



Actuary Entrepreneur

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Executive Summary

This paper calls on actuaries to apply their skills in non-traditional actuarial fields as an alternative form of professional development. Such fields include entrepreneurial ventures, charities, education, and non-government organizations.

The unique actuarial problem solving approach in applying mathematical, statistical, economic and financial analysis has many practical and innovative applications in non-traditional actuarial fields. In turn, the experience provides actuaries with accelerated opportunities to develop beyond being technical experts to being more practical, innovative and well-rounded professionals.

This view is illustrated by examining how actuarial techniques can be applied to entrepreneurial ventures. My own experience in developing a child care centre is used as a case study and is detailed in Appendix A. I found actuarial training to be a competitive advantage in setting up the business. In turn, the entrepreneurial experience helped to develop a range of people skills, resilience and practical thinking that has developed me into a better actuary.

Other entrepreneurs were also interviewed to share their experiences and insights. Excerpts of these interviews are detailed in Appendix B.

As actuaries venture forth into non-traditional actuarial fields, it is important to share these experiences with other actuaries to help build a culture of innovation and entrepreneurialism in the profession. There are many benefits to be gained:

- For the profession, there is a higher profile and enhanced reputation across more industries. This will help to attract and retain the best talent.
- For members, it opens up more opportunities across a wider range of industries and the profession provides the encouragement and support to seek opportunities in non-traditional actuarial fields.
- For employers, there is the competitive advantage of employing actuaries as intrapreneurs who have a history of innovation, practical solutions, resilience, and inspirational leadership.

Keywords: non-traditional fields, entrepreneur, professional development, innovation

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1. Professional Development

- 1.1. The approaches to professional development have traditionally focussed on education, research, coaching and on-the-job experience. This paper encourages an alternative development approach of seeking practical applications for actuarial techniques outside of both one's professional career and the traditional actuarial fields.

2. Why Focus On Non-Traditional Actuarial Fields?

- 2.1. The unique actuarial problem solving approach in combining mathematical, statistical, economic and financial analysis has many practical applications in non-traditional actuarial fields. It gives the actuary opportunities to apply actuarial techniques innovatively. In turn, the experience gained helps to develop the actuary beyond being a technical expert to a more practical, innovative and well-rounded professional.
- 2.2. While this paper focuses on applying actuarial techniques to entrepreneurial ventures, readers are encouraged to consider applying actuarial techniques more broadly to encompass all non-traditional actuarial fields including charities, schools, and non-government organisations. If a significant number of actuaries take up this challenge, the actuarial profession as a whole benefits from a higher profile and enhanced reputation, which opens up opportunities across more industries.

3. What Is An Entrepreneur?

- 3.1. The Oxford Dictionary defines an entrepreneur as "a person who sets up a business or businesses, taking on financial risks in the hope of a profit". To develop on this definition, an entrepreneur sets up a business by combining three key elements:
 - **Idea** – identifying a business opportunity to provide a product, process or service
 - **Capital** – typically financial capital in the form of monetary funds and loans

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- **Expertise** – the human resource capabilities required to execute the idea
- 3.2. Crucially, none of these key elements have to necessarily belong to or originate from the entrepreneur. Rather, the entrepreneur's job is to seek out and combine these key elements to create a business.
- 3.3. Despite the vision, passion, and determination of entrepreneurs, statistics show that about half of nascent businesses fail to progress to operational status. Of those that do reach operational status, about 14% are terminated within the first 3 years. (Australian Small Business - Key Statistics and Analysis, December 2012)

4. The Actuarial Entrepreneur: An Actuarial Approach To Entrepreneurialism

- 4.1. The Actuaries Institute defines an actuary as a professional who “evaluates risk and opportunity – applying mathematical, statistical, economic and financial analyses to a wide range of business problems.”
- 4.2. The actuarial approach to entrepreneurialism relies on the actuary's competitive advantages in applying an analytical and evidence-based approach to problem solving to increase the probability of success. Actuarial expertise is particularly useful in developing each of the key elements:
- **Idea**
 - Actuarial models can be used to assess the feasibility of the idea to enable the entrepreneur to take calculated risks.
 - The models also provide insights into optimizing the financial outcomes, sensitivity to key profitability drivers, and assessing and quantifying the potential risks.
 - With these insights, the business idea can be further enhanced to increase the chances of success.
 - **Capital**
 - Actuarial techniques can be used to calculate capital requirements and capital optimization to help maintain solvency.

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- A detailed business plan can be drafted based on the actuarial modelling to help secure the most effective capital structure for investors or when applying for loans.
- **Expertise**
 - The Control Cycle can be used to monitor the experience and, where the experiences deviate from the assumptions, update the assumptions and adjust the business idea if required. Reflecting upon the experiences gained and identifying the learnings is a powerful tool and increases the chances of success.
 - Actuarial expertise can also be used in a wide range of tasks including pricing, finance, cash flow management and risk management.

