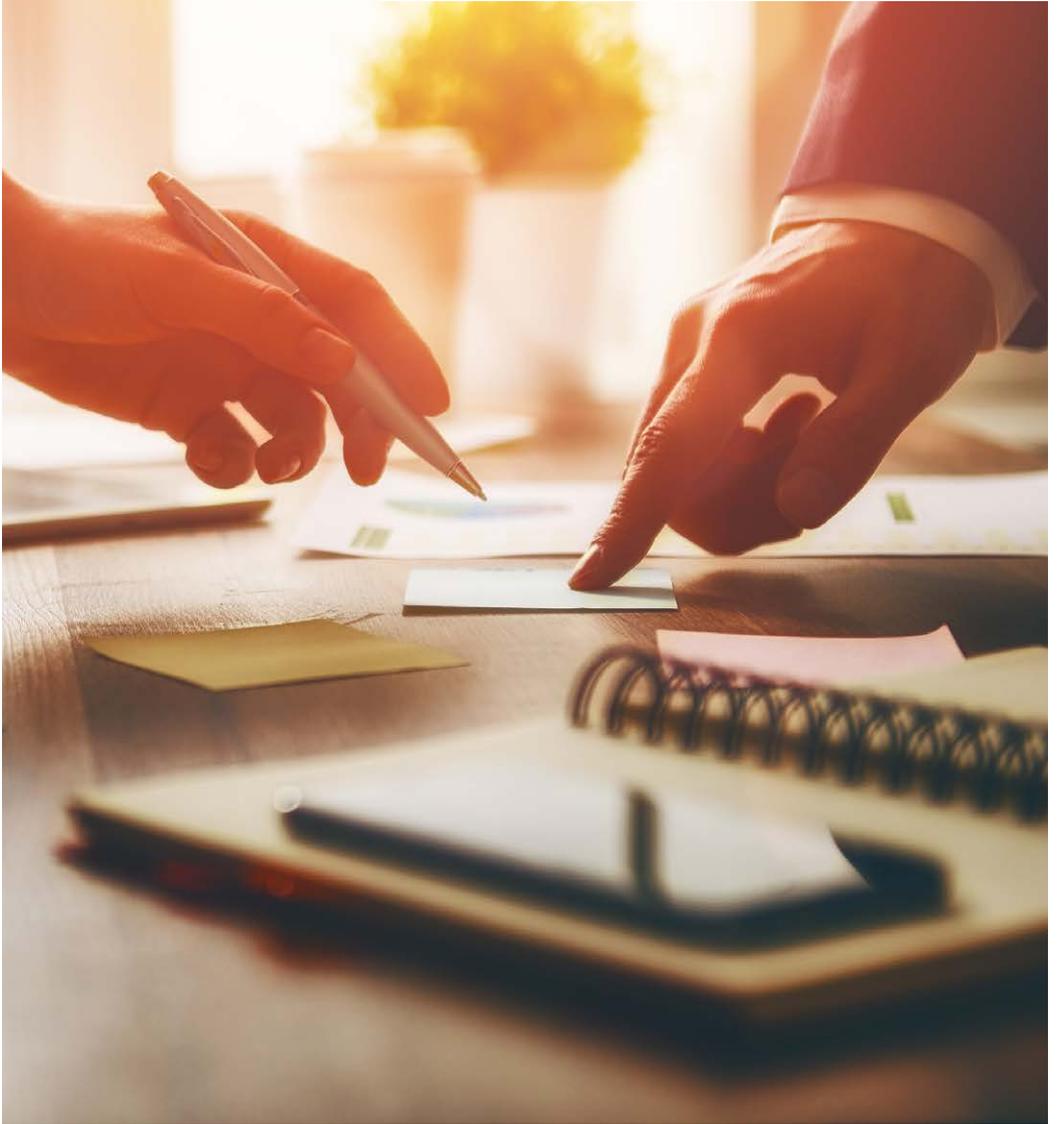


Defining the Actuarial Profession



“But what exactly does an actuary do?”



