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PHILANTHROPY **SUCCESS**
TRANSFORMATION LOVE inclusive
♥ inspiration **BEAUTIFUL**
TRANSFORMATION **Success**
PROTECT PHILANTHROPY **essence**
children
GROW  **EDUCATION**
COMMUNITY  **LOVE**
LOVE ♥ GENEROSITY powerful LOVE
GIVING GENEROSITY beautiful 
inclusive change LOVE 
PHILANTHROPY ♥ **PROTECT**
 **TRANSFORMATION**
♥ GENEROSITY TRANSFORMATION
GROW  ♥ **COMMUNITY**
respect **CHILDREN**
TRANSFORMATION inclusive
LOVE ♥ PROTECT



Peter Withey
President, 2018-19

Presidential PERSPECTIVE

Message from the ASSA PRESIDENT



Message from the ASSA PRESIDENT

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As I am recording this message, it is just three weeks to the IAA 2019 Colloquium here in Cape Town. But by the time you are reading it the Colloquium will have passed. The reason that I mention this is because I think that the theme of the Colloquium is really key to our profession and one that extends beyond the narrow confines of the colloquium – The modern Actuary – Challenge, Influence, Lead.

I think that the old paradigm of the actuary being a back room technician focussed on insurance and pensions is the picture of the past and I believe that South African actuaries are people of the future. In fact, as I have mentioned in these presidential perspectives before I am of the view that South African Actuaries have been Challenging, Influencing and Leading for many generations already so the theme of the Colloquium is really, for us, just a continuation of an impressive journey.

As I have read through a draft of this edition of the SA Actuary I have been struck by this again, if I consider Heather McCleod who has been inspiring in her Challenging, Influencing and Leading as she has impacted the Investments and Health Care practice areas here in SA and now continuing that in New Zealand. And then as we consider the other profiles of Ranti, Shivani and Thandi I see the same again.

This Challenging, Influencing and Leading is not limited to our professional space. It extends into how our members are influencing Society. It is exciting and humbling for me to see the members of our profession touching lives through their social and volunteer roles that they perform. While this is in no ways unique to our profession it is encouraging to know that our members are making a difference, and I have no doubt that the few

profiled are just the tip of the iceberg of the influence of the profession.

As professionals we have a public interest duty and as a South African profession we are seeking to 'up our game' in that area with the appointment of Lusani Mulaudzi to the role of Public Interest Actuary to help us become more effective in bring our voice of Challenging, Influencing and Leading into the Public Sector space in a more coordinated and effective way.

Lastly let me close on a theme that is very dear to me as President of ASSA. At the Convention I challenged the membership to do two things - Have at least one meaningful engagement with someone we have not met before, and ideally with someone who is quite different to ourselves; and to be constantly vigilant in all that we do to ensure that render quality services and demonstrate ethical behaviour. If our profession is to continue to grow and thrive as we Challenge, Influence and Lead in our unique South African context these two themes of being a change agent in transforming our profession with authentic engagement with each other and maintaining professionalism at all times remain critical. At a recent Council engagement on our strategy we asked ourselves what events could destroy the relevance of the profession, my presidential theme, we identified a lack of transformation and an ethical failure as two material risks. These must not be allowed to happen and we must keep each other accountable for these twin goals.

Let us continue to be global leaders in being the Modern Actuary who Challenges, Influences and Leads but is above all professional to the core.

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Editorial

The recent appointment of Lusani Mulaudzi as the Public Interest Actuary at ASSA is a definitive statement that the actuarial profession is intent of playing an active and constructive role in the public interest. Although this may be the first time that we have appointed someone to formally assume the role, serving the public interest is not a new concept for ASSA or for actuaries. A core component of the vision of ASSA is the serve the public interest.

Serving the public interest comes in many different guises with a wide range of potential consequences and rewards. Some like Rob Rusconi have served the public interest and been a catalyst for significant change through challenging the way we “have always done things”. As Thuli Madonsela reminded us in the 2018 convention, whistle blowing takes courage and may have severe consequences. Rob experienced the wrath of an industry challenged. However, as we look back, we see that Rob is now regarded with increased respect and that same industry has emerged more innovative and with an increased focus on serving the public good.

Others provide their service in the course of their consulting or employed work. Every day many actuaries quietly and without fanfare serve the public good by designing appropriate products, giving sound advice or challenging decisions of their employers or principals by asking the right questions. However, as a profession we cannot assume this is always the case. History is littered with examples of where the wrong thing has happened because professionals made poor decisions or did not ask the right questions in their organisations – our minds go back to the Volkswagen emissions scandal and build up to the 2008 financial crisis. However, for our profession, we think of Equitable Life and the bulking scandal where actuaries could have changed the flow of events by doing things differently or asking the right questions.

With the active and committed work of Actuaries without Frontiers (AWF) and some input from



Mike McDougall (Chief Executive)

individual members we experience how some members of the profession are serving the public good. This is a small cross section of the many members of ASSA who strive to make the world and their communities better places through giving of their time, expertise, passion and resources to serve in fields as diverse as education, community support and marriage enrichment.

However, our contribution to serving the public good is not limited to what we do but includes who we are. In this edition we profile members who through their lives and energy serve the public good. By his example, Ranti Mothapo is an inspiration to aspiring actuaries from disadvantaged backgrounds while Shivani Ranchod and Thandi Mcizana through support mentoring and their example are building our profession. The profile of Heather McLeod provides a candid summary of the transformative journey of one woman. A woman who has used her exceptional intellect to first significantly impact investment markets at a time when, in the words of Professor Higgins¹, “why can’t a woman be more like a man”, to a leading healthcare actuary who has embraced not only the hard statistics at the core of our profession but also the wider more inclusive wisdom and intuition of ancient cultures and less structured traditions.

I hope this edition **inspires you to make a difference for the public good.** 



Advances in Time Series Forecasting - M4 and what it means for insurance²:

- by Ron Richman

I had the opportunity to attend a recent conference discussing the results of the M4 competition held towards the end of 2018 in NYC. The M competitions are a series of time series forecasting competitions that have been organized by Professor Spyros Makridakis over the past several decades (Wikipedia contributors 2019), with the aim of testing time series methods empirically, and the M4 competition was the latest iteration.

Participants were tasked with forecasting 100 000 time series at different frequencies (from hourly to annual) using the best method they could come up with. The conference focused on the results of the forecasting competition, as well as more generally on the state of the art in time series forecasting. My interest in this competition, as an actuary, is two-fold – firstly, I found it interesting to see how the forecasting community, which has relied almost exclusively on statistical methods to date, is starting to benefit from modern advances in machine learning, and secondly, I think some of the ideas are directly relevant for the work that actuaries do. Following from these themes, in this article, I plan to summarize some of the key ideas that were presented at the M4 conference and discuss how these relate to the work actuaries do in insurance.

Before we start, let’s quickly review what is meant by time series forecasting. Quite often, the only data that is available for a problem consists of past values that a series took, measured at regular points in time. In other words, associated variables which would help to explain the past values of the series, are not available, and the exercise needs to

¹ From George Bernard Shaw’s play “Pygmalion” reproduced as a musical “My Fair Lady” by Jay Lerner and Frederick Loewe

² This article was originally published as a blog on ronrichman.co.za. Ronald writes in his personal capacity, and the views expressed herein are not necessarily those of his employer, nor of the Actuarial Society of South Africa.

be informed only by the past values of the series. For example, one might have data on the number of various insurance products sold monthly for the past five years (in this case, associated variables such as number of salespeople or advertising spend might not be available), and to understand revenue, one might need to forecast the number of products that will be sold over the next quarter or year.

Some more examples of this are given in a fantastic online text book on forecasting by Hyndman and Athanasopoulos (2018), which I would strongly recommend to anyone interested in time series forecasting!

The Big Ideas of the M4 Conference

There were a number of excellent speakers at the conference, with the standout ones for me being:

- Slawek Smyl, a data scientist at Uber, who was the winner of the M4 competition with his “hybrid” method that combined deep neural networks with exponential smoothing. His method is described in Smyl (2018).
- Pablo Montero-Manso, who represented the runner up team in the competition with a method that combined statistical forecasts using a machine learning technique called boosting.
- Spyros Makridakis, who has organized the M competitions.
- Nassim Taleb, the author of Black Swan and other influential books.

There were several recurring themes at the M4 conference that were addressed by the speakers. Of these, the one that came up the most often was the difference between statistics and machine learning (abbreviated as ML in the rest of this article).

Statistics vs ML

It was fascinating to see the back and forth between the speakers and the audience on exactly what defines machine learning, and how this is different from statistics. Two of the different viewpoints were:

- Statistical methods generally do not learn across different time series and datasets, whereas ML methods do. (This first perspective made sense from the perspective that most methods used for time series forecasting focus

on the univariate case, i.e. where there is only one sequence, and techniques to leverage information across series are newer in this field (although obviously not a new concept in more traditional applications of statistics.)

- There is no difference between statistics and ML, and in fact neural networks are a generalization of GLMs, which are a basic statistical tool often used by actuaries, in other words, the distinction is arbitrary.

Interestingly, there was also not much consensus on whether the field of forecasting should be classified as a traditional statistical discipline or not. One good point that was made is that one of the basic time series methods – exponential smoothing – was always used as an algorithm, until statistical justification in the state-space framework was given by Hyndman, Koehler, Ord et al. (2008).

One amusing debate focussed on whether Slawek’s method was in fact a statistical or machine learning approach, with different participants arguing for their perspectives, and being somewhat averse to the idea of a hybrid approach. This carried on, until Slawek himself was asked to clarify, at which point he confirmed that his method is a “hybrid” of statistical and machine learning approaches.

My perspective is that some of these issues can be tied up quite neatly using the distinction between prediction and inference given by Shmueli (2010). A significant part of statistical practice is focussed on defining models and then working out whether or not the observed data could have been generated by the model, and, within this framework, one generally does not have concepts such as out-of-sample predictive accuracy. Machine learning, on the other hand, focuses on achieving good out-of-sample performance of models, whether these have been specified using some stochastic data generating procedure, or on an algorithmic basis. From this perspective, the field of forecasting is not a traditional statistical discipline, as the focus is on prediction!

Actuaries can draw some interesting parallels here – are classical actuarial models such as the chain ladder method statistical models? For the chain ladder method, the answer is clear, in that it started off as an algorithm and later was reinterpreted as a statistical model by Mack (1993) and others. I find it interesting to consider other parts of actuarial science, such as credibility methods, from this perspective, where a similar process of development

(turning an algorithm into a statistical method) has been followed.

Complexity

A recurring theme of the M competitions is that more complex models are usually outperformed by simple methods, for example, in the original M1 competition it was shown that exponential smoothing was better than ARIMA models. In the M4 competition, this became much more nuanced. One the one hand, “vanilla” machine learning techniques performed poorly, and worse than the benchmark, mirroring the findings in . On the other hand, the winners of the M4 competition used relatively more complex machine learning methods to great success. The difference seems to be that the complexity of the winning methods at this competition is in how they learn to generalize across time series, instead of trying to apply especially sophisticated methods to single time series.

Triumph of Deep Learning

As I have written about several times on my blog, the big advantage of deep learning over traditional ML approaches is that feature engineering gets performed automatically (i.e. this is the paradigm of representation learning, in that the model learns the features), and therefore, when dealing with large and very complex datasets, suitable neural network architectures can provide a massive performance boost over other approaches. I think this was clearly part of the “secret sauce” of Slawek’s winning solution, in that he very neatly specified a neural network combined with exponential smoothing, thus obviating the need to try derive features from each time series. This is in contrast to the runner-up solution presented by Pablo, which involved a substantial feature engineering step, in which many features were calculated for each time-series, after which a boosted tree model was fit on these features to work out how to weight the various time series methods.

More to learn

Although forecasting is not a new field, it seemed to me that many participants at the conference felt that there is much more to learn to advance the state of the art of forecasting, especially as machine learning methods get adapted to time series forecasting. The amazing and unanticipated success of Slawek’s hybrid method will no doubt

lead many researchers to try similar methods on other datasets.

What the M4 conference means for insurers

In this section I plan to focus the discussion on insurance, and then specifically on actuarial work, and think about what the advances in time series forecasting might mean for actuaries and other professionals in insurance.

Insurance and forecasting

Compared to more traditional industries, insurance is interesting in that there is no physical product being sold, and insurers do not need to maintain or forecast inventories. Having said that, the familiar time series forecasting problem pops up in the context of insurance in other areas, for example:

- Forecasting the number of sales or claims and the associated resourcing requirements
- Forecasting revenue, losses, expenses and profits

Perhaps surprisingly, revenue forecasts play a major role in determining the capital requirements of insurers under Solvency II, which is the European insurance legislation, as well as in SAM, which is the South Africa variation. In fact, part of the capital requirements for insurance risk are often directly proportional to forecast premiums, see, for example, Article 116.3.a of the [Solvency II Directive](#).

So, besides for insurers, regulators around the world also have an interest in ensuring that revenue forecasts are accurate and advances in time series forecasting, such as those at the M4 conference, should see wider applications in insurance. One advance to consider is Microsoft’s extensive use of machine learning to determine revenue forecasts, as described in [this paper](#), by Barker, Gajewar, Golyaev et al. (2018). At the M4 conference (and in the paper) it noted that these forecasts are used widely at Microsoft from providing Wall Street guidance to managing global sales performance.

Some of the other ideas that could also be of benefit, that were expressed at the M4 conference, and are now clearly established in the time series literature are understanding:

- when to make changes to statistical forecasts
- the value of aggregating forecasts (insightful

presentation from Bob Winkler at M4 on [the topic is here](#)) from different methods

A peculiarity of insurance forecasting is that often insurance professionals will not aim to forecast the actual value of losses and expenses, but rather will focus on ratios that express these quantities in terms of revenue (or a close proxy to revenue). For example, if one wants to forecast losses, then one would try to forecast loss ratios, which express how many cents are paid in losses for every dollar of revenue. In the next section, I will discuss how these ratios are often currently forecast in insurance companies.

Forecasting in Actuarial Work

For the main topic of this section, I want to examine the work that actuaries do for insurers, that often consists of, or contains forecasts of some kind.

In life insurance, these forecasts are often the key variables underlying pricing and reserving such as:

- Mortality
- Morbidity
- Withdrawal or lapse rates
- Expenses

In P&C insurance (or general insurance or short-term insurance if you are in the UK or South Africa), these forecasts are often comprised of:

- Loss ratios
- Frequency rates and average cost per claim
- Premium rates
- Claims development patterns

As an aside, not so long ago, these lists would have included investment returns, but a large swathe of the actuarial profession has more or less adopted market consistent valuation practices, which dictate that all cashflows should be valued like bond cashflows, with the implication that investment returns can simple be read off from market yield curves. One currently controversial discussion here is the valuation of no negative guarantees on reverse mortgages in the UK, see the Eumaeus blog from Dean Buckner and Kevin Dowd.

A common assumption that is made for some of these variables is that whatever experience has occurred over the past few years will repeat itself in the future - in time series jargon, actuaries often use so-called “naive” forecasts (please read the conclusion though, where I note that this is not

always the case). Here are some examples of naive forecasts in current actuarial work:

- When determining (P&C) claims reserves, an allowance must be made for the costs of managing claims (to be precise, here I refer to claims department and associated costs, or ULAE), in addition to the cost of indemnifying policyholders. The South African SAM regulations allow actuaries to forecast these costs on the basis of the average claims management costs over the past two years.
- Also on P&C reserving, a very common approach to determining claims development patterns (which are used then to forecast the extent of the outstanding claims that are still to be reported) is to rely on averages of recent experience.
- Mortality analysis often consists of comparing an assumed mortality table to recent experience. The assumed mortality table is then adjusted to match the recent experience more closely, and only rarely will a trend over time be allowed for.
- When pricing P&C insurance with a GLM, a dataset of recent claims experience is used to derive factors which define how different policies are likely to perform. For example, how much more likely are claims if the policyholder is a new driver, compared to an experienced driver. These factors are most often based on the recent past, with no allowance for trend over the years.

In all these examples, the recent past is taken as representative of the future. The reasons for this are probably a general lack of sufficient data to do better, and the difficulties in specifying a suitable model that can capture these changes over time adequately. However, as data quality (and quantity) improves, and especially, as the options for modelling increase (for example, using neural nets instead of GLMs), I think there are ample opportunities to improve on some parts of current practice.

Two potential paths to achieve this stand out for me from the M4 conference:

- One way to improve forecasts is to come up with a smart way of ensembling multiple models (as opposed to coming up with new, more complicated models), as done by the runners up to the M4 competition. Of course, this needs to be done in a scientific manner, and very little research has been performed on how this could be achieved on traditional actuarial models. The advantage of this approach is that the building



blocks remain the same traditional models, and a meta-model works out which of these models is best and when.

- Another way is more or less to forget about model specification, and let a neural net find an optimal model automatically, as was done in winning solution in Smyl (2018). To do this, one generally needs more data than in traditional modelling approaches, but the results can be impressive. I particularly favor this latter approach, and for examples of applications to population mortality forecasting and claims reserving, I would point to two recent papers I co-authored that are up on SSRN that demonstrate this approach, which are Richman and Wuthrich (2018) and Gabrielli, Richman and Wuthrich (2018).

Having noted some of the above areas that can be improved, it is important to end by stating that often, data simply isn't available to do much better than the most simple forecasts, and, indeed, in cases where the data is available, actuaries will try use more sophisticated modelling. One example is mortality improvement modelling, generally undertaken by providers of annuities and other products exposed to longevity risk, where actuaries apply mortality models from both the actuarial and demographic “schools”, most often to population level data. Another example is claims reserving, where there is increasing attention being placed on developing reserving models that allow for trends in claims development assumptions over time, though I have not yet seen one of these in practice.

In conclusion, I think it is an exciting time to be involved in actuarial work and insurance more broadly, and I look forward to seeing how advances

made in other areas will influence the insurance industry.

References

- Barker, J., A. Gajewar, K. Golyaev, G. Bansal et al. 2018. “Secure and Automated Enterprise Revenue Forecasting,” Paper presented at Thirty-Second AAAI Conference on Artificial Intelligence.
- Gabrielli, A., R. Richman and M.V. Wuthrich. 2018. “Neural network embedding of the over-dispersed Poisson reserving model”, Available at SSRN: <https://ssrn.com/abstract=3288454>
- Hyndman, R., A.B. Koehler, J.K. Ord and R.D. Snyder. 2008. Forecasting with exponential smoothing: the state space approach. Springer Science & Business Media.
- Hyndman, R.J. and G. Athanasopoulos. 2018. Forecasting: principles and practice. OTexts.
- Mack, T. 1993. “Distribution-free calculation of the standard error of chain ladder reserve estimates”, Astin Bulletin 23(02):213-225.
- Makridakis, S., E. Spiliotis and V. Assimakopoulos. 2018. “Statistical and Machine Learning forecasting methods: Concerns and ways forward”, PLOS ONE 13(3):e0194889.
- Richman, R. and M.V. Wuthrich. 2018. “A neural network extension of the Lee-Carter model to multiple populations”, Available at SSRN: <https://ssrn.com/abstract=3270877>
- Shmueli, G. 2010. “To explain or to predict?”, Statistical Science:289-310.
- Smyl, S. 2018. “Exponential Smoothing - Recurrent Neural Network (ES-RNN) Hybrid Models”, Github
- Wikipedia contributors. 2019. “Makridakis Competitions,” in Wikipedia, The Free Encyclopedia.



