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Actuarial Transformation
The Future Actuary

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Abstract

Actuaries have long been an integral part of the insurance and the wider financial services system. They have contributed to providing insights to insurance companies, their management teams and boards. However, in recent times, the actuarial role has become relatively more compliance focused and the contribution to the broader business and strategic decisions has diminished. The compliance focus over the last 10 years has nurtured a generation of actuaries who, without the challenge of proving their worth, have not gained the experience to contribute to strategic commercial goals.

Furthermore, underinvestment in actuarial data and technology over time, combined with the resourcefulness of the actuaries in creating the data repositories they need, has resulted in a generation of actuaries who are not fully utilised to meet the strategic needs of organisations, much effort is being spent on inefficient processes, models and data aspects, away from strategic input.

A transformation is needed. We see the role of future actuaries as being a value adding business partner and leader that communicates strategy and insight to their stakeholders, by using efficient models, data processes and technology.

Keywords: Future actuary, strategy, efficiency, insights, leader, business partner.

1 Background

1.1 Introduction

This paper discusses the challenges that today's Chief Actuaries are facing, explores the need for change and the path to strategic relevance for actuarial teams.

The paper covers what an Actuarial Transformation is, the benefits of undertaking an Actuarial Transformation and the four faces of a successful Chief Actuary.

The challenges faced by actuarial functions are consistent globally across small companies and large multinational organisations.

We identify seven key themes supported by a global survey of Chief Actuaries. A key outcome is that actuarial teams are not always fulfilling their potential. Issues such as focus on regulatory requirements, combined with less than optimal data and technology are hampering the ability of actuarial teams to engage effectively with the rest of an organisation.

Our key conclusion is that actuarial functions need to change and in some cases fundamentally, if actuaries are to remain relevant beyond a regulatory or compliance function and in the strategic spheres. The change must be implemented hand in hand with management to be effective.

Special thanks go to Senthooran Nagarajan for assistance with survey development and drafting of this paper.

1.2 What is Actuarial Transformation?

Actuarial Transformation represents a fundamental change to the operating model of an actuarial team. An Actuarial Transformation involves critically analysing the team structure, improving and maximising use of technology and data, improving operational and process efficiency and transforming the culture of the actuarial team. A transformation aims to also provide effective tools and frameworks for the Chief Actuary to become a catalyst for change and a strategic business leader, rather than merely a manager of a function.

1.3 Why undertake an Actuarial Transformation?

The requirements of the Chief Actuary's stakeholders are changing. Accuracy and technical correctness are no longer the sole objective. While technical correctness is extremely important, stakeholders want business partners who can provide advice and insights rather than mere reporting.

A Chief Actuary and the actuarial function should aim to deliver a platform that provides greater value to the business in terms of insights, service and costs. Generally, the benefit delivered by an Actuarial transformation include:

Improved Efficiency

- Accelerate the realisation of actuarial value through standardised processes and an integrated system environment
- Reduce manual processing through automation
- Consistent and accurate reports and metrics which improves management information and accelerates the close process

Enhanced Controls

- Develop a "Single Source of Truth" for financial information
- Reduce financial reporting and audit related risk and decrease the potential for material misstatements
- Improve risk awareness and capital management;
- Increase accountability through governance, incentive mechanisms

Increased Effectiveness

- Improve execution of business strategy to enhance decision making capabilities
- Provide timely, accurate, and meaningful insights delivered across the enterprise to enable strategic partnering with the business
- Improve financial forecasting predictability
- Improve confidence in information produced by Actuarial functions

Improved Talent Management

- Improved ability to attract, manage and develop top talent globally
- Provide effective talent management programs for professionals
- Provides Actuarial talent the opportunity to focus on development of analytic skills and required non-technical skills and reduce the time spent on manual processes

An Actuarial Transformation in our experience results in combination of these benefits:

- Faster close (reserving)
- Headcount saving
- Transfer of resources to more value-adding activities
- Better analytical capability
- Reduced operational risk
- More efficient regulatory compliance
- Enhanced service to organisational customers (e.g. Underwriting, Finance, Claims, etc)
- Actuarial department support of organisational strategy development and execution.

However, realising these benefits are accompanied with complex challenges, which vary from one actuarial team and organisation to another.

Some of the common challenges we have seen relate to establishing a clear vision for the transformation project at outset with clear communication throughout the transformation.

It is also important to build momentum and support across the organisation and the key stakeholders for the change, otherwise, the transformation implementation will slow or halt as soon as challenging hurdles are met, which typically should be expected. Establishing clearly agreed project guidelines and milestones helps with maintaining organisational commitment to the change throughout the project.

Achieving early transformation wins and communicating them early in the piece demonstrates the value of undertaking the exercise and is key to the ongoing success of the project.

From our experience, it is important to position the actuarial function to be at the heart of finance or risk functions, adding value to them, rather than as isolated units. This means also having a holistic focus on actuarial processes/methodologies/systems and surrounding interfacing systems, given that the transformation is typically not solely an actuarial exercise.

