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Actuaries DIGITAL

In this issue

IMPORTANT INFORMATION FOR CONTRIBUTORS
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A vote for Associates on Council

By Chao Qiao *(chao.qiao@au.pwc.com)*

Reading time: 3 mins

Giving Associates the right to vote and sit on the Institute Council will increase the diversity of views on Council and encourage greater participation of Associates in the democratic life of the Institute, writes Chao Qiao.

Council has put forward this proposal to allow Associates to vote in the same way as Fellows, and to allow Associates to become Councillors. Council encourages members to support this initiative by attending the upcoming Extraordinary General Meeting (date to be confirmed).

I believe this is a sensible and moderate proposal. While it does not go so far as to allow Associates to become the President, and it puts a cap on the number of Associates allowed to sit on Council, I believe it is an important step towards giving a voice, and due representation to our second most qualified members.

The idea of giving Associates the vote is nothing new. It has been talked about for many years. However, there has been a lack of urgency in addressing the initiative.

Times have changed – member make-up

Many Associates are senior members of the Institute who already contribute great insight and experience to the actuarial profession. These members, I believe, should be allowed to vote or sit on Council. I would also argue that it would enhance the member value proposition for them.

Student or 'Affiliate' members who are working towards passing their exams and becoming Associates - many of whom work in the emerging fields including the bourgeoning areas of data analytics, artificial intelligence, risk management and banking – might also be encouraged to complete their exams by the extra incentive of being able to vote and be represented on Council once they are Associates.

Giving Associates the vote will help encourage eligible young members to become Associates, participate in the democratic life of the Institute and contribute positively as volunteers.

A relevant education

One criticism I have heard against the proposal is that it could dilute the voting influence of Fellows in areas such as education.

The quality and relevance of actuarial education and exams is of course of paramount importance, and is something Council is addressing right now through the Education Strategy Review.

I believe having Associates represented on Council and voting will only support the much-needed refreshing and modernising of actuarial skills and education models, to suit the demands of our global and digital markets.

Volunteering and Diversity

Our membership is diverse. Younger members (under 35 years of age, who make up more than 50% of our membership) are increasingly working in emerging fields. They contribute to the age and practice diversity in the actuarial profession and are in many ways 'the actuaries of the future'. Their insights and opinions should be well represented, especially on Council.

People in younger age groups also typically have more capacity to get involved in volunteering roles, compared with older generations who might have greater work or family responsibilities.

The Institute has many valuable across some 85 + committees, working groups and taskforces.

It would be fantastic to see more young members volunteering on these, as well as on Council and Council Committees.

I believe the passing of this proposal would help encourage this diversity of age and practice areas all throughout Institute activities.

A call to action

In closing, I would like to take this opportunity to urge you as a member to support this moderate proposal. I firmly believe Associates will demonstrate the value of their voice if allowed representation on Council.

It would, I believe, be a significant step towards enabling their full contribution to the actuarial profession – including their increased participation in Committees, Institute democratic life, and the strategic future of the profession – something that will ultimately benefit all members.

Fast five with Fintechs - an introduction

By Elayne Grace *(elayne.grace@actuaries.asn.au)*

Reading time: 3 mins

CEO Elayne Grace outlines a new Actuaries Digital series where we spend five minutes with Australian fintech and insurtech companies, asking about their products and start-up journeys so far.

Technology is starting to play a greater part in financial services delivery and transform the very definition of financial services products, and the customer's experience with them.

Interestingly, the regulatory scrutiny on how financial services players have not met community expectations could accelerate the above trend.

We at the Actuaries Institute have been monitoring this trend and talking to those closest to it. We want to understand the technologies making headway in this space and where the potential partnerships with industry lie.

Fintech (the merging of finance and technology) and (especially) Insurtech (the merging of insurance and technology) have seen a spate of new products and companies hit markets across the world in the past few years, and Australia is carving out its own place in this revolution.

EY's Global Fintech Adoption Index was presented at a session (pictured below) on Fintech at the Actuaries Institute's recent Financial Services Forum (FSF) . It stated:

- Fintech adoption has nearly tripled in Australia over the last two years
- Fintech Categories ranked by adoption are:
  1. Money transfer and payments;
  2. Insurance;
  3. Savings and Investments;
  4. Financial planning; and
  5. Borrowing.
- As expected Fintech adoption is greatest amongst the 18 – 44 age brackets at 37 – 48% compared to 15-22% adoption at ages 55 – 74

However, Professor Rodney Maddock of the Australian Centre for Financial Studies warned us that although Fintech will produce significant productivity gains, the benefits will be captured privately, and so policy should focus on how to pass the benefits through to the public.

Actuaries have deep technical and analytical skills, and broad experience in financial products in life and general insurance, super, wealth management and risk that make them ideal contributors. They are already spearheading some of the market's most innovative fintech and insurtechs.

As Chief Editor Angat Sandhu writes in this article, (Insurtech: what, where, why?) in terms of sectors, the majority of insurtech deals (>60%) have been in the general insurance sector, with ~30% focusing on multi-line business and ~10% focusing primarily on the life insurance sector.

What is 'Fast five with Fintechs'?

In this series, we showcase some of the fintech and insurtech companies that are changing the way Australians comprehend, invest and manage their money.

A fortnightly profile of an innovative fintech or insurtech company, it will also feature individuals and companies that are consulting to fintechs or insurtechs.

Each profile will include a short introduction to the product or service and why its unique, then a representative from the company answers these questions.

The questions:

1. What skills do you need to succeed in Fintech/Insurtech today and how might an actuarial degree help in this way?
2. Describe the highs and lows of an entrepreneurial path in Fintech?
3. Where do you see the company in 12 months? What about five years?
4. What's your top tip for actuaries wanting to move into this space?
5. What has had the greatest influence on your professional mindset?

We look forward to profiling the fantastic work of actuaries and others in this space and creating a dialogue between those working in, and wanting to enter, this dynamic space that will only grow.

Get in touch with me at Elayne.Grace@actuaries.asn.au if you're working in fintech or insurtech as an actuary and would like to share your experiences.

Fast five with Fintechs - Plenty Wealth

By Greg Einfeld

Reading time: 3 mins

Greg Einfeld, Director at Plenty Wealth outlines his journey in fintech and where he sees his business, and the broader fintech landscape heading.

About the fintech:

We (myself and co-founder Josh Golombick, and all our staff including offshore developers) have two digital advice businesses. The first is Plenty Wealth which imports transaction data from customers' bank accounts, asks a few more questions, then produces a comprehensive financial plan which covers budgeting, cash flow, super rollovers, super contributions, pensions, debt, insurance, and investment. The scope of the advice is similar to what you would expect from a human adviser. The differences are speed (the advice is produced instantaneously), accuracy (human advisers can't get an accurate picture of their clients' spending), and cost (our advice is free). Then we charge a small fee to clients who want to speak to an adviser by video conference, or want help with implementation.

1. What skills do you need to succeed in Fintech/ Insurtech today?

- **Creating algorithms** - I often hear financial advisers say: "You can't replace my 20 years' of experience with an algorithm". Ultimately when financial advisers make recommendations, they are basing their advice on a set of rules. Whether they realise it or not, there is an algorithm going on in their head. The skill is to be able to codify the set of rules. You need to work out which rules apply, when they apply, and what order they apply in.
- **Financial sector knowledge** - Actuaries tend to have a broad knowledge of the financial sector, the established players, the competitors, the regulatory landscape, and the products which makes our skills sought after.
- **Perseverance** - start-ups are hard work. There are times when you feel like throwing in the towel and only the most determined people can be successful. Actuaries have this skill by definition. Quitters would never have made it through the qualification process.

"Actuaries have this skill by definition. Quitters would never have made it through the qualification process."
- Greg Einfeld

2. Describe the highs and lows of an entrepreneurial path in Fintech?

I'll start with **the lows:**

- You need a unique business name that is memorable, short, easy to pronounce and spell and trademarks all need to be available.
- Everything takes longer than you expect. Our software developers told us it would take four months to build our product. It took three years.
- The money is always tight. It is hard to raise capital externally until you have revenue. Until then you are constantly juggling costs.
- It is harder to get customers than you expect.

But it's all worth it when you experience **the highs:**

- Finally landing on a business name, logo and brand that resonates
- Launching your product
- Getting that first customer
- Watching the revenue grow from month to month
- Getting publicity
- Getting great customer feedback

3. Where do you see the company in 12 months? What about five years?

Plenty Wealth is currently spending little on marketing while we optimise conversion of leads through to revenue. Over the next year we plan to get to the point where the lifetime value of a customer exceeds the cost of acquiring those customers. In about 12 months we expect the open banking regime to commence in Australia, which will allow us to import customer transaction data without those customers providing their banking credentials. Over five years we expect to see the fintech landscape mature and transform and that Plenty Wealth will become an important component of many other fintech platforms.

4. What's your top tip for actuaries wanting to move into this space?

For those that want to be founders - a lot of the good ideas are already being worked on, and if you don't start within the next one to two years then you may miss the boat. While you don't have to be first to market, you need to be a fast follower. In many tech businesses there will only be one or two winners.

For those that want to work in a more established fintech - make sure you understand the culture of the organisation, and check that they have enough capital to pay the bills including your salary

5. What has had the most influence on your professional mindset?

The bible of start-ups is a book called "The Lean Start-up" by Eric Ries. There are a lot of parallels with the Actuarial Control Cycle.

I own another business where we automated a (previously manual, repetitive, labour intensive and error laden) process to produce thousands of automated reports each year. Once I saw how customers embraced the faster, easier and lower cost solution, it was an easy decision to move onto the next business.

Housing Wealth and Retirement Funding - An Update

By Christine Brownfield *(christine@trinary.com.au)*

Reading time: 5 mins

With the 2018-19 Federal Budget announcement of an expansion of the little-known Pension Loans Scheme, it is timely to revisit the hurdles to be overcome before housing can play a meaningful role in meeting Australia's future retirement income challenge.

The Pension Loans Scheme is a loan facility administered by Centrelink and provides eligible senior Australians with the ability to increase age pension payments via a loan secured against their home and repayable upon sale of the home.

The family home as an asset class

Housing wealth is increasingly being recognised as the fourth pillar of our retirement income system (alongside the age pension, compulsory superannuation and voluntary savings), despite being relatively untapped. For current and soon-to-be retirees, rates of home ownership are high and their home is often their largest asset. Residential property is the largest asset class in Australia, with an estimated value of over $7 trillion[i]. This compares to ASX listed equities at $1.9 trillion[ii] or, for a different comparison, and perhaps one more relevant to retirement funding, aggregate superannuation assets of around $2.6 trillion[iii].

How can housing wealth be released?

The family home is not just a place to live but also a store of wealth. The wealth can be released by simply selling the home, but this creates the problem of where to live, and there are clear benefits to home ownership in retirement.

Downsizing is another way to release housing wealth and was the focus of an initiative announced in the 2017 budget. Downsizing can work well financially for retirees in large/valuable homes, who are happy to move to a different area where housing is cheaper, or who can find suitable housing stock to downsize to in their local area. Other retirees might investigate downsizing but find that it isn't a good way forward for them for reasons including lifestyle, community, costs such as stamp duty and sales/marketing/relocation expenses and public policy settings. Many are simply not interested in downsizing – they wish to see out their retirement in their home. Downsizing is often triggered by non-financial factors.

There are also products which facilitate the separation of the 'place to live' and 'store of wealth' attributes of the family home. Debt home equity release products are known in Australia as "reverse mortgages". Alternatively, there are mechanisms which facilitate a senior homeowner selling a share of the future sale proceeds of the home whilst continuing to live in it, sometimes known as "home reversions".

How do retirees use housing wealth?

Increasingly, senior Australians release housing wealth to extinguish housing and other debt outstanding at retirement. For some, the alternative would be having to sell the home. Housing wealth might also be used to buy a new car or white goods, to finance home modifications, to pay medical expenses or to fund in-home care. Wealth might be accessed to help family members enter the housing market. Some seniors seek to access funds to enjoy travel or simply to live a more comfortable retirement than would otherwise be possible.

Hurdles to overcome

Given the size of the "fourth pillar" and the number of "asset rich, cash poor" senior Australians with few assets other than the family home, it is interesting to consider why the release of housing wealth during retirement is not more prevalent. The possible explanations are wide-ranging.

Public policy settings encourage retirees to store wealth in the family home as it is an asset which is free from capital gains tax and exempt from age pension means testing. This creates a financial incentive not to release housing wealth.

There is no overarching federal legislation applying to providers of home equity release products. Reverse mortgages are heavily regulated but not home equity release arrangements in general. Sensible principles-based legislation could provide comfort to retirees that products/schemes are regulated and must provide,

for example, security of tenure. It would also be advantageous to potential providers to have a clear regulatory framework.

A significant hurdle to increasing the market for home equity release products is a lack of capital. There are only a handful of products available in Australia, and those on offer have strict eligibility criteria.

According to Infochoice[iv], reverse mortgages are currently offered by:

- Bank SA (part of Westpac);
- Bankwest (part of CBA) and CBA;
- Heartland Seniors Finance;
- MyLife MyFinance (previously Transcomm Credit Union, now owned by an industry super fund) and
- P&N Bank (a Western Australian member-owned bank).

Homesafe Wealth Release is the sole established home reversion provider.

SEQUAL, the association established in 2004 for providers of home equity release products, closed its operations in January 2017. Two home equity release product providers withdrew from the market in 2017 - Macquarie Bank and Westpac-owned St George Bank both ceased offering their reverse mortgage products.