Actuarial Society Academy: Meet the New Principal

The Actuarial Society Academy was established at the end of 2015, with a mandate to support employed African student members of the Society. In 2016, activities of the Academy were managed by a steering committee chaired by Roseanne Harris, then President of the Society. Towards the end of 2016, Lusani Mulaudzi was appointed as Principal of the Academy. Lusani handed over the reins to me at the beginning of 2019. South African Actuary caught up with Thandi (literally; she is a runner) and managed to ... puff ... ask a ... puff ... few ... questions ...

SA Actuary] Let us start on a more personal note, if we may. Please tell us a bit about yourself – your family, where you grew up, hobbies, and so on.

Thandi Mcizana] I was born and raised in a small town called Mthatha, in the Eastern Cape. I have 3 siblings - two sisters and a brother. My father was a Geography subject advisor for the Eastern Cape Education Department and my mom was a Grade 3 teacher. Education is very important to my father, and he made sure we took our studies seriously. However, I only started taking my academics seriously in Grade 9 when I received a Beta award (which is given to a student seen to have potential). After that prize giving, I always received something, whether it was for getting an average of 80% or being in the top 5 of my grade. I enjoy the outdoors and you will find me hiking, camping, wine tasting and running during my free time. I like trying new things and never say no to a challenge. I also enjoy giving back and I am a volunteer for a few education related initiatives, e.g. IFG Africa where I am deputy chair (an education NPO based in the EC) and some ASSA initiatives (reviewing ASSA WBL submissions), Microinsurance committee, the SLC and the ASSA Transformation Committee.

SAA] Your favourite colour, favourite food and preferred way of relaxing?

TM] My favourite colour is grey - as it is classy and simple. Favourite food is anything with potatoes and cheese, really. I find hiking and camping with close friends very relaxing. I would say running, but I am always nervous before long distance runs - although I do find the wine tastings we do after trail run very relaxing.

SAA] How did you become aware of the actuarial profession, and what attracted you to it?

TM] I became aware of the actuarial profession from Nokwanda Mkhize (CEO of SAADP), who came to give a talk at my school about actuarial science and the SAADP bursary when I was in Grade 12. Before then, I had my eyes set on being a CA. Having been good at Maths, I was intrigued by the option - a classmate of mine and I decided to apply for the degree to see who would be accepted for Actuarial Science by the universities first. When I was accepted for Actuarial Science at Wits and UCT, there was no turning back, especially since my father and sister were pushing for me to do the degree.

SAA] Please give us a quick summary of your career up to now.

TM] I started my career at Momentum EB Valuations in Cape Town in 2012. It was a great experience most of the time, and I was lucky to have a supportive encouraging boss (Graham Voges) and team in my first 3 years of working, especially with the stress of exams. I was lucky to get 8 exemptions during varsity, and when I left Momentum and joined Swiss Re's Product and Pricing team in Cape Town, I had one exam left - Communications - which I had attempted before and was not successful. After almost 2 years at Swiss Re, I went to Johannesburg and worked a year in a small consultancy before joining Medscheme in 2018 in their Advanced Analytics team. I wrote my fellowship in health, so it made sense that I should navigate into this field. I find healthcare exciting and interesting - there is always something new to learn whether it has to do with data analytics or something clinical.

SAA] Are there any people who stand out as major influences in your life thus far?

TM] I would have to say my father is the most influential person in my life - he has always been a positive influence in my life. He wouldn't accept excuses for failure, and always pushed me to think what next. He also enjoyed making jokes, etc. - which is where I think I get my weird and sometimes witty personality. Most afternoons growing up, we would be sitting at the dining room table - him preparing his Sermon for the following Sunday while I was studying or doing homework. We'd fix things around the house together and he would encourage my sisters and me to figure out our homework by ourselves. We didn't have much growing up, but he made sure if we really needed something, especially if it was for school, we would have it.

Other influences in my life have been Billy Enderstein, especially during my time in varsity, and Graham Voges, in my years following university. I don't think I would have done well if Billy had not given me a Statistics text book before the June vacations in my first year - I had never seen probabilities, matrices, etc. before university.

Graham, for being a great manager, who was encouraging and always available to provide guidance in all topics. There are many others and I hope they know who they are.

SAA] How do you see the role of the Actuarial Society Academy?

TM] I see my role as more advisory than anything - to help set directions for the Academy and to ensure that we act with our goal in mind. The goal of the Academy is to ensure that the goals of the ASSA Transformation Committee are met. I have been in the Academy advisory panel since its establishment, and feel like this was a natural progression.

SAA] It is probably unfair to ask at this early stage, but do you have a specific vision for the Academy?

TM] I envision the Academy achieving its goal - which is to ensure that transformation in the actuarial profession occurs by increasing the number of qualified black actuaries through providing educational and emotional support. We are exploring different avenues to ensure that this happens and that we reach the students who would benefit the most from the Academy.

SAA] What do you enjoy most about being an actuary?

TM] I enjoy working with numbers, and the complex problems we have to deal with at work. An important part of being an actuary is being able to problem solve and consider all stakeholders.

SAA] What do you see as the most important opportunities for the actuarial profession in South Africa?

TM] I think the most important opportunity for the actuarial profession in South Africa lies in the risk management and data science spaces. These are

opportunities for the actuarial profession to diversify the fields available for actuaries to work in. As actuaries, we are involved in risk management areas already, but mostly in the financial services space - in the future, I can envision seeing actuaries involved in risk management positions outside of the financial services area.

SAA] And the major threats?

TM] The major threat to the profession is competition. Not only competition with other actuarial bodies like the IFoA, but also competition with other professions when it comes to attracting high quality candidates. Getting high caliber candidates is very important for the Society, especially when it comes to transformation. The lack of knowledge of the actuarial profession will hinder its transformation objectives, as students in disadvantaged areas who would be a good fit for the programme might not know about this career path until it is too late for them to join the stream. I was lucky to have heard about the programme before I submitted my university application forms.

SAA] Is there any particular lesson you have learnt in your career that you would like to share with younger members?

TM] I think I would encourage young members to be proactive about their work and studies. At work, volunteer to join committees, talk to people outside of your department, always meet deadlines and ask if you aren't 100% sure about something. When studying, form study groups, look out for alternative study methods, discuss the notes with or anything you find confusing with your colleagues/ manager at work.

SAA] Do you feel positive about the future of the profession in South Africa?

TM] I feel positive about the future of our profession in South Africa, and Africa as well. I think there is a lot of potential for us to grow and expand into different industries. Most of all, I think legislation and regulation changes like the NHI and SAM can only mean more opportunities for us. 

You Matter More Than You Think: The role of actuaries in the digital age



Pieter Janse van Vuuren, CENFRI

Pieter is a researcher in Cenfri's Risk team. His work has focused on the role of insurance in supporting economic growth, particularly in Nigeria. Other areas of his work have included online digital platforms and insurtech.



David Saunders, CENFRI

David is passionate about unlocking knowledge for societal outcomes. In his role as senior knowledge manager at Cenfri, David brings together the insights generated across Cenfri's research (relating to behavioural science, data and analytics, the digital economy, financial policy and regulation, and technology and distribution). These insights are used to deepen the understanding among stakeholders of the role of the financial sector and digital economy in improving societal outcomes.



Traditionally, actuaries find themselves poring over mortality tables and calculating complicated risks with limited data, particularly in emerging markets. With the advent of the fourth industrial revolution, this is changing. The world seems to be revolving around data. Data is making our lives more convenient. We have fridges that order our groceries and GPS maps on our phones. Better data helps to make previously invisible risks visible. And when they are visible, they become manageable. Managing risk has never been more important.

The impact of the recent trade war between the US and China on global markets shows how vulnerable value chains are to disruption in an increasingly globalised and risky world. Further, the increasing occurrence of natural disasters is showing how vulnerable our cities and ports are. In 2015, according to the UNDP, the number of natural catastrophes in a year surpassed 1,000 for the first time, with an estimated loss of over USD90 billion, out of which only 30% was insured³.

Digital technology and data provide opportunities for better risk management solutions. For example, providers are adding remote sensors to monitor dam levels and car accidents or using satellite data to better assess the impact of natural disasters. Our research shows that there are more than 200 technology-driven initiatives like these that are addressing key risk management needs in Africa⁴. We see data and technology being harnessed to tackle at least three front-of-mind societal issues:

- **The risk of climate change**

Floods affect more people globally than any other type of natural hazard. They cause some of the largest economic, social and humanitarian losses. There is a growing gap between the total economic losses from natural hazards and the share that is insured. This highlights that, while insurance has a role to play in managing climate change risks, better risk management has an even larger role to play. Many insurers are already taking on a broader risk management

³ <http://www.sdfinance.undp.org/content/sdfinance/en/home/solutions/disaster-risk-insurance.html>

⁴ <https://cenfri.org/databases/insurtech-tracker/>

role beyond risk valuation, such as Munich Re's disaster prevention projects⁵ and Zurich's Flood Resilience Alliance⁶.

At the other end of the scale is drought. This time last year, Cape Town was facing certain drought, staring down the barrel of Day Zero. We saw data leading the charge in the city's response. The Government used sensors in pipelines and dams in conjunction with historical rainfall data to ration water and fix leakages. Farmers increasingly utilised **satellite**⁷ and **drone**⁸ imagery to detect plant stress in specific field blocks, thereby reducing the need to water excessively. These initiatives, coupled with an effective communications campaign, helped to manage the risk of drought and mitigate Day Zero.

As data is more readily available, risks such as drought or floods can be better managed rather than reacted to. With better data on water infrastructure, pre-emptive maintenance on the components that are most likely to fail can help to minimise losses. Understanding the risks of water shortages can also help to advocate for building dams before the taps run dry. In short, the range of new and better data provides the opportunity to better understand and manage risks in order to decrease losses from natural disasters.

- **The risks stemming from migration and urbanisation**

The majority of the world's inhabitants are now urban. While Africa's population is still largely rural, most Africans are expected to be urban by 2035 – an additional 438 million urban dwellers⁹. This drastic rise will increase urban risks, including congestion and accidents. More concentrated

populations also mean higher health risks and a higher impact for disaster risks.

According to a 2018 report from the McKinsey Global Institute, cities are increasing the use of digital technology to manage these new risks and make cities more liveable¹⁰. For example, the utilisation of the Internet of Things (IoT) in cars facilitates better driving and better-linked transport systems. Sensors that automatically detect gunshots¹¹ provide data that can help to manage crime and deploy security effectively. As data turns urban cities into smart cities, insurers are engaging¹² on how to utilise the range of data that arises in conjunction with this.

Cities will need to be smart about how this is managed. Recent scandals, like Cambridge Analytica, have created public backlash against data sharing. Cities and insurers will need to ensure that consumers benefit from the sharing and that data protection and privacy-related risks be considered.

- **Digitised value chain risks**

As the use of data increases, value chains are adapting and becoming increasingly interdependent and global. Large online platforms (such as Amazon in the US, Alibaba in China, Jumia in Western Africa and Takealot in South Africa) are dominating the e-commerce space. Many smaller platforms are also taking off. In a recent stock-take of digital platforms in Africa, we identified 283 online platforms in eight African countries¹⁴, including e-hailing platforms similar to Uber, e-commerce platforms and various other service platforms. These platforms link providers and consumers from different geographic locations. This increases the risk exposure from a data perspective but



also provides an opportunity to leverage the platform for providing insurance cover linked to the underlying economic activities.

The use of platforms is increasingly formalising traditionally informal activities. As these activities are now recorded, their risks can also be managed better. For example, the informal nature of domestic work in South Africa has traditionally limited the ability of domestic workers to access financial services such as insurance. With the formalisation of this work through platforms like SweepSouth, these workers can now be covered via the platform. Insurance also helps to manage risks within digitised value chains. For example, Uber requires insurance for their drivers, while digital platforms such as Takealot and Jumia have return insurance.

- **Building a more resilient society**

In short, better-managed risks can improve social and development outcomes, and risk management is actuaries' bread and butter. So, while the traditional actuaries were data constrained and worked primarily with mortality tables, the new reality is a wide range of data to inform risk assessments. Actuaries are instrumental in facilitating risk management to build resilience to help solve big-ticket societal problems.

The call to action for you as an actuary, then, is to expand your horizons. You matter more than you think. 

Making insurance work for emerging economies

Dirk Reinhard,
Vice Chair: Munich Re Foundation



Affordable insurance solutions play a decisive role in economic development. However, insurance solutions in emerging economies are often either too expensive or not available at all. A combination of a strategic national approach in the insurance industry, cooperation with governments as well as the use of modern technology can help cut costs significantly and develop affordable solutions creating value for customers.

⁵ <http://www.munichre-foundation.org/home/DisasterPrevention.html>

⁶ <https://www.zurich.com/en/sustainability/flood-resilience>

⁷ For example: <https://www.fruitlook.co.za/>

⁸ For example: <https://www.aerobotics.com/>

⁹ <https://issafrica.org/iss-today/african-future-is-urban>

¹⁰ <https://www.mckinsey.com/industries/capital-projects-and-infrastructure/our-insights/smart-cities-digital-solutions-for-a-more-liveable-future>

¹¹ For example: <https://www.shotspotter.com/press-releases/cape-town-south-africa-selects-shotspotter-gunfire-detection-system-to-help-reduce-gun-violence/>

¹² <https://strategyfirst.com/news-and-events/press-releases/smart-cities-have-huge-implications-for-insurers/>

¹³ <https://cenfri.org/publications/regulating-for-responsible-data-innovation/>

¹⁴ http://access.i2ifacility.org/Digital_platforms/

Insurance for the low income market (Inclusive Insurance or Microinsurance¹⁵) has seen impressive growth in the past 10 years. However, affordable insurance solutions still seem to be out of reach for hundreds of millions of people. According to recent figures from the “Worldmap of Microinsurance Programme”¹⁶ of the Microinsurance Network, insurance for clients in the lower income segments is still at a very low level. Where South Africa still dominates the market, insurance penetration in most Sub-Saharan countries remains below 2 or even 1 percent (See Table 1). At such low levels, it is clear that the industry is not only failing to

serve the low income market, but certainly large parts of the middle and even higher income segments seem to be left without adequate risk management tools. Life insurance - frequently combined with credit - is still dominating the market followed by accident. However, agricultural and property insurance cover hardly seems to be available. Considering the fact that climate change will most likely worsen the situation of the most vulnerable poor who are highly dependent on agricultural income, this is a situation that needs to be addressed sooner rather than later.

Table 1: Market size of insurance for low income communities in selected African countries

	Total population (millions)	Low and middle income population (millions)	% adult population with mobile money account	Insurance penetration (\$ premiums/ GDP)	Microinsurance lives covered (millions)	Microinsurance lives covered (% of low and middle income population)
Kenya	49.7	33.4	73%	2%	2.2	6%
Nigeria	190.9	97.9	6%	0.24%	2.2	2%
Senegal	15.9	10.2	32%	1.66%	0.5	5%
Togo	7.8	5.3	21%	1.89%	1.8	34%
Zambia	17.1	6.0	28%	1.15%	2.2	37%

Source: www.worldmapofmicroinsurance.org. Preliminary findings of the Landscape of Microinsurance 2018 presented at the 14th International Microinsurance Conference.

The reasons why insurance penetration in the low income market remains at such low levels are numerous. A key challenge is certainly related to costs. Microinsurance often comes with *low premium and thus relatively high transaction costs* per policy. Mailing a paper policy to the client for example usually costs the same regardless of the sum insured. Paying premiums in cash is most likely not the most cost efficient way. It therefore requires efficient tools to manage small ticket policies as well as large volumes to cover the fixed costs. Large numbers of clients at the same time require powerful and again efficient distribution methods.

Rural areas in particular are difficult to reach and *lack of infrastructure* such as electricity and reliable internet access make it difficult for insurers to operate. Furthermore, the *quality and availability of data* necessary to develop insurance products remains a key challenge. In the absence of a tight and reliable network of weather stations, insurance against weather risks is difficult to develop and operate. Not to mention the lack of historical data in many regions of the world.

At the same time, insurance does not always *understand the need of clients*. Developing insurance solutions that really create value for clients needs detailed market research and an in-depth understanding of people’s living and income conditions, what the prioritized risks are, how do people already manage them and how insurance can complement existing coping strategies successfully. Some clients may not always have a regular income and therefore need flexible payment schemes. Illiteracy on different levels poses a special challenge. *Clients need to understand how insurance works*, and what insurance can and cannot do. Some of them might never have bought insurance before. They also need to understand how their own behaviour can make insurance more affordable and that *risk prevention is an integral part of insurance*.

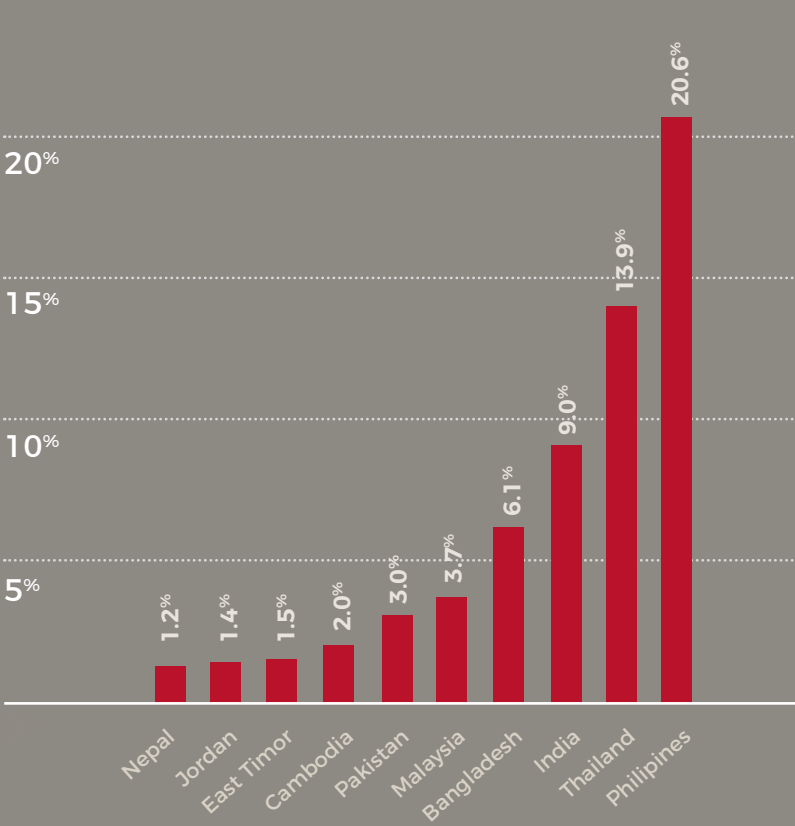
Queen Máxima of the Netherlands UN Secretary-General’s Special Advocate for Inclusive Finance for Development (UNSGSA) once said in a video message for the International Microinsurance Conference 2012 “Trust comes by foot and leaves on a horseback”. New clients that have little money to spend are very careful about getting value for money. If they then do not get payments quickly enough or believe this to be the case, they might never touch insurance again. Filling the insurance gap successfully in the nutshell will therefore require good and easy to understand products for a large number of clients that are easy and efficient to manage.