Actuaries have all probably had to answer this question on many occasions. While it is clear to us what our role is, there isn't always a simple explanation for the value we bring.

While most people outside of the actuarial profession have heard the word 'actuary', the reality is that few really understand what our role involves. Succinctly explaining what an actuary is difficult, no matter the audience.

The purpose of this toolkit is to give the IAA and any member associations the ability to better articulate the value, work and capabilities that actuaries offer. It includes useful information for marketing the profession when interacting with employers, other professionals, academics, business at large, policy makers, regulators, students and the public.

While the IAA will use the brand messaging in this toolkit, it is also available for the free and voluntary use of member associations as they see fit.

With actuaries increasingly contributing to new roles and fields, the actuarial profession needs to better

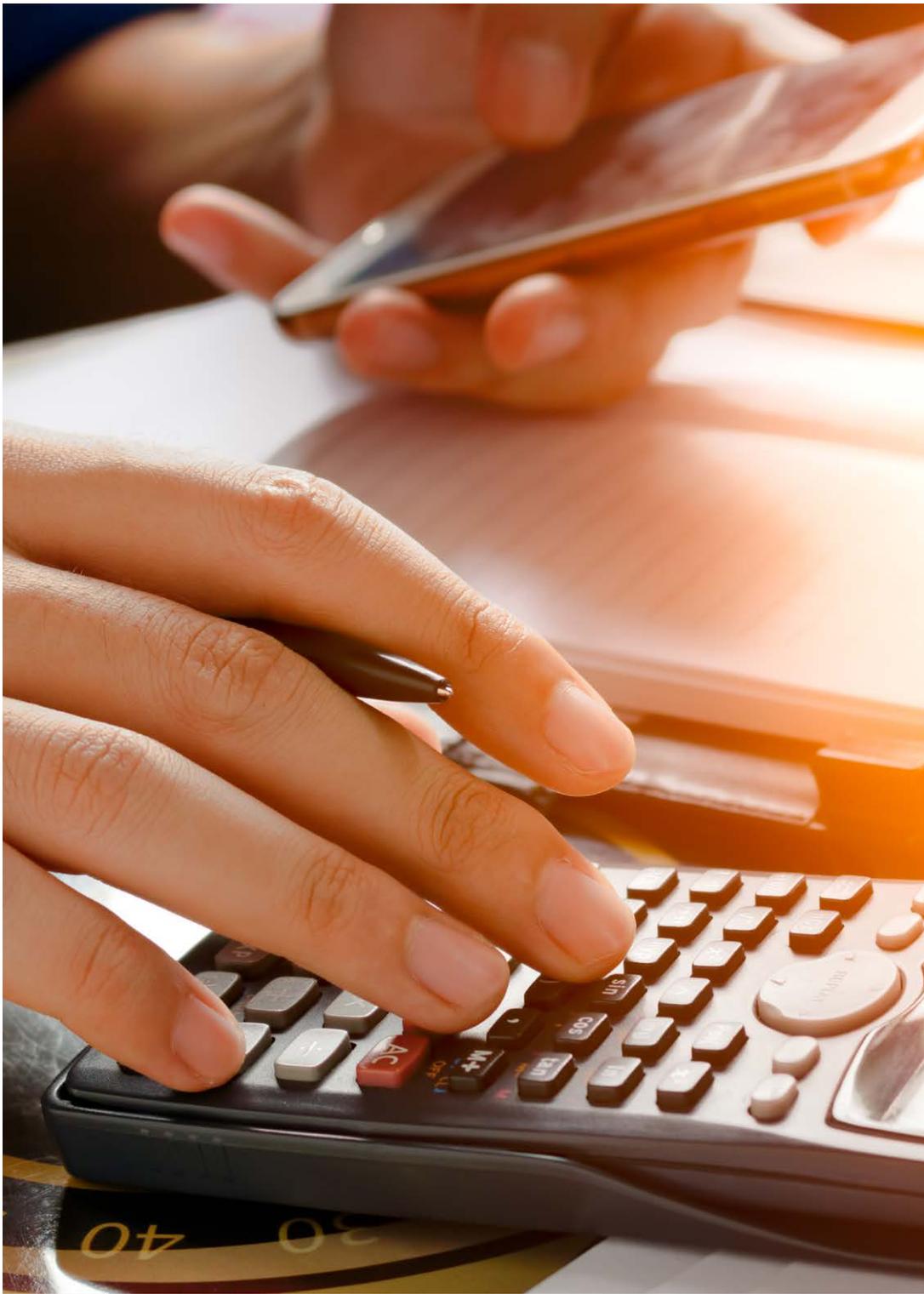
present the valuable contribution actuaries make to society.