Finally, releasing home equity to fund retirement is not currently "mainstream" in Australia. Aside from the issues already outlined, financial advice may not consider the family home: total asset planning is needed. Many people, understandably, have an emotional attachment to their home, and this makes it difficult to view the home as a financial asset. Downsizing or utilising a home equity release product may be rational courses of action but they are often needed at a time of life when people feel vulnerable and apprehensive about making difficult decisions.

Budget 2018-19: expansion of the Pension Loans Scheme

The Pension Loans Scheme is akin to a reverse mortgage scheme offered by the government. It currently allows some senior Australians to borrow against their home to top-up their part pension or, if not eligible for the pension due to either the income or assets test (but not both), to provide an income stream up to an amount equal to the full pension. The take-up rate has been low historically, attributable to the restrictive eligibility criteria and low awareness of the scheme.

The 2018-19 Federal Budget included an initiative to expand the Pension Loans Scheme from 1 July 2019 to include all Australians of Age Pension Age who own homes. Either owner-occupied or investment property can be used as security for the loan. Age-based loan to valuation ratio limits will continue to apply.

The maximum allowable combined Age Pension and Pension Loans Scheme income stream would be 150 per cent of the Age Pension rate. The Pension Loans Scheme income would be paid fortnightly in conjunction with pension payments (if applicable) with flexibility to start or stop receiving these payments as circumstances change. There would remain no option to borrow a lump sum.

Concluding remarks

In terms of recognising housing wealth as the fourth pillar of our retirement income system, this expansion of the Pension Loans Scheme is significant. It is a partial solution to the problem of a lack of capital as the government is effectively stepping in as a loan provider, facilitating an income stream with the borrowing secured against the property. The Pension Loans Scheme will be available to all home-owning senior Australians, including those who do not meet the eligibility criteria for other home equity release mechanisms currently available.

Most importantly, awareness of this scheme will increase and it is a step towards the use of housing wealth to supplement retirement funding becoming "mainstream."

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[i] Corelogic's Housing Market Update, April 2018, reported a $7.5 trillion value of Australian residential real estate.
[ii] https://www.asx.com.au/about/historical-market-statistics.htm#End_of_month_values
[iii] https://www.superannuation.asn.au/resources/superannuation-statistics
[iv] www.infochoice.com.au

Aggregators within Private Health Insurance – Part 2

By Andrew Gower

Reading time: 3 mins

In Part Two of this two-part series, Andrew Gower discusses how growth of aggregators has led to material impacts within the Australian health insurance market. These impacts have made acquisition of new customers less profitable; leading to an increased focus on loyalty and developing deeper relationships with customers.

What insurers are doing to improve loyalty

To counter the impacts of increased churn and higher acquisition costs, there has been an increased focus within PHI on improving loyalty and developing deeper relationships. These approaches seek to create a broader barrier for customers to shop around for a better deal or leave the industry (which has been happening in recent quarters). Essentially, insurers are offering a deeper value proposition outside of the core insurance offering. This is moving PHI from being in a customer's pocket, to being in their mind as a key part of their life; although this remains challenging with the current regulatory environment of the health system.

One approach is using additional brands where deep customer relationships have already been developed. This has seen a number of new brands, such as Qantas and Suncorp, enter the PHI market; allowing these brands to share brand development costs over a broader base as well as deepening the customer relationships they have in their key product offerings.

These additional brands have changed the traditional integrated operating model within PHI with the underwriting margin being separated from the brand and customer service margins; something that has already partially occurred in investments and life insurance. This in turn requires deeper understanding of operational expenses and ensuring that the business is efficiently allocating its resources.

Another approach has been the development of wellness programs. While these can assist with claims cost over the long term, the increased relationship can assist with retention and loyalty of customers in the short term. Two examples of this have been the Qantas Assure and AIA Vitality programs. Both programs offer discounts and rewards for undertaking exercise or healthy eating. Medibank has partnered with Flybuys to offer a similar program.

The third approach has been expanding the value offering into health services. This has seen insurers purchase (or develop) dental or optical practices. These have assisted the insurers keep profits within the group, have additional brand presence within the community and provide a consistent brand experience in another part of the value chain (healthcare delivery).

The final approach is embedding loyalty into products (mostly ancillary products) through increased limits or benefits. This approach endeavours to provide additional value for loyal customers while balancing the risks of anti-selection that can occur within PHI. Using this approach requires careful consideration of equity within product portfolios, something that actuaries have extensive experience in.

The need for reforms

In addition to these developments, insurers have been working hard to drive reform to improve the value proposition, increase loyalty and drive transparency with broker commissions.

Health Insurers are heavily regulated in what services they can pay for and how much they can pay. While these regulations remain important to ensure that insurers don't refuse to pay for health services; they have limited the development of broader health offerings.

Changing these regulations to allow deeper customer relationships would also assist loyalty as they move from being purely payers within the health system to more active players in broader health. A key aspect of this is payment for out-of-hospital medical services (instead of admission to hospitals), which can provide improved patient outcomes at lower cost.

Another reform needed is greater transparency of commissions payable to aggregators. As outlined in part 1, PHI products aren't financial products and the disclosure requirements seen within other insurance and superannuation products don't apply. The approach proposed by government is to make PHI a financial product, although this would require greater disclosure requirements from insurers as well. This may increase the pressure on premiums; hence a more balanced approach is preferred by insurers.

The federal government announced a series of reforms for private health insurance in October 2017. These focused on transparency of coverage and improving the value proposition for younger customers, rather than just ensuring that the sales process was transparent and in the best interest of all stakeholders in the system. Considering the continued focus on transparent selling behaviour within other classes of insurance and financial services; it is expected that discussions on reform will continue with health insurance for some time.

Actuaries have a broad range of skills to assist insurers in meeting these challenges.

Our deep analytical and financial modelling skills can be used in (amongst other areas):

- Identifying possible anti-selection that can occur with sales from aggregators, and assist in developing appropriate management actions.
- Understanding the holistic impacts on profitability and capital due to differences in distribution and service approaches.
- Assessing the impacts on customers, insurers and the health system of various potential reforms over various time periods.

We need actuaries to challenge themselves to step into broader roles within Health and show the important value and assistance we can provide to meet these (and other) challenges in meeting the health needs now and into the future.

Why is this the most exciting time to be a young actuary? - YAC 2018 report

By Chetana Koganti

Reading time: 6 mins

The 2018 Young Actuaries Conference (YAC) began with more than 150 young actuaries around the country devoting half their day, seeking to be inspired. Chetana Koganti reports.

In their presence was a brilliant panel of speakers from a diverse range of areas, set to share important insights and anecdotes from their careers.

Keynote – HYPER ANNA: AI Powered data analysts

Chelsea Wise from Hyper Anna gave the Keynote Address

With the rise of artificial intelligence (AI), the question is often raised - how will actuaries retain relevance in the future? Imagine AI who not only has the ability to obtain insights from the available data but can also be available 24/7 to answer management's queries within seconds.

Hyper Anna aims to do just that. A product like this would allow actuaries to pass on the tedious, repetitive tasks e.g. manual data checks and regular reporting, to AI and instead focus more on applying the insights to influence strategic business decisions.

AI has the potential to evolve and aid actuaries in moving away from data-crunching to influencing business outcomes in organisations.

Plenary 1 – Insurance & Public Policy

YAC's first plenary focused in on how the actuarial skillset can be utilised to ensure equitable and efficient outcomes in the development and implementation of good policy in the areas of climate change, social welfare, and mental health.

When asked if they work in any of the above-mentioned areas, most audience members did not raise their hand. However, that certainly didn't mean they weren't interested in the incredible work actuaries are doing in this space, or how they could get involved.

There was a noticeable stir of passion from the audience during this session's presentations and Q&A.

Plenary 1 speakers

Read about the recent Actuarial Hackathon for charity and about actuaries working in Not for Profit roles.

Social Welfare

The social sector is predominantly funded by the government to support Australians most in need.

Hugh Miller's talk asked how actuaries can intervene early to improve outcomes for individuals within the social sector - whether it is within the welfare, justice, housing, child protection, disability or education - and influence fiscal sustainability.

Actuaries can be involved in delivering a range of outcomes by using the large datasets available.

Whether it be through understanding the long-term costs, predicting future service use, influencing preventative measures or increasing spending effectiveness.

Read Hugh's recent essay Modern government service delivery and watch him discuss its key points here:

Climate Risk

The value of actuarial analysis around the financial implications of climate change can be used to mitigate risk, influence outcomes for at-risk communities, encourage adaptation and preparedness, and drive a strong risk culture in Australian society.

Stephanie Wong from the Institute's Climate Change Working Group, reminded us that it is imperative for all organisations to act now in addressing the risks stemming from climate change.

Business directors have a legal obligation to disclose and manage any material financial risks, which includes their exposure to climate change risk.

"It's an opportunity [for organisations] as well as a risk....Whose fault is it if more than half the Australian assets are invested in high carbon assets or industries exposed to climate change risk, when the world is transitioning into a low carbon economy." – Stephanie Wong

Here we asked delegates: 'what was your key takeaway' from YAC 2018?

Mental Health

With one in five Australians affected by an identifiable mental health issue in any one year, there is a material focus within the insurance sector for well-designed products with clear underwriting guidelines.

Early treatment plans and specialised claims management processes are key to ensuring claimants are treated appropriately, and outcomes are efficient for the customer as well as the insurance sector.

"The Role of an actuary is to do with sustainability."- Geoff Atkins

Geoff Atkins, co-author of the recent Mental Health and Insurance Green Paper. reminded us that education and collaboration with communities and government on public policies is critical.

A key consideration: how can improvements be made with limited data, a strong reliance on subjective information and the high prevalence of co-morbidities within an ineffective regulatory framework?

Here we ask delegates what they liked most about YAC 2018:

View the video here:
https://youtu.be/4WVOcDxYtZc?rel=0

Plenary 2 – Knowledge Sharing

Each actuary's experiences throughout their professional life are unique, particularly with the new developments in career

pathways available today. Each journey is defined by the distinct goals and aspirations individuals have for themselves.

This plenary heard from three individuals who inspired us to:

Take the leap

Solai Valliappan (pictured speaking left), an actuary who went from a conventional actuarial role to a strategic advisor role for multiple start-ups began by highlighting that you don't need to wait around to qualify before applying for a role outside your comfort zone.

Solai was asked by several her friends, for her professional opinion. This led her to taking on a consulting and now working at High Earth Orbit Robotics.

"Once people understood what I did as an actuary, I was the first person they wanted advice from for their business," said Solai.

Listen to her career advice and journey in our podcast.

"[It's] Always good to learn from other people, why make the same mistakes?" – Solai Valliappan

Actions for all aspiring actuaries:

- Do not wait until you qualify to take calculated risks in your career.
- Expand your network to expose yourself to people from a range of backgrounds.
- Use all the mediums available to you to harness your curiosity and grow.
- The most powerful enabler for unique opportunities is surrounding yourself with differing mindsets and a diverse network of individuals.

Build credibility

Mark Henderson (pictured speaking left), the CFO of Life & Investments at Zurich, then reflected on his own career journey and captured the crowded room's attention with his honesty.

He described consultancy work as "slightly more technical than corporate" but said the best consultants have worked in corporate, because it helps them see from the client's perspective.

"It's very easy being an actuary to think...because you know more about the numbers than anyone, you know more about everything else, and that's certainly not the case. The sooner you appreciate and engage with what everyone else brings to the table, the better," - Mark Henderson.

Mark emphasised that the accuracy and quality of the findings we derive from the data is only one part of the process.

Communicating these outcomes to all the stakeholders in the business who influence decision making is integral in delivering sound advice. The ability to provide simple explanations and having them understand the first time is key.

Actions:

- Engage with the people in the business and take a real interest in your work to provide better context and more meaningful insights.
- Pause and think about any work you are presenting, especially to non-numerical people, to challenge yourself and see if you can present the work even better.
- Expose yourself to roles within the industry in order to be a well-rounded consultant.

Think big

Finally, Meng Yuan (pictured speaking left), an actuary and director at NDIA, shifted the conversation to a passage of her career and the broad scale and impact of the NDIS.

"There is no elevator to success, you have to take the stairs." – Meng Yuan

Meng said the actuarial control cycle is fundamental to managing uncertainty, with its applications not limited to insurance but relevant to a broad range of industries. The NDIS adopts the control cycle to ensure financial sustainability and manage its risks.

There are three distinct stages to learning; the foundation stage, the curiosity stage and the purpose stage, with each stage forming the building blocks towards success.

Actions:

- Build a strong foundation early in your career, whether it is building models from scratch, writing codes or valuation reports.
- Adapt to change and aspire to create change in any role you are undertaking.
- Ask yourself how connected you feel with your work, your team and the purpose of your work.

Final reflections

Ultimately, the conference emphasised the broad range of fields in which actuaries can work, from start-ups and AI to social welfare and government disability schemes, with a significant focus on topical roles.

It showed how easily we can change directions and pursue new roles while, capitalising on the key actuarial fundamentals engrained within us.

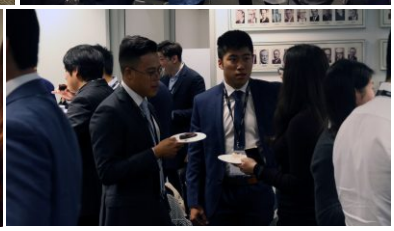
The conference closed with an evening networking session, providing a great casual environment to connect with peers on our similar and differing experiences and uncertainties.