This will also require active *involvement of the government*, especially when it comes to health issues and natural disasters. Even in developed insurance markets, social security fills gaps where insurance cannot cover the risks. Providing reliable data is also a crucial role the government can play. And finally, creating an *enabling regulatory environment is key*. Some countries like India, Peru, Tanzania and even the CIMA region¹⁷ have created special regulation aimed at accelerating the development of inclusive insurance solutions that meets the needs of the low income market.

The power of distribution

Certainly one of the success factors of the relatively widespread credit life Microinsurance is the fact that insurance in this case was built upon existing distribution channels. Microfinance institutions (MFIs) already have existing client relationships, know their customer needs and have established efficient ways of making and receiving payments. They have established a fundamental prerequisite for a successful business model which is trust. Combined with the fact the MFIs in some cases have very large numbers of clients that can also easily understand how insurance can help their families e.g. in the event of the death of the borrower, insurers have been able to offer solutions in a cost efficient manner. The Philippines is a good example of a country where a well-established microfinance industry has helped to pave the way for inclusive insurance. Today, the country is the leading market when it comes to Microinsurance penetration in Asia (see Figure 1).

Figure 1: Countries with the highest Microinsurance penetration in Asia



Source: Munich Re Foundation/GIZ: The Landscape of Microinsurance in Asia 2014

15 There are a number of terms being used to describe insurance that is designed specifically to address the needs of the low income market. Microinsurance is certainly the term most widely used. Regulators increasingly talk about “inclusive insurance”. In Latin America, insurers hardly use microinsurance but use the term “mass insurance”.

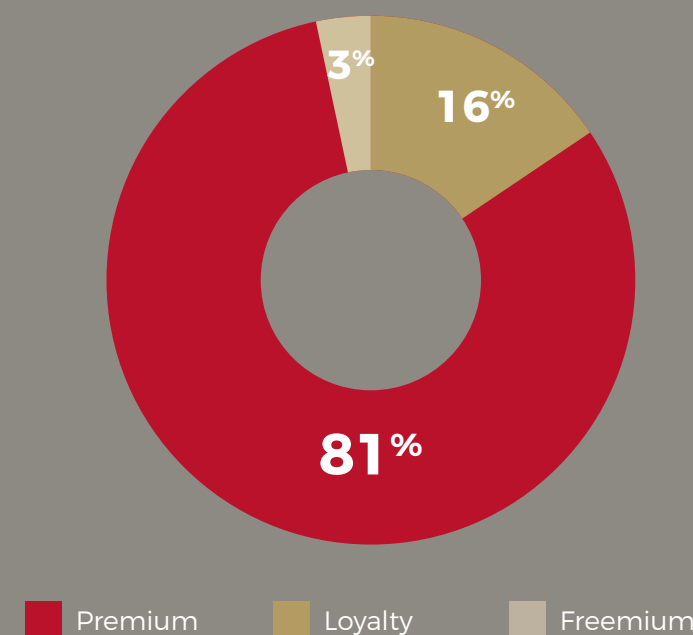
16 www.worldmapofmicroinsurance.org

17 Access to Insurance Initiative Annual Report 2016-2017

Technology, however, is now allowing financial service providers to reach even larger numbers of clients. The use of mobile phones in emerging markets has grown rapidly. Most mobile phone users have “pre-paid” phones where they top up airtime or money to their phone – like a bank account. This allows phones to be used as “mobile wallets”. They enable users to use their credit or airtime to transfer money or make direct payments. According to the World Association of mobile operators, GSMA, the number of mobile money clients in Africa increased by 350% from 2012 to 2017. Approximately 700 million mobile wallets are currently registered, of which nearly 340 million are in Africa¹⁸.

For the insurance industry, mobile phones and mobile payments systems represent a tremendous opportunity to distribute and manage insurance products. Three approaches dominate the market (see Figure 2): Loyalty based schemes encourage customers to maintain a certain amount on their mobile wallet or use a certain airtime over a defined period. In exchange, they get “free” insurance cover. This approach has been used to sign up high volumes of clients to insurance schemes and allowed providers to reach out to many new customers who may never have had insurance before. The downside of this is that customers might not value a product that you do not explicitly buy. Or they may not even know they have it or how to make a claim. The dominating premium models work like regular insurance where premium or claims are made using the mobile payment schema via the phone. Depending on the level of commission the mobile network operator asks for, it has the potential to increase efficiency and receive and make payments faster. Freemium models combine the two approaches.

Figure 2: Types of commercial mobile insurance models



Source: GSMA: Spotlight on mobile-enabled insurance services, 2018

Mobile insurance is growing rapidly¹⁹. No surprise then that the two leading providers of this cellphone-based insurance (BIMA and MicroEnsure) had alone acquired more than 60 million new customers by the end of 2017. For this reason, insurance giants Axa and Allianz have invested large sums in these two companies.

Access to data over the air

But mobile phones can do more. Acting as a channel to the world's knowledge, it grants many of the marginalised consumers access to knowledge unlike ever before. There are even stories about people starting to learn how to read because they wanted to use their phones. Insurance clients can receive online information that enables them to reduce risks and prevent losses. Reliable weather data helps farmers to find the right time to plant or harvest. Mobile phones also can help to directly market products and increase revenues. In

addition, mobile applications in the health sector, especially in rural regions, are the prerequisite for providing access to medical care. For example, BIMA provides medical consultations via mobile phone for its health insurance solutions.

Mobile technology and satellite data are becoming increasingly important, especially with regard to improving data availability. In the past, insurance providers often failed because there was no reliable, tight-knit network of weather stations in many developing and emerging countries. Now, new agricultural insurance systems like the FISP-WII²⁰ recently established in Zambia can rely on satellite weather data to calculate premiums and identify loss events. This has made it possible to insure over one million small farmers within one year. The International Food Policy Research Institute (IFPRI) is currently working on a project to assess the impact of Picture-Based Insurance (PBI)²¹. PBI can provide a cost-efficient way for delivering crop insurance. By using visible crop characteristics from pictures derived from farmers own smartphones, PBI potentially minimises the costs of loss verification and can make crop insurance more affordable.

The next big thing after mobile

Mobile-based solutions have grown rapidly in the past, with digital platforms such as sales platforms and social networks potentially accelerating the process. Zhong An, China's first real digital insurer, has reached over 400 million customers in just five years with the help of Alibaba - the “Chinese Amazon”. Research conducted by the South African think tank Cenfri²² has revealed that over 300 Internet platforms for goods and services already exist in Africa. In addition to well-known names such as Facebook and Amazon, locally developed platforms are also emerging on an ever-growing scale. Of these, one out of six are offering financial services and 8% provide insurance. Experts

expect these platforms to play an even more important role on several different levels in the future: customers – voluntarily and involuntarily – provide comprehensive data that can also be used for risk assessment. At the same time, the platforms offer enormous potential as sales channels for digital insurance.

Getting regulation right

Special regulation for insurance addressed specifically at the low income market has managed to get insurers more interested in tapping the market of the unserved. India is certainly a good example, despite the fact that experts question whether forcing insurers to serve the low income market has always resulted in good products. But new regulation has not always succeeded in skyrocketing client figures, or it sometimes has hardly any impact at all. Even worse. Numerous national legal frameworks are severely lagging behind in terms of digitalisation. Some regulations do not permit digital payments at all, others insist on contracts in paper form. Innovative solutions require a space to innovate. Whereas some jurisdiction allows what is not expressly forbidden, some needs to issue licenses for each and every new approach. The so called “sandbox approach” offers a solution. Providers are allowed to develop and test in a monitored and controlled environment. Once products reach scale, they undergo the regular licensing process. A lot of catching up is required in this respect. Otherwise the immense potential offered by digitalisation in the development of cost-effective and until now unfeasible insurance solutions in developing and emerging nations will remain untapped.

Have a strategic long-term approach

Insurance in well-developed insurance markets has not grown to where it is today overnight.

¹⁸ GSMA: State of the Industry Report on Mobile Money, 2017

¹⁹ GSMA: Spotlight on mobile-enabled insurance services, 2018

²⁰ Farmer Input Support Programme – Weather Index Insurance

²¹ <https://www.ifpri.org/project/PBIInsurance>

²² <https://cenfri.org/blog/the-rise-of-african-digital-platforms/>. Some preliminary findings were presented at the 14th International Microinsurance Conference that took place in Zambia from 6-8 November 2018. www.inclusiveinsurance.org

The industry has to have a long-term approach as well as realistic expectations. Otherwise there will be frustration and maybe even giving up too quickly. In exchange, the low income market represents a tremendous opportunity and the insurance industry will grow along with the income of their clients. A number of countries that have successfully developed the inclusive insurance market have used a strategic approach. This requires a national financial inclusion strategy – aimed at improved access to all financial services – and coordinated cooperation amongst all stakeholders such as the industry, donors, regulators and governmental to overcome market barriers. The Philippines is a good example where, with the support of the German Development Cooperation GIZ, the government and industry have worked closely together. The GIZ-MEFIN programme is now aimed at implementing such approaches in additional countries in Asia.²³ The Technical Advisory Group of Zambia²⁴ (TAG) is another good example from Africa that shows how joint efforts in a national approach can really make a difference. More such programs are needed around the world.

Combine micro, meso and macro schemes

Whereas individual Microinsurance solutions have proven to be successful and already reach out to millions of people – especially in the case of life and credit life insurance, other lines of businesses face difficulties providing appropriate risk management solutions on an individual Microinsurance approach to large numbers of clients. In the field of health, private schemes can complement existing national schemes. Hospital cash plans in Africa have seen substantial growth over the past decade. But the availability of private health insurance schemes still remains on a relatively low level. Only the intelligent combination of social

About two-thirds of the developing world's three billion rural population live on around 500 million small farm households, working on land plots smaller than two hectares²⁵.

security systems and insurance is most likely to successfully reach out to the masses.

About two-thirds of the developing world's three billion rural population live on around 500 million small farm households, working on land plots smaller than two hectares²⁵. Climate change will make the situation for the highly vulnerable low income population even more difficult. National insurance schemes, such as the agricultural scheme in India and the one in Zambia already mentioned, show that governmental involvement and a national approach are key to successfully covering agricultural risks. But what if a major disaster strikes and threatens a whole country? Macro-level schemes such as the African Risk Capacity (ARC)²⁶ can provide a solution. ARC combines capacity building, early warning, contingency plans and risk pooling, and lays the foundation for more effective and efficient responses to weather shocks. Only the combination of insurance for individuals, for larger groups such as MFIs or cooperatives, national approaches and multinational risk pools will successfully provide appropriate risk management tools for the billions currently without access to insurance. The insurance industry has the necessary knowledge. New technologies provide unprecedented opportunities. If all stakeholders fulfil their roles and are willing to cooperate for the common goal of closing the insurance gap, one digit insurance penetration should be history sooner rather than later. 

²³ <http://www.inclusiveinsuranceasia.com/program-brief.html>. MEFIN member countries are Indonesia, Mongolia, Nepal, Sri Lanka, Pakistan, The Philippines and Vietnam.

²⁴ <http://www.fsdzambia.org/tag/>

²⁵ FAO: The economic lives of smallholder farmers, 2015

²⁶ www.africanriskcapacity.org As of January 2019, ARC has 33 member states.



Heather McLeod

Healthcare in New Zealand and the Consequences of a Successful Health System

The population of New Zealand (Aotearoa in the Māori language) is small. Very small. The whole of New Zealand is about the same land size as the United Kingdom, but we have only 4.8 million people, which is about the size of the greater Cape Town region. There are also 27 million sheep, 10 million cattle and just under one million deer.

The North Island is the more populated, with major urban areas around Auckland and Wellington. South Island, where I live, has only one million people. The largest city, Christchurch, has about 380,000 people. Rural health facilities are excellent. Our small village of 900 people (and two to three thousand tourists during holidays), has a community-owned non-profit clinic staffed by a doctor, a nurse practitioner and three other nurses on call. Ambulance services are run largely by volunteers and emergencies are often air-lifted to a main centre by helicopter.

New Zealand was the first country in the world after the second World War to institute a formal national health system, beginning in 1938. The National Health System (NHS) in the United Kingdom began in 1948. We still have a predominantly publicly funded, universal

coverage health system with services provided by public, private and nongovernmental sectors²⁷.

Universal access is provided to a broad set of health services. Outpatient and inpatient hospital services, including maternity services, are free. Primary health care is capitation funded but people pay additional fees for appointments. Most prescriptions have a co-payment of NZ\$5 per item (approximately R50). High users, children and low-income groups have additional subsidies to reduce medicine and primary care costs, which are considered to be a barrier to access. Basic dental services are free for children, but adult dental care and optometry are private out-of-pocket expenses. Long-term care is funded through public and private mechanisms.

The Ministry of Health²⁸ funds 20 District Health Boards (DHBs) through a population-based funding formula (similar to a risk equalisation formula). The DHBs contract and fund a range of providers through service agreements, while at the same time managing their own hospital services.

²⁷ Cumming, J., McDonald, J., Barr, C., Martin, G., Gerring, Z., Daubé, J., & Gericke, C. (2014). New Zealand Health System Review, Vol.4 No.2. Manila: World Health Organization, Regional Office for the Western Pacific. http://www.searo.who.int/entity/asia_pacific_observatory/publications/hits/hit_new_zealand/en/

²⁸ Ministry of Health: <https://www.health.govt.nz/>



As of September 2018

1.4 million PEOPLE

about (under 30% of the population)

**had supplementary private
health insurance (PHI)**

This extraordinary decentralisation for such a small population makes little sense. It would be like cutting up the delivery of services in greater Cape Town into 20 different funders, each with their own benefit package, fee schedules and IT systems. There is a review under way of whether to re-centralise many services and reduce the number of DHBs, as the administration costs and the “post-code lottery” differences in services are problematic. The new Minister has a greater focus on equity and efficiency, so changes are expected.

One of the most admired parts of the health system (by everyone other than pharmaceutical companies) is the medicines purchasing authority, the Pharmaceutical Management Agency (PHARMAC)²⁹. The main role of

PHARMAC is to manage the list of subsidised medicines and to centrally purchase medicines, vaccines, medical devices and products for hospital use. PHARMAC negotiates directly with suppliers and has a health technology assessment function, while DHBs provide the funding for the subsidies.

As of September 2018, about 1.4 million people (under 30% of the population) had supplementary private health insurance (PHI). The PHI products are risk-rated by age, gender, health history and any other factors the companies may choose, as there is no supervision by the Ministry of Health. Accordingly, most people cannot afford PHI as they get older and coverage declines very rapidly after age 65³⁰. The PHI industry is beginning to recognise the crisis it is in³¹ but as yet the policy prescriptions of community-rating, open enrolment, minimum benefits, and risk equalisation have not been considered at all by government.

New Zealand has a no-fault accident system, the Accident Compensation Corporation (ACC)³². It provides no-fault personal injury cover for everyone, including overseas visitors. Individuals forgo the right to sue for compensatory damages following injury, in exchange for comprehensive accident cover and compensation. Medical malpractice also falls within the definition of personal injury. There is a huge tension between the excellent care provided for accidents and injuries, with comprehensive case management, rehabilitation and compensation for loss of income, and the more meagre support and care provided for medical conditions (multiple sclerosis and degenerative conditions). The discrepancies are well known but changes to the scope of ACC are politically challenging.

ACC employs a large team of actuaries and some of the most exciting actuarial work in healthcare

is done by ACC. In recent years, a quantification of the long-term liabilities has led to changes in focus and increased managing of complex claims to reduce the balance sheet liabilities. There is an increased focus injury prevention from ACC, in order to reduce the incidence and severity of injuries across the whole population.

The Ministry of Social Development is another area where extensive actuarial thinking has taken root. Under the previous (National) government, there was a strong emphasis on the so-called “social investment approach”. The aim, as described by Treasury³³, is “on early investment to achieve better long-term results for people and helping them to become more independent. This reduces the number of New Zealanders relying on social services and the overall costs for taxpayers.”

The work has been facilitated by an increased focus on the role of “big data” and making data sets more widely available to researchers and analysts. Statistics New Zealand has played a key role in providing a platform and a responsibility framework for the ethical use of linked data, through the Integrated Data Infrastructure (IDI)³⁴.

My own work in recent years has made use of big linked data to look at the consequences (perhaps ironically) of a successful health system. It was an adjustment to switch over to thinking of issues in a highly-developed health system with very different issues to those in South Africa. For example, we have around five deaths a year from HIV/AIDS, and fewer than ten deaths a year in pregnancy or from childbirth. Although the media regularly call to do something about the alarming numbers of road accidents, there are between 350 and 400 fatal accidents a year, out of total deaths of around 32,000 each year.

So, in a developed health system, with an ageing population, what do people die from? And what are the implications for health system planning

of baby-boomers coming to the end of their lives in increasing numbers? That has been the focus of my work in recent years, largely commissioned by the Ministry of Health. I also work with Hospice New Zealand, Hospital Palliative Care New Zealand, the New Zealand Aged Care Association and other academics on these issues.

The outlook is sobering: as the baby-boomers work their way through the system, annual deaths are expected to increase by nearly 50% by 2038 and to be nearly double by 2068. The population growth over the period to 2038 is projected, even with immigration, to be under 20% by comparison. That raises all sorts of funding and taxation questions which we are not good at facing head on.

Other work by the Ministry of Health also shows that while healthy life expectancy is increasing, we are living so much longer that the periods of dependency at the end of life are increasing at an even faster rate³⁵. An average Kiwi woman aged 65, can expect to spend another 10.6 years independently, which is 49.5% of her remaining life. She will then spend a further 10.7 years with functional limitations requiring assistance, including needing daily assistance for the final 4.8 years.

There is a suggestion from international work in the USA and Australia that the trajectories at the end of life are likely to be more prolonged. That the fast and predictable deaths from cancer (on which hospice services are essentially based) are being replaced by longer and slower deaths from chronic disease and dementia. We therefore set out to look at the trajectories of all deaths in New Zealand in 2015, with a linked healthcare and social security history of ten years (although some sets like hospital events and the Cancer Registry went back 25 years).