1.4 The four faces of a Chief Actuary

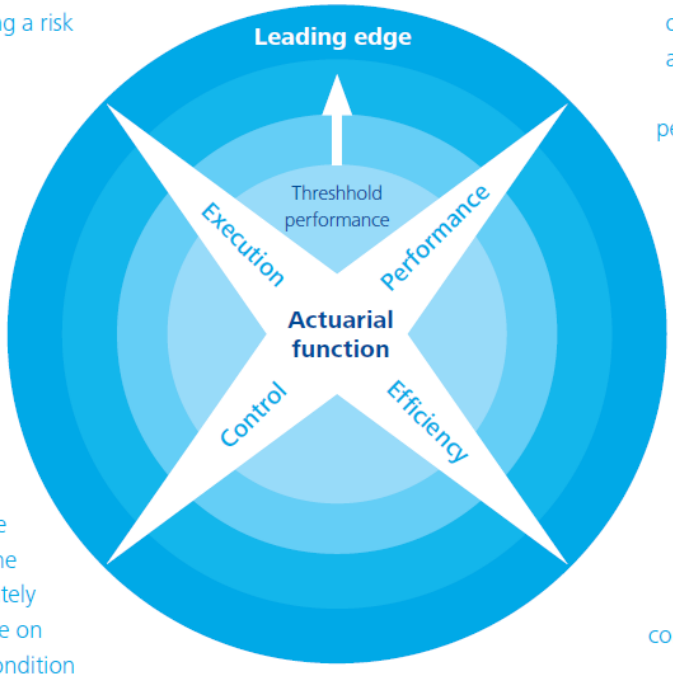
The Chief Actuary has a critical role to play in an insurer and can have a significant impact on how the organisation operates. The Chief Actuary can instigate corporate changes and improvements, create a culture that nurtures the Actuarial team to be good operators of the Actuarial function and strong supporters for the Chief Actuary's vision with the aim that actuaries are seen as trusted business advisors and leaders.

We view that a successful Chief Actuary operates under four faces: Steward, Operator, Catalyst and Strategist, as shown in Figure 1 below.

Figure 1: Four faces of a successful Chief Actuary

Catalyst
Catalyse behaviours across the organisation to execute strategic and business objectives while at the same time creating a risk intelligent culture.

Strategist
Provide actuarial leadership in determining strategic business direction, and supporting other strategic activities such as product development and pricing vital to the future performance of the company.



Steward
Protect and preserve the critical frameworks of the organisation and accurately report and communicate on financial position and condition to internal and external stakeholders.

Operator
Balance capabilities, talent, costs, and service levels to fulfill the actuarial function core responsibilities efficiently.

A successful Chief Actuary has typically built good "Steward" and "Operator" faces before then building the forward looking "Catalyst" and "Strategist" faces.

The actuarial function of the future will be led by Chief Actuaries who drive corporate changes and precipitate business strategy in their organisations. They are Catalysts and Strategists for change rather than recipients of it, constructively challenging the status quo.

2 Global Survey

2.1 Background

To understand the range and nature of actuarial issues facing insurers' actuarial functions across the world, Deloitte's global actuarial team conducted a Survey covering General, Life, and Health insurance and reinsurance companies across the globe.

The survey covered a wide range of questions relating to the Actuarial function including:

- Team size and structure;
- The level of efficiency and effectiveness of the Actuarial people, processes and systems including data warehousing;
- Areas requiring the most improvement and/or change;
- Drivers of change in the business taking the historical and future expectation perspectives; and
- Alignment of the Actuarial team culture and strategy to the overall organisation.

The survey was addressed to the head of the Actuarial function.

We received responses to the survey from more than 100 companies with a geographical scope covering Australia, Canada, Denmark, Hong Kong, South Africa, Sweden, UK and USA.

2.2 Survey Respondent Profile

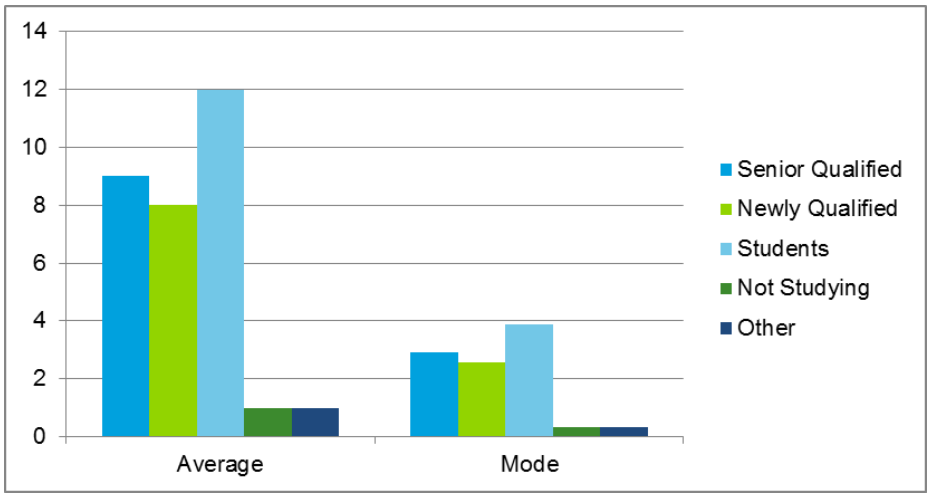
The responses covered large and small Actuarial teams. The average team size was 31 total staff whilst the most common team size was 10 total staff.

We segmented our analysis by companies with "small" and "large" teams where the threshold is based on whether the company has more or less than seven senior qualified staff. Roughly half of the respondents have "small" teams of on average 17 staff (3 Senior Qualified, 4 Newly Qualified, 8 Students, 1 Not Studying and 1 Other), with the remaining half having "large" teams of on average 58 staff (15 Senior Qualified, 14 Newly Qualified, 19 Students, 5 Not Studying and 5 Other). We discuss the survey results for small and large teams separately where we found a significant difference in results.

We identified 15 responses related to general insurance actuarial teams (whether a stand-alone general insurer team or part of a conglomerate general/life/health insurer). We have analysed the differences in the responses between the general insurance actuarial teams and the overall sample.