All in all, the second inaugural YAC inspired change and pushed the envelope of the limitless opportunities which are available and only growing!

As always, thanks to our speakers, our sponsors (SKL and Finity), the Actuaries Institute and the Young Actuaries Conference Organising Committee for making this event such a success.

YAC 2018 Organising Committee

[See presentations, audio and video from YAC 2018 and view a full Photo Gallery]



Meeting Challenges in Insurance and Super

By Nathan Bonarius

Reading time: 4 mins

*Nathan Bonarius reports on the recent "*Meeting Challenges in Insurance and Super*" concurrent session from this year's Financial Services Forum.*

At no other point in superannuation's history has insurance been under the microscope like it is today. Group insurance has been criticised for eroding members' account balances, duplication of cover, complexity of claims processes and product terms and potential 'junk' insurance that won't pay claims.

The Insurance in Superannuation Working Group (ISWG), a cross industry body, put together the Insurance in Superannuation Voluntary Code of Practice (COP) to help address these issues. Further to this, the Government recently proposed a number of legislative changes to superannuation in the May Federal Budget as part of the Protecting Your Super Package (PYSP).

Attendees of the Actuaries Institute's 2018 Financial Services Forum were therefore fortunate to have a concurrent session presented by Richard Weatherhead (Head of Insurance at AustralianSuper) and Andrew Howard (Chief Operating Officer at REST) on the COP and give their perspective on the budget's PYSP. (Both Richard and Andrew are architects of the COP chairing the Technical Committee and Code Development Committee respectively).

The whirlwind session attempted to cover off many big issues and, somewhat unusually for a conference concurrent session, engaged the audience to help solve the problems as well!

Pictured left to right: Nathan Bonarius, Jia Tan, Richard Weatherhead and Andrew Howard.

ISWG

Andrew kicked off the presentation with an overview of the community pressures and political backdrop that led to the creation of the ISWG and the work done to date with the creation of the COP. Richard then gave an overview of some of the key benefit design principles of the code including how trustees should prevent inappropriate account erosion through benefit design, premium limits, cessation of cover rules and member communications as well as avoiding multiple accounts/ insurance when a member joins.

Another aspect of the code is improved disclosure through the creation of standard form Key Facts Sheet (KFS), compliance reporting as well as better explanation of the intention and application of TPD and Income Protection definitions.

Lastly the code covers service standards for the claim and underwriting processes and the governance of Premium Adjustment Mechanisms.

Key budget proposals

Richard then gave a quick overview of the changes announced in the 2018 Federal Budget, namely:

- No automatic insurance until the member's account balance reaches $6,000
- Cover turned off for existing accounts with less than $6,000 at 30 June 2019
- Cover to cease after 13 months inactivity (i.e. no contributions)
- No automatic cover for new members joining under the age of 25

It was noted that many aspects of the Government's changes were consistent with the spirit of the code but made them mandatory. The $6,000 balance limit on insurance cover was a new element not covered in the COP which could potentially have unintended consequences.

Interactive session

Following the informative presentation and a robust Q&A session the room was broken up into four groups, with each team asked to brainstorm some of the issues, considerations or solutions to one of the big questions in group insurance.

The issues covered included:

1. **Affordability**, in particular how to determine affordable cover within the 1% salary limits, when it could be exceeded and specific measures for younger members.
2. **Account balance erosion** and the possible impacts that trustees and insurers need to consider.
3. **Duplication of cover**, and how trustees can address it and the possible impacts to be considered when removing cover or refunding premiums.
4. **Promoting, monitoring and reporting on the Code**, including the challenges and practical steps that trustees need to take.

This was a new format for a concurrent session and although initial impressions might have been that the organisers were herding cats, the groups did pull together and put forward a number of thoughtful and interesting perspectives on the COP. For example, on the question of affordability some members questioned whether cover should be cut off completely if the benefit is so low that it wouldn't be worthwhile. Similarly, members called out concerns about the $6,000 balance at which point cover will kick in from the Government's reforms as members wouldn't know when this occurs.

Changing the session's format was certainly a challenge and given the volume of questions put to Richard and Andrew during the Q&A, we almost ran out of time. Despite this, the group format was well received. It got members up and talking to each other, gave some variety to the conference and most importantly allowed us all to have a spirited discussion on important policy questions that affect actuaries working in both life insurance and super.

Ultimately, from my perspective it was this discussion and the collective expertise of the room that generated the most value and is something that we actuaries should look to incorporate into more of our policy forums in future.

A big thanks also goes to Jia Tan who Chaired and helped organise the session as well as Richard Weatherhead and Andrew Howard for lending us their expertise for the session.

CEO Column

By Elayne Grace *(elayne.grace@actuaries.asn.au)*

Reading time: 4 mins

CEO Elayne Grace reflects on her first three months in the job including member experiences across Australia, Asia and Europe, and the renewed energy for focusing on customer outcomes and trust.

In my three months so far in the role as CEO, I have met many members in Sydney where Institute HQ is based. I recently had the privilege of meeting many more when I travelled to Melbourne, Canberra, Brisbane, Adelaide and Perth and, as part of our annual Asia Tour to Hong Kong, Shanghai, Singapore and Malaysia.

It is great to meet members face-to-face to get a real sense of the issues at the top of their mind and therefore facing the profession.

The three themes from this feedback that stood out for me are:

- actuaries are adapting to the ever-changing environment around them;
- how the fast-paced adaption of data analytics techniques are challenging actuaries to be clear about the value proposition they bring; and
- that professionalism and ethics are needed even more in a world where trust needs to be rebuilt.

An exciting time to be an actuary

The work environments are very different across different locations: mature markets versus high growth; significant financial service presence versus none.

And yet for all the differences, everywhere I went I observed immense pride in the profession and a feeling that it is an exciting time to be an actuary.

The truth is we live in a fast-paced world with many complex challenges and opportunities facing us that need logical, disciplined, professional and fair-minded brains to solve them.

In the data analytics space, these opportunities range from the desire to have increased data analytics analysis to help regulators perform their roles to helping companies extract value from their increasing pools of information.

In Asia, the demand for actuaries is also increasing in line with the adaption of increased risk-based capital systems, IFRS and other prudential regimes.

New energy around public interest

Dr. Aubrey de Grey, biomedical gerontologist and Chief Science Officer of SENS Research Foundation, Keynote Address was a highlight of FSF 2018.

There was a vibe of optimism and opportunity at the recent Financial Services Forum in Sydney in May. The revamped program was a great success, not only in terms of the energy generated by the fantastic facilitator Melinda Howes, but also due to the great line-up of speakers (sourced from our new curators – Nicolette Rubinsztein, Jennifer Lang and Jas Singh), which was matched by the enthusiasm of the attendees.

I was particularly delighted to see the strong interest shown in tackling the 'big' issues such as changing customer expectations, the Means Assets Test, the Royal Commission, the future of life insurance (discussed in Ilan Leas latest Dialogue paper), fintech, housing affordability and genetic testing.

Thought leaders such as Lucinda Brogden, Damien Mu, Brett Clark, David Knox, Michael Rice, Ian Laughlin, Anthony Asher, and of course Aubrey de Grey really put some meaty issues on the table.

Another pleasing aspect was the attendance of high-level regulators and policymakers including Helen Rowell (APRA), Peter Kell (ASIC), and Darren Kennedy (Treasury) to give members their views on emerging issues and how the profession can respond. The same can be said for high-profile industry players like Paul Howes and Michael Vrisakis who gave valuable insights into the likely legal and industry outcomes of the Royal Commission – a really stimulating discussion.

These difficult issues have been discussed for a long time but now there is a renewed urgency to make progress on them.

The Royal Commission has put the customer right back at the centre of everything we do. This should strengthen the ability for professions and all people working in the financial services to act in the public interest.

The International Actuarial Community

I also caught up with the CEO's of our international counterparts at the recent International Actuarial Association (IAA) meeting in Berlin. This was a great opportunity to see what the larger actuarial associations (≈30,0000 members each) such as the Institute and Faculty of Actuaries (UK) and the Society of Actuaries (US) are up to, as well as the associations of a similar scale to us: the Casualty Actuaries Society (US), Canadian Actuarial Institute and the Actuarial Society of South Africa.

Senior Vice President Nicolette Rubinsztein pictured attending the All Presidents meeting at IAA in Berlin where over 55 different actuarial associations were represented

We are all dealing with similar issues – promoting the unique value proposition of actuaries, changing regulation including IFRS, staying relevant with strong analytical skills and the importance of professionalism and ethics.

These relationships are open and strong and have been built up by past Presidents, Martin Stevenson Chair of the International Committee and others over the years.

I look forward to building on these relationships as there is much to be learned from sharing with each other. Watch out for more international content going forward!

A different road to success - Interview with Martin Fry

By Elizabeth Finch

Reading time: 4 mins

After an eventful 43-year actuarial career, Taylor Fry Principal Martin Fry steps into retirement, reflecting on a lifetime of quiet achievement, his passionate aversion to hierarchy and the guru that inspires him to this day.

What will you see when you stand at the end of your working journey, looking back across the years? A dutiful nine-to-fiver, bills and family holidays paid? A fortune amassed?

For some of us, a working life is the unavoidable necessity that allows us to grow our futures and fulfil our desires, if we're lucky. For a very few, it's an opportunity to take a chance – to put human beings before personal financial gain, create something meaningful for others and go with what feels right. For Martin Fry, it was this last option that proved well worth the risk.

At first, you may not think a mild-mannered actuary would have such ambitiously altruistic aspirations, but, in 1999, starting a company – along with his like-minded colleagues Greg Taylor and Alan Greenfield – made perfect sense. It was a natural reaction to working in large organisations bound by bureaucracy, where the culture was to reward a few stars financially, based on personal performance.

"We had all felt some unhappiness working at big firms," Martin says from the Melbourne offices of the firm that bears his name. "It gave us a real desire to build a place without internal competition and politics, where we could do good for our clients and compete only with our competitors, where not one person was dominant, bullying or driving it."

Nineteen years later, that sentiment is still strongly reinforced, despite some compromise and a few lessons along the way.

"We were a bit naïve to think we could continue to grow and hold on to a flat structure," he says. What was more significant, they discovered, was to preserve collaborative decision making, rather than impose change.

The experience has been personally enlightening, too. "I learned that if you give people more responsibility than their level would normally dictate, they respond very well. I've found you shouldn't necessarily treat people as juniors just because they've served only a couple of years of actuarial training. People can grow into positions and you should always encourage them to stretch themselves and not be content to just jog along, allowing time to lift them up with promotions."

A guiding ethical force

While it is this type of genuine support that has earned Martin respect and endeared him to colleagues over the years, Greg Taylor remains a guiding force in his work life.

"Greg is probably the most ethical person I have ever met," he says. "And fearless. He has always been one of the gurus of the actuarial profession in Australia and I was always trying to live up to his expectations. If something was the right answer or the right thing to do, Greg would stick to it no matter what."

An example of this uncompromising attitude involves an impressive court appearance by Greg, which had a lasting effect on Martin.

"Back in the 1970s, FAI Insurance [bought by HIH in 1999 from controversial financier Rodney Adler and later embroiled in the HIH collapse] had great difficulty renewing its insurance licence," he says. "On two occasions, the Insurance and Superannuation Commission (now APRA) refused its application and, each time, Greg appeared in court as an expert witness for the Commission."

During this period, Greg was grilled over several days by a battery of QCs about why FAI shouldn't obtain its licence.

"Greg was always cautious and very professional but, after that grilling, he was absolutely methodical and impeccable about being able to justify every single actuarial opinion he gave.

That experience has been incredibly useful to reflect on, Martin says. “I tell it to all the young actuaries: if you ever reach the stage where something doesn’t feel right, picture yourself being quizzed by a serious QC who’s trying to discredit you. Would you be able to stand up and say I did it for this reason and would it hold water? And if you can’t explain honestly, you shouldn’t do it. Because I’ve seen the results and it’s catastrophic for those involved.”

With often so much at stake, highlighted by the ongoing Royal Commission into Misconduct in the Banking, Superannuation and Financial Services Industry, Martin believes increased regulation and legislation is inevitable but not necessary.

“It’s a bit depressing we have to rely on black-letter law for regulation,” he says. “We don’t seem to be able to rely on people doing the right thing. People know what’s ethical and what’s right and wrong. It can be within the black letter of the law but it’s still unsavory. And that’s sad.”

Ultimately, being as ethical as you can is a long-term survival necessity, he adds. “Otherwise you just can’t sleep at night, worrying you’re going to be found out.”

Turning to the future

As he exits the actuarial profession, Martin says the future looks bright for those just starting out.

“When I first began consulting in general insurance, there were only a handful of actuaries in Australia involved in narrow technical areas. Nowadays, there are more than 2,000 actuaries in Australia and they are viewed much more as trusted advisers…The reliance on analysis, on data, on analytics, has been a sea change in my working life.”

Reflecting on his legacy, Martin’s response is predictably humbling. “What I’d like to leave behind is that Taylor Fry has really good people who are capable of doing anything, without feeling constrained by anybody above them or below them in the age stakes or hierarchy or anything else.

“Better still is the day after you’re gone, you’re not missed. I think that’d be great!”

