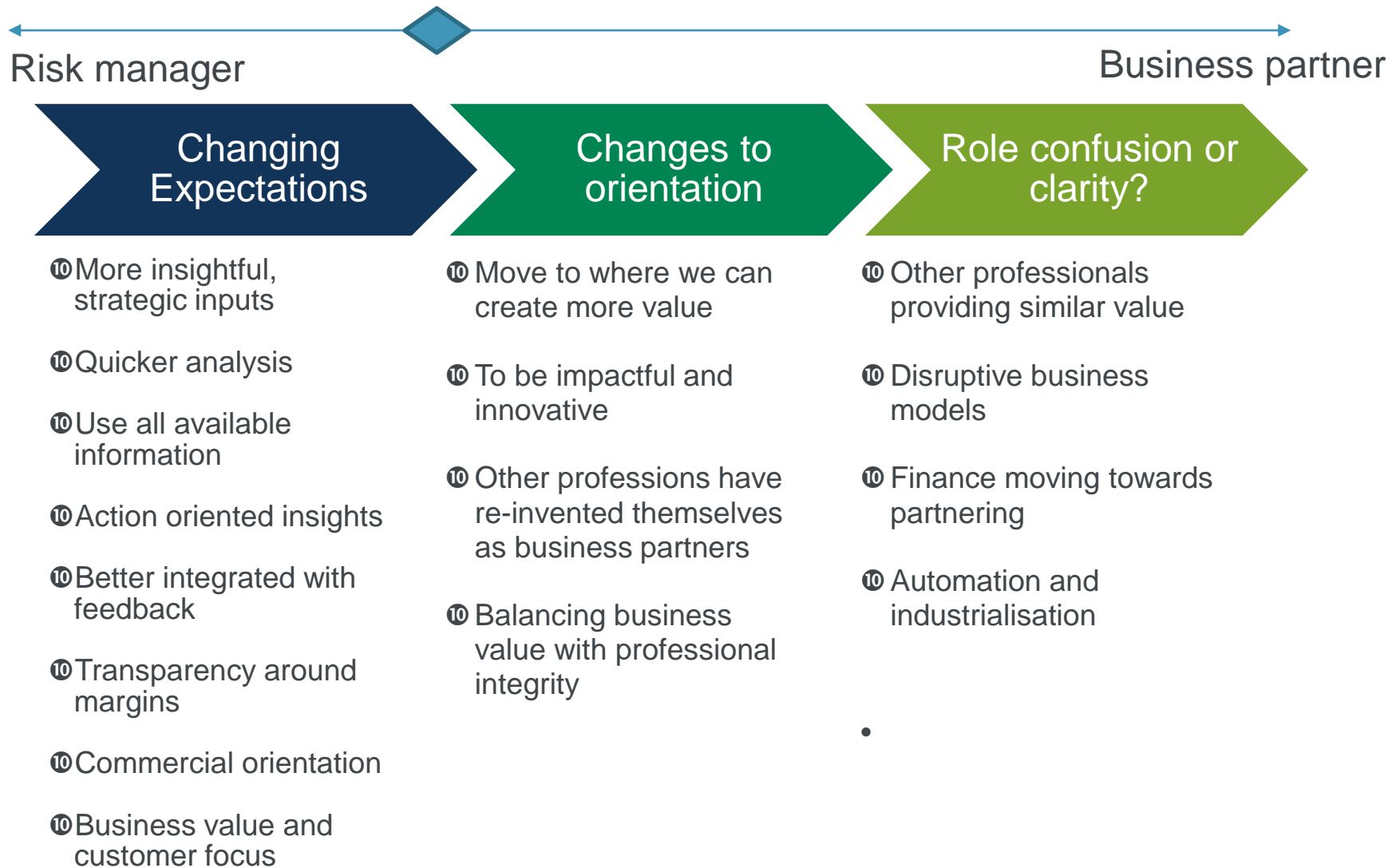
Coordinates report production

- Production of IFRS& management reports, TPs and SII balance sheet
- Production of QRTs, disclosures, scenarios and other information for external stakeholders like PRA, credit rating agencies



Current value is impacted by changes to **business environment, technological advances and transformations**

Is the business value of reserving changing?