Figure 2 below shows the actuarial team profile (by experience level) for the companies that participated in the survey. A common theme across all respondents is that there are more Senior Qualified staff and Students than there are Newly Qualified employees within Actuarial functions. It is interesting to also note that alongside students, newly qualified and senior qualified actuaries; actuarial teams have project managers, reinsurance specialists, system analysts, and operational staff (the "Other category")

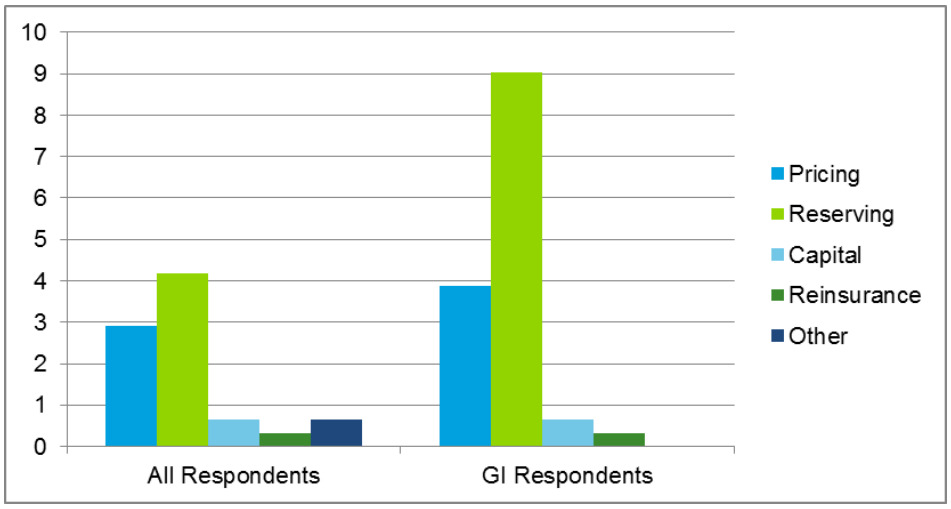
Figure 2: Number of Full-time Equivalent Actuarial Staff by Qualification Status (all respondents)



On average, approximately 5-6% of total head count related to offshore Actuarial employees.

Figure 3 below shows the breakdown of the actuarial teams by function (covering both small and large teams). General insurance teams have a larger proportion of staff working in the reserving function.

Figure 3: Number of Full-time Equivalent Actuarial Staff by Actuarial Function (all respondents compared to GI respondents showing the mode of responses)



Participants expect that on average the number of staff in actuarial function will increase by 6% over the 2014/2015 financial year. However, there are great variations in these responses by company ranging from a 20% reduction to a 50% increase in actuarial staff numbers.

Around 70% of Chief Actuaries report to the CEO or CFO, around 10% report to the CRO and the remaining 20% report to "Other" heads such as the Business unit CEO, International Head of Valuation, Chief Governance Officer, Chief Underwriting Officer or Chief Operating Officer.

3 Emerging Transformation Themes

Based on the survey responses, we identified seven key themes impacting the actuarial function:

1. Current actuarial functions are at their full capacity but not using their full potential
2. Bad data and technology are impacting nature of work performed
3. Operational and process efficiencies need addressing
4. Constrained resources need to be overcome to transform the nature of actuarial work
5. Aligning the function to business and strategy are key
6. Actuaries need to be the catalysts for change
7. Transforming at the corporate level will impact on perceptions for the collective actuarial profession.

These themes are discussed in detail in the following sub-sections. It is important to be aware that these themes are connected and organisations addressing one aspect need to be aware of the implications on the other aspects.

3.1 Actuarial functions are at their full capacity but not using their full potential

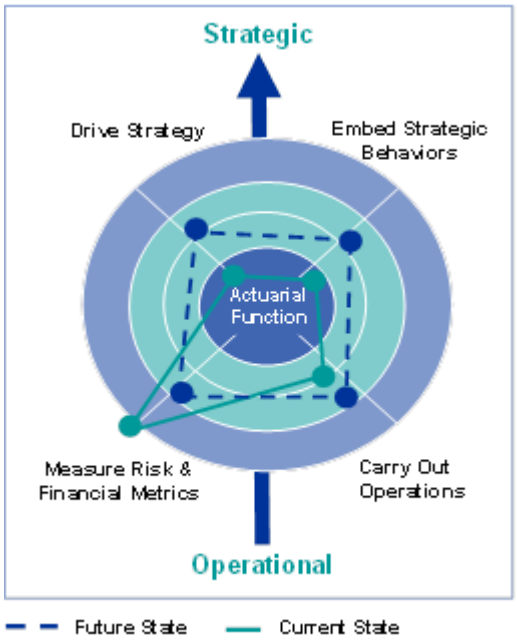
The base theme emerging is that actuarial functions are at their full capacity but not using their full potential.

Increasingly, actuarial functions are primarily fulfilling a compliance or regulatory purpose which we term as "operational" with declining levels of involvement in strategic and business roles. Historically, the actuarial function was an influencer of insurance company strategic direction. The survey responses indicate that actuarial functions are focussed on operational, rather than strategic outcomes.

The actuarial spheres of influence remain in reserving and pricing which are mandated by insurance regulations in many parts of the world such as Australia, South Africa, Asia and USA. We view that actuarial functions are, as a result of this, missing the bigger business and strategy picture. Around 68% of survey respondents indicated that over the last 3-5 years regulation has been the key driver of change in their business and 30% expect this will continue for the next 3-5 years.