Proposed changes to the Institute's Disciplinary Scheme

By John Trowbridge

Reading time: 3 mins
In this article, John Trowbridge, Convenor of the Disciplinary Scheme Review Committee and Past President of the Institute, outlines the proposed changes to the Disciplinary Scheme and why they are important to the profession.

The Case for Change

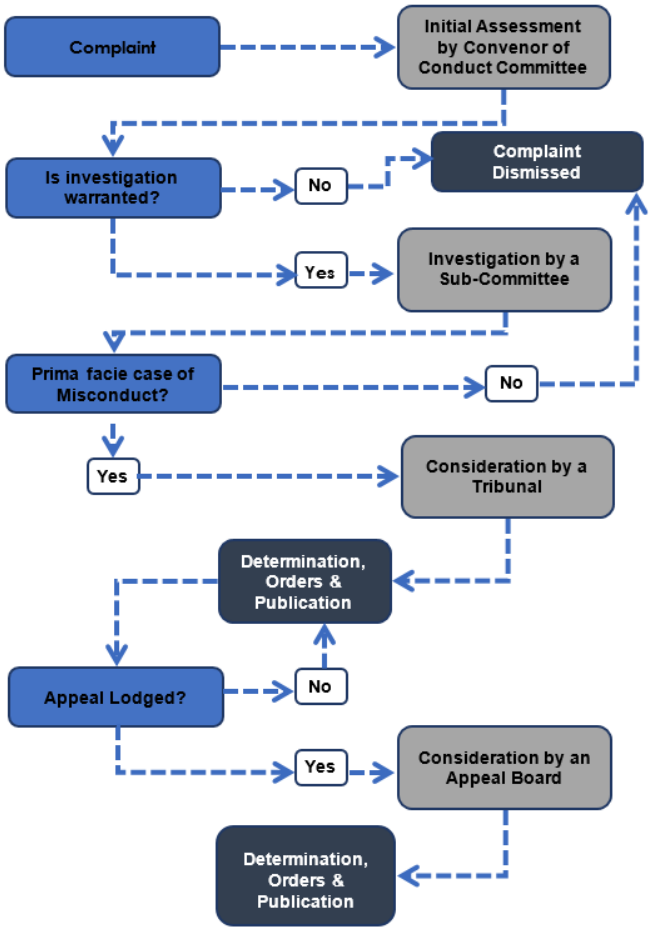
The Institute's Disciplinary Scheme is a crucial component of self-regulation and is one of the cornerstones of a strong professional body. Governments and the community expect a disciplinary scheme characterised by:

- public interest as the primary focus;
- independence and fairness;
- transparency and efficiency;
- transparency includes publication of outcomes; and
- efficiency includes expeditious resolution of complaints.

The Institute's current Disciplinary Scheme falls short on these criteria. The proposed new Scheme Rules are designed to deliver these features.

Key Features of the proposed new Scheme

- The main structure of the Scheme is unchanged – see diagram below.
- Principles-based scheme to complement the Code of Conduct.
- Independence from Council and other parts of the Institute.
- Scheme to be separated from the Constitution.
- Covers all conduct - professional and personal.
- Self-disclosure.
- External (non-actuary) participants on each body (Conduct Committee, Tribunal and Appeal Board).
- Public communication of the outcomes with reasons for decisions.
- Limited terms for members of Conduct Committee, Tribunal Panel and Appeal Board Panel (two terms of up to five years).



Background

The current Scheme was introduced in 2006. Given the passage of time, Council decided that there was a governance-related case for considering a review of the Scheme. The current Scheme is part of the Institute's Constitution and therefore

requires member approval to change it. In June 2016, Council agreed to review the Scheme in two stages:

- agree on the terms of reference [which happened at the September 2016 Council meeting]; and
- review the Scheme itself.

The review has been undertaken by a Committee of Institute members and an external legal adviser who have considered the current Scheme against changing expectations of professional self-regulation by government and the community, comparable schemes and trends in self-regulation in Australia and overseas and some recognised shortcomings in the current Scheme.

The Disciplinary Scheme Review Committee (DSRC) comprises a diverse and senior group of Fellows and others: John Trowbridge (Convenor), David Bell (and more recently Elayne Grace), Narelle Bell (external lawyer), Caroline Bennet, Briallen Cummings, Rob Daly, David Knox and Peter Martin.

The Committee has interacted cooperatively with the Code of Professional Conduct Review Taskforce, chaired by Rob Daly.

Member Consultation

In September 2017, an Initial Consultation Paper was issued making a series of recommendations for modifying the existing scheme. There were eight responses from members. A revised set of scheme rules was then drafted by the Institute's lawyers on instructions from the DSRC. The proposed new scheme rules were issued to members for consultation in January 2018. Once again there were eight responses all from senior members of the profession, and two from Council members. Overall these responses were supportive of the proposed direction but raised several points of detail for clarification or amendment that have been considered, and in many cases utilised in refining the proposed scheme rules put to Council at its meeting on 5 March 2018.

Council

Discussion on the scheme rules at the 5 March Council Meeting included covering the scope of misconduct, when the CEO and Council will be informed on a complaint and CEO delegation of authority. Council requested that further information be provided by the DSRC on some of the issues raised before the resolution was put to a vote. A meeting was subsequently arranged for 16 March with the DSRC and concerned Council members, to facilitate a greater understanding of why the scheme rules are structured as they are, how the Scheme compares to other best practice schemes and to deal with the concerns raised. Following this, on 13 April 2018 Council resolved via circular resolution that:

- The revised Disciplinary Scheme rules be approved and incorporated as resolution 3 in the "Constitution Review Explanatory Memorandum"; and,
- be placed before Members as an annexure to the "Notice of 2018 Annual General Meeting" detailing special resolution 2(c) and subsequently removed by special resolution 2(d).

As members would be aware, Council subsequently withdrew all special resolutions from the AGM held on 22 May 2018. Resolutions will now be put to members at the upcoming Extraordinary General Meeting (date to be confirmed).

Next steps

Further discussion will now be held at the Insights session on Friday 22 June. Members can register to attend in person or participate via webinar. I encourage you to attend this session to ensure you are fully informed on the proposed changes. Revised resolutions will then be put to members at the upcoming Extraordinary General Meeting (date to be confirmed).

While the Scheme Review Committee appreciates that the decision to make these changes will require the support of 75% at the Extraordinary General Meeting, it considers them to be changes worth making as an investment in the effectiveness of the Institute's Disciplinary Scheme. As noted above, such a scheme is a crucial component of the profession's self-regulation.

The Appointed Actuary Role: Back to the future

By Meera Sardana and Nicole Andrianopoulos

Reading time: 4 mins

Background

Responsibilities of the Appointed Actuary (AA) role have expanded in recent years with an increased focus on compliance activities, reducing capacity for the AA to be involved in the provision of strategic advice to the Board and senior management.

In response to these observations, APRA commenced a review of the AA role and associated Prudential Standards in June 2016. In June 2018, following consultation with the industry, APRA released Prudential Standard CPS 320 Actuarial and Related Matters (CPS 320), Prudential Practice Guide CPG 320 Actuarial and Related Matters (CPG 320) and Prudential Standard GPS 340 Valuation of Policy Liabilities (GPS 340). CPS 320 and GPS 340 will come into effect from 1 July 2019.

The new standards and associated guidance are intended to facilitate:

Clarification of the AA role, with increased seniority and strategic focus

Reduced compliance obligations of the AA role, with increased flexibility in the provision of actuarial advice

Streamlining and increased harmonisation of requirements across General and the Life, Health practice areas

The key changes proposed by APRA are set out below:

Purpose statement for the AA role

APRA CPS 320 includes a clear purpose statement for the AA role:

"The purpose of the Appointed Actuary role is to ensure that the board and senior management have unfettered access to expert and impartial actuarial advice and review…

The Appointed Actuary must have the necessary authority, seniority and support to contribute to the debate of strategic issues at a senior management level and provide advice that is considered seriously by the Board…"

Source: APRA CPS 320, Page 1

Actuarial advice framework (AAF)

Insurers will be required to develop a Board approved

Insurers will be required to develop a Board approved framework for the provision of actuarial advice. The framework will include advice relating to the valuation of insurance liabilities, determination of capital requirements and other actuarial matters.

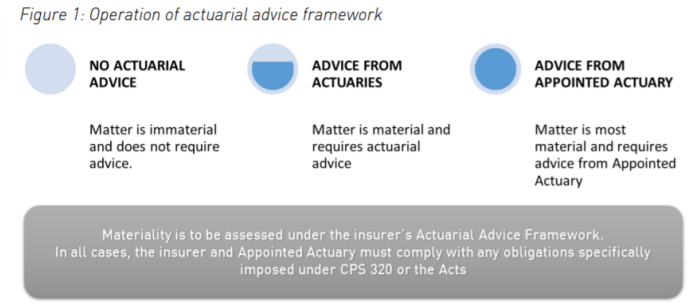
The AAF sets out when actuarial advice is required and when this advice must be provided by the AA. The AAF is supported by:

- A materiality policy.
- A delegation framework.
- Fit and proper requirements.

- An approach to managing conflicts of interest.

The AAF is intended to reduce the need for the AA to provide advice relating to non-material matters, increasing capacity of the AA to be involved in strategic discussions.

Figure 1: An illustration of how APRA expects the AAF to operate.



Source: APRA CPG 320, Page 7

Dual hatting of the AA and CRO role is not permitted[1]. Separation of these roles is intended to ensure appropriate review and challenge by the second line (CRO and Risk function) of first line Actuarial responsibilities.

"The AAF presents an opportunity for the Board and senior management to reacquaint themselves with the breadth of advice provided by the AA and to put together a process to ensure the best use of the AA's time, and the capacity of the actuarial team, on matters most important to the financial security and strategic direction of the company. This opportunity will rely on a willingness to make genuine change (where need be) to current processes." - SCOR Global Life Australia AA, James Hickey

Reporting requirements

Life and General insurers will be required to produce a technically focused Actuarial Valuation Report (AVR), similar in nature to the Insurance Liabilities Valuation Report currently produced by General insurers on an annual basis. While the Board does not need to consider the AVR in full, a summary of key results must be included in the Financial Condition Report (FCR).

The AA will be required to report annually on any concerns relating to the operation and effectiveness of the AAF in the FCR.

"Given the recent disruption in the insurance sector caused by investigations, inquiries and the Royal Commission it has never been more timely for the profession to embrace the spirit of the AA reforms. These changes present a great opportunity for actuaries to reaffirm their important roles in creating and maintaining sound financial institutions that enjoy public confidence." - Actuaries Institute CEO, Elayne Grace

Actuaries Institute led initiatives

In October 2017, a cross-practice Working Group was established to consider implications of changes to the Role of the Appointed Actuary. Some of the initiatives under the mandate of this Working Group are:

- Changes to Actuaries Institute Professional Standards and Guidance to reflect the new requirements and promote consistency across practice areas.
- Education of Institute members, company directors and industry bodies.

[1] Unless a specific exemption is granted by APRA.

Analytics Snippet: In the Library

By Jacky Poon

Reading time: 10 mins

Welcome to the Analytics Snippet column, where we showcase short code snippets in R, Python, or other programming languages, to demo the power of data analytics.

Whether you are a complete beginner or an experienced practitioner, we hope you can learn a trick or two from this column.

In this snippet we will be diving into checkouts of book titles - from the Brisbane City Council Library and its branches during three days in December - to see what Brisbanians have been reading!

Libraries and Packages

In R, we will be using:

- plotly for the pie charts,
- dplyr for data manipulation,
- tm for text mining,
- wordcloud for word clouds, and
- RColorBrewer for a touch of colour.

```
library("plotly")
library("dplyr")
library("tm")
library("wordcloud")
library("RColorBrewer")
```

If you do not have these packages installed previously, you will need to run install.packages to install th
(e.g. install.packages("plotly"))

Reading the Data

The data used for this can be downloaded from the Brisbane City Open Data Portal which is publicly available under Creative Commons Attribution 4.0.

First, in R, we provision a temporary file location for the download, and then download the zip file to the location:

```
temp <- tempfile()

download.file("https://www.data.brisbane.qld.gov.au/
data/dataset/53d02339-1818-43df-9845-83808e5e247e/
resource/ed431a68-15f2-430e-b140-4c603597680a/
download/library-checkouts-all-branches-
december-2017.csv.zip"
```

We then unzip and read the data from the comma separated values file.

```
data <- read.csv(unz(temp, "Library Checkouts all
Branches December 2017.csv"
```

Inspecting the data to show the first 100 records with head(), we have title, author, item type, age, and the library branch it was checked out from, as well as various IDs. Click on the arrow on the top right to see more columns.

```
head(data, n=100)
```

Title
Ashes to ashes / Jenny Han & Siobhan Vivian
Silicon chip
Nepal / written and researched by Bradley Mayhew, Lindsay Brown, Trent Holden
Trekking in the Nepal Himalaya / written and researched by Bradley Mayhew, Lindsay Brown, Stuart Butler
The destroyers / Christopher Bollen
The lonely city : adventures in the art of being alone / Olivia Laing
Too many elephants in this house / Ursula Dubosarsky ; pictures by Andrew Joyner
Lost cities of the ancients [dvd]
Blind faith / Rebecca Zanetti
Divided / Sharon M. Johnston

There is a language column, but it has many blanks and "UNKNOWN" values so that does not appear to be very useful.

What sort of items are being checked out?

It appears that Age and Item.type fields may shed some light on the types of material being borrowed, so we will create some charts by those dimensions.

