Jan van der Merwe

Associate Director
Financial Risk Management: Actuarial
Tel: +27 71 684 7534
Email: jan.vandermerwe@kpmg.co.za

Actuarial transformation – insights from a South African perspective

"Actuarial transformation" has become a popular catchphrase in actuarial valuation circles in recent years. What exactly does this phrase mean? In essence, it refers to the optimisation of actuarial valuation processes across one or more key dimensions, which may include data, systems, processes, models and people. Actuarial transformation is also referred to as "actuarial optimisation" or "actuarial modernisation".

Although this concept has enjoyed much airtime recently, the drive to enhance efficiency within the actuarial valuation process has long been essential. The increased importance of actuarial transformation has grown due to ever expanding financial and regulatory reporting requirements. As many of the readers of this article will be aware, the recent introduction of *IFRS 17 Insurance Contracts* (IFRS 17) has been a particular catalyst for the need to increase efficiency in the actuarial valuation space.

In addition, there is an ever-increasing challenge for actuaries to deal with growing data volumes and increasing product complexities.

Given that actuarial transformation spans multiple interlinked and complex dimensions, each insurer's challenges on enhancing actuarial efficiency will be unique.

Considering the nuances of the dynamics within which South African insurers operate, we identified the need to develop a better understanding of the actuarial transformation landscape in this market. We surveyed a number of South African insurers to gain deeper insights around what actuarial transformation means to

South African insurers, market practices being applied, and key implementation challenges for consideration. We trust that the insights gained will assist you in formulating your approach to actuarial transformation.

Themes emanating from the KPMG South African actuarial optimisation survey

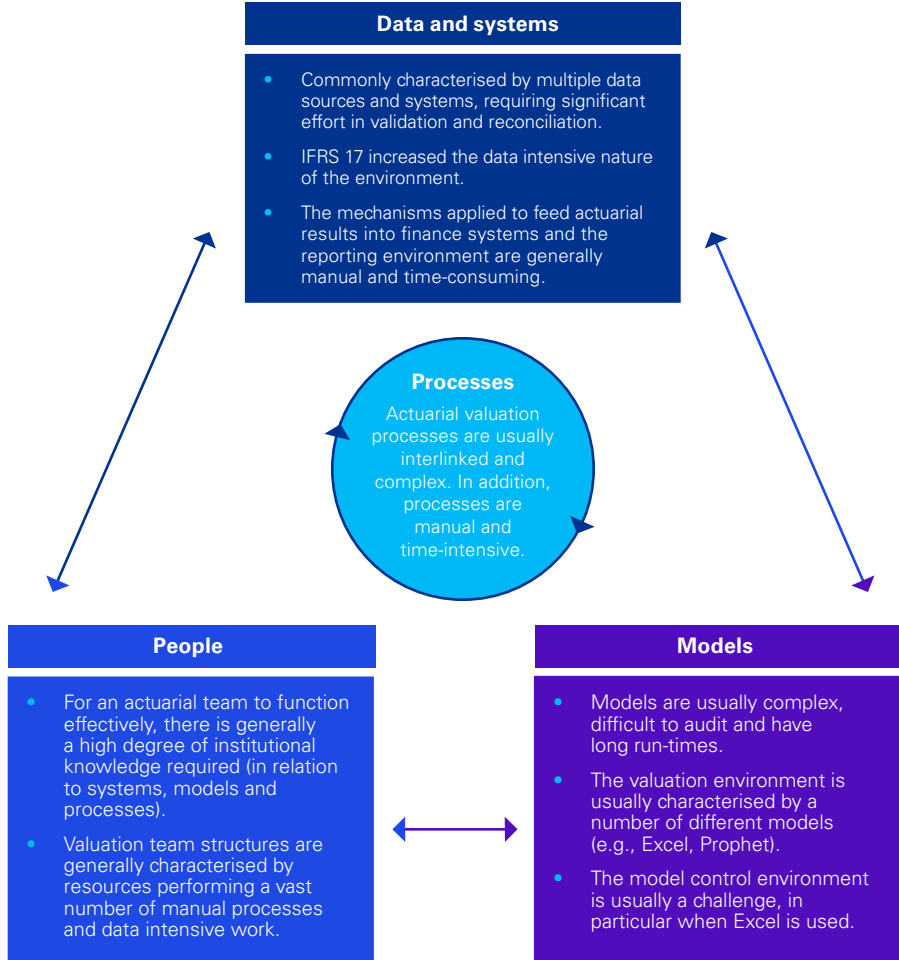|	
Biggest challenge faced by the actuarial valuation function	Data extraction and preparation for valuation purposes.
Key benefit expected from actuarial transformation	Freeing up actuarial resource time to focus on adding business insights and value, as opposed to spending a disproportionate amount of time on data extraction and preparation.
Spend and progress on actuarial transformation	Most respondents indicated that their organisations are willing to invest, have started investing, and have made some progress – but that there is still a lot of work to do.
Biggest obstacle to implementing actuarial transformation	Insufficient time and resources, given that the valuation team and the business as a whole is focused on business-as-usual activities.