5. Limitations Faced By The Actuarial Entrepreneur

5.1. There are limitations and barriers that an actuaries may face:

- Actuaries may not be best positioned to start and run businesses in fields where they have little or no experience. This can be addressed by partnering a business manager who has experience in the field. It will significantly increase the likelihood of success, particularly if the skills of the business partners are complementary.
- “Analysis Paralysis” is where the actuary has a tendency to over-analyse the situation and action is not taken at all. This overly cautious approach is the opposite of “Extinct by Instinct” where fatal decisions are made by hasty judgement or gut reactions. (Analysis paralysis, n.d.) The optimum approach lies somewhere between the two and the balance largely depends on the type of business opportunity being considered. For example, entrepreneurial instincts is better suited to rapidly developing industries that require relatively low amounts of capital such as some IT start-ups.
- It may not be possible to build credible actuarial models for radically innovative business ideas where no data is available. Applying an actuarial approach exclusively could see these types of businesses be assessed as too risky. In this way, the actuarial approach would differ

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from the approach used by venture capitalists who, relying more on their entrepreneurial instincts, are prepared to take on such risks.

- 5.2. With these limitations, it is optimal for the actuarial entrepreneur to partner with experts from the chosen non-traditional actuarial field, and combine the actuarial approach with entrepreneurial instincts when assessing business opportunities.

6. Conflict of Interest with the Actuary's Professional Career

- 6.1. There is a further potential limitation for actuarial entrepreneurs. Working on an entrepreneurial venture can be very time consuming and emotionally draining. Therefore there may be potential or perceived conflict of interest with the actuary's existing employment.
- 6.2. A distinction made here between running a business (i.e. a business manager) and starting a business (i.e. an entrepreneur).
 - The business manager's role tends to be more rigid during business hours and focus on employees, customers and processes. This role would be difficult, if not impossible, to do at the same time as being employed as an actuary and perform both roles well. This is another reason why it is advantageous for the actuary to partner with a business manager who can run the business.
 - In contrast, the entrepreneur's role tends to be more flexible as it doesn't involve running a business. The entrepreneurial work can often be scheduled around the entrepreneur's availability and it may be possible for an actuary to fit in this work around an actuarial career.
- 6.3. Depending on the particular circumstances, it may be optimal to formally adjust the employment conditions in order to pursue the entrepreneurial venture. Potential options in this regard include working reduced hours or taking a career break. This establishes clearer boundaries between the entrepreneurial venture and the professional career to better address the conflict of interest risk.
- 6.4. In any event, it is recommended that the actuary disclose and discuss the potential or perceived conflict of interest with their employer. Indeed there

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are some employment contracts that require this disclosure or prohibit participation in entrepreneurial ventures.

7. The Benefits of Entrepreneurial Experience: A Well-Rounded Professional

7.1. An actuarial career can reach its full potential by embracing and mastering entrepreneurialism. Starting a business can fast-track the development of the key skills to equip the actuary for more senior positions. Such skills include:

- Developing resilience and being persistent. The entrepreneurial path requires many decisions to be made and is inherently risky. Even with thorough planning, the execution of ideas rarely works out on the first try and mistakes are made. This experience teaches the actuary to treat mistakes as a learning experience and to stay focussed by making adjustments before trying again.
- Combining analytics with a positive and practical approach to problem solving. The entrepreneurial experience teaches the actuary to take calculated risks and avoid "analysis paralysis". The actuary is required to extend beyond applying his/her skills to identify and quantify risks towards working out solutions to minimise those risks. The purpose of actuarial analysis shifts to searching for practical solutions and innovations to make the business ideas work.
- Developing better communication skills with a range of stakeholders including business partners, staff, consultants and customers. This includes improved strategic thinking as well as understanding that the stakeholders are more interested in what the conclusions and recommendations are rather than how they were derived.
- A broader understanding of how businesses work including technology, human resources, rules and regulations, accounting practices, legal clauses, and marketing. The actuary ends up much more holistic than someone simply thinking about the numbers.
- Leadership skills by developing:

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- Workable ideas and convincing business partners to come on board, the actuary develops a better understanding of the role of his/her vision, passion and integrity in driving the business venture forward.
 - A better understanding of the strengths and limitations of actuarial techniques, particularly when applied to non-traditional actuarial fields. This encourages searching for and taking on the role of “enabler” to experts who are better positioned to provide the advice.
- 7.2. A word of caution: starting a business is inherently risky. Although actuaries have a lot to gain from the entrepreneurial experience, we must also be careful to invest with amounts that are within our means.

8. What Are The Benefits For Employers?

- 8.1. Entrepreneurial actuaries are highly beneficial for their employers because they provide a competitive advantage. These actuaries have a history of resilience, inspiring leadership, innovation, and developing practical solutions to make ideas work.
- 8.2. There is a word to describe this type of actuary: “intrapreneur”. The American Heritage Dictionary defines it as “a person within a large corporation who takes direct responsibility for turning an idea into a profitable finished product through assertive risk-taking and innovation.” Entrepreneurial actuaries are well positioned to be the leading intrapreneurs in their organizations.

9. Reimagining the Future

- 9.1. Imagine ... entrepreneurs feel compelled to seek actuarial advice when assessing business opportunities. The business community has a high degree of awareness and value the application of actuarial advice in all fields.
- 9.2. Imagine ... employers seek out actuaries to be the leading intrapreneurs in their organizations. Senior management appreciate the culture and reputation of entrepreneurialism and innovation within the actuarial profession.

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9.3. Imagine ... all the people know what an actuary is and all industries are "traditional".

9.4. To help make this vision into a reality, members can:

- Expand further into non-traditional actuarial fields by leveraging off the actuary's competitive advantages in applying an analytical and evidence-based approach to problem solving. It would be best if the actuary seeks out and partners with experts in the non-traditional actuarial fields.
- Build an entrepreneurial culture in the profession by engaging with other entrepreneurs outside the profession and being prepared to share personal experiences with other actuaries. This helps us learn from each other's mistakes, failures, and successes. An entrepreneurial culture is more likely to create more entrepreneurs in the profession.
- Get involved with intrapreneurial activity or apply actuarial techniques to non-traditional actuarial fields within their organizations.