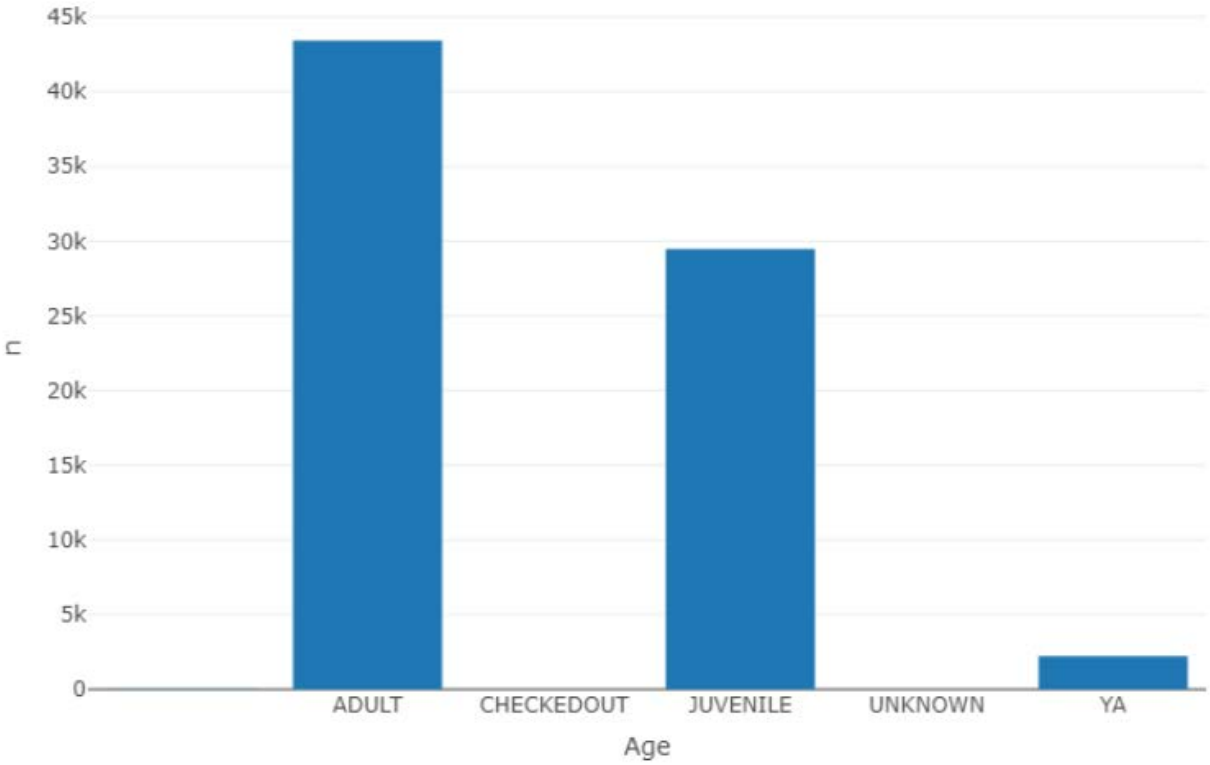
To create charts in R we typically need to specify the details of the chart design in code, including:

- data source (in this case, counts of data by Age and Item.type respectively),
- X axis,
- Y axis,
- labels,
- positioning, and
- any other formatting

This makes it less user friendly than a drag-and-drop tool like Excel or Tableau initially. However it does offer transparency, the ability to automate, and the choice of many different charting packages with their own strengths that can all be used in the one R document together with other analysis logic.

First we will plot a summary of the count of items by Age in a simple bar chart:

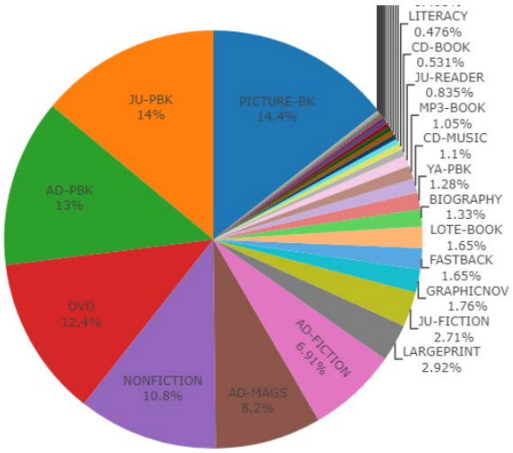
```
plot_ly(data=count(data, Age), x=~Age, y=~n, type = 'bar')
```



We see that children's literature seems to be quite popular, with 39% of items being from the "Juvenile" category.

The second chart is the much maligned pie chart, setting the data to be a count by Item.Type.

```
plot_ly(data=count(data, Item.type), labels = ~Item.type, values= ~n,
          type = 'pie', textinfo = 'label+percent')
```



Although one might commonly associate libraries with books, 12% of check outs from Brisbane libraries are media items such as DVDs.

It also becomes apparent the data is not perfect - if you mouse over the interactive plot carefully, there are two items of type "2017" which seems to be a data issue.

Titles

Finally, we will wrap up with a word cloud to visualise the content borrowed over the pre-holiday period.

Some data cleaning is required. It appears from the earlier data inspection that many titles also include the author after a slash, so first we will strip out the section before the slash to obtain the real title.

Reviewing this visualisation, some key insights would be that Australia appears to be a popular topic for reading, and Christmas titles unsurprisingly feature prominently for the month of December.

Call for more snippets

This concludes our trip to the library for now. We are looking to run this as a regular column, so if you have an idea for a cool visualisation, an interesting model, we would like to hear from you! Please send them in to ActuariesMag@actuaries.asn.au

After converting to a "corpus" dataset of words, we use the "tm" text mining package to clean the data to only include meaningful words, and not the following:

1. Numeric digits 0-9 and,
2. Stop words, which are common English words such as "a" and "the" - otherwise they would dominate the word cloud over meaningful words,
3. Media types such as "dvd" - many titles have e.g. "[dvd]" in title, but having analysed item type earlier we want to focus now on the content,
4. And formatting such as punctuation and extra white spaces.

The operations are chained together using dplyr's pipe operator (%>%).

```
titles_corpus <- sapply(strsplit(as.character(data$Title), "/"), `[`, 1) %
>%
  VectorSource() %
>%
  Corpus() %
>%
  tm_map(content_transformer(tolower)) %
>%
  tm_map(removeNumbers) %
>%
  tm_map(removeWords, stopwords("english")) %
>%
  tm_map(removeWords, c("dvd", "book", "sound", "recording", "novel")) %>%
  tm_map(removePunctuation) %>%
  tm_map(stripWhitespace)
```

We can then generate the word cloud.

```
wordcloud(titles_corpus, max.words = 100, scale = c(5, 0.5), random.order = F
ALSE, colors=brewer.pal(8, "Dark2"))
```

Actuarial Hackathon Presentation Showcase 2018!

By Angela Poon

Reading time: 6 mins

The 2018 Actuarial Hackathon saw 18 teams of actuaries solve practical challenges posed by not-for-profit organisations. From rap skills to wigs, it was an insightful, rewarding and entertaining showcase night! Angela Poon reports.

With 95 actuaries from 38 different companies volunteering their time, the Actuarial Hackathon was a huge project which tackled 18 different challenges from the social sector.

ACTUARIAL HACKATHON

POWERED BY MEMBERS OF THE YOUNG ACTUARIES PROGRAM

finity

SPONSORED BY FINITY
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Actuaries Institute

After spending a month understanding the organisation's needs, brainstorming and researching various approaches and finally addressing the problem, the teams presented their findings at the inaugural Actuarial Hackathon Showcase!

Jennifer Lang introducing the participating NFP organisations

30 representatives from not-for-profit organisations joined the actuaries in attending the (non-competitive) Showcase held at the UNSW CBD campus on Tuesday, 5 June 2018.

Over 100 people attended the Showcase!

It was a truly inspiring evening seeing the amount of effort each team put in to create efficient tools, gather meaningful insights and suggest actionable recommendations to further the not-for-profit (NFP) organisation's social impact.

It is estimated that actuaries have altogether volunteered over 1,000 hours to the social sector as part of the Hackathon this year.

One team was particularly innovative in their presentation where they not only developed a functional and efficient quoting tool for the NFP organisation, but also wrote their own lyrics, rapped live with a guitar and even created a product video to showcase their tool! It just goes to show that actuaries can be analytical, creative and daring at the same time!

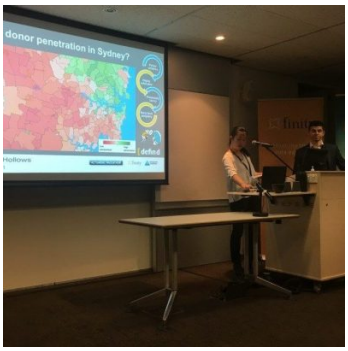
Analytical, creative and daring actuaries who rapped their presentation!

What were NFP organisations asking?

This Hackathon reaffirmed that actuaries can utilise their skills in answering some of the questions the NFP organisations are asking.

For example, actuaries were able to:

- Analyse donor profile, retention and lapse rates and estimate return on investments of various types of donors. One team found that lapse rates were lower for direct debit donors compared to those who donate through credit card as credit cards were often cancelled when promotional offers were available elsewhere. This team asked whether changing the default billing options would improve fundraising efforts.
- Understand the costs and benefits of volunteers by developing a framework to calculate the social return of investment on volunteers. One team found for their NFP organisation that female volunteers aged 40 and over had the best retention rates.
- Provide insights into the composition of the NFP organisation's clients and why they are utilising the organisation's services. The team also suggested ways on how the organisation can further their reach.
- Analyse survey results and teach the organisation how to reduce survey bias and generate statistical summaries themselves. The team created a promotional flyer which included statistics on the positive impacts of their program.
- Estimate the economic costs of brain cancer to society to support the organisation's application for funding.



One team mapped the donor penetration in Sydney

Team Cure Brain Cancer Foundation wore purple wigs to raise awareness for brain cancer

What did the participants think?

The Hackathon was extremely well received and we would like to share with you the following feedback from the representative of a NFP organisation and an actuarial volunteer.

Julia Filipi Dance, Manager, Disability Operations from The Benevolent Society (pictured below right)

It's been fabulous working with the team of highly skilled actuaries. The quoting tool that they have developed for The Benevolent Society simplifies the use of the complex NDIS price guide and vastly improves our enquiry management process for

disability services. It will be great to be able to put the old fashioned calculator down and spend the time to listen to what the client wants, without being encumbered by clunky calculations. I have never been involved in a Hackathon before, it was really refreshing to learn and collaborate with such an innovative and creative team of experts to create something so useful in such a short time frame.

Minh Phan, Actuarial Volunteer (pictured below with guitar!)

What I like most about the Hackathon is that it allows actuaries a direct and simple way to connect and contribute to the not-for-profit sector. Personally, I thoroughly enjoyed working with my team and The Benevolent Society... Although the Hackathon is officially over, the journey doesn't end here for us. We're excited to be working with the team to embed the tool firmly into their operations… Overall, I think that the Actuarial Hackathon is a fantastic initiative and the organising committee did an amazing job running the inaugural event…looking forward to doing it all again next year!

Although this marks the official conclusion of the Actuarial Hackathon this year, some teams are still volunteering their time to help their NFP organisations.

Some words of gratitude

We are very excited that our first Actuarial Hackathon was a huge success and we would like to thank the following groups in making the event possible:

- The NFP organisations and their representatives who offered real challenges and generously provided guidance and feedback to their actuarial teams: Avner Pancreatic Cancer Foundation, Cancer Council NSW, CanTeen, Compassion Australia, Cure Brain Cancer Foundation, Life Changing Experiences Foundation, Opportunity International Australia, Starlight Children's Foundation, The Benevolent Society, The Fred Hollows Foundation, The Heart Foundation, Wesley Mission and Youngcare.

BELOW: Representatives from the Starlight Children's Foundation showed their appreciation to their volunteers with beautiful balloon blooms!

- The 95 Actuarial volunteers who volunteered their time and skills which we are extremely grateful for! We are also extremely proud of the 14 interstate volunteers who had to

work together via teleconference and also watch the Showcase via Webinar.

- Finity Consulting for sponsoring the event and sharing their proprietary data analytics product, Defin'd, with one of the teams.
- The Actuaries Institute for supporting us in the planning and organisation of the Hackathon.
- The Hackathon Organising Committee who have been working tirelessly for more than half a year to recruit NFP organisations and actuarial volunteers, organise logistics of the event and provide support to the volunteer teams: (left to right, Zhan Wang, Sam Maitra, Alice Truong, Leonard Seok, Angela Poon, Stephen Lau, Jennifer Lang, Lily Meszaros, Emily Law, Lisa Ye). Avanti Patki, Desmond Muzorewa and Sarah Highet were also on the Committee.

Cross sector collaboration

This event has demonstrated that actuaries and NFP organisations can engage in meaningful cross sector collaboration. I hope this Hackathon has inspired actuaries to utilities their skills to add value and further the positive social impact for the benefit of our society!

As Arthur Ashe once said: "Start where you are. Use what you have. Do what you can".

Until next time!