Waxing or waning of the reserving actuary?

- Need to be quicker and more responsive to changes.
- Transparency and more disclosures regarding risks.
- Make best possible use of all available data.
- Need to update skills in technology & analytics.

Oversees valuation of reserves/TPs, assesses risk



- More variables, volatility and complex interactions.
- Need to articulate not obfuscate.
- Deliver data driven insights
- Robust models to support decision making.

Interprets and communicates results



- More assumptions and parameters than before under IFRS 17.
- Need for consistent, clear definitions & clear ownership of assumptions across functions.
- Reserving actuary has natural advantage.

Manages enterprise assumptions



- Consolidate our reputation as experts and thinkers.
- New challenges in a rapidly changing business environment, can we adapt?
- Will our influence translate into authority?

Serves as thinktank and linchpin



- Move towards economic value.
- Design/explain metrics for performance measurement under IFRS 17.

Contributes to performance measurement



- Accentuated by IFRS 17 requirement of market value of liabilities.
- Will become more specialised, so likely to have competition.

Provides insights on non-reserve risks



- Dynamic plans and strategy
- IFRS 17 and changes to business environment can bring more volatility.
- Reserving actuary's insights on profit emergence and own funds essential.
- Competition from others.

Contributes to planning and strategy



- Will industrialisation and automation lead to commoditisation of skills?
- Only design and for sign off; pressure to reduce cost.
- RPA, workflow tools, production teams to assume some of the responsibilities.

Coordinates report production



Survey Question - <https://tinyurl.com/TORP2019>

Of the following list, where do you expect the reserving function to be more involved with as a result of transformations?

1. Interprets and communicates results
2. Manages enterprise assumptions
3. Wider business insight/strategy
4. Contributes to performance measurement
5. Insights on non-reserve risks
6. Coordinates report production
7. Estimates reserves and TPs
8. Serves as thinktank and linchpin



Reinventing the reserving actuary

Build on advantages



- ⑩ Business knowledge
- ⑩ Tried and tested actuarial tool kit
- ⑩ Reputation as an independent trusted advisor/consultant
- ⑩ Knowledge of risks
- ⑩ Adaptability: SII good example
- ⑩ Best equipped to navigate the new landscape: soft market, IFRS 17, volatile business environment
- ⑩ Economic value orientation
- ⑩ Experience using & managing assumptions and methodologies
- ⑩ Strong reputation for integrity and professionalism

Update skills



- ⑩ Skill-sets that leverage current technologies, analytics, machine learning & automation
- ⑩ Soft skills that help build partnerships with business; communication, negotiation & Influence
- ⑩ Build a reputation for strategy & innovation

Solve business problems



- ⑩ Spot business opportunities, risks and encourage action
- ⑩ Solve business problems: many in the current environment
- ⑩ Help navigate IFRS 17 challenges
- ⑩ Future proof business models against disruptors
- ⑩ Deliver business insights critical for business
- ⑩ Influence, contribute & create business strategy

Are Transformations Driving Reserving Towards a Cliff Edge

'Business process transformation (BPT) is an umbrella term that describes the act of radically changing the series of actions required to meet a specific business goal. ... Compliance regulations, as well as changes in the economy, often drive business process transformation' – Whatis.com

- Drivers of transformation
- Impacts on reserving
 - Process
 - Data & systems
 - People
 - Methodology
- Case studies
- Implications: Reinventing the reserving actuary

Survey Question - <https://tinyurl.com/TORP2019>

Do you now see more benefit in transformations?

1. Yes - long term benefit outweighs short term issues
2. No - still not worth it!





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 IFoA.

Towards the Optimal Reserving Process Working Party

<https://www.actuaries.org.uk/practice-areas/general-insurance/research-working-parties/towards-optimal-reserving-process>

- GIRO Papers
- Survey Results
- Sessional Papers