30 McLeod, H. (2012) Consumer Dissatisfaction with Private Health Insurance for the Elderly: Implications for Public Health and Stewardship. New Zealand Society of Actuaries Conference 2012.

31 Holmes, J. (2016) Mutuality and Solidarity – is it possible to solve the crisis in private health insurance in New Zealand? New Zealand Society of Actuaries Conference 2016.

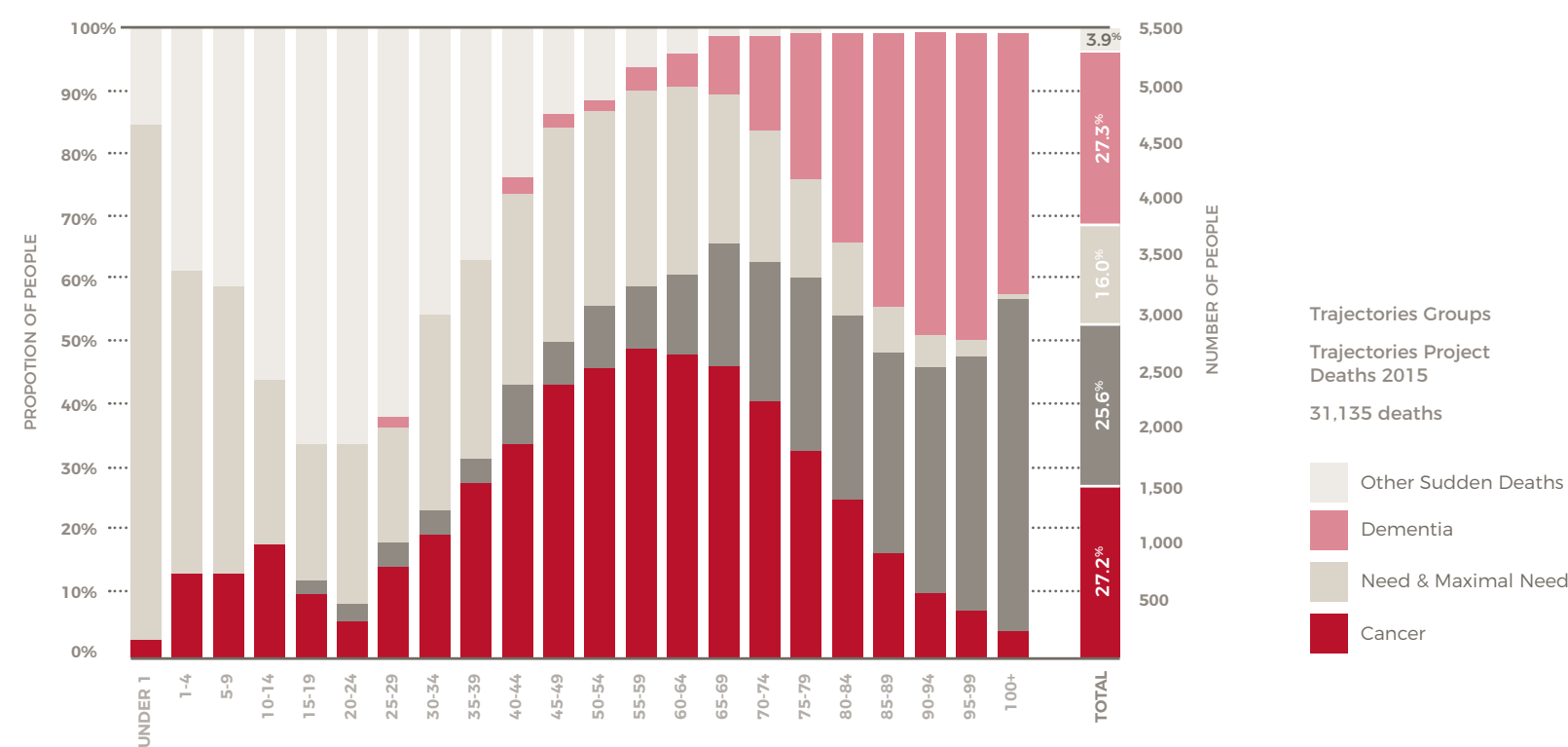
32 Accident Compensation Corporation (ACC): <https://www.acc.co.nz/>

33 Social Investment Approach: <https://treasury.govt.nz/information-and-services/state-sector-leadership/cross-agency-initiatives/social-investment>. See also Social Investment Agency: <https://sia.govt.nz/>

34 Pharmaceutical Management Agency (PHARMAC): <https://www.pharmac.govt.nz/>

35 Independent Life Expectancy: <https://www.health.govt.nz/publication/independent-life-expectancy-new-zealand-2013-0>

The graph below shows five trajectory groups we identified: dementia, cancer, the frail elderly with chronic disease, the younger chronic and congenital deaths that fall under our definition of the need for palliative care, and sudden deaths³⁶.



The surprising finding was that deaths with dementia (as opposed to from dementia), were already 50% of all deaths at some of the older age bands³⁷. Cancer has a typical shape with a peak of the proportion of deaths in the age bands 45 to 70. Improvements in cancer care also mean increasing numbers at older ages dying with cancer but not from cancer. I also did some work with the Paediatric Palliative Care Network showing how deaths from congenital conditions are now occurring much later. Already, 51% of congenital deaths are over age 20, with some people living into their 60s and 70s. This is a huge change in a very short space of time and paediatric care of these conditions continues to improve.

We were able to examine the utilisation in the last ten years of life, considering admissions to hospital, emergency department events, laboratory tests, medicines dispensed and other aspects of public health utilisation. We could also examine admission to aged residential care and the use of hospice, looking at time to

death of admissions and the very short times that people were receiving palliative care. We can see who is not seen by specialist palliative care or by aged residential care, and hence the workload on GPs and the district nursing teams. All of the results can be seen by region, by District Health Board, as well as by gender, ethnicity and deprivation levels.

We have been asked to continue the work this year, focusing on the time people are spending needing support in the community. There are of course implications for families of providing the increasingly complex support at home. And implications for capacity if people continue to need to be admitted to a bed in a public hospital, aged care facility or a hospice. There are discussions about the reimbursement arrangements and fairer funding across different trajectories at the end of life.

This is the work that I enjoy as an actuary – finding new insights that can immediately be translated into changes of policy. 

³⁶ Please be in touch with Heather McLeod if you want more detailed information on the methodology from the Trajectories Project. Email: heather@heathermcleodnz.com

³⁷ The point at age 100+ is an anomaly, as the interRAI instrument assessing dementia was not given to some of the most elderly.



Profile: Heather McLeod

Heather McLeod holds a number of “firsts”. We tried to profile her before, but our deadlines and her schedule could not be synchronised. We are grateful that this happened in the edition where Shivani is featured as President's Prize winner.

Career History/Path

I did not go straight from school to university. I had always done well at school and was the first student at my school in Vereeniging to get distinctions in all subjects in matric. My parents arranged for psychometric testing and career guidance and I came home saying “They recommend something beginning with an ‘a’ and I don’t know what it is”. The other choice was patent law. The more I read about how hard actuarial courses were, the more interested I became.

My parents had no tertiary education (Dad had only a standard six) and no-one in my family had been to university. So, with the help of a cousin, I contacted a firm of consulting actuaries in Johannesburg and worked for them for a year after school. I have to laugh when I look back at

what I found attractive about actuarial work at the time – working with an early large calculator, a pencil and giant sheets of ruled paper to develop factors for pensions valuations. Yes, that was actuarial work for students in 1979.

During the year I applied for an actuarial bursary and had three interviews, accepting a bursary from Old Mutual. I was the first woman in South Africa to be offered an actuarial bursary by any firm. I wish I had kept the rejection letter from Sanlam (I tore it up at the time), which bluntly said, “We do not give bursaries to women.”

I did a Bachelor of Business Science, in Actuarial Science, at the University of Cape Town. Each holiday I worked in a different part of Old Mutual and that was invaluable experience of a range of possibilities. My first working years were in product design and marketing, where I learned to enjoy presenting to large audiences.

I followed my boss, Chris Liddle, into investments and working as a bond portfolio manager. I became actively involved with asset-liability matching and the emerging options and futures markets. I was one of the few women in that environment. I have memories of being with one other woman on the board of the South African Futures Industry Association. At a meeting in the boardroom of a large merchant bank we discovered there was only a male urinal on that floor. Women were clearly not expected to be at board meetings, or if so, only as secretaries. We soon changed that.

When Chris was killed in the Helderberg crash, I was catapulted into leading the release of the new ASSA yield curve and bond indices. It involved a lot of financial market publicity and I have a strong memory of a reporter asking what it was like to be a woman in this industry. My first mental response was “Woman? What woman?”. I only came to understand years later how much I had subverted the real me in attempting to be accepted by my male colleagues and the actuarial profession.

In 1989 I was invited to be part of a delegation of young people to meet with the presidents

of Namibia and Zimbabwe, and to meet the ANC in exile. At the time I was castigated by my company for accepting (“there are men who should have been invited”) and was prohibited from speaking to my investment colleagues about the economic discussions with the ANC when I returned.

I left shortly after to start my own consulting firm, providing performance measurement and asset allocation advice to funds. Some of the most intriguing work was with unions and helping negotiate the balance between employer and union needs. My small firm was merged into a larger one and after a tough few personal years, I left the investments world for healthcare.

Initially I became the health practice partner for Old Mutual’s new consulting firm and some of the most memorable times were again balancing the needs of unions and employers, and with union-led initiatives in healthcare.

After several years of being more on a plane and travelling than in my own home, I went on sabbatical and returned to my rural roots by living on a farm. Within months I was asked by UCT whether I could develop courses in healthcare financing (yes) and so began my academic life. At the time I was also studying complementary medicine, and so weekly trips from the farm in the Hemel-en-Aarde valley to town would highlight two very different worlds. I would spend one day with my GP-mentor in his surgery, then a day teaching actuarial students at the university. Yin and yang, the feminine energy of complementary medicine and the masculine energy of actuarial work. That contrast remains to this day.

That period of having an academic base and a public sector consulting firm would prove to be the most rewarding change of my career. I began to receive invitations to sit on government bodies, including the Council for Medical Schemes, the Financial Services Board Appeal Board, and task teams for the Minister of Health. I worked on initiatives for the Department of Health, the Department of Social Development and for

the National Treasury. The most rewarding was leading a team, which included actuaries Pieter Grobler, Shaun Matisonn, George Marx and John Armstrong (from Ireland), designing the formula for the Risk Equalisation Fund. Although not implemented, it is still sorely needed despite being mired in the political controversy around National Health Insurance. Pieter and I published extensively for several years on the issues and importance of risk adjustment to improve equity in South African healthcare.

In 2010 I married a Kiwi, who whakapapas (traces his family) to one of the first Māori canoes to arrive in Aotearoa (the Māori name for New Zealand, land of the long white cloud). Even on my first long visit in 2009, I felt this was home. South Island is like a giant farm with only 1 million people and extensive high country “stations” (farms). I have remained living in a rural area (our village has 900 people) and running a public sector consultancy practice.

How did your actuarial qualifications prepare you for the work you are doing? Which skills have served you best, and where have you learnt them?

The healthcare issues here are very different to those in South Africa (see separate article), but there are areas where actuarial understanding of demography, healthcare and funding risk can add value. The most important skill we add is our ability to think about long-term impact and sustainability.

Working on public sector healthcare issues, I have always thought that the “dream team” is a medical professional, a legal person, an accountant, a health economist and an actuary. We become part of a team, a circle of equals, not the dominant voice as is sometimes expected in traditional actuarial work.

As part of my complementary medicine training, I studied anatomy, physiology and pathology. These have been valuable for being able to talk

to medical professionals and to lead teams of clinicians. In the last two decades I have attended more conferences from other professions than my own. Hearing what economists or medical practitioners or policy people are grappling with and what their “leading edge” is provides valuable insights.

The most important skill is to listen. Listen to the people who know most about that area and sit quietly until you can see where you can add value to the team. Humility and finding ways to serve, are core. For me, work is “seva” (an Indian word used in yoga, meaning service).

I learnt from some excellent mentors in South Africa to speak out about areas of practice that are not serving the public. To speak “truth to power”. I was fortunate to know and learn from Peter Milburn-Pyle, Peter Bieber, Garth Griffin, Chris Liddle and Henk Beets. My deep gratitude to them and to the late Pat Potgieter. She and I started the actuarial women’s lunch club as a club of two!

Reflections on the route you have taken: Learnings about yourself and others

I learnt somewhere in my early 30s that what I am best at is pioneering, or as we would say in Chinese medicine, “wood energy”. In working with any new team or new colleague I talk about what I can best do by using the analogy of a hiker setting out into an unknown patch of forest. I am best when I set out with a metaphorical back-pack on my own, cutting through the undergrowth, falling down ravines and over cliffs, but making it back to tell about the extent of the forest and leaving notes on trees about the possible ways through. I enjoy most sharing what has been learnt and helping others to begin to make a path through the forest. But I am not at all good when the forest path needs to be turned into a road or eventually a super-highway. Those are the skills of others and I need to have handed over long before then.

In retrospect I struggled in the years of being in an environment dominated by the masculine paradigm of a pyramid or hierarchy. It was not until I began to work closely with more Black colleagues and more women that I learnt I functioned better in a circle, a more feminine way of thinking and collaborating.

These days I have an honorary appointment in the School of Nursing at Auckland University, and work closely with Māori and Pacific colleagues. There are very different expectations of me as an academic. I was due to be the keynote speaker at a conference and was asked which waiata (song) I would lead the singing of, after my presentation. Me, sing? I had never been asked that before! We found an easy waiata, with a You-Tube rendition I could learn from, and my colleagues offered to stand up and we led the audience collectively.

Every two years there is a national palliative care conference, closely followed in time by the actuarial conference, and there could be no greater contrast and demonstration of the yin-yang difference. At the palliative care conference (which is several times larger than the actuarial one), we begin with a Māori powhiri (a welcoming ceremony) in Te Reo (the Māori language). We are welcomed by the tangata whenua (people of the land) into the venue, with karakia (prayers), waiata (songs) and speeches of welcome. As the manuhiri (guests), we speak and sing in return. The powhiri sets the tone for the discussions to come and established the wairua (the energy) of the joining together. After breaks, there are a few minutes of reflection and times of meditation. There are candles and tears – tears of joy and of release. We talk about energy and the Soul. There is emotion.

It is always such a shock to go to the actuarial meeting after that – no powhiri, no candles, no emotion. I privately tally up how many times the words “soul” or “spirit” or “energy” or “wairua” come up. So far, attending meetings since 2010, only once. And that was a woman guest speaker from another industry – not an actuary.

I am truly delighted to see the work beginning in the Actuarial Society of South Africa on understanding other ways of knowing and thinking. I salute Shivani Ranchod for her work in fearlessly standing up on this issue.

As a woman of nearly 60, some of these recollections may seem like old history. But I hope by sharing some of my early experiences it strikes a chord in those who feel like they have come in from the outside and don't yet feel like they fully belong in the profession. It is always hardest for the dominant paradigm to see itself. My advice is don't force yourself to act like the dominant group in order to feel accepted. Rather, help gently to challenge and change the paradigm, forging a new collective and more inclusive culture for everybody.

In 2012, the editor of the South African Actuarial Journal offered me an opportunity to write the editorial, with no restrictions. The title was "Changing Paradigms: Including Soul in Actuarial Thinking". It was a rather mild article, in retrospect. I was amused that there was complete silence from my peers and older actuaries, but that the people who responded and engaged were students. I have great faith in where they will lead us.

My greatest joy over the years? From quietly mentoring others and watching students grow and develop and become leaders in their own right. 



Shivani Ranchod

SNAP SHOT:

President's Prize Winner, 2018

The President's Award was first made in 1992. The initial focus of the Award was on encouraging members, in particular younger members, to produce papers for discussion at meetings of the Society. With the introduction of prizes for papers at Convention the focus of the award has changed to recognising excellent service to the profession and the work of members that have assisted in furthering the cause of the profession. The award is made entirely at the President's discretion.

At the 2018 Convention, Peter Withey referred to Shivani's contribution in respect of education, and then added, "It is, however, it is the contribution to transformation within the profession that is my main motivation for making this award. I do not think that we would have made some of the progress in the profession that we have without this person's courage and boldness in holding up the mirror to the profession and issuing a bold challenge to us as a profession. This has, in my humble opinion, helped to open the dialogue on transformation more than we may have without their contribution. In addition, they give of their time and effort in support of the academy initiatives in mentorship and training in exam technique."

His announcement that the prize was awarded to Shivani Ranchod was met with a standing ovation. Shivani kindly agreed to provide us with the snapshot below (and the picture above, too).

CAREER HISTORY/PATH

My career path continues to surprise me – it has been eclectic and wide-ranging, but somehow still all makes sense when I look at it through the rearview mirror. The various pieces (across industry, academia and government) stack together and build to form the current multifaceted whole, much of which centres on my obsession with the health system. I am currently the CEO of Percept, the consulting firm that I run with my husband, Dave Strugnell, and the amazing Ursula Torr. The work we do as a firm reflects my commitment to social solidarity which I can trace back to my UCT education (particularly under the tutelage of Heather McLeod) [SAA: See also our profile on Heather in this edition.] I am also the co-founder of a start-up called Alignd – a firm that develops ingenious ways of creating congruency between doctors, patients and health care funders. My affiliation to UCT remains strong. I studied there, worked for 10 years as an academic and ran the actuarial science department there for a period. Dave and I have taken lessons we learnt about building a nurturing learning environment at UCT into thinking about how to design a workplace in which people thrive.

The work we do at Percept and Alignd has a strong research ethos, which we've also carried across from our academic background. We're always looking for cutting edge ways of doing things.

ACTUARIAL IMPACT: HOW DID YOU ACTUARIAL SKILLS PREPARE YOU FOR THE WORK YOU ARE DOING?

I use the modelling skills I developed during actuarial work to great effect solving non-traditional problems. The actuarial judgement that I honed in the early years of my career has given me great quantitative instincts. And there is something about the later exams which helps with switching between detail and the bigger picture (aerial view and street view). There was something about trying to teach this to students that cemented my own ability to zoom in and out. But, hands down, the best thing about the qualification is the incredible people I get to work with.

REFLECTIONS ON THE ROUTE YOU HAVE TAKEN

At each stage, my development has been catapulted by people who have challenged and guided me – Heather McLeod, who role modelled being an actuary with soul, Pieter Grobler for teaching me judgement, Rob Dorrington for helping me to find my voice and Barry Childs for teaching me to think big.

I now have autonomy, mastery and a sense of purpose at work – a truly magical combination. Percept is the manifestation of a desire to build a workplace that is inclusive and that offers these three things to other people.

HOW DO YOU DEAL WITH DIVERSITY IN THE WORKPLACE?