We should endeavour to communicate the unique capabilities actuaries offer. This is increasingly important as we strive to take a seat at the decision making table and attract the best talent to our profession.

Materials found further in the toolkit include content to explain the role of an actuary, the unique skill set needed to be an actuary, where actuaries work and, importantly, the value actuaries bring to society.

We trust it proves to be a valuable and useful tool for associations to apply in communicating the role that actuaries play. We look forward to feedback, and will endeavour to incorporate the thoughts of our many users in this document as it continues to evolve.

The toolkit is available online at [insert website].



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About this marketing toolkit

This toolkit has been developed by the International Actuarial Association (IAA) with feedback from its full member associations around the world.

It is intended to be used primarily by the IAA and to assist member associations where required to promote a consistent brand message for the global actuarial profession. This is part of the IAA's strategic objective to improve recognition of the actuarial profession among external audiences.

Within this toolkit you will find statements that seek to define the actuarial profession, while recognising that there are many variations in terms of what an actuary does in different markets. This material can therefore be freely tailored to be more meaningful at a country or actuarial association level.



This toolkit includes our:

Positioning statement

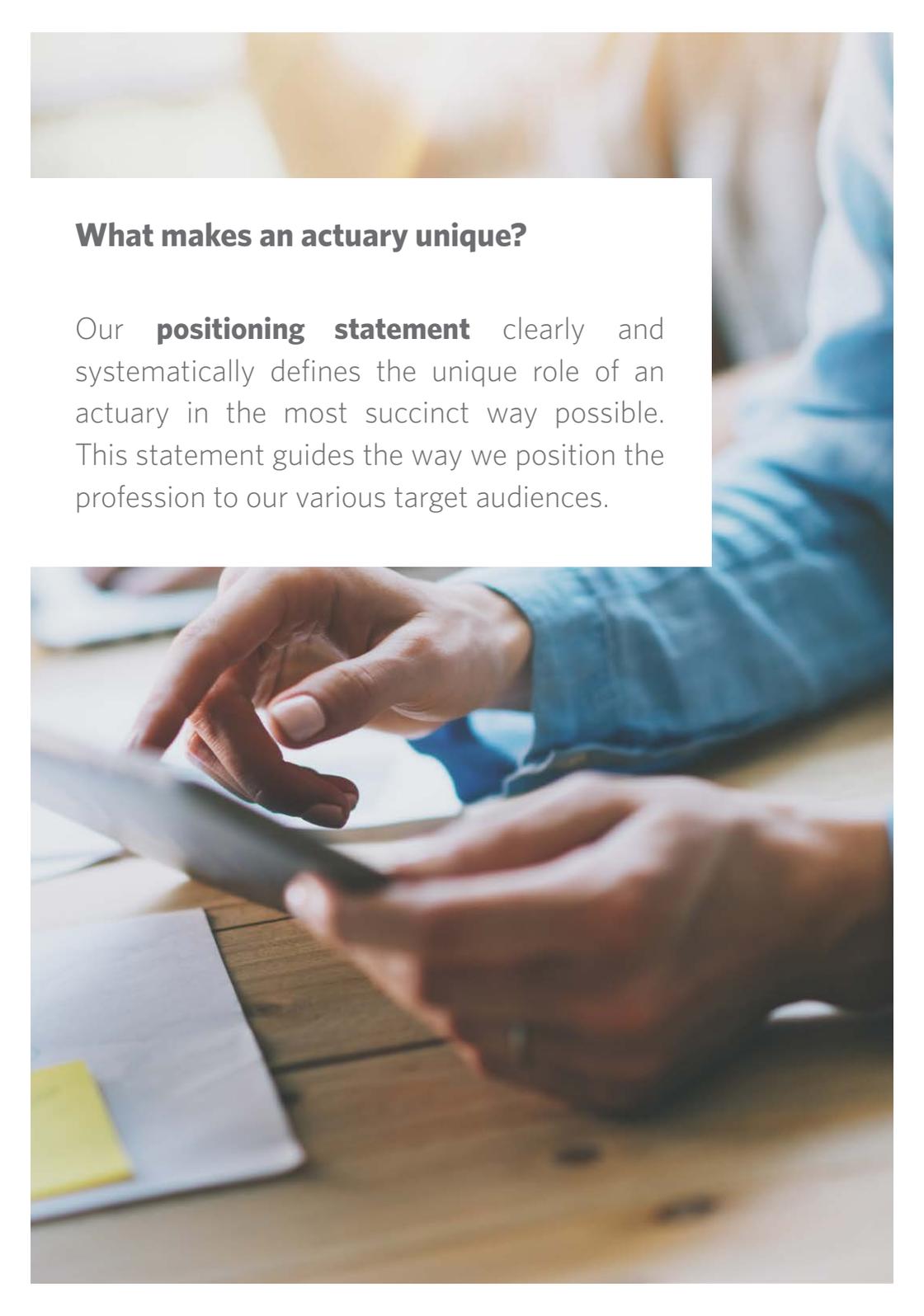
Purpose

Vision

Values

Attributes

You will also find information such as sample case studies within the toolkit, which show how these statements can be brought to life in your communication efforts. We invite you to tailor this content so it highlights the stories that are relevant in your market and support the stories you want to tell.