APPENDIX A: Case Study

10. The ABC's of Setting Up a Child Care Centre

- 10.1. My own experience in setting up a child care centre with my family is used as a case study.
- 10.2. There were a number of key points in the project where actuarial expertise was used. Although we planned carefully, our experience was like running the 100 metre hurdles for the first time wearing a blind fold. It seemed we stumbled over each and every hurdle and yet somehow, bruised and battered, we managed to finish the race several years behind schedule. Our learnings are labelled "Insights for the Entrepreneur" and the commentaries are in italics.
- 10.3. Although I have been applying some of these insights to my career, I am still a long way from being an intrapreneur. Indeed, I am still gaining new perspectives of some of the hurdles and the lessons they teach through further discussions with fellow entrepreneurs and colleagues. My views on applying the learnings to an actuarial career are labelled "Insights for the Actuary" and the commentaries are in italics.

11. Year 2002 - Developing an Entrepreneurial Culture

- 11.1. After I qualified as an actuary, Dad said to me "you need to start a business". He was running businesses for over 15 years at the time.
- 11.2. However, I wanted to work overseas and travel. So off I went. After Dad was diagnosed with a brain tumour three years later, I returned to Australia to be with the family. I also had a fresh perspective on the idea that Dad had planted and kept watering.
- 11.3. *Insight for the Entrepreneur: Entrepreneurs breed entrepreneurs. Being exposed to entrepreneurs can inspire actuaries to apply their skills in areas beyond their careers.***

In hindsight, Dad gave me a different perspective of the potential of an actuarial education. I would have been less likely to seek entrepreneurial opportunities without his encouragement.

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The actuarial profession could fulfil a similar role to its members by building an innovative and entrepreneurial culture. Some possible initiatives include:

- Formal courses on applying actuarial techniques to entrepreneurialism
- Forums for actuaries to share their entrepreneurial experiences with other actuaries
- Engaging with other entrepreneurs outside the profession by participating in events such as the Australia Trade and Export Finance Conference, and small business conventions such as the B2B Expo.

11.4. Insight for the Actuary: Build a culture of innovation. Encourage actuaries to explore opportunities to apply their skills beyond their usual roles.

I used to manage a team to conduct the claims experience studies for the purposes of assumption setting. We were encouraged to expand the scope of the investigation beyond "satisfying intellectual curiosity" to include streamlining the process and delivering actionable insights to add value.

With this encouragement, we re-engineered the data extraction process and investigation methodologies to provide more granular results in a shorter time frame. This enabled us to spend more time in developing the key insights into practical business applications.

11.5. In the time I was away, Dad had discussed the possibility of entering the child care business with other family members. They had been looking to buy or develop a child care centre in the local area and manage it.

11.6. We had a lot of the expertise to execute the idea amongst the family members involved, including:

- Entrepreneurial experience (from Dad)
- A Director who was a qualified and experienced child care professional
- A Designer with experience in advertising

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- A Chartered Accountant who would be the financial controller
- I wondered how an actuary could contribute to the child care business besides providing capital

11.7. Insight for the Entrepreneur: Understanding the dynamics of a family business

A family business has peculiar dynamics that are different to the traditional corporate environment. It can be a source of strength and resilience but it also poses risk of conflicts where tension in one relationship can impact the wider family dynamics. Therefore more emphasis is placed on harmony than hierarchy, and more emphasis is placed on loyalty and flexibility.

Each family member has the opportunity to do what they do best with the support of the other family members. At times, this may mean not engaging external parties better suited to the task.

11.8. Insights for the Actuary: applying analytical approaches to improve existing processes within the business

A company I worked for had a structured two-year Actuarial Graduate Program that was centred on rotations through several core areas of the business. As the Graduate Program Co-ordinator, I thought the program had grown large enough to apply an analytical approach to optimize the rotation experience for both the graduates and the business.

The goal was to achieve a better alignment of the needs of the company with the aspirations of the graduates. To get the required data, two surveys were created:

- *A survey for potential managers to understand their requirements including role availability, pre-requisite skills, and the type of training and exposure the role provides*
- *A survey for graduates to understand their past rotations and skills developed, the skills they would like to develop, and areas they would like to have more exposure to*

The possible permutations of rotation scenarios was generated and ranked using a scoring system based on the number of requirements met. The optimum permutation was used as the basis for setting the next round of rotations. A follow-up survey was created to gauge the satisfaction of the

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graduates in the program, including their feedback on the rotation process and how it can be further improved.

12. Year 2005 – The Actuarial Advantage In Optimizing The Idea

12.1. *Insight for the Entrepreneur: The Actuarial Advantage. Actuarial techniques can be used in combination with expert advice from other fields to optimize the business idea.*

The approach used in searching for and securing a suitable location that optimizes the business idea is described in Sections 12 and 13 below. I have focussed on the key insights gained rather than the technical specifics of the type of analysis used and the sources of data.

Our approach placed more emphasis on actuarial analysis and less on entrepreneurial instincts because the idea was capital intensive and failure could be catastrophic. Our philosophy was to keep searching until the right property was located and then act decisively.