An Actuarial Transformation would generate a balanced Actuarial function which uses its full potential as shown by the "Future State" line in Figure 4.

Figure 4: Current and Future State of Actuarial Functions



As an illustration, the current state of Actuarial functions is lob-sided, weighted to an operational based role. As part of a transformation exercise, a gap analysis of current versus future state can help companies change their actuarial functions systematically towards that end state.

A transformation is typically complex with many moving parts and the challenges for organisations in establishing the balance and ensuring that full potential is achieved are:

- The transformation needs to fit the organisations purpose and the issues faced by the actuarial function.
- It must encompass data systems across the organisation, governance and frameworks, team structure, collaboration and culture.
- The transformation is typically part of wider management corporate philosophy or a program of works.

3.2 Bad data and technology are impacting nature of work performed

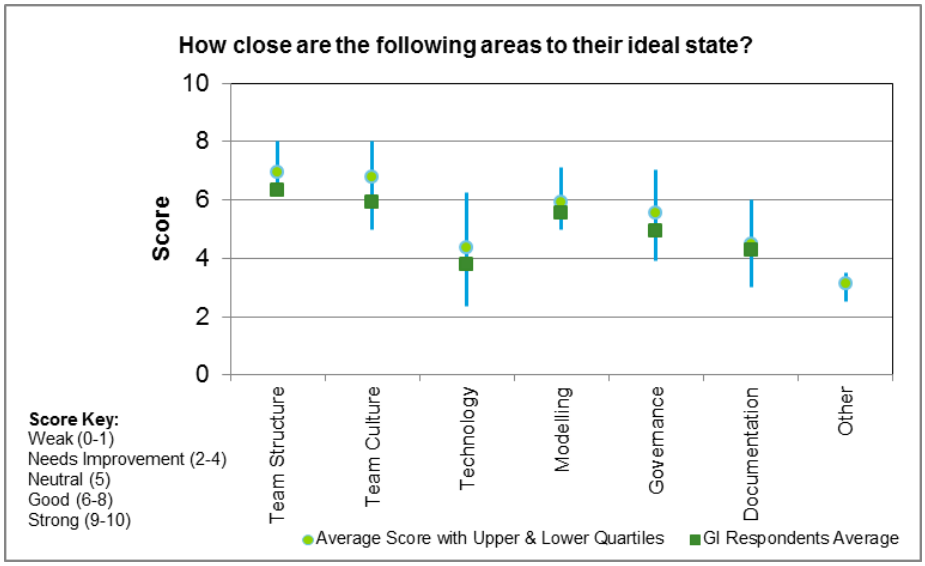
Data and technology are crucial areas for actuaries as they represent the foundation for carrying out actuarial modelling and analysis. Deloitte's survey indicates that two of the key drivers behind actuarial functions not using their full potential are:

- Bad data i.e. inconsistent, poorly specified and not well governed data repositories which are used in day-to-day Actuarial operations, and;
- Poor technology i.e. inefficient processes including some manual processing and often out-dated technology which reduces the Actuarial functions ability to balance its operational and strategic roles.

This is illustrated in Figure 5 below as respondents rate technology as being the furthest away from its ideal state, with an average score of 4.4 out of 10 and therefore having much head room for improvement with respect to efficiency and effectiveness.

Interestingly, the general insurance participants indicated that they were further away from the ideal state with an average score of 3.9 out of 10.

Figure 5: Survey outcome for the ideal state of various Actuarial operations (all respondents, with GI respondents average values shown)



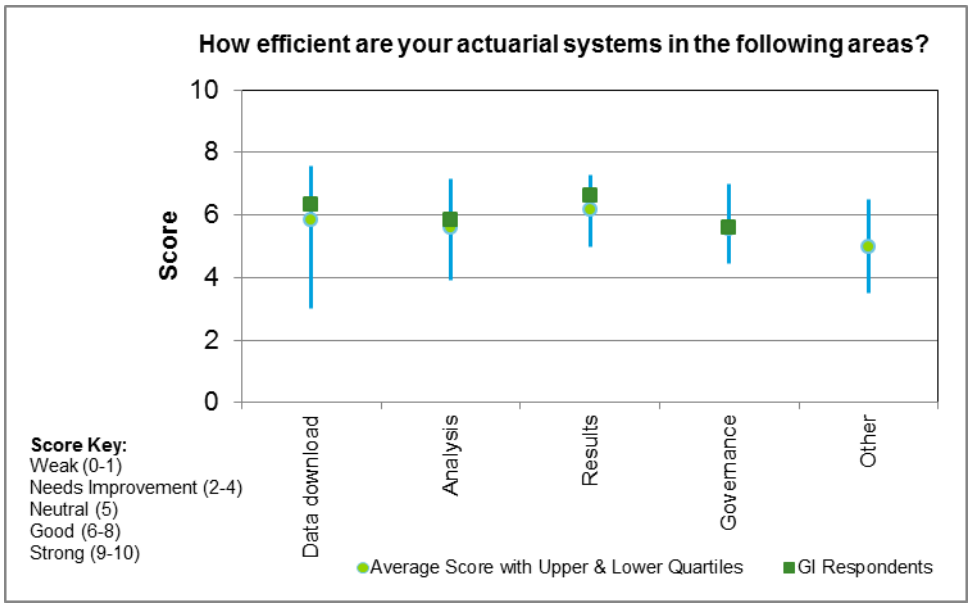
Over time, Actuarial related IT infrastructure has become more complex given the growing number of actuarial and organisational processes, products, and requirements. Organisational change is not always bedded down fully in terms of technology platforms and data. As a result, Actuaries who need access to holistic data have typically maintained their own data repositories, by aggregating and filtering data from company-wide systems.