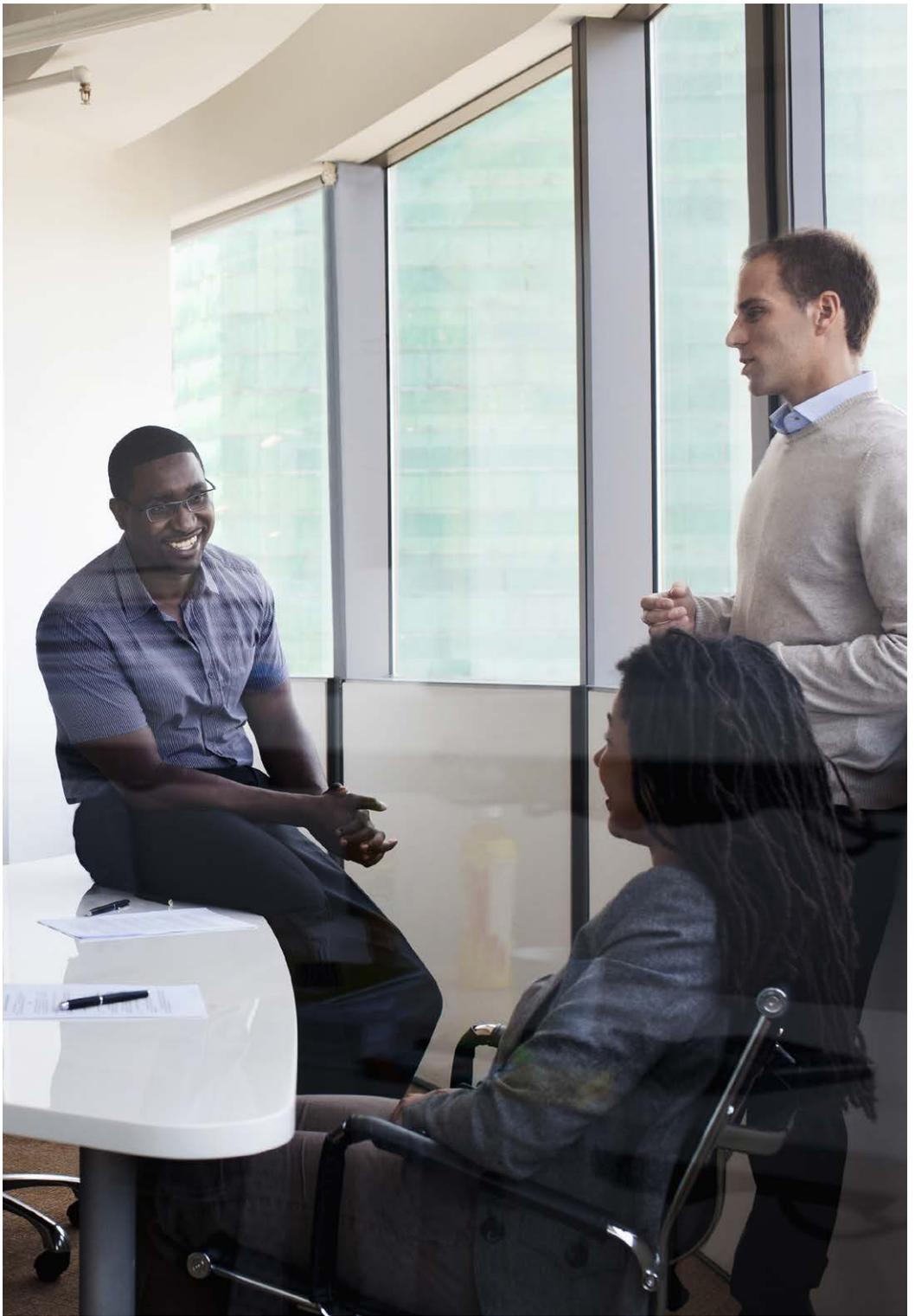
A person wearing a blue long-sleeved shirt is sitting at a wooden desk, using a tablet computer. Their hands are visible, with one hand holding the tablet and the other pointing at the screen. The background is softly blurred, showing what appears to be a meeting or office environment with other people.

What makes an actuary unique?

Our **positioning statement** clearly and systematically defines the unique role of an actuary in the most succinct way possible. This statement guides the way we position the profession to our various target audiences.

Positioning statement

Actuaries apply unique skills and a professional approach to solving complex problems, advising on future risks, opportunities and options, across diverse fields and industries.



What are these unique skills?

Actuaries are known for their ability to:

- Evaluate and manage risk and opportunity
- Solve complex problems using mathematics, probability and the time value of money
- Understand and communicate intricate financial concepts
- Apply analytical, statistical and mathematical skills to financial and business problems
- Perform in depth economic and financial analysis
- Think strategically



What do we mean by a professional approach?

We adopt a professional approach in that we continually develop our expertise, act at all times with integrity and adhere to professional codes of conduct.

Where do actuaries work?

Traditionally actuaries are known for working in insurance and pensions, but actuaries increasingly play an important role in many diverse industries including:

- **Insurance**
- **Investments**
- **Banking**
- **Financial Services**
- **Pensions**
- **Employee Benefits**
- **Healthcare**
- **Infrastructure**
- **Environment**
- **Government**
- **Data Science**
- **Utilities**

These are some of the roles that actuaries perform

Here you will find examples of the work actuaries do in four different industries. It is a good idea to give real-life examples relevant to your industry or market so that audiences can more easily grasp and understand the work that we do.



Using data analytics to evolve online insurance

Ian Brealey works as an actuary in non-life insurance.