Building an inclusive workplace is all about seeing people for who they are and honouring them both inside and outside of the workplace. As a leader, it means connecting with my own vulnerability and leading from a place of courage and compassion. This builds trust and safety and makes it possible for people to show up. By building deep connections it becomes infinitely more possible to talk to each

other about our unconscious biases and to challenge the 'isms' with kindness and an open heart.

SKILLS: WHICH SERVED YOU BEST, AND WHERE DID YOU LEARN THEM?

Each of the different jobs and roles that I've had have helped me to develop different skills – I'm now seeing how these seemingly disparate pieces come together to great effect. Teaching at UCT taught me compassion, being a researcher honed my critical thinking skills, working in industry cultivated commercial awareness and the almost 20 years of work in the health system have given me an ability to join the dots and a depth of knowledge that is invaluable.

I took over as head of Actuarial Science at UCT when I came back from maternity leave. Having to manage being a new mom and this leadership role taught me all sorts of multiplier skills which have served me well: how to prioritise, how to maintain a boundary between work and home and how to work efficiently and effectively. It also taught me how to manage a team by empowering and trusting the people around me.

REFLECTIONS: ANYTHING YOU WOULD LIKE TO SHARE WITH YOUNGER MEMBERS?

Seek out teachers and mentors to guide you on your path. Cultivate focus. Be fully present and engaged when you're at work, and the same when you're at home. Don't put off living a balanced life until some later date – you never know what life will throw at you. Be kind, generous and open-hearted. 

Speaking Cents!

The FSCA Financial Literacy Speech Competition - Colin Stevens



Nelson Mandela once said, "Education is the most powerful weapon which you can use to change the world". At the Financial Sector Conduct Authority (FSCA) this is an adage we sincerely believe in. Hence, we have as one of our pillars in consumer education, a focus on formal education and schools in particular. This is one of the prime motives for the FSCA running its Financial Literacy Speech Competition.

The competition in 2018 saw learners present a five-minute speech on one of three financial literacy related topics approved by six provincial departments of education and consisted of school and district rounds, provincial finals and an interprovincial final. During the first round learners participate at classroom level, thereafter the winners from each school compete at the district finals and the winners of the districts compete at the provincial final. The interprovincial final saw the top learner from each of the six provincial finals compete for the overall winner.

Various stakeholder organisations were in attendance, including the National Credit Regulator (NCR), various Ombudsmen, National Treasury, FPI, Department of Basic Education (DBE), Actuaries without Frontiers, Financial Sector Transformation Council, as well as banking and insurance industry representatives. The finalists were also supported by 120 Grade 10 learners from surrounding schools.

Former President Kgalema Motlanthe added further gravitas to the event as the keynote speaker, while the FSCA was represented by its Executive Head, Advocate Dube Tshidi. Advocate Tshidi relayed a message that reminded us of the concept of money as a tool to provide a platform for growth, selflessness and service to others. He asserted that no matter how small our contributions are, they have the potential to grow as great as the mustard seed that develops into a massive tree.

Former President Motlanthe's Dickensian message of managing our money so that we can find "Happiness" and not "Misery" at the end of the month resonated with many in the room on the day.

The speakers undoubtedly set the tone for the learners, as, without fail, all the learners built on the platform set by the keynote speakers, as they captivated the audience with their respective takes on the chosen topics. The adjudicators, Ms Caroline Da Silva (FSCA), Mr David Kok (FPI), Mr Mzikaise Masango (DBE), Ms Prem Govender (FSCE chairperson) and Ms Phumla Trolly (NCR) had a tough time in deciding the eventual winner and runners up. They were however assisted by an objective rubric which was used throughout the competition.

The competition is targeted at the quintile 1 to 3 (non - fee paying) schools' grade 11 learners

doing commerce related subjects. The objective with the competition is to:

- Promote financial literacy in schools on topics such as budgeting, savings and investments and consumer rights.
- Create awareness of the importance of financial advice.
- Highlight the opportunities in the actuarial and related sciences.
- Promote careers in the financial services industry for example, a Financial Services Provider (FSP).
- Encourage entrepreneurship.
- Introduce insurance as an investment choice for all individuals and use the youth to discuss financial concepts with their parents.
- Integrate theory and practice as an important principle in the Curriculum and Assessment Policy Statement (CAPS).

At the FSCA the plurality of learning is recognised and this competition showcases the coming together of theory and practice, since presenting an idea with a short sustainable argument is indeed a key component of the set of skills a modern learner should possess.

As part of our efforts to increase financial knowledge and empowerment amongst South Africans, we constantly seek to foster relationships with organisations that we can dovetail with in terms of the objectives stated above and Actuaries without Frontiers (AWF) have many synergistic connection points with the FSCA.

The Actuarial Society of South Africa (ASSA) states that: "An actuary is a professional who applies analytical, statistical, mathematical and strategic thinking skills to value, bring greater understanding and improved decision making to uncertain future events" and AWF,

27 Cumming, J., McDonald, J., Barr, C., Martin, G., Cerring, Z., Daubé, J., & Gericke, C. (2014). New Zealand Health System Review, Vol.4 No.2. Manila: World Health Organization, Regional Office for the Western Pacific. http://www.searo.who.int/entity/asia_pacific_observatory/publications/hits/hit_new_zealand/en/

28 Ministry of Health: <https://www.health.govt.nz/>

29 Pharmaceutical Management Agency (PHARMAC): <https://www.pharmac.govt.nz/>

“An actuary is a professional who applies analytical, statistical, mathematical and strategic thinking skills to value, bring greater understanding and improved decision making to uncertain future events”

a society within the ASSA, extends the mandate of actuaries within South Africa to a developmental imperative namely “... to initiate, aid and enable financial upliftment and social development through skills and resources available within the South African actuarial community... The current focus lies on financial literacy and financial inclusion projects in South Africa, encouraging the profession and its members to actively play a role in this field and by facilitating initiatives and projects which members can support.”

The speech competition thus demonstrates a confluence with the AWF's mandate in that it is enshrined within the Financial Sector Regulation Act, 9 of 2017 (the FSR Act), that amongst other objectives, it must “provide financial education and promote financial literacy, and assist in maintaining financial stability.

We believe that this competition is a small step for a financially literate South African society, but that it has, in the long run, the potential to be a giant leap for the maintenance of financial stability when coherent, strategic and holistic cooperation with forward thinking organisations such as the AWF and other like-minded developmental bodies become the norm. 

Driving Our Nation Forward

An Analytics Strategy for the Taxi Industry



Pravin Burra, Ceo



They say that consultants learn from their clients, and that certainly continues to be the case in our recent engagement with SA Taxi. The minibus taxi industry originated organically to meet the unserved need for mass transport. In fact, the industry was legalised only as recently as 1987. According to the South African National Taxi Council (Santaco), taxis transport close to 15 million commuters a day. While taxis remain a pet peeve for many segments of society, there is no denying that the industry represents a successful business model for entrepreneurship and self-employment. It is estimated that the taxi industry provides employment to about 600 000 people, and according to Santaco that there are over 200 000 taxis, generating over R90bn a year.

SA Taxi, part of the Transaction Capital Group, is a pioneer in the field of taxi finance and remains a leading provider of both finance and insurance to this vital sector of our economy. Analytix Engine was engaged by SA Taxi early last year to help accelerate their data and analytical strategy. At that time, the business already had a reasonably mature data warehouse and well established credit modelling system in the lending division, as well as actuarial services within their short term insurance division.



15 million
commuters a day
transported by taxis

200 000
taxis
generating over
R90bn a year.

GAINING KNOWLEDGE

To kick off, we learned as much as we could about the business by reviewing existing reports, meeting management and listening to their aspirations both for SA Taxi as an organisation and for the taxi industry as a whole. Management's passion for both the industry and the value they as a business bring to our nation was contagious, and for me personally an eye opener. Over the course of our engagement it was hard not to become excited by their vision of what could be. Passion aside, SA Taxi's management is highly business-focused and by no means naïve to the challenges facing the industry. However, it is also optimistic as to the value in responsibly growing their industry.

WHAT DREAMS MAY COME

Whatever the evolution of South Africa's developing transportation ecosystem, the minibus taxi industry with its 15 million daily commuters is likely continue to play a critical role. For SA Taxi's management, the minibus taxi is not viewed solely as a vehicle, but also as a business providing an entrepreneurial opportunity to the owner,

employment to the driver and economic value to a large downstream industry.

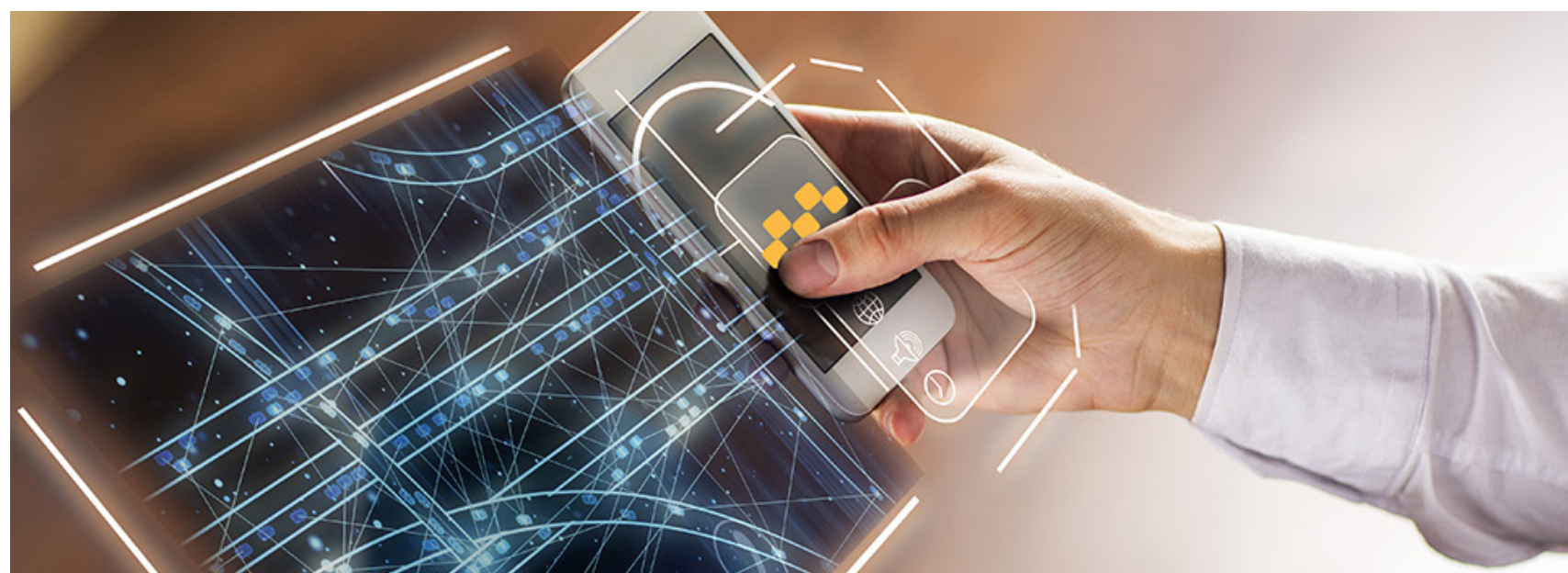
As a business, SA Taxi recognises the value of keeping safe taxis on the road, as this aligns with their business requirement of having successful clients within the industry. A failing taxi stops being economically value generating and as such SA Taxi is committed to keeping taxis safe and on the road.

To address this, SA Taxi has developed its own training programme for mechanics servicing taxis. The training programme creates yet more employment opportunities and contributes towards enhancing service quality and overall vehicle roadworthiness.

ANALYTICAL USE CASES

Given the business case for enhanced roadworthiness, we jointly identified a number of analytical use cases including, but not limited to, the following:

- Understanding the causes of vehicle failure whether mechanical or accidental.



- Understanding route congestion in order to provide advice to the industry and inform lending and insurance decisions
- Understanding the difference between good and bad drivers and their habits so that behaviour can be improved in future, for the benefit of all road users

Having come from an analytical background outside the transport sector, I was able to bring analytical and not domain-specific experience to the project team comprising management and a number of other technical partners. I learnt about onboard devices and how these monitor engine quality to prompt the service need prior to critical component failure. I also learned about how computer vision can be used to assess vehicle damage, as well as the art and science of vehicle monitoring or telematics.

THE TECHNOLOGY PATH

As SA Taxi already has reasonably well-developed credit and insurance data marts and analytics, we focused on vehicle tracking data. Tracking devices provide speed and location as well as g-force data. Data frequency can be controlled by making changes to the device software – the so-called firmware. This data can then be analysed to provide first data and then insight. Apart from accident detection, the data can also be analysed to identify factors contributing to accidents, such as driver fatigue and excessive speed, for example. We worked on data collection, its streaming in real time to Google Cloud and subsequent analysis to create both driver and vehicle features, including

location-based data. These factors were then added to the data warehouse and made available for traditional analysis.

SUBSEQUENT ANALYSES

By adding continuously emerging new features to the existing risk data mart, we were able to apply machine learning models to better understand insurance risk. This included using random forests to identify variables of interest and then model their association with specific outcomes, both desirable such as next vehicle purchase, and undesirable, such as the likelihood of claiming.

SA Taxi is currently actively working on identifying the major service costs associated with vehicle maintenance and with external suppliers' support, to prompt drivers to service their vehicles and then direct them to a discounted supplier. This proactive approach to value-add and the alignment of interests is an investment in win-win from which we can all learn.

PARTING THOUGHTS

As consultants in both data and actuarial services, we can definitely learn from our clients. When working with appropriate partners, we should not be shy to step outside of our traditional areas of work. Actuaries can add value across a number of data domains outside of financial risk. Furthermore, forward thinking employers and a vigorous entrepreneurial spirit can provide unique opportunities for both personal growth and stimulation. 



RETIREMENT REFORM REMEMBERED:

Rob Rusconi and That Paper

It was 20 years ago today ... No, this comes from another landmark album. Most of our readers are too young to recall this one, though, so let us try again: It was 15 years ago, this October, that Rob Rusconi presented *Costs of Saving for Retirement: Options for South Africa* at the Actuarial Society's annual Convention. Rob won both the RGA Prize for Best Paper at the Convention and the RGA Prize for the Best Paper by a First-time Author for this one.

He earned a few other titles as well. Most common among these is "the independent actuary who blew the whistle on the savings industry". *The Mail & Guardian* called him "The R3bn whistle-blower" and referred to his paper as "the now famous Rusconi report" (16 January 2006).

A fact, rather than a matter of opinion, is that Rob's paper led to a very public debate on the costs of retirement provision. After Bruce Cameron had covered aspects of the paper in *Personal Finance*, the parliamentary Portfolio Committee on Finance scheduled a series of meetings on the topic. Rob was invited to present a summary of his paper there. Various industry bodies participated as well.

The discussion did not stop soon after that, and *Costs* has almost become a standard reference for some journalists. An article on the Retail Distribution Review in 2015, for example, referred extensively to the paper.

South African Actuary caught up with the independent actuary who blew the whistle on the savings industry 15 years ago.

South African Actuary] What made you decide to write the paper?

Rob Rusconi] Catharsis. Unemployment. A travel diary. The paper wasn't primarily about the costs, for me, but about the perspectives that I had developed while travelling in person and in literature. It was about addressing the narrow bands within which we travel as a result of our education and experience. And it was about contributing to the global literature. The costs provided an application to the broader problem of provision, a problem that we haven't come close to addressing yet. Until I first saw the numbers, I had no idea what was coming and even when I did, it was better for me just to finish it and make sure that its message was clear.

SAA] You became a very well-known figure almost overnight. Did this change your own professional life, and if so, how?

RR] Unemployable in certain circles, I think. Very unpopular in others. Perhaps a little lonelier. But the willingness to do it and say it may indeed have opened a few doors to channels that I could not have dreamed of: World Bank and OECD projects and opportunities to serve policymakers in South Africa and in the region.

SAA] Do you think the paper, or awareness thereof, also increased awareness of the potential value-add of actuaries?

RR] Umm ... yes ... and the very real responsibility.

SAA] Did you become involved in any government or other initiatives around retirement reform? If so, could you elaborate briefly, please?

RR] Yes, in South Africa with the Department of Social Development and then National Treasury, in the Inter-departmental Task Team, on brief projects for countries in the region and, from time to time, researching, writing and speaking on issues for the World Bank or OECD.

SAA] When can we expect the next Rusconi paper?

RR] Research is its own reward, but the impacts are usually entirely unpredictable and it really is best that we don't try to orchestrate them. I am very grateful, in my short journey through this world, to have been given the opportunity, but another will contribute at least as effectively, in an unexpected way. 

*Note: Rob retired in 2018 as editor of the **South African Actuarial Journal**, a position he has held with distinction.*

PRESENTING TO AN **AFRICAN GIANT**

- Andrew Gladwin



Nigeria is the most populous country in Africa; indeed demographers believe the 200 millionth Nigerian will be born in 2019. In actuarial terms, the Actuarial Society of Nigeria now has the distinction of being the most recent full member of the International Actuarial Association, and the previously moribund association has recently become an active part of the global association under the dynamic leadership of Yeside Kazeem.

On 7 February 2019, I had the privilege of presenting a CPD session to the membership of the Actuarial Society of Nigeria in Lagos. About 30 people attended the session entitled Solvency Requirements and Capital Management for African Life Insurers. The topic was very relevant to those attending, as the Nigerian regulators (like many other regulators across Africa) are reviewing solvency requirements for the insurance industry, and the presentation will hopefully provide a basis for the Actuarial Society of Nigeria to provide professional input to their regulator.

The session was very interactive with some very good discussion, which covered a number of angles including the impact of Brexit on European regulations. The session should enhance our relationship with the actuarial profession in the African giant. 



Profile: **Ranti Mothapo**

Ranti Mothapo is the first African South African who qualified as a Fellow. He is one of the founders of the Association of South African Black Actuarial Professionals (ASABA), and was awarded the President's Prize for this in 2006.

SAA] How did you become aware of the actuarial profession, and what attracted you to it?

Ranti Mothapo] By some chance. When I was in Standard 8 at a boarding school, there was one Humphrey Mohlala who was in Standard 9 and was interested in studying actuarial science. He shared the discovery with me and we both began writing to Old Mutual, Sanlam, Metropolitan, UCT and WITS for more information, all of whom shared information so generously. Our career guidance teachers heard about actuarial science from us.

I really enjoyed word sums in maths as well as mathematical Olympiad type of questions. At the same time, I enjoyed accounting and the business thing. It seemed actuarial science would combine these. It really spoke to my inner core. It felt like a calling. Until then, I had eyes on going to seminary to see if I can make it as a priest – Fr Ranti Mothapo. I had to reconsider the whole career thing. So I had chartered accountancy as a second option and civil engineering as a distant third option.