KPMG

Let us start with context – an overview of the key components of the actuarial valuation environment

Before exploring the challenges and solutions related to actuarial transformation, it is useful to understand the key components of actuarial valuation processes. The graphic below provides an overview of the core elements of an actuarial valuation process.

Data and systems

- Commonly characterised by multiple data sources and systems, requiring significant effort in validation and reconciliation.
- IFRS 17 increased the data intensive nature of the environment.
- The mechanisms applied to feed actuarial results into finance systems and the reporting environment are generally manual and time-consuming.

Processes

Actuarial valuation processes are usually interlinked and complex. In addition, processes are manual and time-intensive.

People

- For an actuarial team to function effectively, there is generally a high degree of institutional knowledge required (in relation to systems, models and processes).
- Valuation team structures are generally characterised by resources performing a vast number of manual processes and data intensive work.

Models

- Models are usually complex, difficult to audit and have long run-times.
- The valuation environment is usually characterised by a number of different models (e.g., Excel, Prophet).
- The model control environment is usually a challenge, in particular when Excel is used.

Challenges within the actuarial valuation environment

An interesting initial take-out from our survey is that a number of survey respondents had not heard of actuarial transformation prior to taking the survey. In addition, more than 80% indicated that they have a basic understanding of what actuarial transformation entails. This suggests that a greater level of awareness is required, together with a better understanding of the potential solutions that are available to support effective actuarial transformation.

Our survey respondents indicated the top three challenges being:

1. **Data extraction and preparation:** extracting data from multiple systems, for example policy administration and finance systems, and reconciling the data and transforming it into a usable format for use in actuarial models.

2. **Updating and running models:** setting up models with required input assumptions and data, and then experiencing possible lengthy model run times.

3. **Model results review and transfer of results to the finance team:** review of model outputs to assess results against expectations, and transferring the model results (e.g. liability values) to the finance systems.

These insights are in contrast with lower risk challenges identified by survey participants, being (in descending order of priority):

1. **People and structures within the actuarial valuation function:** the number of actuarial resources, the level of skill and experience and the structure of the team.

2. **The use of data and analytics beyond the standard model results:** obtaining insights beyond simply producing the actuarial numbers, for example, analysing experience across multiple factors and developing predictive insights.

3. **Reporting clarity for business stakeholders:** the capability to analyse and explain the drivers of changes in liability, capital and other value metrics produced by the actuarial team.

4. **Experience investigations and setting assumptions:** analysing past experience with the aim of setting assumptions for actuarial valuations.

The possible conclusions that may be drawn from these responses are as follows:

- In light of the key challenge identified around data extraction and preparation, it is apparent that actuarial resources are not being used optimally. Valuations actuaries will be all too familiar with the challenges of spending countless hours on cleaning and reconciling data. In our experience, the root cause of this challenge is disjointed systems and databases, which have been built-up over a number of years, based on sub-optimal technology architectures.