Actuaries are now increasingly relying on processes and technology which are outside of the organisation's IT environment and are therefore not as transparent to the broader organisation. In addition, rigorous checks and reconciliations that the actuaries perform on their own data repositories are not always fed back to source systems. This introduces operational risk, particularly around model risk and key person risk, which has been a common cause of process inefficiency in the past.

3.3 Operational and process efficiencies need addressing

The survey looked at operational and process efficiencies of actuarial teams as illustrated in Figure 6 below.

Figure 6: Survey outcome for the efficiency of Actuarial systems (all respondents, with the average for just the GI respondents shown)



General insurance respondents had a very similar view on the efficiency of systems to the other actuarial practice areas.

In our view, the inefficiency of actuarial data and systems is an issue that is connected with the technology platforms that actuaries are using, but also lack of investment in modernising actuarial processes overtime. This is impacting on the value delivered by Actuarial teams. Companies would benefit significantly from well-designed and executed actuarial processes and governance providing low risk of errors and operational incidents.

The survey asked which areas of the Actuarial function require process and operational improvement and/or change and to what extent. Respondents had a choice from Minimal (0-2), Some (3-5), Many (6-8) and Significant (9-10).

The focus of responses as shown in Figure 7 below is on analytics and reporting / documentation. General insurance respondents saw a greater need for improvement in the area of "Data". In our view these support the case for process and operational efficiency.

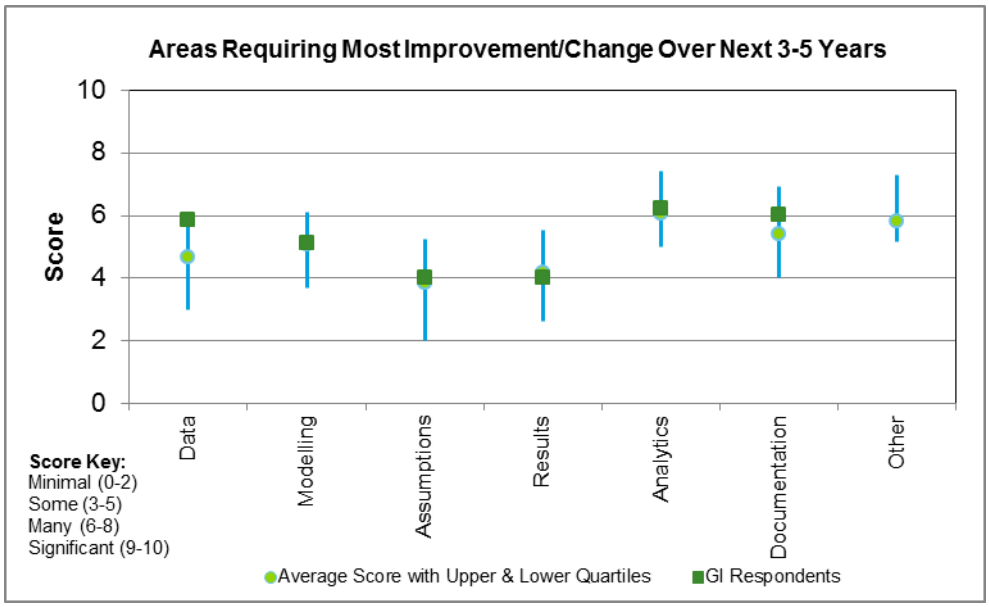
Figure 7 below indicates that elements of the actuarial function relating "Analytics" and "Documentation" and "other" need much more improvement relative to other areas such as to "Assumptions" and "Results".

The focus on analytics is interesting. This is an area where actuaries have much to contribute, however if the actuarial functions is bogged down in processes and "turning the handle", the role of analytics may fall outside the remit of the actuarial team.

The "Other" Category included enhancement of capital return metrics, improving understanding, efficient deployment of resources, and Interpersonal skills.

We view that the need to constantly improve process and operational efficiency is critical for the ongoing value added by Actuarial functions.

Figure 7: Survey results for areas requiring the most improvement over the next 3-5 years (all respondents with the average shown for GI respondents)