Afterwards, I asked the family accountant for his views of the actuarial approach and to compare it to the approach he would have used. He said the approaches are similar but the actuarial approach was better suited to identifying the optimum locations to build the child care centre. It went further by applying statistics to various types of data to form the assumptions of the key drivers of the business, which are then used to conduct tailored projections for specific locations.

12.2. Developing a child care centre was capital intensive and presented a high degree of concentration risk. We only had the capital to build one centre and we had to optimise its chance of success. I wanted to understand the key profitability drivers of the business and answer a few questions:

- Where were the best locations to build?
- How much should we spend?
- How much can we expect to make?

12.3. To answer these questions, I built financial models of the business. Key data sources were obtained online, through discussions with key experts, and from existing child care centres. One child care operator was kind enough to provide a detailed breakdown of their running costs and construction costs.

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- 12.4. The modelling exercise showed a theoretical optimum profitability where the centre has more than 56 places, and the difference between the child care fees and the operating expenses provided the greatest return when compared to the property prices. We combined this information with the available capital to exclude those areas which were beyond our budget and narrow down the potential suburbs where we could build the centre.
- 12.5. We further narrowed the property search by identifying those areas that had low child care vacancies, areas with access to employment opportunities and public transport, and conducting demographic studies to identify areas with a high rate of population growth.
- 12.6. By this stage, the property search area was narrowed down to an arc in suburban Sydney, starting in Castle Hill and moving down towards North Ryde. These findings were discussed at family meetings and the family was initially reluctant to move outside the local area where we had lived for over 20 years. Although they accepted that there was more business potential in the search area, this logic alone wasn't compelling enough of a reason for them to move.
- 12.7. More effective was appealing to their hearts with a vision of a better life – particularly access to schools for their children and better access to public transportation for work. This approach was more personal and gave them something worth striving for. With this vision, we agreed to search for potential sites outside the local area.

12.8. *Insight for the Actuary: Providing a vision is key to influencing decisions.*

From this experience, I learnt that inertia within a team can be overcome by providing a vision that the team members find personally appealing and realistic enough to strive towards. With this type of vision, the team can move mountains.

13. Year 2006 – The Actuarial Way of Valuing Property

- 13.1. We engaged Architect #1, who had experience building child care centres, to provide some criteria for site selection. After 7 months of searching, we found a site in Castle Hill that fulfilled most of Architect #1's requirements. Although he thought the site was suitable, he cautioned that the Council might not approve and we would have to appeal in the Land & Environment Court.

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- 13.2. We updated the financial model with the latest child care fees in Castle Hill, the estimated construction costs, the added time and costs of going to Land & Environment Court, and the growth model from the demographic study. Combined with our profitability requirements, we were able to calculate a value for the property that we used in negotiating the purchase price. The model was also forwarded to a mortgage broker to help secure a loan.
- 13.3. There was another developer who was interested in building town houses on the property. Although our bids were similar, the owner preferred our idea of building a child care centre and decided to sell the property to us.

14. Year 2006 to 2008 – Dealing with Architects and Other Consultants

- 14.1. Although Architect #1 had experience in developing child care centres, he was based a fair distance away and was not keen to travel to Castle Hill regularly. We searched for a new architect and decided on Architect #2. Although they had aesthetically pleasing designs, they did not have experience with child care centres.
- 14.2. Architect #2 drew the initial plans in our development application for a 66 place child care centre to Council. The centre was designed to appear like children's play blocks with various colours and high ceilings of up to five metres and the floor plan layout was also practical. There were elements to the design, such as a walk-in fridge, a commercial grade kitchen, and automatic sliding doors, which made us concerned the construction costs would exceed the construction budget we had set for Architect #2.
- 14.3. As Architect #1 predicted, Council rejected our development application. We sought legal advice and appealed to the Land & Environment Court and they upheld our appeal.
- 14.4. With approval from the Land & Environment Court, we progressed to construction drawings for the centre. Architect #2 provided the construction drawings with assistance from a number of engineers. When the construction drawings were put out to tender, the lowest price tendered was twice the budgeted construction cost. The business was not commercially feasible at this price.

14.5. Insight for the Entrepreneur: The cost of experience is less than the cost of inexperience

Architect #2's inexperience with child care centres led to areas of overdesign and resulted in construction costs that were significantly above our budget. In hindsight, we could have engaged Architect #1 as a consultant to assist Architect #2. In that way, we could have leveraged off Architect #1's experience and Architect #2's creativity. Although there would be additional cost for Architect #1, it would have been less than the cost of Architect #2's inexperience in terms of time and money.

We had to consult a number of other experts to help with the business venture including real estate agents, solicitors, engineers, project managers, and builders. In our experience, the quality and experience of the experts and their motivations varied. Choosing the wrong expert is a key risk with potentially disastrous consequences.

15. Year 2009 – Builder #1: A Drawn Out Disaster

- 15.1. In searching for a solution, we were referred to Builder #1 by word of mouth. They presented themselves as a small operation consisting of a builder and a draftsman / entrepreneur who had experience building and running child care centres. They proposed simplifications to the building while maintaining the character of the original design. With these changes, they quoted a building price that met the construction budget.
- 15.2. We conducted a due diligence on Builder #1 and visited their child care centres, including one that was currently under development and another that was in operation. We were satisfied with their level of experience. We discussed retaining Architect #2 to administer the building contract but Builder #1 disagreed saying that they would only hinder the construction progress. Builder #1 also recommended that we use the engineers and certifiers from their previous projects. While we recognised this as a potential risk, we reasoned that Builder #1's proposal could potentially result in a smoother construction process.
- 15.3. The draftsman did manage to simplify the building without impacting the overall character and even improved its functionality. However, the construction process was a drawn out disaster. Builder #1 stopped working on our partially completed and defective building after two years. We terminated the building contract on that basis with legal assistance. Several months later, Builder #1 were liquidated and deregistered from ASIC.