Representatives from the Fred Hollows Foundation and their volunteers from left to right: Calise Liu, Susie Amos, Uday Soni, Steve Martin, Katie Hart, Justin Portelli, Alan Xian

Srikar Velivela, Daniel Luo, Wei Zhao and Lisa Ye, co-ordinated in red and white for Heart Foundation

Gary Zhang and Roger Xie representing Team Wesley Mission #2

Evelyn Augustin and Claire Greenwell representing Team Wesley Mission #1

Related reading:

- Thirty actuaries and data analysts from NAB Wealth were joined by representatives from four NFP's in the 2015 Actuarial Hackathon
- Sarah Highet speaks to three Actuaries working in Not for Profit roles, motivated by a desire to use their skills to help people less fortunate than themselves.

- Jennifer Lang shares the results of a Member survey in 2017 aimed to gather information and determine the level of interest in (what resulted in) this 2018 Actuarial Hackathon.

Climate Change Working Group to Date

By David Leber

Reading time: 3 mins

Since its inception in January 2016 the Climate Change Working Group (CCWG) has worked hard to support the Institute's public policy position on climate change and promote actuaries' involvement in assessing the financial implications of climate change.

This article has two sections to it: reflections on the achievements for 2017, and presenting the revised mission statement for 2018 and the future. The purpose of this article is to update you, the members of the Actuaries Institute, of our work and to ask for feedback and assistance if you wish to become involved in understanding and managing this increasingly imminent risk. While our purpose is to support the members of the Actuaries Institute, our audience also includes regulators and government agencies, company directors and managers as well as financial institutions and asset owners.

What does the CCWG do?

We are aiming to achieve our mission by

- Collating existing research on climate change into areas of interest to the profession
- Help connect members to the latest policy and scientific research
- Stimulate research through education, collaboration and communication

What have the CCWG been doing throughout 2017?

- Supported the Institute's policy position through a press release welcoming APRA's focus on climate-related risks, a pre-budget submission on funding for natural disaster resilience and contributing to the global actuarial profession's response to TCFD.
- Assessed the feasibility of an Australian Actuaries Climate Index, which is now being produced by Finity and will be launched in 2018.
- Ran a Climate Risk Fluency Seminar in collaboration with scientists from CSIRO ESCC Hub & BoM.
- Organised a Climate Change Risks Insights session covering climate-related physical, transition and liability risk.
- Presented at the Actuaries Summit on Funding for Climate Change Adaption.
- Contributed to the 2018 Catastrophe Risk Seminar.
- Collaborated with scientists from the NESP ESCC in a YAP workshop on Climate Data and Insurance.

What will the CCWG do over 2018?

Our 2018 priorities are to increase participation in investment and wealth management issues relating to climate transition risk, continue leading the actuarial community on responses to the TCFD, and seek opportunities to collaborate with engineers on adaptation solutions.

Some really positive news is that we are growing quite steadily in terms of committee members. We are in close contact with the NZ institute and their CCWG. Further to this, we collaborate on a regular basis with the scientific and engineering community. We are excited about this year, where we believe that we will be much better connected with you, and the other committees of the institute.

How can you become more involved?

Although not traditionally involved in climate risks actuaries can still become involved and make a difference by:

- Identifying leading practice and presenting research and case studies
- Communicating risk: by converting climate risk to measurable financial outcomes, and what this means for business decisions
- Decision making under uncertainty: Frameworks and methodologies to make decisions, including case studies
- Quantifying long term financial implications, associated risks and uncertainties. This includes making rational financial and risk management decisions, as well as considering behavioural economics, with the aim of helping the decision maker decide how to deal with the problem and decide between the viable solutions
- Assisting companies in disclosing their climate risk exposures under relevant standards
- Researching funding strategies for adaption and assessing their efficiency and impact

Want to keep in touch?

- We kindly ask if anyone wishes to share feedback on our 2018 mission and/or our achievements please send them to David Leber who will be collating and sharing it with the committee.

We welcome members who actively contribute to the working group. If you are interested, please contact Stephanie Wong

This article was written by David Leber on behalf of all members of the CCWG.

Trust us, we are here for you - Rebuilding trust in Financial Services

By Angat Sandhu

Reading time: 5 mins

Chief Editor of Actuaries Digital Angat Sandhu discusses how Financial Services organisations can start winning back customer trust.

"Congratulations. We are extending you an invite for extra spending power."

"Click here to get the benefits and fulfil your wishes."

These were just a select few highlights from an email I recently received from a Financial Services (FS) provider. I would typically have ignored such an email but my recent home loan application process reminded me of the unintended consequences of being lured by such offers. A few months ago, I had agreed to increase my 'spending power to better be able to fulfil my wishes'. I didn't really have a strong need but convinced myself that there was limited downside of doing so.

How wrong and naïve I was. When going through my home application process, my bank reminded me that because the credit limit on my credit cards was high, the amount they were willing to lend me at the home loan rate (~4%) was reduced. However, they would be comfortable giving me a personal loan with a much higher rate (>10%) to fill the gap.

I felt betrayed. My perspective was that clearly the FS provider had my best interests in mind when sending me the invitation for extra spending power. I am sure that must have been based on analysis of my spending needs, their analysis of 'people like me' given they have had my transaction data for a number of years. Surely, they would have known that 'people like me' would soon be looking for a house and that accepting the other offer would negatively impact the ability to fulfil my genuine goals.

Furthermore, I had never fully used my credit card's higher limit nor missed a payment yet felt like I was being penalised for accepting the terms and conditions of what appeared to be a harmless email. I also questioned the accuracy of the FS providers credit assessment process but was told 'this is what the regulator expects', which itself was interesting. In hindsight, this was completely my mistake as I should have read the 'fine print' and been more financially savvy about the implications of greater 'spending power'.

Whilst the above is an overly simple example and arguably no fault of the FS provider, it did leave me less happy and trusting of the organisation. Both the email on extra spending power and home loan were with the same organisation where I have been a customer for over 15 years. Surely, they have enough data on me to understand my needs. Surely, given my loyalty to them, they would only be offering me products and services that are truly relevant for me. And surely, they would be giving me the right advice as my needs and requirements change. My experience left a lot to be desired.

The FS sector has experienced various conduct related scandals all over the world in the recent past. The ongoing Royal Commission into Misconduct in the Banking, Superannuation and FS Industry in Australia continues to bring to the surface multiple examples where customers have been let down by the FS sector.

So where does the problem lie and how can the sector start to respond?

Recognise the root causes

It is easy for executives to dismiss the issues that have arisen as 'isolated incidents'. Many are driven by rogue behaviours of a select few or one-off failures in processes / governance. It is much harder to start investigating structural factors that may be directly or indirectly contributing to these failures. The specifics would vary for each country, industry and company, but some hot-spots that would warrant further investigation include:

Prioritisation: Organisations have suffered from being overly focused on initiatives that realise short-term financial gains, often at the expense of those that provide greater utility to customers over the longer-term. Understanding how an organisation prioritises investment decisions, and balances competing objectives (short-term vs. long-term, shareholder returns vs. customer satisfaction etc.) can enlighten us as to how seriously it is thinking about meeting customer needs.

Incentives: Are incentive structures of executives and management adequately aligned with the organisational objectives around better meeting customer needs? Is customer experience and satisfaction being measured and assessed in a meaningful way? The status quo for most organisations is either a limited focus on customer outcomes in incentive structures or use of very high-level aggregate metrics (e.g. use of NPS scores that are not granular enough as one of many metrics in a balanced scorecard)..

Culture: Whilst culture only tends to come into focus when things go wrong, there have been advances in measurement approaches that give a better and more objective gauge on organisational culture over time. In addition, it is helpful to assess whether the Board and Management are consistently putting customer outcomes at the core of their decision-making process. How customer complaints are handled can often also be a good proxy of this.

Rebuild and not just remediate

To their credit, CEOs and Boards of large FS organisations have been humble in admitting they have failed in meeting customer expectations. Most organisations have some form of remediation programme in place to compensate customers and start to fix existing processes that contributed to the issues.

Whilst this is important and needs to be done to address current regulatory and customer expectations, it is critical that organisations start to rethink whether making tactical changes to existing processes will minimise chances of similar events happening again. Some areas to consider here include:

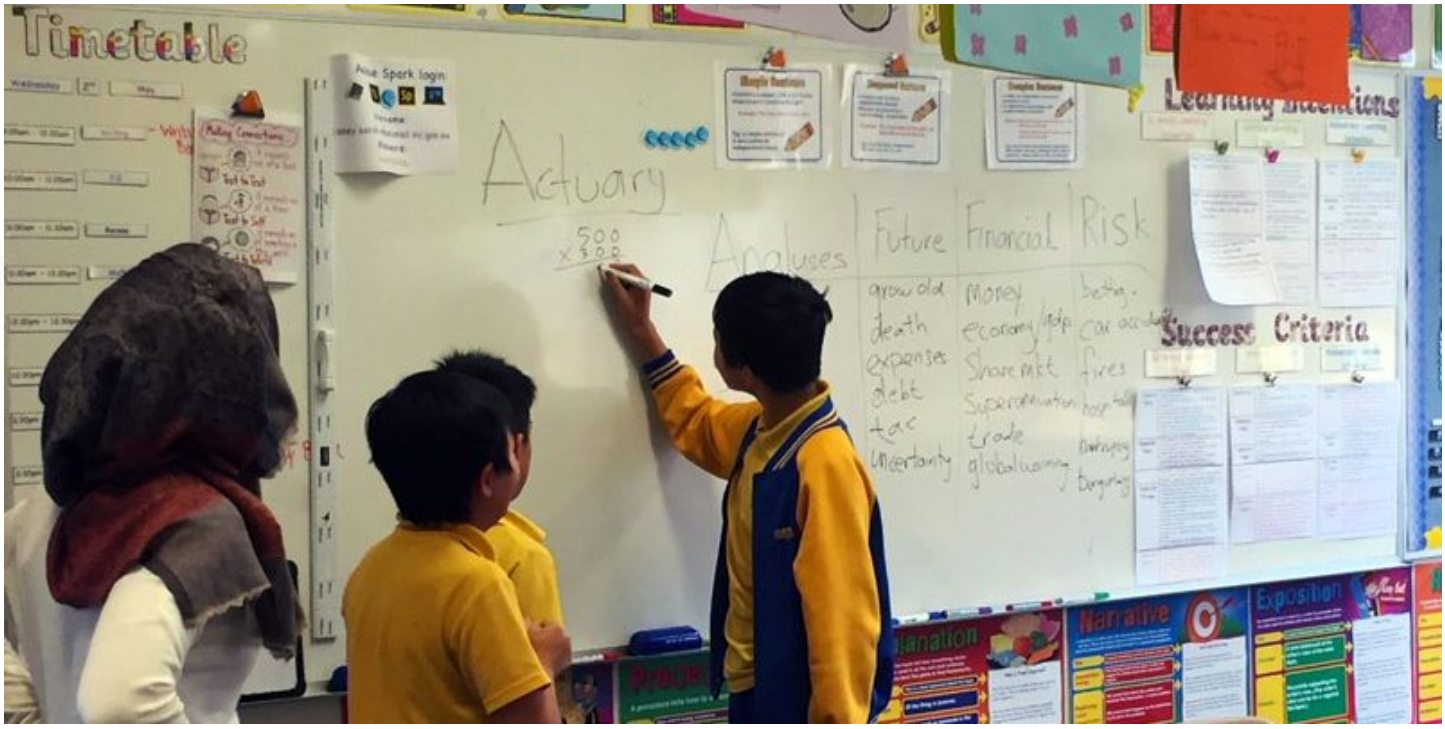
Customer needs: To genuinely be able to meet customer needs, FS organisations need to better understand them. This not only requires additional data but also a better understanding of the customer segments they are serving: their motivations, goals, how they wish to engage with the organisation etc. This base of information can allow the organisation to better deliver the right propositions and at the right time / life stage for the customer.

Product design: It has been well known that the majority of FS products are overly complex. Organisations should be taking the opportunity to create simpler, more transparent products that are much easier to understand and better meet customer needs.

Measure

Finally, organisations need a step-change in their focus on measurement to not only continue to better understand customer needs over time, but also to have more effective controls and a governance framework that allows early identification of emerging risks. The MI of organisations has not been adequately granular, timely or accurate and has prevented Management and Boards from timely interventions. In an era where data is of strategic importance, it is imperative for FS organisations to address this and invest in the appropriate infrastructure and processes.

Gaining someone's trust is hard. Trying to regain it once it has been shaken is even harder. Recent events have put the FS sector on notice. Whilst the path to regain trust is not straightforward, the costs of inaction are too high to ignore it.



Mission Possible – reviving the 'M' in STEM

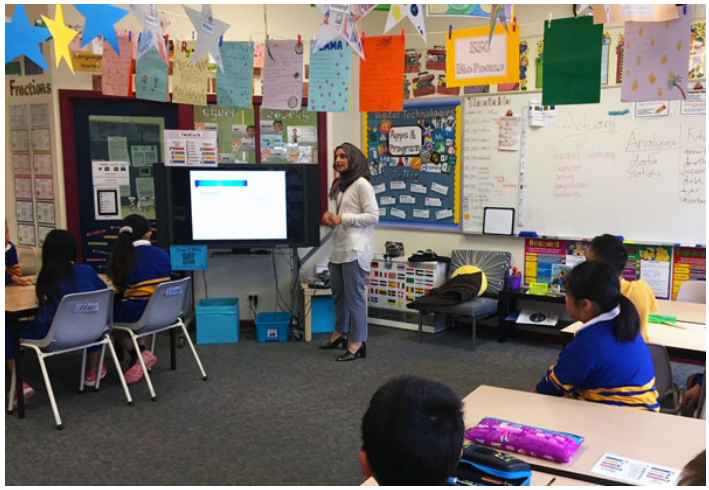
By Farheena Ahmad *(ingeniousmaths@icloud.com)*

Reading time: 7 mins

Farheena Ahmad describes her experience going 'back to school' as part of CSIRO STEM's Professionals in School Program and discusses the need to revive positive attitudes and enthusiasm towards mathematics in the classrooms of the future.