My confidence to study actuarial science was confirmed by Sanlam, who gave me a bursary. My theory was that if no one is confident enough to sponsor me, maybe I am not good enough and should not waste the little money my mother would have to borrow. I was to be a day scholar at the University of Pretoria studying chartered accountancy. Though I never got to work for Sanlam, I can publicly say I am a proud client and I am forever grateful to Sanlam. They only company that can truly claim to have produced me as an actuary.

SAA] Give us a quick summary of your career thus far; where you have been and what you have done.

RM] I started my career in investment banking. I initially wanted to be a derivatives trader, but was convinced to start off as a quant working with derivatives pricing, hedging and risk management models. I worked closely with traders and that gradually reduced my interest in trading. This was at Standard Corporate and Merchant Bank. I then took interest in the use of derivatives to develop solutions. I had a chance to do this at Investec for retirement funds, life companies, corporate treasuries and strategic equity investors. After 4.5 years I set out to self-employment, and have been self-employed for 12 years now and going strong. I am amazed at the guts I had at the age of 25 and a half. I really think the universe has been kind to me.

I have, since 2010, been sitting on boards of insurance companies. I was most recently at SASRIA and currently a non-executive director at Assupol. This has been a great learning experience in governance of large businesses, although I think the true MBA lies in running a small business.

SAA] Has the actuarial skills set been of particular value to you, or do you think you may have coped without it?

RM] I do not believe my career efforts would ever have been successful without the actuarial skills set. In my first job, whilst there were colleagues with master's degrees and PhDs, it seemed the actuarial training provided a sufficient entry to the quantitative area – thanks too to the Advanced Mathematics of Finance programme at WITS. Most certainly, to be employed to develop solutions for retirement funds and life insurance companies, there was a lot of faith placed by my then employer in the actuarial skills set – which they hoped I had. Setting out to self-employment allowed me to want to focus on developing the entirety of my skills set, including the actuarial skills. The actuarial skills set is all I am and I am loving working and advising my clients as an actuary.

SAA] What do you enjoy most about being an actuary?

RM] I am thrilled by the idea of finding solutions to what are or appear to be complex problems. It is extremely gratifying to assist a client to find a solution.

SAA] What do you think are the major opportunities for the actuarial profession in South Africa?

RM] Wider fields. The success in the expansion to healthcare and non-life insurance does confirm the relevant role we can play even in areas where

the actuary is not thought to be. For example, I think the auditing space in South Africa is there for the taking. How about a post-qualification module like a “CERA” to allow us to sign off on audits?

SAA] And the major threats?

RM] I believe our education system is a major threat to the abilities and focus of actuaries and could hold back the profession. The choice of STs or F100s was taken too far. I think at a minimum pensions, life insurance and non-life insurance must be compulsory. I don't think the work-based skills programme serves much purpose, and some of the effort put into this and normative skills should be deflected back to technical application of across more areas of practice.

SAA] Are there any individuals who played a major role in your professional life – mentors, guides, adversaries?

RM] It is important I acknowledge the people that played a role in my professional life and this is a great platform to do so, thank you! I will start with my business partner, Garth Barnard. I also need to mention Greg Morris, Costa Economou, Shaun Levitan and Peter Withey. These are the top 5 in the profession, but there are many, many others, like Geoffrey Nzau and David Jewell narrowly missing top 5. Maybe I should just have a top 10 list ready for future. Outside the profession, my bosses at Investec, Mark Currie and Richard Wainwright. Now in a league of their own, there is also Prof Stephen Jurisich and Prof David Taylor – ever so patient and diligent in their calling of building skilled people.

SAA] If you could do one thing different, going back, what would that be?

RM] Career-wise, nothing.

SAA] If you had a child who wanted to study actuarial science, what advice would you give to it?

RM] If you attain it, use it. Milk it. It is too hard a career not to use it to the fullest. If you want to be a business generalist, there are a lot of other avenues that provide better risk-adjusted returns to consider.

SAA] Would you share with us one or two of the major lessons you have learnt along the way?

RM] I have made disappointing mistakes in modelling work because I did not fully appreciate the objective of the analysis beforehand. My spine still shivers when I recall that moment. I let myself down and in one occasion I let my boss down, whom I was in a meeting with. Mistakes will always happen, but let it be known that I have tried all I can, including having others, junior or senior to me, review my work.

SAA] Let's conclude by being blunt. When you qualified as a Fellow 15 years ago, you became the first African South African to do so. (And let us just remind the youngsters that you had to pass 4 F100s in those days!) But how do you feel about carrying this “First African South African” name tag?

RM] The tag is debatable – but I will respond in the context it was meant. In any event, it does not really matter. I think there was or is still a deeply held view on intellectual abilities of Africans by many. At WITS, I was a regular feature at prize-giving ceremonies for either the gold or silver medal in actuarial science and mathematical statistics. I remember at the first prize-giving ceremony of the Faculty of Commerce, where I scooped gold for both, my family was the only African family present. The shock on the faces of other parents was visible, and was very

uncomfortable for me. When I returned to the following year's prize-giving, a few parents that were present the prior year were pointing at me, preparing the others to cope with the possibilities of the day. I also had, only then, a handful of parents come to congratulate me. So, what I am trying to say is that I carried an unbelievable tag. A tag that was a disproof of a deeply held view, flawed as it may be. I had to constantly prove myself. I didn't have the flexibility to make a lot of mistakes as I learn. You know, at times I felt I was being led towards mistakes. Making mistakes remains my paranoia to this day. Other than for my WITS crew that was aware of me from university days, I felt largely unwelcome. Perhaps, it did not help that I was also in the first group that qualified quickly. So it was a clear and resounding disproof of a deeply held view by some. Out of this experience, my wish is for actuaries not to venture into how clever is the other actuary, worth the qualification or not – even going to the extent of setting additional tests for another actuary.

When I started my career in investment banking, with no financial support and leave for actuarial exams, I did join the loud chorus of questioning the need to continue with actuarial exams. I remembered, like I always remember, the moment I walked across the Great Hall stage, getting a prolonged standing ovation, mainly from other African graduates in the audience as I was the only graduate to get distinctions in both actuarial science and mathematical statistics. I recognised the thirst of Africans to disprove a point that was used to deprive many generations of a decent life. I would like to applaud all other qualified actuaries of African descent and really wish we can not only attain the qualification, but work as actuaries too. 

Why actuaries can thrive in this age of data science - Dave Strugnell

The emergence of the field of data science – described as the sexiest career choice of the 21st century^[1] – and the convergence in many instances of the data analytical and machine learning tools used by both data scientists and actuaries alike, has evoked some consternation among the latter, as to the long-term relevance of actuarial science as a field of study and discipline.

The first institution dedicated to data science training in South Africa – the Explore Data Science Academy (EDSA) – was established in 2018 to address the huge shortfall in the supply of trained data scientists in South Africa. This is not just a local issue.

In the US alone an estimated four to five million jobs require data analytical skills in 2018. In 2018 too, there are over 490 000 data science jobs and only 200 000 qualified individuals to fill them.^[2]

Driving this demand is the explosion of data generated by businesses across the board, and the value its insights can offer if analysed and applied strategically for their benefit. The insights are typically extracted using a range of tools including data management and query protocols such as SQL, dashboard and data visualisation tools such as Tableau and PowerBI, and analytical coding environments such as Python and R. Processes can also be automated using machine learning and artificial intelligence.

Cofounder of the EDSA Dave Strugnell, himself a qualified actuary and lecturer in actuarial science,



believes that while the ease of use and processing power of current data science tools make them easy to embrace in a business context, the ongoing relevance of actuaries is unquestioned. Moreover, actuaries are well placed to ride the wave of data science and machine learning.

“Actuarial training provides an excellent foundation if you’re prepared to apply the necessary statistical rigour and have some flexibility of mind about how to approach problems involving data,” he says. “The issue is not one of relevance but rather of up-skilling to develop competence in the application of data science tools.

“A data scientist with domain knowledge is always at an advantage to one without, so actuaries who’ve extended their skills into data science and machine learning have huge value to add in the traditional areas of actuarial practice,” he says.

“Actuaries are also generally smart, solution-oriented individuals, and those who up-skill themselves in this way will have as much to offer as anyone in non-traditional areas as well.”

Actuarial consultant Pravin Burra, CEO of consultancy and development firm Analytix Engine, shares Strugnell’s views.

“I think there is an increasing awareness among qualified actuaries of the need to improve their data science capabilities as organisational demand for data analysis increases. Data access and insights drawn are becoming crucially important for competitive advantage,” he says.

“Data science is both a component and extension of actuarial science. The ease of use and processing power of current data science tools make them easy to embrace in a business context. I believe the value a trained actuary brings to the table is the understanding of the underlying commercial value and how that can be leveraged by computational power,” he adds.

“Data science tools are becoming increasingly ubiquitous in the workplace and it is incumbent on us to learn them and apply them to problem solving,” says FC de Vos, consultant at Analytix Engine

The EDSA has recently introduced a course in machine learning for actuaries and actuarial students aimed at extending their technical expertise into this rapidly expanding field.

“The EDSA believes that such is the speed and ease of use with which data science tools are becoming available, that these boot camps’ will provide huge advantage to those that attend them,” Strugnell says.

About Explore Data Science Academy

Cape Town-based Explore Data Science Academy is believed to be the first institution in the country focused on data science. The Academy is the brainchild of founders Shaun Dipnall, Dave Strugnell and Aidan Helmbold, all highly qualified data scientists with actuarial qualifications and experience in lecturing, research and consulting. The Academy provides a one-year Accredited

The course teaches foundational machine learning principles that attendees can apply when they return to their place of work.

Among the skills attendees will learn are:

- Regression and classification
- Clustering and dimensionality reduction
- Deep learning and the application of AI for actuaries in the future.

The course is held over a month and involves two weeks of online pre-course work, a three-day course on site as well as two weeks’ post-course work online.

“The EDSA recognises the crucial role actuaries play within financial organisations in being able to identify and utilise the data science skills and programmes required for specific projects and the human resources needed to execute them,” Strugnell concluded.

Want to know more about the Explore’s machine learning for actuaries course? Go to <https://www.explore-datascience.net/study-online>

¹ <https://hbr.org/2012/10/dwata-scientist-the-sexiest-job-of-the-21st-century>

² <https://insidebigdata.com/2018/08/19/infographic-data-scientist-shortage/>

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SPECIAL FOCUS ON Focus on Actuaries in Society

An actuary who is only an actuary ... yes, you know that one. Frank Redington's words are even more relevant in a society where the public purse, to an increasing extent, no longer provides for the welfare of every member of society. Individuals, corporate entities and even professions are required to consider both the well-being of the people who live on this planet and the planet itself.

South African Actuary takes a look at the involvement in society of some members of the Society.

Investing in “Our Future” (Kamvalethu): Munro Forensic Actuaries



DID YOU KNOW?

the present capital value of an individual's lifetime earnings with a Grade 12 qualification is just about double that of someone with a Grade 10? Which is just about double that of someone without schooling above Grade 2?

DID YOU KNOW?

a child who can read for meaning at Grade 4 (age 10) is four times more likely to complete Grade 12, than a child who is unable to read for meaning at that age?

DID YOU KNOW?

that critical brain development (the creation of sensory pathways, language and higher cognitive function) occurs well before a child even starts school, at age 6?

In 2015 **Munro Forensic Actuaries** began supporting an **Early Childhood Development (ECD)** school in the rural Eastern Cape because of an emailed surf report from Coffee Bay asking for donations. Very quickly we became aware of the compelling data above and set up **The Kamvalethu (“Our Future”) Foundation** as part of Munro Forensic Actuaries' social investment initiative; an initiative that would create opportunities for young children in under-resourced areas to have access to quality education, right where they live. We discovered that for as little as R500 a month, over 3 years of ECD schooling, we could make a significant difference in a child's life; because the foundations which determine success in a child's life, start early on, from right before birth in fact.

The Kamvalethu Foundation is now standing in the gap between actuarial rocket science and the thousands of children who need access to quality education.

We have come to understand that by improving a child's quality of life in the early stages of their development, we can invest in a 120-fold return over 16 years of schooling (this excludes the spin-off benefits, including the training and employment of teachers, support for local businesses and improved healthcare etc. through strategic partnerships). This, in turn, we believe can have a positive impact on the South African economy over time.

With that in mind, The Kamvalethu Foundation has partnered with and financially supports (amongst other types of support such as capacity building) other schools and NPOs within the rural Eastern Cape who understand the critical importance of ECD in the progress of a child through the formal education system.

The Kamvalethu Foundation offers itself as a platform for businesses to earn B BBEE points while also contributing to positive economic change in South Africa.>

Since inception, The Kamvalethu Foundation has been committed to creating an economically sustainable and pragmatic B-BBEE solution. Financial sustenance is generated through accredited B-BBEE share ownership in small businesses. Dividends from these small businesses are received by The Kamvalethu Foundation and are invested for impact. In turn, The Kamvalethu Foundation ownership counts toward the business' B-BBEE ownership levels.

As a shareholder in Munro Forensic Actuaries, as well as in other small businesses, The Kamvalethu Foundation is empowered to make a real difference in children's lives. With its business partners investing in our country's future, why not join us! For more information on how to get involved and to explore projects The Kamvalethu Foundation supports, please visit www.kamvalethu.org.



EASYCAREERGO:

Azwifheli Ratshifheti

Paul Soderberg believes that mentors are emancipators that free others from clouded vision and personal uncertainty. Now, imagine growing up in a village without a mentor to challenge your life choices and being expected to rely on yourself to make it. That's the reality for most black people who come from the villages. It's also my story, except that I had a father who cared enough about my education that he made sure that I kept my eyes on the prize. Not everyone is blessed with parents or family friends that can assist them with life-changing decisions about their education. However, that shouldn't mean that it's the end of the road for them. As ASSA, that's where we step in as the emancipators and help those in need.

Even with my family's help, I still didn't know what career I wanted to pursue

after matric. I recall wanting to pursue Chemical Engineering because my Chemistry teacher had suggested that I pursue it. Luckily, SAADP came to our neighbouring school when I was in Grade 11 to introduce us to actuarial science. Apart from having the required analytical and statistical skills for actuarial science, I wanted to pursue actuarial science because the facilitator had told us that it was one of the highest paying jobs and because I wanted to increase the number of qualified black actuaries in South Africa.

After having considered the challenges we faced in high school, my friends and I decided to start an NGO called EasyCareerGo ("ECG") which is aimed at raising career awareness for matriculants in rural areas. Our main objective is to expose matriculants to different tertiary institutions, funding and careers opportunities that are available for them. We do this by assigning mentors to matriculants in targeted schools to help them with any challenges that they might face in matric, hosting annual career fairs and accounting competitions, and visiting most of the schools around Venda in an attempt to raise more awareness and cultivate a culture of sharing information amongst learners. After matric results come out, we host an academic lunch to celebrate the learners' academic excellence as well as trying to recruit them to join ECG. However, due to financial constraints, we are only able to invite a few schools to these events.

We've had a lot of successes through our mentorship and other events. Most learners' matric performance has improved and we've successfully managed to challenge learners' career choices to ensure that it is aligned with their passion and academic capabilities. Since inception, ECG helped over 120 learners each year and we now have over 60 mentors. We're not anywhere close to being perfect but we're committed to continuously improving our organisation.

After having approached several companies for sponsorships and still failing to find one, I decided to write a book about my academic journey so that we could use the book sale proceeds to fund our events. This book can be summed up with a phrase, "Veni, vidi, vici", which is Latin for "I came,

.... we've successfully managed to challenge learners' career choices to ensure that it is aligned with their passion and academic capabilities. **Since inception, ECG helped over 120 learners each year and we now have over 60 mentors.**

I saw, I conquered". I went through a lot of challenges but I still managed to pass well enough to receive merit awards from UCT. I've seen a lot of students drop out of actuarial science because they didn't have any support structure or because they had no idea what they were getting themselves into, so, this book will be able to reach out to a bigger audience and probably impact students' lives positively and hopefully have more black actuaries (or any other professionals) in the future. Furthermore, I want students from previously disadvantaged backgrounds to know it is possible to complete actuarial science in a record time and even better, to excel in your studies regardless of the circumstances.

This book is meant to serve as a reminder to all of us that no matter where we're from, our dreams and goals are valid and achievable for as long as we put in the hard work required. Veni, vidi, vici book is available to both individuals and companies. Companies can make bulk purchases for their bursary students as well as learners from their partnering schools. One book copy costs R120. 📖

If anyone is interested in purchasing a copy, email me at:

azwifheliratshifheti@gmail.com or azwifheli.ratshifheti@liberty.co.za.



LIFE AFTER LIFE

– Gary Palser

Gary Palser retired three years ago, after working for Old Mutual for 36 years, where he was the Chief Risk Officer before retiring and prior to that the Chief Actuary. He consequently spent much of his career as a Life actuary, and we asked him to tell us about his **life after being a Life actuary**.

After retiring Gary and his wife Hilary went to America, to a church called Bethel Church, in Redding, California, for a couple of weeks in January 2016, where amongst others they attended a course that trained them to help people who need inner healing. This course was related to a workshop called *Love After Marriage*, which Gary and Hilary first attended at this same church in 2013. (They attended the 5-day version of this workshop. This workshop runs from 9am to 9pm, Monday to Friday, so it is pretty intensive!) Gary and Hilary had for many years before this run another marriage enrichment course for married couples, but they were struck by how much more effective the *Love After Marriage* workshop was in improving the relationship between husbands and wives. At that time they wanted to bring this workshop to South Africa, but did not know how to do this.

When in Redding in 2016, after Gary's retirement, Hilary "happened" to be prayed for by someone at the church, who was also a South African. When realising that she was also South African, he told Hilary that they needed to meet an American couple who were wanting to bring the *Love After Marriage* workshop to South Africa, and he gave Hilary their number. This American couple "happened" to be in Redding for that weekend, so Gary and Hilary met with them the next morning. A few months later they came to stay with Gary and

Hilary for a few weeks, and they presented a 3-day version of the workshop in Cape Town.

Gary and Hilary subsequently discovered that they were qualified to present a weekly version of the *Love After Marriage* workshop in Cape Town. The 5-day workshop that they attended in 2013 was filmed (you can even get occasional glimpses of Gary and Hilary in the videos!) and turned into a weekly 18 session format that could be presented by other couples, who had attended a version of the workshop themselves and who had done the inner healing training course. So, in the first half of 2017 Gary and Hilary presented the first weekly *Love After Marriage* workshop in South Africa. Subsequently other couples have presented this weekly workshop in Durban and Port Elizabeth.