15.4. Insight for the Entrepreneur: The high cost of poor risk management

Our engagement with Builder #1 exposed us to significant risks that were not fully appreciated at the time. In hindsight, with better risk management, we could have avoided these risks or at least limited our exposure. These risks include:

- There was conflict of interest risk present between Builder #1 and the engineers they paid to certify the construction. The certificates proved worthless in the end because they did not reflect what was actually constructed and so we could not rely on them.
- The lack of independent oversight gave Builder #1 the opportunity to cut corners. We simply didn't have the expertise to effectively monitor the construction.
- The contract with Builder #1 was unclear on what to do when things didn't go to plan. We had to wait until Builder #1 stopped working before we terminated the contract with legal assistance.

15.5. As the disaster unfolded, the family drew closer together to make the key decisions. We decided to take out insurance cover, board up the partially completed building and fence it off to protect it from vandals. We would take time to recapitalize and reassess the situation at a later date.

15.6. Insight for the Entrepreneur: Business partners increase the probability of success

Starting a business requires resilience as progress is rarely according to plan. A key source of strength and resilience is having business partners, especially those with different skill sets. There were a number of phases of the project where a different family member with a key skill took the lead role. We leaned on each other for support and encouragement, especially after the disaster with Builder #1, and we also celebrated together after pulling through.

15.7. Insight for the Actuary: A diverse and closely knit team increases the probability of success

In a similar way, I developed a better appreciation of a closely knit actuarial team where members had diverse and complementary skill sets. Individual actuaries are rarely strong in all disciplines such as report writing,

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stakeholder management, software programming, technical analysis, innovation, leadership, strategy and practical thinking. Building a diverse team of individuals with different strengths results in enhanced overall capabilities that is greater than the sum of its parts.

I also found celebrating our successes as a team and recognizing each members contributions helped to strengthen the team's bonds.

- 15.8. During this time, we engaged a Building Consultant to assess the state and identify the defects of the partially completed building. He found several defects in the building, including significant structural defects that were contrary to the engineer's certificates we received. He recommended that we sue Builder #1 for negligence. Although Builder #1 had been liquidated, the Building Consultant advised us to pursue the business owner's personal assets for compensation.

15.9. Insight for the Entrepreneur: Treat mistakes as learning experiences. Stay focussed on the business

We decided not to take the Building Consultant's advice. We mentally wrote off the losses incurred from engaging Builder #1 as an expensive learning experience. Although we felt aggrieved, we decided that it was better to stay focussed on completing the project rather than become embroiled in a legal battle where the costs and the outcomes were uncertain. Because the lesson was so painful, we would ensure that the same mistakes were not repeated.

16. Year 2012 – Decision to Continue: Applying The Control Cycle

- 16.1. After taking a break from the project, we reassessed the situation using the Control Cycle. The assumptions were updated and the model was rerun to assess the feasibility of the project. A couple of key drivers had changed favourably since 2006 that made completing the project feasible:

- The interest rates had reduced significantly, lowering our loan repayments
- The child care fees in the area had almost doubled

- 16.2. However, the overwhelming factor that gave us the confidence to continue with the project was the strategically attractive location of the

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property. There was a major shopping centre within five minutes' walk and a new train station being built within three minutes' walk. There were also more major residential developments around the property which would further increase demand. Although there were a number of child care centres that recently opened nearby, we had the advantage of being conveniently situated across the road from a primary school. After all that had gone wrong with the project, in our minds at least, we got the location right.

- 16.3. It was time to apply the learnings from past mistakes and adjust our approach. We engaged Architect #3 to help complete the construction. Architect #3 was experienced with commercial and educational developments and we would retain them until project completion. They drew up a project plan to rectify the defects and complete the construction before we went out to tender for builders.

16.4. Insight for the Entrepreneur and the Actuary: Resilience is about getting the right perspective

Ultimately resilience is about getting the right perspective after setbacks to enable more rational thinking to solve the outstanding problems. There will be setbacks in starting a business and the key is to learn from the mistakes, stay focussed and adjust the approach for the next attempt.

This insight can also be readily applied for a resilient actuarial career where, with the right perspective, events that were once perceived as setbacks can be turned into opportunities (e.g. failing actuarial exams, getting overlooked for a promotion, or being made redundant).

17. Year 2013 – Builder #2: Learning From Our Mistakes

- 17.1. Only large commercial builders were asked to tender for the project. Builder #2 had experience in building child care centres. Their focus was more on larger scale developments including schools, retail, commercial, and health care. So we went with Builder #2, and have Architect #3 administer the building contract on our behalf and engage independent engineers for certification.
- 17.2. The construction was completed within the stipulated budget and time frame. The experience of all parties – Builder #2, Architect #3 and ourselves – was the decisive factor to successfully completing the building the second time around.

17.3. Insight for the Entrepreneur: Get a business mentor

We lost our business mentor when Dad passed away in 2008. His entrepreneurial experience was never replaced and we found ourselves making fundamental mistakes that had disastrous consequences. In hindsight, it would have been beneficial to seek a business mentor for perspective and guidance. After our experience, I am certainly open to providing guidance to others who want to follow a similar path.