For me, graduating from high school was an experience of absolute relief and jubilation and I recall telling myself, "I am *never* going to step in to another school again!" As I stood in front of a class of about 30 sixth graders I couldn't help but chuckle at myself. Life was teaching me the lesson of '*never say never*!'

In the interim, life has thrown a lot at me. I went from being a working professional to a wife and a mother of *almost* half a dozen children! I continued to assist my husband with the financial accounts of his ophthalmic practice and now, here I was, with my two-year-old in tow, volunteering for CSIRO STEM Professionals in School Program. This program is a partnership between schools, teachers, students and STEM professionals which allows professionals to share their skills, experience and knowledge with students to help inspire them to take up careers in a STEM related field.



With all the enthusiasm I could muster I introduced myself to the class of bright-eyed bushy-tailed sixth graders:

"I am an actuary". They stared back bewildered. Uh-oh! '*Houston, we have a problem*!'

Taking a deep breath, I proceeded to write, 'Analyses Future Financial Risk' on the whiteboard. We proceeded to dissect the words individually and list some things they could associate with each word. As we progressed they were listing up to 12 or more! We had cracked the code, and I was in my element.

I started off with a simple exercise on the type of work actuaries do, for example car insurance and extrapolated with some typical risk based questions an actuary might consider:

- 'Should male and female drivers be charged the same premiums?'
- 'Should where you live and what you do for a living or the make, year or model of your car matter?'
- 'Should your driving history and ability to drive play a role in the premiums you pay?' And so on.

The questions made them think about achievable solutions. Finally, '*we have lift off!*' I was engaging them with critical thinking skills relevant beyond the classroom. The exposure to real world problems (beyond what might be typically discussed in a school setting) seemed to pique their curiosity.

The Institute's High School Program aims to raise awareness of the profession and encourage students with a passion for maths to become an Actuary. Request a visit for your high school by contacting us. Actuaries interested volunteering to visit schools can find out more here and get in touch too.

The Status Quo

I can't speak on behalf of all actuaries, but whenever mathematics is mentioned in the news, my ears prick up. Late in 2016, Acer (Australian Council for Educational Research) published "PISA 2015: A First look at Australia's Results", a study in which 72 countries and 540,000 15-year old students participated in. Around 14,500 Australian students took part in the test.

Following is a summary of the report as it relates to Mathematical Literacy.

In the Pisa context, *Mathematical literacy is an individual's capacity to formulate, employ and interpret mathematics in a variety of contexts. It includes reasoning mathematically and using mathematical concepts, procedures, facts and tools to describe, explain and predict phenomena. It assists individuals to recognise the role that mathematics plays in the world and to make the well-founded judgments and decisions needed by constructive, engaged and reflective citizens.*

The report was based on high participation rates and revealed some significant findings:

- Out of the three subjects tested (Science, English & Maths) Australia's performance in mathematical literacy was significantly below 19 other OECD countries.
- Australia was one of 10 countries whose performance declined significantly between 2012 and 2015. The decline in Australia's performance was 10 points.
- Between 2003 and 2015, mathematical literacy performance declined by 30 points to an average score of 494 points in 2015.

Let's look at the following questions to examine these results further:

- Why has Australia's ranking declined in comparison to other countries?
- Why has this trend been consistent and more pronounced in the last two PISA results?

There would be many reasons that factor into this trend.

The removal of calculus based mathematics (and instead opting for an "assumed knowledge of mathematics") as a prerequisite to tertiary courses like engineering, science and commerce has contributed to declining uptake of mathematics subjects in later high school years. See these articles for more on this:

- Why maths education is in a 'death spiral' (AFR February 5 2016)
- Universities should require science, engineering and commerce students to know their maths (The Conversation March 18 2016)

This lack of uptake has a flow on effect to university success. According to former University of Sydney Vice-Chancellor Tyrone Carlin "there is a very measurable difference in academic success between students who have two-unit Mathematics (in Year 12) and those who don't".

According to research led by the Australian Mathematical and Science Institute, the lack of prerequisite knowledge of higher order maths among university students of STEM related degrees has led to an increase in their dropout rates.

This appears to be a self-perpetuating cycle. There must be more we can do to attract students to maths or science related degrees, and also prepare them adequately for the courses.

As Robert Bolton writes **in the AFR:**

> *Nearly 40 per cent of Australia's maths teachers do not have a mathematics-related degree. The minimum requirement is a quarter of their first-year and a quarter of*

their second-year tertiary study be maths related. That and a teaching diploma is enough to put someone in charge of a maths classroom at a secondary school.

Dr Sue Thomson, Deputy CEO (Research) and Head of Educational Monitoring and Research at the Australian Council for Educational Research (ACER) has stated that a shortage of STEM-qualified teachers in high schools is a contributing factor to Australia's declining mathematical literacy performance.

But the problem may start much earlier than secondary school.

The anxiety among some primary school teachers associated with teaching mathematics and science is also contributing, according to Dr Thomson.

I believe that herein lies the problem. For the 15-year-olds sitting the PISA test, it may be too late for them to develop a strong interest and/or aptitude for math if they did not gain an appetite or aptitude for learning mathematics in primary school.

There is a very small window of opportunity to teach a young child before their attention wavers. I believe that to give primary students a strong foundation in mathematics, they need to be taught about the broad application and relevance of the subject to their lives outside the classroom. How can this be achieved if teachers are not able to relate to the fundamental concepts of maths themselves?

I argue many primary schools are busy investing time in the 'buzzword' of STEM, and introducing other science and technology subjects into a school day. This takes away from an in-depth focus on mathematics.

What education institutions need to understand is that mathematics is the foundation of STEM. Maths is the language of science, technology and engineering. The sub-specialties of this acronym will naturally follow once a child has mastered mathematics in their early years of schooling. In fact, we should change the acronym to steM.

So What Next?

Our Minister for Education and Training Simon Birmingham suggested that we import qualified teachers from overseas as a solution. I think we should first look at the many qualified mathematics professionals in the Australian workforce, like us actuaries. We are immersed in the subject in our daily lives and have the practical experience of applying mathematics to real world problems.

How could we provide ongoing teaching support to mathematics learning in primary and secondary schools?

CSIRO has the right idea with its Professionals in Schools Program which uses various professionals committing their time voluntarily outside work hours, or through retired engineers and lecturers dedicating their spare time. However, this is not enough to drastically uplift mathematical literacy.

A short-term solution in my opinion is for there to be incentives for professionals in the field to provide workshops or a few hours per week of their time giving back to the community and helping raise the bar on mathematics proficiency in schools.

Of course, being in a maths related profession, doesn't mean you would be adept at teaching it. The gaps in teaching methodology knowledge and understanding of behavioral dynamics in the classroom would need addressing.

Who knows, the experience for some maths professionals might even be enough to inspire them into a career-change into teaching!

Inspiring future leaders

Growing up in the 80's back in Darwin I still remember my father's (who was an engineer) passion for mathematics and to helping us solve mathematical homework problems. His excitement was contagious and I recall vividly a photo of me grinning ear to ear in a T-shirt he fondly gifted me which said *"Maths Star!"*

We have the power to become a huge contributing factor in making a lasting impact on the next generation of inventors, who are merely waiting to be discovered!

Not only will they be game changers in the field of mathematics, but they will be valuable contributors across the complete acronym, STEM.

Related reading:

- HSC students abandoning high-level subjects -24 March 2018, Sydney Morning Herald
- Teachers are the key to lifting productivity – but how to help the teachers - 4 February 2018, Australian Financial Review
- Want to solve our STEM skills problem? Bring in the professionals - 29 November 2017, The Conversation
- STEM learning in the early years - 5 June 2018, Teacher Magazine

Listen to our latest CareerView podcast on Diversity & Inclusion which talks about participation rates in STEM subjects.

CareerView Podcast - Diversity & Inclusion

By Lesley Traverso and Ashish Ahluwalia *(ashish.ahluwalia@finity.com.au)*

Reading time: 3 mins

Members of the Institute's Diversity and Inclusion Working Group discuss how businesses can create a strategy that includes diversity as a key focus, and facilitates innovation in the workplace.

Ashish Ahluwalia (Principal at Finity Consulting) and Lesley Traverso (Director at Talent Insights and Convenor of the Diversity and Inclusion Working Group - DIWG - at the Actuaries Institute) discuss the Institute's DIWG's initial work.

They also unpack the three main areas that the Institute's Council have endorsed in the Diversity and Inclusion Action Plan as part of the Working Group's strategy for the year including:

1. Creating a diverse and inclusive environment for members and the HQ team.
2. Encouraging committees and working groups to represent the diversity of the Institute's membership.
3. Promoting the benefits of diversity within the profession from an internal and external perspective.

Listen to 'CareerView - Diversity and Inclusion' on Spreaker.

•

Listen on Apple Podcasts

Listen on CastBox

"On organising committees that I've been on, we've had situations where speakers themselves, quite high-level keynote speakers have said that they're not going to be on a panel unless it is diverse" says Lesley Traverso.

Ashish and Lesley also discuss how the Institute can promote larger take-up in the STEM field for women. Ashish quotes a professor from the Australian National University who discussed the 35% female to 65% male split in take-up of actuarial subjects in high school, which is encouraging considering the average 15% female to 85% male take-up that general STEM fields have.

"it leaves us with a huge opportunity or huge challenge to meet, around actually increasing the take-up of STEM subjects across the genders" - Ashish Ahluwalia

Ashish asks a range of questions including:

- What do you think the Diversity and Inclusion Working Group is trying to achieve?
- Can a lack of diversity be a major barrier to innovation?
- What advice do you have for people in navigating tricky situations around diversity?
- What might we be doing differently in 10 years time?
- What are the key outcomes you would like the group to have achieved in the next few years?

"We've very much moved away from the actuarial team being by itself in the corner of the office, a lot of the clients that I'm talking to now have very much said "this is a team of actuaries, statisticians and other people within their organisations that come together to work on a client inquiry or to work on a particular project and that type of thing" - Lesley Traverso.

Listen in to the podcast to find out more about the Diversity and Inclusion Working Group and read our article on the DIWG's goals and members here.

Download Transcript here.

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- Spreaker
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Do you know your International Committee?

By Actuaries Institute *(Actuariesmag@actuaries.asn.au)*

Reading time: 3 mins

You know that the International Committee has a global focus, but did you know about its activities, plans and members?

The International Committee was established in late 2017 to replace the existing International Council Committee. The new committee continues to focus on International Actuarial Association (IAA) activities and places greater emphasis on Asia-related and other important international activities, including supporting members in Asia, New Zealand and the UK.

The International Committee has two sub-committees: The International Actuarial Association (IAA) Sub-Committee and the Asia Sub-Committee.

Did you know?

The International Committee:

* contributes to the strategic direction of the Actuaries Institute and oversees its implementation in regards to its international activities

* actively identifies and promotes opportunities for members internationally and facilitates communication and liaison within the profession

* furthers the objectives of the Actuaries Institute by coordinating the provision of assistance (as requested or approved by Council) to regional actuarial associations

* works closely with other overseas actuarial associations to facilitate the Institute's international objectives.

The main committee is comprised of diverse members representing Australia, UK, NZ and Asia.

Learn more about the International Committee here and here.

Do you know?

Martin Stevenson

Martin is retired from full time work and now does part-time consulting in superannuation. His major client is one of the five largest non-retail funds in Australia. He was President of the Actuaries Institute in 2006 and has been Chair of the International Committee since 2013. He regularly represents the Australian actuarial profession internationally, such as through attendance of International Actuarial Association (IAA) meetings.

Did you know?

The Actuaries Institute currently holds mutual recognition agreements with the following actuarial associations:

* Canadian Institute of Actuaries (CIA)

* Casualty Actuarial Society (CAS)

* Institute and Faculty of Actuaries (IFoA)

* Institute of Actuaries of India (IAI)

* New Zealand Society of Actuaries (NSZA)

* Society of Actuaries (SoA)

* Society of Actuaries in Ireland (SAI)

* Actuarial Society of South Africa (ASSA)

These agreements recognise that the education of Actuaries is similar between actuarial bodies and that facilitating global trade of actuarial services is beneficial to all involved. In most cases these mutual recognition agreements enable FIAAs to be admitted as Fellows of another actuarial body (and vice versa) without having to take further examinations. Some agreements also apply to Associates. Be aware, while you may not have to take exams to be admitted as a Fellow (or Associate) of a different actuarial body, you may have to meet other requirements (such as completing a professionalism course in the last five years). Each of the agreements can be viewed here: https://actuaries.asn.au/becoming-an-actuary/becoming-a-member/becoming-an-accredited-member

One of the duties of the International Committee is to develop and implement an appropriate due diligence progress of Mutual Recognition Agreements ('MRAs') and negotiate MRAs for approval by Council. They also have a duty to review MRAs at expiry.

Learn more about the International Committee here.

Do You Know?