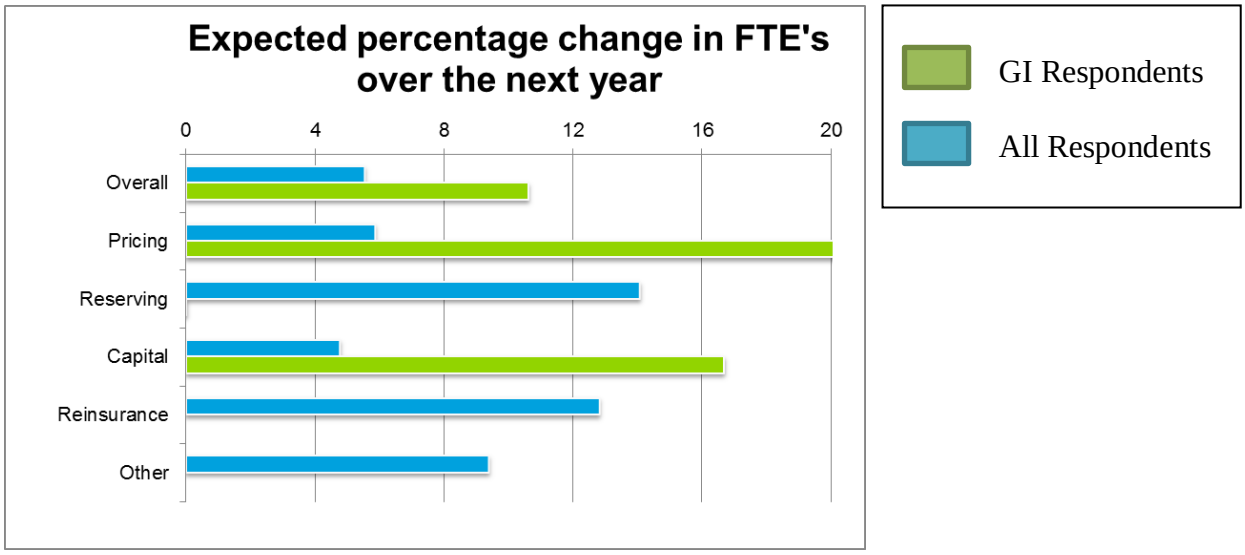


3.4 Overcoming constrained resources to transform the nature of actuarial work

The challenge to transforming the actuarial function lies in achieving change with current and potentially constrained resources. Resources are constrained largely due to process and operational efficiencies, bad data and technology, and regulatory compliance activities as discussed in the previous three themes.

We noted that our survey respondents indicated that Actuarial functions are looking to grow their headcount, as shown in Figure 8, by 6% overall and especially in Reserving teams (14% increase in FTE's expected). The "Other" Category included Analytics, Risk Management, Investment Management, Asset-Liability Management, Business or Product Development, and Technology development.

Figure 8: Survey results for expected change in staff levels over the next 3-5 years (all respondents vs. GI respondents)



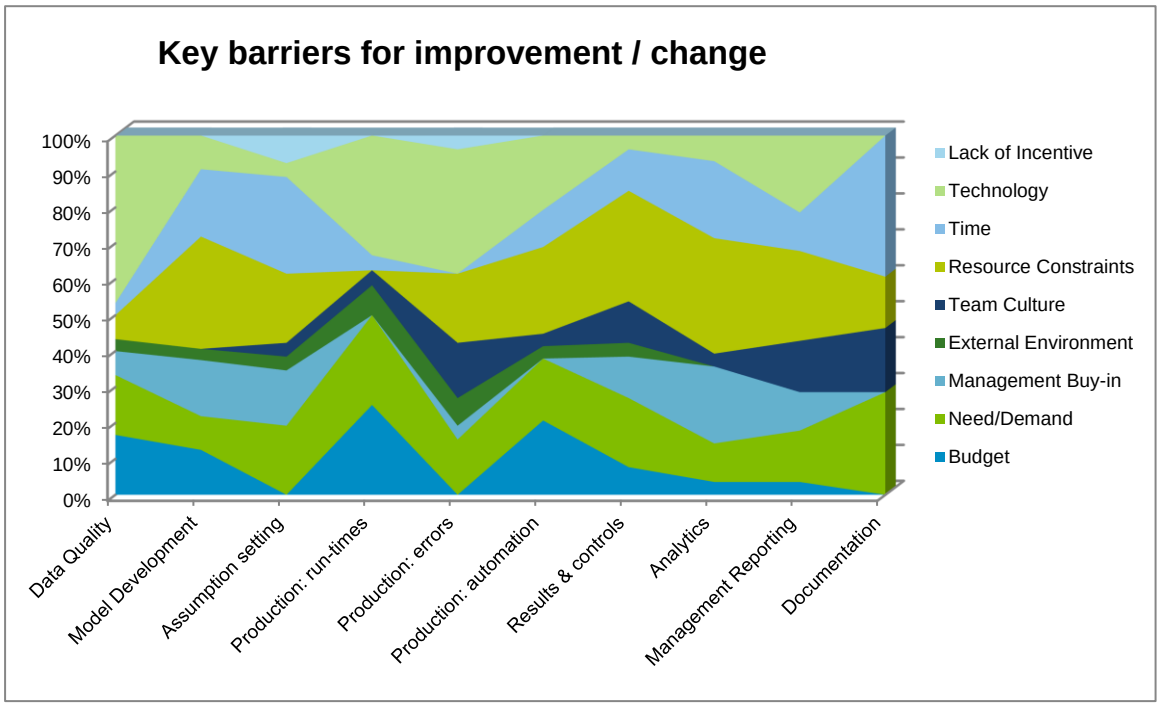
Overall respondents expected to grow their teams by around 6%, with a focus on reserving and reinsurance. The focus for general insurers however was on pricing and capital.

The survey asked for Chief Actuaries' views on main barriers to improvement across the actuarial value chain (from data to model development to management reporting). In brief, Chief Actuaries are experiencing different barriers to improvement depending on the where we are in the actuarial value chain.

As shown in Figure 9a below:

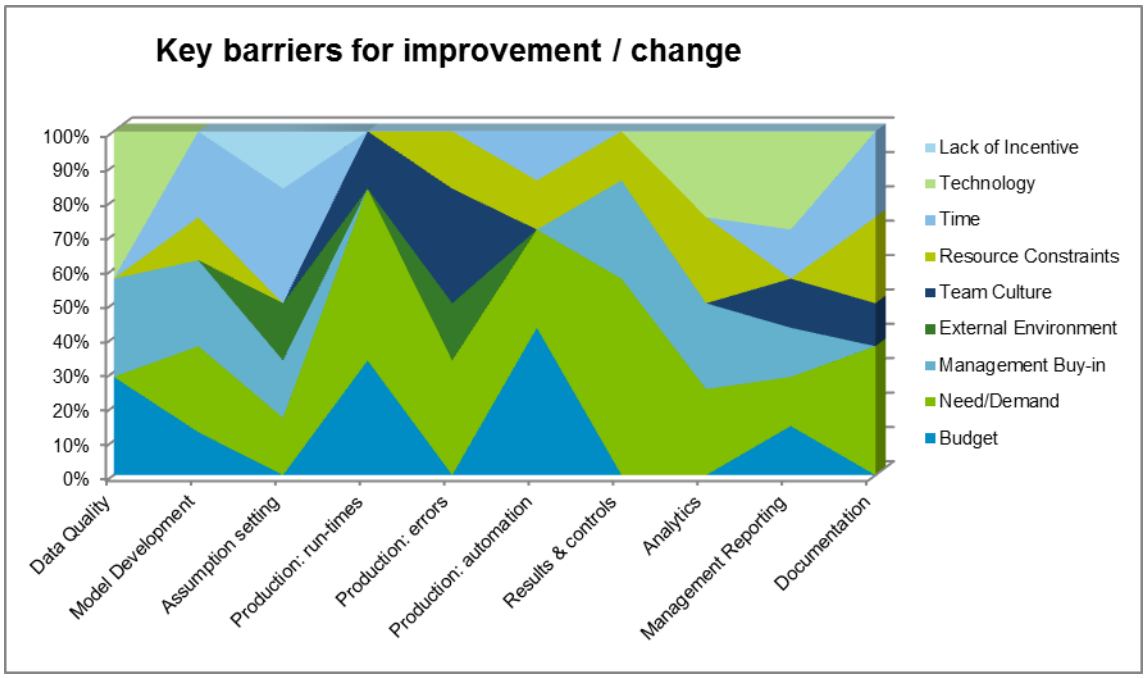
- Technology is a larger barrier in the data, and production error components of the process, and slightly less so for management reporting.
- On the other hand Need/Demand is a fairly constant barrier across all parts of the process.
- Team Culture increases as a barrier to improvement / change for parts of the process such as errors and controls, documentation and management reporting.
- Budget and Management buy-in appears to be a larger barrier in model development and Analytics.

Figure 9a: Survey results for key barriers for improvement / change



We saw some general insurance nuances in the barriers to improvement.

Figure 9b: Survey results for key barriers for improvement / change (general insurance).



The responses from general insurers suggest that need/demand from management is a significant factor to improvement; while for the broader group resource constraints were a significant barrier to improvement.

The barriers are different for larger vs. smaller teams. Larger teams are impacted most by time and resource constraints barriers relative to smaller teams which have the external environment and management buy-in as largest barriers.

This is interesting as larger teams have the ability to achieve economies of scale, cross-skilling and using staff across multiple facets of the actuarial function. Overcoming constrained resources must be supported by cultural change as well as change management programs.

The survey also asked respondents to rate the actuarial team culture with respect to five key dimensions: Openness of Staff, Consultative Leadership, Organisational learning and knowledge sharing, Employee behaviours and Performance metrics / reviews. The results were positive overall with an average score of "Good" however there is scope for improvement to a "Strong" score.

The lowest scoring cultural dimension relates to "Organisational learning and knowledge sharing". Actuaries have traditionally been experts in insurance. They understand the end to end value chain for the insurance organisation that they work in, and understand the underlying financial drivers. The impact of not "plugging in" to the organisations knowledge systems means that the actuarial function is not marketing its knowledge and contribution as well as it can. It also reduces the capacity to participate in discussions which clarify what other teams need in terms of information and analysis.

Generally speaking, larger teams needed to work on aspects of culture more than smaller teams.

3.5 Aligning the function with business and strategy

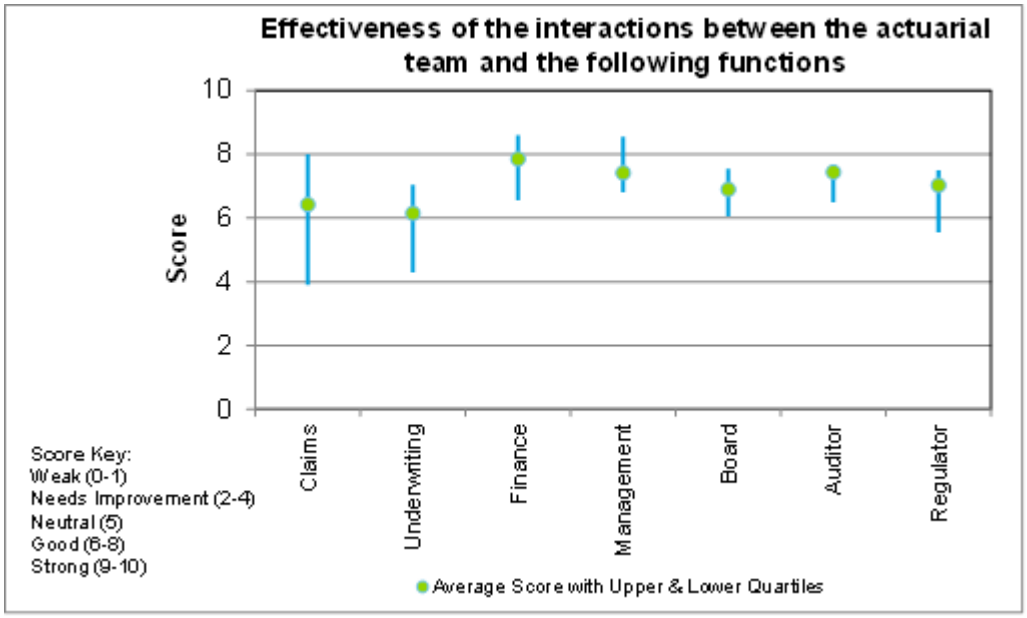
Actuaries typically define what is good through achieving a good enough level of 'accuracy' and technical sufficiency. The ability to address business issues is an equally important requirement. Given most Actuarial functions report to the CEO, CFO or CRO there is clear scope for the Actuarial function to address business issues.