- Once valuation results are determined by the actuarial valuation team, the next challenge is to assess whether these results are aligned to expectations, and the subsequent transfer of these results to the finance and reporting systems. Similar to the previous point, the root cause of this challenge is the limited prevalence of automated systems and processes within actuarial valuation processes and more widely across the business.
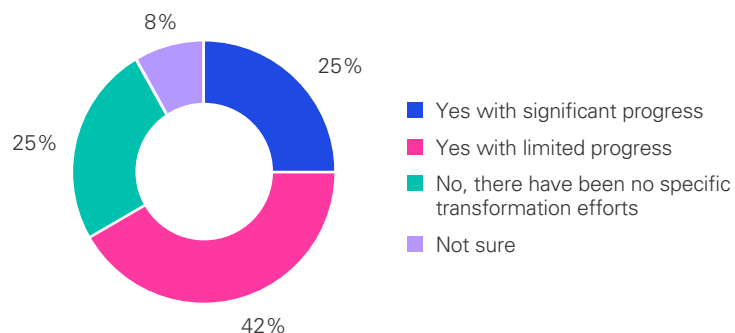
- Organisations are currently "battling the basics", which understandably detracts from thinking about the use of more sophisticated analytics. This provides context as to why the use of data and analytics is currently lower on the list of priorities for actuarial valuation teams.

Given this context, it is useful to understand the extent to which IFRS 17 has driven the need for actuarial transformation. IFRS 17 has had a significant impact on data volumes, model complexity and model run times. Survey respondents indicated that the implementation of IFRS 17 increased the amount of effort and complexity required by the actuarial valuation function by around 50% to 75%. However, IFRS 17 results are required to be produced within the same timeframes as those applied under *FRS 4 Insurance Contracts* (IFRS 4), which indicates that actuarial teams have been under significant resource pressure since the introduction of IFRS 17.

Progress made by South African insurers with actuarial transformation

Our survey indicated that the majority of South African insurers are actively investing in information technology systems and data environments, in support of actuarial transformation. Further insight on this topic is provided in the diagram below, which indicates that, despite the large investment, the progress made has been slow.

In the past two years, has your organisation actively pursued actuarial transformation initiatives?

- Yes with significant progress
- Yes with limited progress
- No, there have been no specific transformation efforts
- Not sure

The likely conclusion from these responses is that insurers still have a long road ahead in their actuarial transformation journeys. This is not an unexpected response, given that actuarial transformation is multifaceted. It is also an indicator that actuarial optimisation requires time and must be tackled in a phased manner.

The benefits of actuarial transformation

Survey participants ranked the anticipated benefits to be gained from actuarial transformation as follows:

1. Freeing up actuarial resource time to focus on adding business insights and value

2. Streamlined processes

3. Improved business decision-making

4. Enhanced risk assessment accuracy

5. Facilitating better integration between the valuation and other business functions

6. Reduced operational and staff costs

These responses are indicative of a theme that has emerged from the survey: actuarial resources are currently being utilised in a sub-optimal manner and are consistently under pressure to deliver results under tight time constraints.

The path forward

The survey results provided indicators of the key aspects that insurers need to consider in their actuarial transformation journey, regardless of what the current status quo is:

- The critical ingredient to actuarial transformation is a sound technology environment. Without this core foundation, actuarial resources may end up spending undue effort and time on manual-intensive tasks such as data extraction, preparation and reconciliation.

- Process automation, which is strongly linked to an effective technology infrastructure, is an essential component to actuarial transformation. In particular, focus should be placed on automation of data feeds (both to and from actuarial models), as well as data validations and reconciliations.

- Each insurer's challenges within the actuarial transformation space will be unique. Insurers need to invest time in understanding their specific challenges, and then move to tackling actuarial optimisation in a phased manner.

While South African insurers are well aware of these challenges, there is still a long road ahead to optimal transformation.