17.4. Insight for the Actuary: Get a career mentor

With similar reasoning, it is beneficial for an actuary to have a career mentor. I have benefited from having a variety of different mentors throughout my career which have broadened my perspective. In general, I have found people quite open to being mentors and it was up to me to take the initiative.

Realising the value that mentoring has brought to my career, I volunteered to run the Actuarial Mentoring Program for my employer.

18. Year 2015 – Commenced Trading and Adjusting My Role

18.1. After getting the necessary certificates from Council and the Department of Education, we commence trading. Enrolments have been growing at a steady pace since commencement. There remains a lot of work to grow the business to capacity with each family member doing what they do best:

- The Director oversees all operational issues including policies and processes, safety, human resources, and marketing.
- The Chartered Accountant oversees the business finances including cash flow management, reporting and tax.
- The Designer oversees the business website and advertising initiatives.
- My technical advisory role is more limited to ensuring we had adequate insurance cover, and I also like to do the gardening.

18.2. Insight for the Actuary: Another view of people management

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With most of the entrepreneurial work done, I realised that other family members were better suited to running the business and the more hands-on I got, the more I got in their way. My involvement in the business had shifted focus and I could be most effective by:

- *Maintaining a strong relationship with the family and continue to show passion in the business.*
- *Being an “enabler” by ensuring the family have all the necessary tools and enjoy their work. This will enhance the culture and filter down to the other staff.*
- *Publically support the family and be available to act as a sounding board. My advices are generally based on the Control Cycle principles where, by reflecting on past experiences, the learnings are used to adapt our approaches to suit the current situation.*

As I gained this insight, I became better equipped to manage more senior staff in my career. I devoted more time to motivating, inspiring, and being available to provide feedback to help the team perform with more autonomy.

APPENDIX B: Interviews with Other Entrepreneurs

19. Summary

- 19.1. In this section, the extracts of interviews with a number of entrepreneurs are provided. The entrepreneurs include those with an actuarial background and those of other backgrounds. The responses from the interviewees are italicised and my views and comments are in square brackets.
- 19.2. They had a range of views on the value of actuarial techniques to entrepreneurialism. Some relied more on entrepreneurial instinct, some used actuarial techniques to help make business decisions, and others felt actuarial techniques gave greater insight that can increase the chance of business success.
- 19.3. However, there was a common theme in the responses from entrepreneurs with an actuarial background. They all viewed that actuaries had a lot to gain from the entrepreneurial experience, particularly with developing the soft skills, resilience, and commercial acumen.

20. Mr. Adam Driussi, FIAA, Chief Executive Officer, Quantum

20.1. A description of the business

"Quantum is a data analytics business focussed on helping businesses leverage the power of data. Today we employ approximately 500 staff in Australia, India, South Africa and New Zealand. We work with many of the world's leading brands in industries as diverse as retail, financial services, media, fast moving consumer goods, property, travel and entertainment"

20.2. On what inspired him to be an entrepreneur:

"My background was working in insurance pricing for insurance clients which was increasingly about using data and predictive modelling to help insurers better price their products. As companies were increasingly collecting data and the technology available to analyse that data was improving we saw the opportunity to have a crack at applying the same skills outside of insurance."

[Kevin: a key component to entrepreneurialism is to have a business idea. Mr. Driussi developed an innovative idea by looking beyond his actuarial career and traditional actuarial fields.]

20.3. On applying actuarial techniques:

“To be honest with you, very little (actuarial techniques were applied). In setting up the company we did some basic forecasts but really we relied on gut feel as to what we needed to be successful.”

[Kevin: our experiences differ here and Mr. Driussi relied more on entrepreneurial instincts to develop a very successful business.]

20.4. On professional development through the entrepreneurial experience:

“Owning, building and running a business – particularly as the business gets bigger helps develop a whole range of skills:

- **Broader business understanding** – e.g. everything from technology to HR rules to accounting practices to legal clauses to marketing etc. You end up much more rounded than someone simply thinking about the numbers.
- As a result, the ability to **think in terms of the big picture** – you have to think that way when you run a business so it helps you understand how CEOs of clients think
- More broadly, **how to communicate well** – in particular how to communicate complex messages in easy to understand language – whether it be to clients, staff etc. As an example, our clients don't care about how we do our work – they just want results. Actuaries have a bad tendency to focus on what they've done and how they did it as opposed to the value it adds
- **Importance of a broader range of inputs and expertise** – actuaries can be narrow in their thinking and running a business you need to rely on a broader range of experts whether they be lawyers, accountants, designers, technology/IT experts, marketing experts, PR experts etc.
- **Importance of people** – when you run a business like ours, people are truly your number one asset. I've learnt a huge amount about how to run a team and how many issues people have. Whether it is staff with mental health issues (a huge issue in teams and workforces that I never truly appreciated until I ran a business), a lack of confidence, a lack of EQ, issues at home or with family etc, when you get to a workforce of

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500 people you have a HUGE amount going on that you need to be sympathetic to and deal with. On the flipside, you also need to spend lots of time thinking through how to motivate and inspire your best people so that they stay and you get the most out of them.

- **Management and leadership skills** – over time you realise that you need to move from 'key player' to 'team coach' and that is a skill you develop. There is a difference between management and leadership but you need to do both.
- **Innovative thinking** – for me this has developed hugely over the time we have built our business and I think it helps
- **Resilience** – I think it is really important as a leader to try not to let everyone else see you riding the highs and lows that naturally happen"

[Kevin: these are great insights from Mr. Driussi. The entrepreneurial experience helps to develop the actuary beyond being a technical expert and into a well-rounded professional.]