Many of the couples who attend their *Love After Marriage* workshops also come to Gary and Hilary for personal help with their marriages, using the inner healing tools that are part of the workshop. One example mentioned by Gary was of a couple who were having a significant amount of conflict and misunderstanding. Gary and Hilary identified that the husband's mother had been very controlling when he was younger, and that this made him angry. Whenever his wife spoke to him in a way that subconsciously reminded him of his mother, he was unknowingly reacting to his

wife with the anger that he still felt towards his mother. And his wife had a bad relationship with her father. When her husband said or did things that subconsciously reminded her of her father, she was also reacting to her husband in the way that she used to feel about her father. These unresolved hurts from their childhood were the cause of their conflict escalating so quickly. After Gary and Hilary led them through a process of him forgiving his mother and her forgiving her father, the root cause of their conflict was resolved, and their relationship improved significantly.

From August 2017 to May 2018, Gary and Hilary made another interesting decision – they decided to go to America for 9 months to become first-year students. They attended a ministry school at this same church in California, along with 1,300 other first-year students from all around the world, most of whom were a lot younger than them. They found this to be a challenging and inspiring time. Gary says that one of the effects that attending this school has had on them, is that they are seeing the help that they are providing to married couples having a more significant impact than before they went.

Since returning from America, they ran another *Love After Marriage* weekly workshop in the second half of 2018, are presently running a follow-up workshop for those who have previously attended a workshop and will be starting another weekly workshop in April this year.

Here is an extract from what one of the couples attending their workshop said at the end of the workshop (the acronym for the workshop is LAM):

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Her: I think LAM just really came at the right point. We really needed something. We were at the point where we just said something's got to give. We knew that God wanted us to be in a place where we had a good marriage, but I think we would have settled for just a mediocre marriage. And what God's been showing us through LAM is that He wants so much more for us.
- 

Him: We focused on everything else, but we hadn't really made time for us and for our marriage. So, LAM gave us that time and it also gave us the tools to start working on things. When we started LAM I just wanted things to be a little bit better.



But when God starts working, He doesn't do things half-way. We have really been blown away by the Lord.

Another coupled said the following:

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Him: I had some amazing moments in this workshop. Our whole marriage culture has shifted. I am now able to connect intimately with my wife.
- 

Her: Things actually changed. The spark is back in our marriage. I can't wait for my husband to get back from work.

Gary and Hilary have recently been asked to head up this work for the whole of South Africa. This will include identifying and equipping other couples around South Africa to run these workshops, so that more couples can attend and benefit from these workshops.

Gary ended by saying that it is such a privilege to help couples with their marriages, and to see God make a significant difference in many of these marriages.

Yes, this work is very different to the type of work that Gary used to do. But it shows that actuaries can use their time outside of work and after retirement to contribute to our society in many different ways. 

WESOLVE4

At WESOLVE4 we remind our learners of the fun, adventure and delight of arriving at those tricky maths, science and accounting solutions.

Wesolve4x's key focus is facilitating Responsible Research and Innovation (RRI) by guiding learners' natural inherent curiosity for the creation of knowledge, innovation and development in all fields of research, in order to become key players in the 4th industrial revolution and digital age.

At Wesolve4x we make maths, science and accounting a worthwhile experience, reminding our learners of the fun, adventure and delight of arriving at those tricky maths, science and accounting solutions while they continue with their responsible research and innovation based on their inherent natural curiosity.

The tuition service offered by WESOLVE4X is refreshingly new and optimised to meet our national curriculum standards. The integrated facilitating programmes allow them to build strong relationships with their learners whilst providing their services at competitive rates. The facilitating team consists of passionate facilitators, graduates, professors and consulting advisors to provide the guidance and quality of service they believe is integral to personal growth and self-actualisation.

"Throughout affiliated universities and institutions throughout South Africa, we are able to offer learners, graduates and professionals a platform to connect as they amplify their proficiency and increased opportunities to help others achieve their goals."

Our goal is simple: make learning fun, measurable and rewarding. Solving the world's problems one equation at a time.

WESOLVE4X's facilitators are experienced, enthusiastic and accessible to provide the

support their learners need every step of the way.

"We put a simple business philosophy into practice: To provide an answer to a question ordinary people keep asking, 'How can you help me reach my full potential with the little that I have today?'. Since we understand and believe that this question cannot simply be answered with theory and knowledge, action is required for the best results. We at Wesolve4x provide an answer to this question by using high levels of research, expertise and experience in order to act and provide realistic and optimum high-level solutions."



Tsietsi Ngobese began his Entrepreneurial career in 2002 as a street vendor, selling sweets at school from grade 2-12 and fruits and vegetables, using a wheelbarrow, from house to house. He later incorporated poultry, beef, detergents and household and car air fresheners supply and distribution into the business in various locations.

In 2006, he ventured into recycling, purchasing bottles, cardboards, plastics, tins and metals from people in his community, reselling to recycling companies. In 2008 he pursued his interest in the fast-food business with a key focus on Bunnychows and Fat Cakes. Every month-end he distributed groceries and other goods from the taxi rank to various households using a wheelbarrow. Upon request, he would also provide household yard cleaning services.

He later started a Stokvel contributing scheme with a group of friends in order to have an increased saving capacity. In 2010, he joined the financial market with an interest in online share trading, forex and Cryptocurrency, with a self-managed portfolio. He holds a BSc degree in Actuarial Science from the University of the Free State and is currently Chief Executive Officer for WESOLVE4X (Pty) Ltd.

"South Africa's education system is one of the best world; however, the challenge is how the content is delivered, which is not unique to global education challenges. As a product of the system and having walked the path for the past 17 years and a recent BSc Actuarial Science graduate from the University of the Free State class of 2017, I have invented a system we patent in June 2018, titled: SYSTEM AND METHOD OF MANAGING THE DELIVERY OF EDUCATIONAL COURSES TO STUDENTS as a direct response," says Tsietsi.

At Wesolv4x, pushing the boundaries of knowledge and possibility is our obsession, and we celebrate fundamental discoveries and practical applications by guiding learners' natural curiosity through Responsible Research and Innovation guidelines, provided continuously through collaboration with experts and universities. We take pride in seeking to expand human knowledge through analysis, innovation, research, insight, and empowering parents/guardians and educators with a continuous educational program on how best to continuously support the learners to reach their full potential in the long run.

The significant role actuaries have played for decades in making financial sense of the future **has transformed lives.**

After surviving a fatal car accident on 11 April 2018, the road trip to his graduation ceremony at the University of the Free State, the happiest day of his life turned into a nightmare when the vehicle he and seven of his family members were travelling in overturned in Kroonstad in the early morning. His passion deepened for understanding the transformative power of education through developing diverse communities of learners, parents and educators, as well as the critical role actuaries collaboration can play in helping tackle some of the serious educational and societal challenges in South Africa.

The significant role actuaries have played for decades in making financial sense of the future has transformed lives. As an integral part of the township economy and community, I believe actuaries will continue to add value to the society and preserve our African traditions and cultures which have a financial implication to practice. The township economy is an emerging market where more Actuaries are needed more than ever in different areas. From his +17 years, township business exposure and experience, Tsietsi believes the actuarial profession and the actuarial skills he acquired will transform the township economy and communities in South Africa. Solving the world's problem one equation at a time is what Wesolve4x represent. 



Thuto Foundation:

Alina Mamabola

The Thuto Foundation is a registered non-profit organisation that aims to bring change to rural areas by providing educational information that is needed to change people's lives, ensure that young people in the villages become successful and create employment in the rural areas in order to improve the quality of life.

OUR MAIN OBJECTIVES

- Career guidance, university and bursary information at least once a year.
- Mentorship.
- Extra lessons to school children from Grade 6 to Grade 12 in rural areas during school holidays.
- Provide online/offline study resources like Paper Video to assist the learners in their studies.
- To build libraries; a place where kids can go to do their homework and meet with other kids, discuss school projects and assist each other with homework. A librarian will be there to facilitate this so that the kids can stay focused and also run the database of books that are being taken from the library and being returned.
- To have more than 1 computer in each library with Internet access which they can use to do research for school projects, online study resources and also career information.

OUR TARGET AREAS

We are targeting schools in the Ga Molepo and Ga Mothapo rural areas in Limpopo. However, our goal is to extend the benefits of this organisation to all rural schools in the Capricorn District, then the whole Limpopo, then the whole country and finally the whole continent. Together with more volunteers and sponsorship, we will make this happen!!

OUR SUCCESSES IN THE LAST 3 YEARS

1. 2016 Career day

ASSA has assisted us from day 1 with a donation for us to run our career day successfully. The first CUB day was held on 26 March 2016.

2. 2017 Career day

ASSA assisted us with a donation for the second time for us to run our career day successfully. This second Career day was held on 18 March 2017.

3. 2018 Career day

ASSA assisted us with a donation for the third time for us to run our career day successfully. This third Career day was held on 24 March 2018.



4. 2018 Paper Video study material handover

With the support from Paper Video and donation from ASSA and RGA, we managed to hand over Paper Video study material at Magaedisha and Manoshi High schools in Ga Molepo village on 19 and 20 October 2018. We hope that we can reach many more schools.

OUR CHALLENGES AND WAY FORWARD

As Thuto Foundation leadership, we need help with the strategy of the organisation and training, to ensure that all volunteers of the organisation become active participants and contribute to the success of all the objectives that we have.

We also need continuous support, volunteers and donations from organisations and individuals who would like to support our vision. We are registered with SARS and donations to our organisation qualify for a tax deduction.

CONTACT US HERE:

Website : www.thutofoundation.org.za

Email : info@thutofoundation.org.za
OR thutofoundation@gmail.com

Facebook: Thuto Foundation SA

Twitter : @ThutoFoundation



Blessed to be a Blessing: Arthur Els

There is a verse in the Bible that has had a profound effect on my life – it is found in the book of Genesis where God tells Abraham that He will bless Abraham so that Abraham can, in turn, be a blessing to others. This concept of **“blessed to be a blessing”** is, to me, a core contribution towards a meaningful life.

During the mid-1980s I was invited to join the committee of a newly established “West Rand Christian Care”, a multiracial and interdenominational NPO. Its primary purpose was the upliftment of the community of Davidsonville, the so-called “coloured” area which is situated among the mine dumps of Roodepoort. More than 30 years later, I am still very involved with that organisation. Our funds come from donations from individuals and from raising funds in the community by holding functions such as braais. Initially we used our funds to operate soup kitchens and to assist with providing school clothing, but we soon realised that these efforts, although worthy, were not achieving a long-term benefit for the community. Therefore, for the past two decades, the vast majority of our funds are used to provide bursaries to children of needy local families for tertiary education. It is heart-warming, and encouraging, to see how some of these students have escaped the poverty trap and have gone on to become chartered accountants, lawyers, physiotherapists, social workers etc.

The unemployment rate in Davidsonville is high, and there are many families with no source of income. I recall a particularly sad case of a family with two disabled daughters who need to attend a special school; however, the parents are both unemployed, and have no income or assets. Fortunately, we were able to assist with transport cost for the children. But this and other cases made me realise once again how very privileged I, as a qualified actuary with a well-paid job, am compared to others in our community. When I



started my own firm of consulting actuaries in the early 2000s, it became our custom to close the office for one day of the year and to spend this day in outreach to the community – for example, one year the whole office spent a day in Davidsonville painting the house of a 100-year old pensioner. [enclosed: photo of staff painting house.] In another year we treated a bus-load of children from Ivory Park to a day at the Johannesburg Zoo. The purpose of these outreach days is two-fold: firstly, to expose our staff to less-privileged persons so that each of us realises how blessed and privileged we actually are; and secondly for the business to give something back to society in gratitude for its success.

As actuaries, we have skills that are in very short supply in the wider community – in particular we understand and like maths and we can use these talents to uplift the quality of lives of others. The church of which I am a member is involved with outreach in Alexandra, and one of the projects is to assist the Alex children with mathematics and English. For the past two years, I have been travelling to Alexandra on most Saturday mornings to give lessons to pupils who are struggling at school with mathematics. The experience has been most uplifting, especially when you see the eyes of a pupil light up as they grasp a concept that was a mystery before.

We each have different gifts and talents, and each of us can, and should, use those to bring a blessing to our less privileged brothers and sisters. 

A New Formula for the Future: Wilhelm de Wet

Article by Philip Jonker

He may have helped you to find the role you are currently in. Most actuaries know Wilhelm de Wet (FIA, FASSA) as an actuarial recruiter of South African Actuaries Abroad, or SA3, who has served actuaries and employers for more than ten years. Truth is, he does not only map out careers for actuaries, but also helps thousands of local children of the rural community of Bonnievale to find career paths of success.

Wilhelm says, “Basic education in South Africa is due for an upgrade. In South Africa, most schools offer a curriculum which includes great foundational subjects for tertiary university studies. However, most learners do not go to university. The reality is that of every ten learners at school in South Africa, six drop out on their way to matric. Of the four completing school with a matric certificate, chances are good that up to three of them will not study further and will try to find a job with their senior certificates. Only one may go to university. Thus, basic education is custom-made for only 10% of us, whilst 90% are often judged to be substandard. This is particularly true for the rural context of places like Bonnievale. Teenagers are indirectly told, ‘You are not good enough. You are a failure.’ Their self-worth gets further bruises as more than 50% of our families already have to survive off SASSA grants in dilapidated family structures in an increasingly fatherless society. No wonder South Africa battles with symptoms of hopelessness, teenage pregnancies, drug and alcohol abuse and crime. Our youth is stripped of their value. It is a downward spiral. We need to draw a line. It is time to change, time to formulate a new future.”

This is exactly what Wilhelm de Wet and others of the Bonnievale community have done. The

condition of their local community grabbed them by the heart, they prayed about it, they received a vision for a no-fee, zero dropout school of excellence and stepped out in faith. They had to believe the impossible. It would be a project of more than R100 million, they had to forge unity in the total community and collaboration with the WCED and took the challenge of construction of phase 1 to be executed and completed in less than six months. Jake Gerwel Technical High School uniquely offers a quality career focused and an entrepreneurial curriculum and opened its doors in January 2018.

“At the end of the historic first school year of the Jakes Gerwel Technical High School we stand in awe of the miracles we have continued to witness week after week,” Wilhelm says. “During 2018 the JGT facilities have been doubled with more classrooms, training kitchens and technical workshops completed. Phase 2 and 3 have largely been paid with generous provision of funds and our existing facilities will enable us to transform about 800 learners daily. The final phase is ahead of us in order to educate more than 1000 learners. We do not want one child from our community to fall through the cracks.”

Coaching of character and career guidance

During the past year the greatest miracle is not the beautiful facilities or the generous donations to make it happen. Even greater is the personal growth we have witnessed in the learners of JGT over the past year. Through extra interventions, like reading tutorials and extra maths teachers



for more individual coaching, the pass rate of JGT has doubled from the beginning of the year, while disciplinary cases have halved. We appoint extra maths teachers to split classes in two with a 1:15 teacher learner ratio.

Character development is at the heart of JGT. After ten months of character development we have asked JGT learners whether they believe they have changed this year. 90% indicated they have changed. They mention in their own words how they have experienced personal growth, reached a turning point in their lives, had a change of attitude and behaviour, found freedom from peer pressure and the opinions of others, discovered their value, self-worth, self-esteem and a new level of confidence. Things changed at home. Relationships with parents are better. They are more committed now and inspired to work hard.

Although many of our learners come from backgrounds of hopelessness and neglect, the vast majority have given giant strides forward on many areas of their lives this year. We see a new dignity, a new joy and hope in their eyes. A good standard has been set and these first learners provide the footsteps where others will follow.

Skills focus

There is a career path for every academic level. Imagine ... three schools in one – firstly, a mainstream Technical school to matric, offering Electrical, Mechanical and Civil Technology; secondly, a mainstream Agricultural school to matric offering Agricultural Technology, Agricultural Management Practices and Consumer Studies; and, thirdly, a School of Skills to NQF1 offering subjects like Food Production, Welding and Maintenance.

In addition, no one goes hungry. Our local farming community contributes to a modern industrial kitchen serving breakfast, lunch and snacks after study time in the afternoons.

At JGT we build bridges, bringing people from the whole community together, changing the way we see, and igniting hope, creating friendships, making us believe in the impossible.

Many say that this vision is an answer for South Africa. We agree. Although we know that real restoration is a very long process, we already see change, even though these are still early days. We see how a generation is being transformed. We see how the school is affecting parents and even younger siblings. The Jakes Gerwel Technical High School in Bonnievale, the zero drop-out, no-fee school of excellence, has given the world another reason to believe in South Africa again.

When Wilhelm and the Bonnievale team embarked on this vision, some looked on with comments such as, “You are crazy,” and “What you are trying to do is impossible.” However, now different voices are being heard. The Western Cape MEC of Education, Minister Debbie Schaeffer, calls JGT “the miracle school.” Khayakazi Namfu, Programme director for public school partnerships said, “Your model could change the trajectory of our country.” And, André Thops, the chairperson of the Prestige Agriworkers Association of the Western Cape said, “Your project is a disruptor in the true sense and I want to put Jakes Gerwel Technical School in the same category as innovations such as Uber, Takealot and Discovery Health, but with a major social impact on a marginalised society.”

“We are humbled, as we were simply acting in faith. We did what was needed to heal our local community. Now it seems to have a ripple effect beyond our thinking. It may be a formula for a future South Africa.” 

JGE FUNDING TRUST

Registration number: IT001285/2016®

Public Benefit Organisation Number:
PBO 930054635

Postal Address: P O Box 187, Bonnievale, 6730

FOR DONATIONS, CONTACT:

Wilhelm de Wet – 082 823 9978 or
trust@jgt.co.za



WHO WE ARE

The SLC is part of the Actuarial Society of South Africa (ASSA). The SLC has the main role of representing student’s views when key decisions and directions are made within ASSA. The committee works hard to be the voice of every student member of ASSA. Students are a key part of ASSA as they are the future of the profession. The SLC’s aims to have several channels for student to voice their experiences, thoughts and views, as well as ensure they feel supported and well informed along their journey to qualifying as an actuary.

STRUCTURE

Stephanie da Silva	Chair (newly qualified member on ASSA council)
Kholeka Mdluli	Deputy chair (student representative on ASSA council)
Tatenda Chikuku	Administration
Bhaavic Chhana	Social events - JHB
Nasiphi Hlalele	Social events - Cape Town
Radhesen Naidoo	Social events - Cape Town
Maseeha Rawat	ATO representative - JHB
Asil Motala	ATO representative - CT & University representative - CT
Mohamed Moolla	ATO representative - CT & University representative - CT
Stephanie da Silva (while looking for a new rep!)	University representative - JHB
Thandi Mcizana	ASSA Academy and Transformation committee
Kholeka Mdluli	Other ASSA committees (AWF; AWC; ASABA; SAADP; Transformation committee; ASSA Academy)
Learoy Alcock	Schools outreach and initiatives
SLC also has representatives from the education board and ASSA office on the committee	

2019 CURRICULUM: KNOW THE NEW NAMES!

WHY THE CHANGE: IAA introduced a new syllabus for associate level (A level) subjects for 2019

Note: ASSA specific deviation from IFoA syllabus changewas that the CM1 (Actuarial Mathematics) remains split into A211 (Mathematics for Finance) & A213 (Contingencies)

PART A1: Foundation Technical

- **A111:** Actuarial statistics (written 3hr15m exam & 1hr45m problem based exam)
- **A112:** Business economics (written 3hr15m exam)
- **A113:** Business finance (written 3hr15m exam)

PART A2: Intermediate Technical

- **A211:** Financial mathematics (written 2hr exam)
- **A212:** Risk modelling & survival analysis (written 3hr15m exam & 1hr45m problem based practical exam)
- **A213:** Contingencies (written 2hr exam & 1hr30m problem based practical exam)
- **A214:** Loss reserving & financial engineering (written 3hr15m exam & 1hr45m problem based practical exam)

PART A3: Core Principles

- **A311:** Actuarial risk management (two written/typed 3hr exams)

N111: Foundation APP (New!)