Yet when we asked about how well aligned the actuarial function was to the business strategy, the average score was only "Good" and therefore there is room for improvement to a "Strong" score. Smaller actuarial teams scored higher than larger teams. While not poor it does not give a strong indication that the actuarial functions are fully aligned to the business and its strategy given relative proximity of actuarial teams to the C-Suite Management levels.

Applying the concept of 'proportionality' can help free up time and focus on achieve strategic aims. When is the work good enough given the size, mix and complexity of insurer? The focus on high levels of estimate accuracy has reducing marginal returns. Freeing actuaries up to interpret results, understanding the 'so what' of the actuarial message and then to the 'so what next' will add much more value to the business.

The survey also asked to rate out of 10 the effectiveness of the interactions between the actuarial team and other key stakeholders to the organisation. The results are shown in Figure 10 below.

Figure 10: Survey results for the culture of the Actuarial function (all respondents)



The actuarial function appears to have the strongest relationships with the Finance teams and good relationship levels with most other teams. The lowest score related to interactions with the underwriters indicating that this is a relationship which should be stronger but is not currently. There is some room for improvement to better leverage these relationships particularly with management in order to fulfil well the role of trusted business advisors. The pattern was similar for the general insurance respondents.

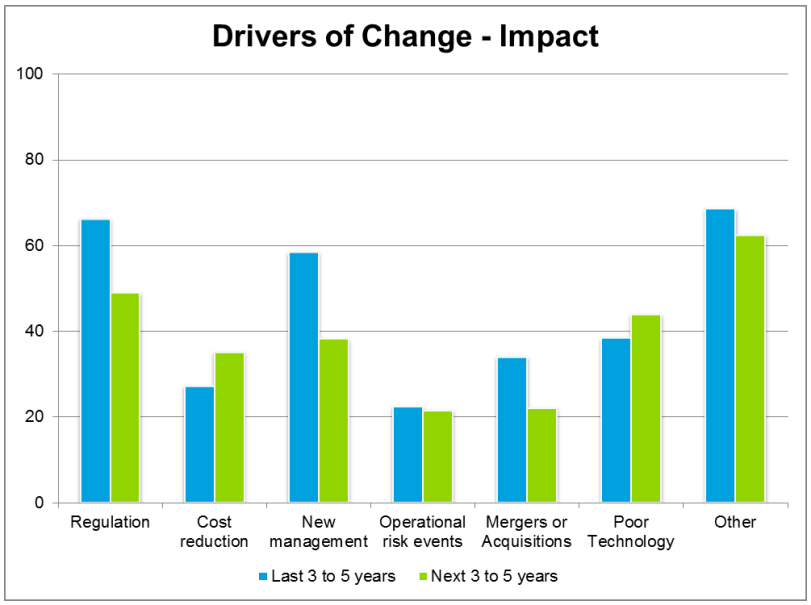
3.6 Actuaries as catalysts for change

Actuaries are currently known as the operators that are expected to produce reliable reporting information and act as stewards to the business protecting and preserving the organisations' critical reserving, pricing and other frameworks. Actuaries are currently less known for being catalysts for change and being sounding boards for strategic business direction.

Our survey supports this perception. We asked the Chief Actuaries about their opinion of the key drivers of change in the last and next 3-5 years, with a sliding scale 0-100 being No Impact (0) to Significant Impact (100). Figure 11 shows that regulation is seen as the most significant driver of change. Less than 10% of respondents indicated product development, business development or expansions to be a driver of change. This is surprising in light of Deloitte's CFO survey[1] which indicated that CFO's are looking to grow their business in the current economic conditions and are seeking strategic input into these growth plans.

[1] [1] http://www.deloitte.com/view/en_AU/au/c-suite-and-boards/the-cfo-survey/index.htm?id=au_HPLINKCFOSurveyQ32012

Figure 11: Survey results for past and future drivers of change on the Actuarial Function (all respondents)



3.7 Creating the perceptions we want for the Actuarial profession/teams

The challenge for the actuarial profession is to build on existing strong technical skills and knowledge of insurance products. Historically, the profession made significant contributions to the areas it was involved in through a mix of technical skills, product knowledge and training.

The business environment is changing however. Some of challenges mentioned include a trend of increasingly scarce resources, the need for better data and technology, increasing regulatory activities and economic conditions ripe for growth.

The profession will need to change while keeping its reputation for high standards and technical excellence. As a profession, we will benefit from introducing elements of commerciality and agility into our mindset. Chief Actuaries will seek to be perceived not just a steward but also more catalyst or strategist – forward looking business leaders.

To achieve this, the focus of our advice and contribution must evolve. As a profession our message to our stakeholders must evolve from the 'what' to the 'so what' then on to the 'so what next'. This evolution is a continuum rather than a step change in the sense that we as individuals, actuarial teams and as an actuarial profession need to have a line of sight to our stakeholders' continually changing needs.

4 Conclusions

The Actuarial profession has worked to develop a reputation for high standards. However, more needs to be done to ensure that in the future actuaries are embedded as crucial elements to business strategy.

Organisations need to maximise the potential value derived from their actuarial functions.

An Actuarial Transformation performed well can help organisations realise the full value potential of actuarial functions.