21. Mr. Ben Chen, General Manager, Multigate Medical Products

21.1. [Kevin: I wanted to compare the approaches used by entrepreneurs without an actuarial background to the approach I used. I discussed how actuarial techniques can be used by entrepreneurs with Mr. Chen, who has a Bachelor of Science (Hons). I described to him how I applied an actuarial approach to our child care business and asked him to compare it with his approach.]

21.2. A description of the business

"Multigate is a leading designer, manufacturer and supplier of medical and surgical procedure packs in Australia. In Australia, we employ over 200 people from a wide range of backgrounds."

21.3. On awareness of the actuarial profession in the actuarial community:

"I didn't know what an actuary did before this discussion. There is no awareness in the business community and the profession needs to address this."

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[Kevin: this was a key theme in my discussions with other entrepreneurs who didn't have an actuarial background. If we manage to build a higher profile in the general business community, a lot more opportunities would be available to actuaries.]

21.4. On his approach to assessing business opportunities:

"I've been in this business for over 25 years. I've relied on instinct and back-of-the-envelope calculations to assess business opportunities."

21.5. On the value of the actuarial approach:

"My personal experience is that out of 100 small businesses, only one or two would have taken such a cautious but well-considered approach. It assesses the opportunity from a number of perspectives that I may not have considered. It is different to the financial advice from accountants, who tend to provide a snapshot of the situation."

[Kevin: Mr. Chen thought the actuarial approach of applying statistical analysis to past data in order to form assumptions and project views of the future was different to the approach used by accountants.]

[Kevin: Mr. Chen's comment presents a different perspective of using the actuarial approach to entrepreneurialism. My view is that there were limitations with using an actuarial approach and this could be addressed by combining it with entrepreneurial instincts and business partners. From Mr. Chen's perspective, his view is that entrepreneurial instincts have limitations too, and these can be addressed by combining it with the actuarial approach.]

22. Mr. Chew Lim, Director, Yogee Toys

22.1. [Kevin: Mr. Lim has a Bachelor of Science (Computing). I described to him how I applied an actuarial approach to our child care business and asked him to compare it with his approach to entrepreneurialism.]

22.2. A description of the business

"Yogee Toys is an e-commerce business focussing on children's toys. We source our toys primarily from local distributors and manufacturers."

"We have expanded to several e-commerce businesses selling books, furniture, children's outdoor equipment, and toners for printers."

"My brother and I are business partners. We both have IT backgrounds and we developed the systems from which our businesses are run."

22.3. **On his approach to business opportunities**

"We rely a lot on instinct and taking action but we don't run any numbers. Our ideas focus on creating and automating IT systems first and then we seek the business opportunities afterwards. For example, we built a cloud based e-commerce management platform called Ricemill and then we subsequently started looking for clients."

[Kevin: interestingly, I feel this is different to some experiences in the insurance industry where systems capabilities are typically not the primary consideration or the driver in decision making. The potential result for insurers is higher operational risks if products go live without the adequate system capabilities.]

"We believe there are no such things as mistakes – there are only learning opportunities. For example, some products don't sell well and they tie up a lot of capital as well as holding costs such as storage and insurance. For these products, we adopted the 'drop-shipping model' where the sale is made first, then the toy is purchased and sent to the customer."

[Kevin: this is a great example of how Mr. Lim focuses on making the idea work by adjusting the approach after experiencing a setback. This resembles a simplified version of the control cycle with less emphasis placed on analytics.]

[Kevin: this philosophy – where mistakes are readily accepted as learning opportunities – is not uncommon for internet start-ups with high growth potential. These businesses are innovative in their search for the right products or services and are potential disruptors to existing businesses.]

"We don't have business plans but we do have action plans."

[Kevin: the "ready, fire, aim" approach emphasises moving fast, seizing opportunities and being prepared to fail in order to learn. It is effective in dynamic industries where the capital outlay is low and mistakes are not fatal. Often business ideas are developed as pilot projects so that the costs are not excessive (Ready, Fire, Aim, n.d.).]

22.4. **On the value of the actuarial approach**

"We didn't look for financial advice in the early days. The business was expanding rapidly and only after a few years did we look for ways to improve profitability like negotiating better terms for our warehouse."

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"I have a relative who is an actuary and I bounced ideas off him. He helped me with some numbers like potential valuations for our businesses and break even periods for our business ideas."

[Kevin: the actuarial techniques that I am aware of have less applications for internet start-ups than for traditional businesses. It is almost impossible to build a financial model of internet start-ups because their ideas are radical, untested and evolve rapidly. This is one of the limitations of applying the actuarial approach to entrepreneurialism.]

[Kevin: however, there may be other actuarial techniques that I am not aware of or that can be developed for these types of businesses. Perhaps this is an opportunity for an innovative actuary?]

23. Mr. Greg Einfeld, FIAA, Director, Lime Actuarial

23.1. A description of the business

"The first business I set up was called Lime Super. It provides Self Managed Super Fund (SMSF) advice and accounting/administration services to trustees of SMSFs"

"Lime Actuarial provides Actuarial Certificates for trustees of SMSFs"

23.2. On what inspired him to be an entrepreneur:

"I wanted to start up my own business for 3 reasons: (1) For a new life experience, (2) to help real people, and (3) to diversify my income stream across a large number of clients. The 3rd point is of interest - many would say that it is much safer to work for a large employer than to be self-employed. I disagree. As an employee you are placing all your income eggs in one basket. However when you are self-employed, and you have many clients, your income is diversified."