- **Module 1:** Professional Actuary in SA
- **Module 2:** Professional communications for actuaries
- **Module 3:** Fundamentals of modelling

N211: Communications

N311: Core APP

- **Module 1:** Work based learning for associates
- **Module 2:** Actuarial business and legal

DID YOU KNOW?

ASSA is the only actuarial society that allows student representation on council.

awareness (prev WS1)

- **Module 3:** Model documentation analysis & reporting (prev WS1)
- **Module 4:** Presentation skills and communication (prev WS2)
- **Module 5:** General practice module (prev F210)
- **Module 6:** Strategic thinking and interpersonal skills (prev WS3)
- **Module 7:** Professionalism for associates (prev WS4)

N411: Fellowship APP

- Module 1: Work based learning for fellows
- Module 2: Professionalism for Fellows (prev WS5)

Access the latest exam timetable via the link

<https://www.actuarialsociety.org.za/event-pages/student-zone/>

Don't forget to register (via your member profile) in time for both exams and your normative skills workshops!

CONTACT US

Email: slc@actuarialsociety.org.za

Facebook: "Actuarial Society of South Africa – Student Liaison Committee"

Something for fun

What is 3/7 chicken, 2/3 cat and 1/2 goat?

Answer on page 59

BOOK REVIEW

A Tale of Two Paths to Power: Power (Jeffrey Pfeffer) and The Power Paradox (Dacher Keltner)

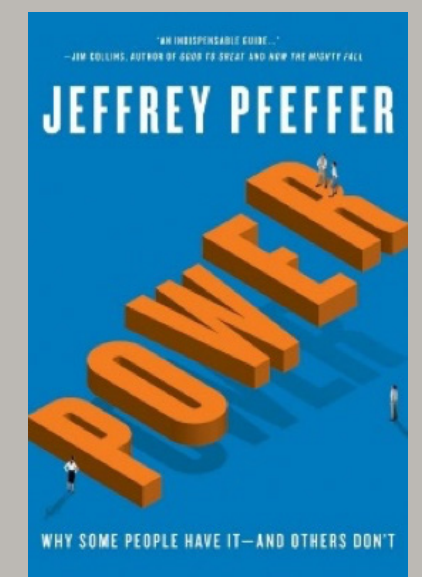
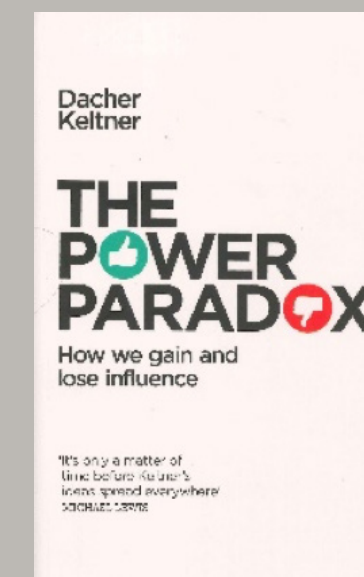
Review by Divya Babu

2018 was quite a year for global news ... from trade wars, the Brett Kavanaugh case, no-deal Brexit negotiations and the White House drama around Trump's wall. One common thread connected these events in an overtly insidious manner: each of the headlines were driven by shifting power dynamics, as centres of power were threatened.

To have power is not a bad thing in itself: one could genuinely be driven by a desire to implement change for the common good as a whole. However, the pursuit of power has always been viewed as a slightly sordid activity to engage in. In the interests of finding out more, I delved into two vastly different pieces of literature to explore the topic further.

Enter Exhibit A: Power by Jeffrey Pfeffer. This book, cheekily sub-titled "Why some people have it – and others don't", takes an overtly Machiavellian approach to the pursuit of power – it's cut-throat and abruptly honest in its approach. In sharp contrast, Exhibit B: The Power Paradox by Dacher Keltner has a measured approach in describing how we gain and lose influence in our lives.

Perhaps the most startling revelation from Pfeffer is around diagnosing and positioning yourself around centres of power. Much of this feels very calculated. From identifying departments that generate the most revenues, networking with the right people, physically seating yourself near those with power to seeking positions



on committees that hold significant decision-making capabilities. Despite my apprehension, one thing remained clear: without acquiring access to the key decision-makers, acquiring power remains largely out of reach.

While Pfeffer talks about centring yourself around your key stakeholder – your boss – Keltner indicates the importance of the community and group as a whole. Dedicating yourself to the group's needs will naturally lead to power being entrusted with those who protect the group's identity and resources.

Despite Keltner's altruistic approach, he also highlights that our ability to make a difference in the world is ultimately shaped by what the world thinks of us. In the same wave of thought, Pfeffer focuses on building individual success by standing out from your peer group and asking for opportunities that expand your influence. Much of Pfeffer's theory outlines a hedonistic

approach to acquiring power where being liked follows on from gaining power – a stark contrast to Keltner’s approach where those who are liked are granted power.

Despite some of these differences, both writers agree on the possible negative impacts of acquiring and maintaining power. Acquiring power ultimately becomes an addictive drug leading to overconfidence and poor decision-making. Being honest with yourself remains key – however self-awareness declines as one invests in building a self-affirming attitude to rise to the top.

While both Pfeffer and Keltner provide thought-provoking insights into the process of acquiring power, much of Pfeffer’s book made me uncomfortable: not only is the pursuit of power a time-consuming exercise, but it also threatens the very concept of community we instinctively rely on. Keltner’s views are slightly more measured but could be viewed as theoretical and far-fetched from the power dynamics within our daily lives.

One thing remains true however: power and hierarchy are ubiquitous to all organisations, large or small. Whether power is given or grabbed remains for you to ultimately decide. 

Ketler’s four principles for acquiring power

1. Groups give power to those who advance the greater good
2. Groups construct reputations that determine the capacity to influence
3. Groups reward those who advance the greater good with status and esteem
4. Groups punish those who undermine the greater good with gossip

Pfeffer’s seven personal qualities for building power

1. Ambition
2. Energy
3. Focus
4. Self-knowledge
5. Confidence
6. Empathy with others
7. Capacity to tolerate conflict

HEALTH WARNING: Education can be a poverty trap!

Help us help more children to escape the poverty trap.

Contact Paper Video (Chris Mills, 072 347 6154, chris@papervideo.co.za) or the Actuarial Society Educational Trust (Mike McDougall, 021 504 4651, mmcdougall@actuarialsociety.org.za) and make education a powerful catalyst for change in more children’s lives.



INTERNATIONAL NEWS



ALL YOUR SOCIETY NEWS TODAY AND MORE

News from the Casualty Actuarial Society

Automated Vehicles. Cyber Risk. Climate Change. The risks addressed by the actuarial profession continue to change every day. The Casualty Actuarial Society (CAS) was founded over 100 years ago with the advent of workers compensation insurance in the United States; now the CAS and its 8,000+ members continue to work on the most pressing insurance issues of the day. While the CAS maintains its core focus on credentialing property/casualty actuaries, the coming year will also see the CAS continue to push the actuarial and data analytics profession forward in innovative ways.

ACTUARIES IN BANKING

The **CAS**, working with the ASSA, is organising a one-day seminar on May 14 in Washington, D.C. that will provide an overview of emerging risk management challenges in the banking sector and how actuarial approaches can address those challenges. The Society of Actuaries and the Canadian Institute of Actuaries are also co-sponsoring the seminar.

With the advancements of available data and modelling capabilities over the past decade, there is a growing convergence of common challenges and problems to solve across the financial services industry, from insurance to banking. While actuaries’ unique skill sets make them well-suited for working in the insurance industry, the banking industry offers an ideal opportunity for actuarial talent, as actuaries in South Africa already know.

The seminar, scheduled for the day before the IAA Council and Committee Meetings, will provide ample networking opportunities to connect professionals interested in expanding the actuarial footprint outside of insurance with those looking to fill the talent needs of the banking sector. More details are available via the CAS website.

In addition, the CAS **recently announced** a new online Community of Interest for actuaries in banking, which will serve as a forum for actuaries working in financial services or on insurance products that play a role in banking. CAS member Kevin Bingham discussed this burgeoning area of practice in the **CAS roundtable** blog last year.

ASSA members are welcome to join the CAS in these endeavours – there is much to learn from the in-roads actuaries in South Africa have made into the banking sector.

New Specialty Credentials in Predictive Analytics, Catastrophe Modelling

The CAS Institute, or iCAS, is a subsidiary of the CAS offering credentials and specialised professional education for quantitative professionals. iCAS specialty credentials are separate from actuarial credentials and are designed for professionals seeking recognition in quantitative practice areas. The first iCAS credential – the **Certified Specialist in Predictive Analytics (CSPA)** – is focused on predictive analytics and data science; to date, nearly 250 CSPA credentials have been awarded.

iCAS also recently announced two new credentials: the Certified Specialist in Catastrophe Risk (CSCR) and Certified Catastrophe Risk Management Professional (CCRMP) credentials, offered in partnership with the International Society of Catastrophe Managers (ISCM). Future iCAS credentials are planned in other areas of specialisation, such as capital modelling and quantitative reinsurance analysis.

CAS PUBLISHES SPECIAL ISSUE OF VARIANCE JOURNAL

The CAS has published a special issue of *Variance* featuring six papers related to the topics of the first two credentialing programmes being developed by The CAS Institute (iCAS): predictive analytics and catastrophe modelling. *Variance* is a peer-reviewed journal focused on original practical and theoretical research in casualty actuarial science.

In his Editor's Note, Editor-in-Chief Rick Gorvett, FCAS, writes that the special issue "demonstrates the evolution of our casualty actuarial profession," including the many ways in which actuarial science, data and predictive analytics have come to intersect. Read original research on these topics and more in the latest *Variance*!

Actuaries Climate Index Informs Policymakers, Public

The Actuaries Climate Index, jointly sponsored by the American Academy of Actuaries, the Canadian Institute of Actuaries, the Casualty Actuarial Society, and the Society of Actuaries, is designed to provide actuaries, public policymakers, and the general public with objective data about changes in the frequency of extreme climate events in North America over recent decades.

The index measures changes in extremes of high and low temperatures, high winds, heavy precipitation, and drought, as well as changes in sea level, expressed in units of standard deviations from the mean for the 30-year reference period of 1961 to 1990 for the United States and Canada combined and by region. Updated values are posted quarterly on **ActuariesClimateIndex.org** as data for each meteorological season becomes available. The organisations are also in the process of developing a second index, the Actuaries Climate Risk Index, to measure correlations between changes in the frequency of extreme events as measured by the index and economic losses, mortality, and injuries.

Actuarial Review Magazine Covers P&C Trends

As the bimonthly magazine of the CAS, *Actuarial Review* continually tracks emerging trends and issues in the world of property/casualty insurance and provides in-depth analysis, new ideas, best practices and knowledge essential to the actuaries in this field. Recent cover stories have explored topics such as driverless cars, rising sea levels, marijuana and insurtech. Subscribe for the *Actuarial Review* e-newsletter (or the print edition) by visiting the website.

KEEP UP WITH THE CAS

Stay up to date on these CAS initiatives and more by signing up for our weekly e-bulletin newsletter!

The German Association of Actuaries – new projects, new opportunities

The German Association of Actuaries (Deutsche Aktuarvereinigung e.V., DAV) is the professional representation of all actuaries in Germany. It was founded in 1993 and represents more than 5 300 actuaries today. Another 1 600 candidates for membership are actively enrolled on its in-house education and examination programme. Hence the DAV is one of the five biggest actuarial associations in the world. More than 700 members are involved in thirteen committees and in over 60 working groups as a voluntary commitment. Significantly more are active in the fields of education, CPD seminars, cooperation with universities and in various actuarial projects all over the world.

Obligation to Continuously Develop Professional Know-how and Expertise

The new training prepares actuaries for the challenges of the constantly changing world of work. Actuaries carry responsibility in the financial and insurance industries as well as for retirement provisions. Their work has a long-term influence on the economy and on society. At the same time, the scope of the work of actuaries is constantly expanding. Actuaries in the German Association of Actuaries are thus obliged – in line with the Association's code of conduct – to keep their professional know-how and expertise up to date, thus enabling them to perform their professional duties, by means of appropriate Continuous Professional Training and Development (CPD). This obligation concerning CPD was laid down by the members of the DAV in spring 2013 in Continuous Professional Development Regulations with clear terms of scope and documentation.

The extent of the required CPD amounts to 20 hours per calendar year. This can incorporate a

NEW EDUCATION AND TRAINING PROGRAMME

After four years of preparation DAV's new education and training programme was launched on 1 January 2018. The objective of the new education and training programme is to prepare the actuaries of the future for the changes in their working environments that have been and will be brought about by Solvency II, increasing digitalisation and the enhanced demands and requirements being made of risk management. The new system consists of basic knowledge with six examinations and the later specialist knowledge with four examinations. It provides candidates with a wider range of topics as well as the opportunity for greater specialisation in one specialist area – without requiring them to sit any more examinations than was previously the case.

After the introduction of the new training, the DAV received very positive feedback, especially regarding the implementation of more specialist knowledge topics with a high degree of practical relevance, for example new courses on Actuarial Data Sciences.

maximum of eight hours of informal CPD within one year. To fulfil the formal requirements a wide range of further training opportunities are offered, for example training events and congresses, tutor events or all activities from foreign actuarial associations.

During the last two years, the DAV has thoroughly evaluated the CPD activities of its members. In 2017 and 2018 about 95 percent of the DAV's actuaries have fulfilled their CPD requirements. Only in very few cases the Board of the DAV had to decide on disciplinary measures.

In order to keep the regulatory framework up to date, the CPD regulation is being revised regularly. The current review suggests that the scope of training contents and formats should be widened, i.e. by explicitly adding rising actuarial fields like Data Science and modern learning formats like e-learning.

actuview – the first streaming platform for actuaries

A new initiative for further education and for actuaries all over the world has been initiated by the DAV. The platform concept of the very successful Virtual ICA (VICA) that in conjunction with the ICA 2018 provided over 170 hours of live streaming, exclusively produced online recordings and other actuarial content from experts will be continued on a permanent streaming platform for actuarial media: actuview.

In March 2019, the new streaming platform actuview will offer permanently digital actuarial content – either broadcasted live from international actuarial events, provided as recorded sessions from our partners or recorded as webcast by the actuarial community. The new platform – accessible via **www.actuview.com** – will include enhanced functionalities, such as a revised search function or PDF attachments to videos, as well as a completely redesigned layout.

The project is supported by various partners and industry representatives. RGA will accompany the new platform as corporate partner for the year 2019. In addition, so far the actuarial associations of Austria, the Netherlands and Switzerland as well as the international ASTIN Section have already agreed to become institutional partners for the project. Members of these associations can access all content free of charge.

Further information on the DAV in general and on the new streaming platform actuview and its registration options will be available shortly on www.actuview.com and **www.aktuar.de/en**. Stay up to date with the actuview newsletters: newsletter.actuview.com. 



Send us your thoughts and comments. [Click Here](#)

Where to find Job Adverts

ASSA's Job Board:

<http://www.actuarialsociety.org.za/assa-jobs/>

WANTING TO JOIN THE SLC TEAM??

The SLC is looking for volunteers – if you are a student member and would like to join the SLC then please click here to email us your CV



www.actuarialsociety.org.za



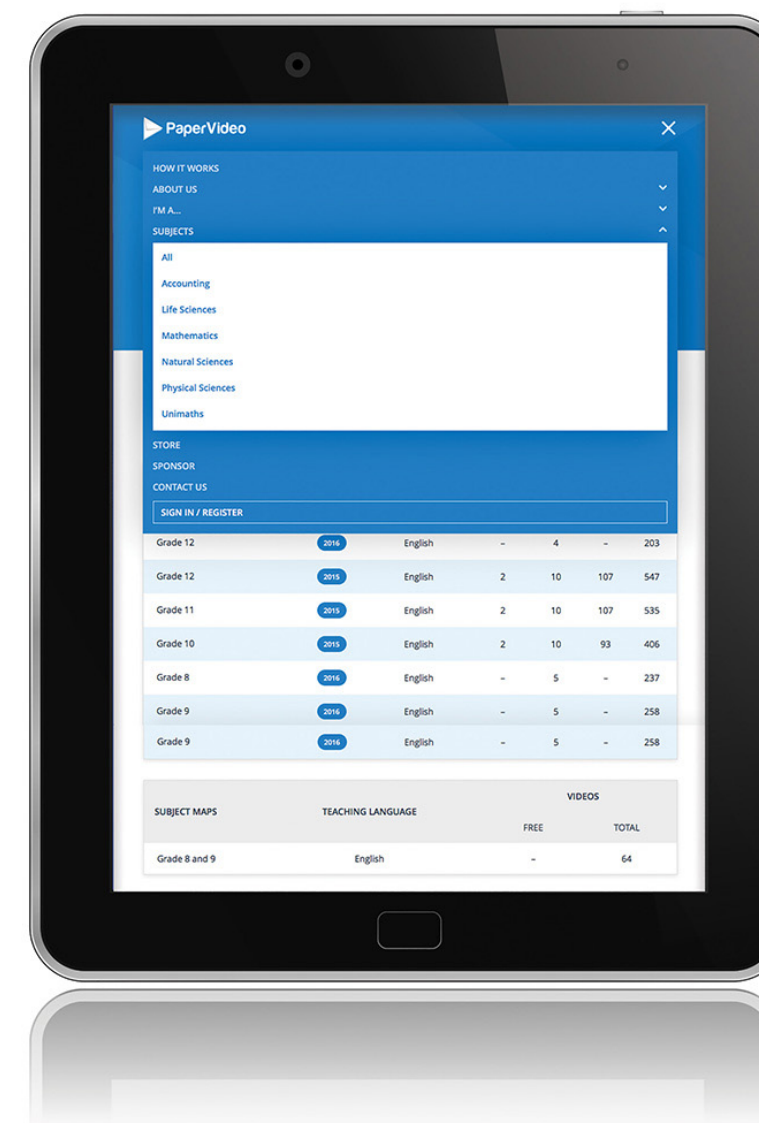
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