Kirsten Flynn

Kirsten Flynn currently lives in (sweet home) Alabama and works in product development for Protective Life (a subsidiary of Dai-ichi Life, which also owns TAL in Australia). She's an FIAA and, thanks to the mutual recognition with the SoA, was admitted as a Fellow of the Society of Actuaries (FSA) without having to take any further exams. Despite embracing life (and food) in the USA, she still calls Australia home and is actively involved in activities of the Actuaries Institute as a member of the International Committee. She's headed back to Sydney in late 2018.

You can learn more about Kirsten here.

Gautham Suresh

Gautham Suresh is an Actuary at TAL, contributing to the formulation, implementation and delivery strategy of life and health products to the Australian market. Prior to TAL, Gautham began his career as a consultant at EY's Actuarial Advisory Practice; focusing on reserving, risk management, transaction advisory and insurance strategy. Gautham has also been fortunate to have gained a broad perspective of the protection challenges globally in markets such as Japan and New Zealand. He is motivated by being a part of the solution addressing barriers inhibiting a greater (and more impactful) social reach of the present day insurance ecosystem balanced by the unwind of its inherent commercial complexities. Gautham is a representative on the Actuaries Institute International Committee and is an exam scrutineer.

Healthy competition at actuaries' latest trivia night in Melbourne

By Leonie Semmens

Reading time: 3 mins
The arrival of the Social Networking Actuaries Group (SNAG) doubled the number of patrons at the Mail Exchange Hotel in Melbourne at the Group's latest trivia night. Leonie Semmens reports on the rivalry and quizzing that ensued!

At the bottom end of Melbourne, down below street level sits the cosy bar area of the Mail Exchange Hotel. Quiet at 5:45pm on a Tuesday evening, the arrival of our SNAG group instantly doubles the number of patrons.

With a few quick introductions and a brief look at the menu, dinner and drinks were ordered, and we had ourselves organised around our two tables. 12 actuaries formed into three teams, with a cameo appearance by a highly experienced fellow, it was readily apparent we had two highly competitive teams, and one just in it for the fun!

The room had filled considerably as other teams joined the competition: some regulars, including the reigning champion, others first timers like the tourist group visiting from Europe. Quiz Master Lee had us all organised in record time, and the quizzing began.

With points awarded for the speed of your response, and points deducted for incorrect answers, debate over some questions was heated and intense. A level of secrecy also developed as the internal competition between our two competitive teams heated up. As the rounds passed, it became obvious our teams were evenly matched, and a number of lead changes occurred.

Heading in to the final round with a fresh set of drinks and some good natured heckling, the conversations quieted down to a murmur. A great mix of easy and difficult questions meant the final outcome was never locked in. Drawing out every last ounce of suspense, Lee slowly announced the final scores… and we ended the night with two teams in the top three, and $40 in bar vouchers.

A final round of drinks using our winnings, and an exciting and fun evening drew to a close, with the promise of more events to come.

What SNAG attendees said:

"The trivia night was a great opportunity to meet and mingle with some new faces in a relaxed (and slightly competitive!) environment. The regulars did a great job of welcoming new people into the mix, and I think everyone had a great night!" says Ash.

"Thanks for organising the event! It was great to meet new people (just a bonus that you're also actuaries). Very keen for the next one!" says Donna.

What's up next?

Networking Event
Pre EOFY Drinks: Join us for drinks at Whitehart Bar and enjoy the calm before the EOFY storm!

Events details:
Where: Whitehart Bar - 22 Whitehart Lane, MELBOURNE
When: Wednesday, 27 June 2018 at 5.30pm
RSVP: Click here to RSVP.

Click here to see past SNAG events and get notified of future events.

Under the Spotlight - Marjorie Ngwenya

By Marjorie Ngwenya

Reading time: 3 mins

The actuarial qualification was still emerging in Zimbabwe when Marjorie Ngwenya was growing up. Touted as difficult to achieve, that was enough of a challenge to attract the now President of the UK Institute and Faculty of Actuaries (IFoA) to the profession, but her studies weren't a simple road. Here, Marjorie Ngwenya tells us her favourite sport, hobbies, work history, best career advice and the legacy she hopes to leave.

Summarise yourself in one sentence… I have an inquisitive mind and like to challenge established theories.

My interesting/quirky hobbies… scrapbooking.

My favourite energetic pursuit… swimming.

The sport I most like to watch… Formula 1.

The last book I read (and when)… Patricia Cornwell, Flesh and Blood – March 2018.

My favourite artist/film… Toni Braxton/Pulp Fiction.

The person I'd most like to cook for… Tim Ferriss.

I'm most passionate about… fairness.

What gets my goat… false assumptions.

I'd like to be brave enough to… skydive.

In my life I'm planning to change… limiting stereotypes.

Not many people know this but I… enjoy doing puzzles which involve spatial orientation.

Four words that sum me up… eternally young at heart.

If I hadn't become an actuary, I would be…a pilot.

Why and how I became an actuary… It was an emerging profession in Zimbabwe when I was growing up and was touted to be difficult to achieve. That was enough of a challenge to attract me. I started my actuarial studies at the London School of Economics but left a few months later at a time when the Zimbabwean economy was experiencing difficulty, making funding difficult for my parents. I started working and studying towards professional examinations with the IFoA.

Where I studied to become an actuary and qualifications obtained… I undertook the professional exams while I was working in the UK and Canada, and qualified as a Fellow of the Institute of Actuaries.

My work history… Consultancies/audit firms – Deloitte and Mazars, Reinsurers – Swiss Re and Gen Re and insurers: Old Mutual Africa and Liberty Group SA. I have worked across a number of disciplines including risk management, life and health insurance. My last role was overseeing the strategy function for a financial services group with a pan-African footprint.

What I find most interesting about my current role… meeting people, particularly IFoA members across the globe.

My role's greatest challenges… managing conflicting expectations.

Who has been the biggest influence on my career (and why)… several leaders I look up to who have lent me their minds and ears over the course of my career.

My proudest career achievement to date is … my current role as President of the IFoA.

10 years from now, I will be … doing something I love, with people I respect in a place I enjoy.

When I retire, my legacy will be… having planted and watched seeds of possibility grow in the minds and lives of my nephews and nieces.

Why I'm proud to be an actuary… "I belong to a profession that upholds high standards and acts in the public interest".

The most valuable skill an actuary can possess is … the ability to synthesise complex data, join the dots and communicate value-adding solutions.

As President of the UK Institute, one thing I want to improve is…our continued journey to provide services to our members wherever they are based.

At least once in their life, every actuary should… ask a non-actuarial relative to read one of their reports to test their ability to communicate concepts clearly to non-actuaries.

My best advice for younger actuaries… explore many industries, stay true to your values and find work that is meaningful to you.

If I could travel back in time I would… give the same advice to my younger self.

If I won the lottery, I would… spend a lot more time travelling for leisure and pursue numerous language studies.

Q&A with QBE Chief Risk Officer Mark Baxter

By Adrian Letilovic and Mark Baxter

Reading time: 6 mins
From volunteering to travelling the world and forging a successful and inspiring career, Mark Baxter (Actuary, CRO for QBE Aus and NZ and one of Deloitte's Outstanding 50 LGBTI Leaders of 2018) talks to Adrian Letilovic about mentoring, visibility and LGBTI inclusion.

Deloitte recently brought together a list of Outstanding 50 LGBTI Leaders, which included not just those people in the public sphere, like Penny Wong and Janet Rice, but also included our own Mark Baxter, CRO of QBE Aus & NZ.

Let's start with something fun and easy to get the ball rolling. You're hosting a dinner party – who would be your three guests – living, dead or fictional?

First would be Oscar Wilde, I think he's incredibly witty, naughty and fun. Second would be Princess Diana, because I think she'd be a hoot. Wait, do I have to include my partner? *(Interviewer: Let's just assume your partner is a given.)*

Oh, ok so Jeff is a given! I have to keep thinking … OK, lastly let's say Don Dunston, the former premier of South Australia (SA) – SA was the first state to pass gay law reform. He came out as gay after he left the premiership, and most famously he turned up to parliament once in bright pink shorts!

Time for some serious questions – It's been almost a year since you were appointed Chief Risk Officer for Australia and New Zealand at QBE – what has the past year been like? Any challenges, opportunities or surprises you'd like to share?

It has been interesting! This is my first year being back in Australia after living overseas in several different countries for an extended period. It has actually been quite fascinating getting back into Australian corporate life.

I must admit I came back with some trepidation, because I have always thought Australian corporate culture to be kind of 'blokey', especially compared to what I was used to in London. However, within my first week of arriving, I was asked to be the executive sponsor of QBE's pride network.

It was a nice surprise to be asked – although it came about quite suddenly. In the past I wouldn't have stepped up into this type of role so quickly. Part of the reason I did though, was that it was an interesting time coming back to Australia, while Australians were deep in the Marriage Equality debate and people needed support.

I have to say, QBE have been amazing, but seeing some of the things that were said during the debate made me realise in coming back to Australia, there are still deep pockets where there's a long way to go and we all have a role to play.

You've had an esteemed career in banking, wealth management before moving into insurance – industries that historically have been associated with a 'boys club' culture. Was that your experience? How did you handle that?

Ahhh yep … Look it actually has evolved. But, I can remember when I came out in 1993 it was because I was being transferred to Hong Kong and I remember it well because at the time I thought of it as a bit of a risk. I was exploring whether or not my employer at the time would be willing to relocate my partner (as they would have with any heterosexual couple) and the answer ended up being no.

So yes, it was a blokey culture and you still see pockets of that – sometimes you get excluded. I don't play football, I'm not that interested in sport. So there's almost an implicit exclusion from certain things that others take as a given.

Looking at your career you've held roles all over the world: in the UK, Hong Kong, South Africa and of course Australia – what's that been like and what did you learn from these global experiences?

I guess I would say one of the biggest things I've learned is that there's no one 'right way' of doing things. Everybody and each culture has their own approach to doing things. So in return, you start learning to just be more flexible in how you adapt to things.

As a gay man, how did you find it in countries like Hong Kong and South Africa?

My first role overseas was when I moved to Hong Kong and I was pretty much out. I was there from 1993-1999. In Hong Kong they can be great, they almost don't care about your personal life as long as you're doing your job, hitting targets and making money – at least that was my experience.

Having said that, it was still a relatively closeted environment. While the expat community was very close, the local Chinese were quite closeted because of their families and cultural expectations.

South Africa was an interesting place for very different reasons, it is similar to Australia in some ways. In the corporate world there, you would see pockets of really blokey, rugby types. But interestingly, South Africa was also the first country to recognise sexuality in their constitution. The biggest issue there was in dealing with racial equality – so in many ways LGBTI was kind of overlooked and not so much an issue.

When you were starting out in your career, did you have any openly LGBTI role models? If so, who were they, if not who did you look up to?

No. Actually when I was starting out in my career even the LGBTI characters in popular culture weren't exactly great role models. In shows like *Are You Being Served*, or *the Benny Hill Show* for example, I didn't really relate to the gay characters.

And there were certainly no LGBTI role models in the business community either.

As I mentioned, I didn't come out until 1993 and at that time there were no Pride networks or anything. There were however some (straight) people who took me under their wing and looked out for me, so that helped.

It was funny though, because once I was out, a lot of people would quietly come up to me and ask for advice, I was kind of this little beacon.

The first prominent LGBTI Australian I vividly remember coming out was Ian Roberts, which was in 1995. That was a big deal, I remember seeing the magazine and newspaper covers in newsagents all around Sydney, it was definitely a turning point.

Did you ever think you would live in a world where you could be an openly gay senior executive for a global insurance firm?

When I was younger, probably not. I think I have a certain resilience which has helped me, though I still find that there is a long way to go – not just insurance but in financial services.

In the LGBTI community, I think to a certain extent we still exist in safe bubbles around major cities. If I went down to Geelong or down to Toowoomba, I don't know how it would go or how comfortable I would feel. This was certainly reflected in the Marriage Equality results – we saw from the voting results that there's more to be done in the more remote suburbs of Sydney and more broadly, around Australia. We do need to be concerned for the mental health and wellbeing of younger LGBTI individuals living in these suburbs, because it would be very difficult growing up in that environment, feeling different.

Do you have any work related stories where you or people you knew felt they had to hide being gay?

I remember back when I was living in London, I was invited to a gay business networking event which was being held up in Stirling (Scotland) – we had a big operation there. And I remember a number of the staff were nervous about attending because they did not want to be outed – and many of them only agreed to go after they were assured that they wouldn't be named if they attended.

A word from the Institute's Diversity and Inclusion Working Group (DIWG) Convener, Lesley Traverso:

It is interesting to read how things have changed over the past 25 years; how the very public debate of marriage equality has given the community more confidence to be 'out'. More confidence to walk down the street holding hands with their partners. There is a greater feeling of acceptance of difference now albeit one that is still, at times, tempered with caution and wariness. But it shouldn't take a challenging and emotional public debate like that around marriage equality to ignite a discourse around inclusion in the workplace.

Deloitte's initiative is a great demonstration of how to create and promote a positive dialogue around inclusion, to get us to focus on the value that everyone brings to the workplace. A quote in the main report says "Being LGBTI is only part of who you are, it is not all that you are" (Benjamin Wash).

The DIWG is passionate about working on initiatives that will ensure the conversation about diversity and inclusion (in all its forms) continues, both to eliminate bias and prejudice and to promote the value of difference. To look beyond the label and see the real person underneath.

Thank you Mark for your inspiration and example.

For more on Deloitte's inspirational LGBTI leaders visit the company's Outstanding 50 webpage, or read more interviews in the series here.

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