[Kevin: regarding the third point, I agree with a slightly different perspective from my experience. One of the potential benefits not discussed in this paper was the additional income from the business to supplement an actuarial salary. This is mainly because there is a risk that the additional income may not materialise. Instead the focus has been on the potential benefits of the entrepreneurial experience gained.]

23.3. On applying actuarial techniques:

"When I first set up the business I used very few actuarial techniques (which is most unlike me!). It was my first foray into self-employment and as such I had little evidence on which to base my assumptions. If I would have used

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the actuarial approach, my assumptions would have been way off the mark. The one thing I had in my favour (perhaps as a result of being an actuary) was to ensure that the business was well capitalised which turned out to be necessary."

[Kevin: agree that one of the limitations of the actuarial approach is the lack of data. In these cases, more reliance is placed on entrepreneurial instinct as Mr. Einfeld had done.]

"After having been in business for a short time I started preparing projections. I found that I was not meeting my forecasts which caused me to ask "why". As a result of this sole (sic) searching I pivoted (changed the business model and value proposition) a number of times before landing on something that was more viable."

[Kevin: one of the core strengths of applying the actuarial approach to entrepreneurialism is the Control Cycle. It is a powerful tool as it uses reflective learning to monitor and adjust the approach. Mr. Einfeld's experience is a great example of using actuarial analysis to adapt and develop practical and innovative solutions to help make the business idea work.]

23.4. On professional development through the entrepreneurial experience:

"Being self-employed has certainly helped with improving innovating thinking. I have seen first-hand how technology is disrupting established industries. This is both a threat and opportunity for actuaries. It is a threat because many traditional employers of actuaries will be disrupted. It is an opportunity because actuary's skills will be helpful to the disrupters. For example: Big data, machine learning, robo-advice, Peer to Peer lending, Peer to Peer insurance, Internet of things, Blockchain. I would not have seen these opportunities or threats had I not been self-employed."

[Kevin: I agree with this insight. The entrepreneurial experience helps to promote innovative thinking.]

24. Mr. Kent Hopper, FIAA, Principal, Zoeller Consulting

24.1. You were previously in a start-up business outside the actuarial space. Tell us about that.

"I was the Executive Vice President of Leap4Life (L4L), which is acquiring audience through a loyalty-like experience engaging consumers in everyday active-healthy living choices. Beyond this customer experience, it is a data company. Perhaps the most interesting, and exciting, aspect of

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L4L is the Lifestyle Genome Project, which is identifying and codifying the attributes behind personal wellbeing choices, and the sequences that signal lifestyle behavioural change and wellness outcomes. It's getting into hyper-personalisations."

24.2. What inspired you to venture into such a different area, and to the start-up environment?

"I've always enjoyed solving problems, the creative elements involved and the excitement of cracking it, of generating significant value, are things that appeal to me. And I like to win!"

"I had developed a number of transactions that were "firsts" when employed."

[Kevin: I was fortunate enough to report to Mr. Hopper when we were both employed by the same life insurer. He initiated and completed a number of intrapreneurial projects for the company. These projects were based on ideas that required actuarial techniques and his extensive experience to develop, and they were executed using the company's resources.]

"It is rare to get the opportunity to join a start-up, so I jumped at it when it came with L4L. Start-ups are by definition always in capital management mode, allocating it to where you can generate most return, so one of the key ways you do that is equity rather than salaries. Aligns interests 100% to the company's, both risk and reward potential. This provided the opportunity to share in value creation. The start-up environment moves lightning fast and I could get involved in not only the design of the product, but also the operating model and the journey of the business itself."

24.3. What did you take out of the entrepreneurial experience?

"I was doing everything from talking to VC's to taking out the rubbish!"

"It is a million miles from a big insurer culture where you have very large cash cows, analyse almost to death, and have an intense focus on what could go wrong. In the start-up world you live or die by your decisions, and you often have to make them in limited time...everything you do could be survival or the end."

[Kevin: The entrepreneurial experience shifts the actuary's mindset to searching for practical solutions and innovations to make business ideas work. Mr. Hopper's experience highlights the need to take calculated risks and avoid "analysis paralysis".]

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"I think the experience has made me so much the better actuary and developed my business sense. I was exposed to people with very different backgrounds to mine, or just about anyone you'd find in the insurance industry, and was regularly challenged on views I thought were pretty well founded...and I hope I was able to do same."

[Kevin: Exposure to stakeholders from a variety of backgrounds has given Mr. Hopper a broader understanding of how businesses work. This experience creates a well-rounded actuary, rather than someone simply thinking about the numbers.]

24.4. What was the outcome?

"I moved on after a few years, I'd done what I could (and I think that awareness is really important, there are different skills needed for different times)."

[Kevin: Although the entrepreneurial experience teaches persistence and resilience, deciding on the right time to move on is an important decision to make. For our child care project, I used the control cycle to assess the feasibility of continuing after terminating the contract with Builder #1. We considered alternative options, including the offers from developers and child care operators, but we decided the best decision was to continue with the project.]

"Because of the experience, I decided to go out on my own and set up Zoeller Consulting. And I find I'm all the more alert to business opportunities and trends than I was before."

[Kevin: I agree with this insight. The entrepreneurial experience helps to promote innovative thinking.]

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