He specialised in non-life as a graduate with KPMG in 2006 when the graduate intake were split into life and non-life teams. Non-life is one of the dominant insurance fields in Australia.

When asked to explain about the work he does, Ian says, "When you go online to get a car insurance quote and type in all your details, it is my team who comes up with the price."

"I like to use data analytics and apply real world thinking over the top," an approach he applied directly to his role at Allianz Australia. While there he undertook an interesting project to identify which of its online insurance quotes were real people and which were robots from companies trying to identify Allianz's pricing. "It was really challenging and required innovative thinking."

While he stresses that the actuarial qualification is important, Ian says the most important thing is his skill set and experience. He believes that

the number of actuaries working in non-traditional fields will continue to increase.

Providing micro insurance to the unbanked

Winnie Badiah is an actuarial consultant at BC Risk Services specialising in micro-insurance in Kenya. She is also the founder of GrassRoots Microinsurance, a start-up that seeks to provide appropriate inclusive insurance services digitally.

Winnie is a risk management and micro insurance specialist and is passionate about providing protection to the under served market. She currently works in areas such as delivering risk assessment and management, strategic consulting and resource management, training and capacity building for various clients and product development for the mass market.

Winnie says that while the actuarial profession is not well understood in Kenya, she believes that in the future, there will be a growing demand for actuaries, especially in the burgeoning micro-insurance space.

"I was introduced to the actuarial profession back in high school during a career talk from our alumni. I enjoyed maths and it has been the perfect choice to apply my acquired technical skills in pursuing an actuarial degree."

As a keen entrepreneur, Winnie is currently testing the beta-version of a micro-insurance platform aimed at providing digital insurance solutions through various digital channels.

Reforming education, making a difference

Dr Taddy Blecher is a South African actuary management consultant and educational entrepreneur. He is the founder of the free tertiary education movement in South Africa.

Moved by the poverty that he saw in his own country, Taddy gave up a traditional actuarial career opportunity in the US, instead choosing to use his actuarial insights to create a radical educational model. This programme sought to fill the gap in business education between school and MBA-level qualifications.

His vision led to the creation of South

Africa's first free university created to provide an education for impoverished young people; it would become a model for other future education facilities.

Taddy is the founder of the Maharishi Institute; this current venture builds on his first education model. It prides itself in offering a 'non-hand-out' philosophy, which sees graduating students having to pay for the university costs of another student, enabling them to follow in their footsteps.

His basic philosophy is simple: if everyone gave something to someone else, no one would need anything.

Applying actuarial science in traditional industries

Ramona Lee is an actuarial administrator at the State of Iowa's Insurance Division.

Her work involves pricing, reserving, profitability analysis and determining self-insurance funding requirements. In her role as a regulator she has varied responsibilities including covering all property and casualty lines of insurance.

When talking about her role she says: "One month I will be determining security requirements for companies self-insured for Workers' Compensation insurance. Another time I will be responding to questions from consumers or legislators, or I might be asked to give my opinion regarding a current industry issue."

Ramona learnt about the actuarial profession from her father. "He explained to me what an actuary was and suggested I look into it as a career option. I had never even heard of the term actuary, however I liked the idea of a career based on my love of mathematics and quickly found out that it was indeed a good choice for me."

Ramona says she get satisfaction from helping companies and consumers understand the business of insurance, such as helping someone to understand how their policy is priced or ensuring a product that might have an adverse impact on a group of policyholders does not show up in the marketplace.

Why does the actuarial profession exist?

Our **purpose** is our answer to this question. It shows our profession's long-term, positive high-level impact in managing the risks associated with uncertain future events.



Purpose

The actuarial profession exists to enable the future financial wellbeing of people, organisations, economies and society

How is the world a better place because of actuarial science?

Actuaries make contributions across society. Here are some examples that highlight the contribution made by actuarial science, these can be used in your market or other similar examples could be developed to illustrate the impact that actuarial science has on the world.



Modelling the future of Canada's healthcare system

In Canada, actuaries identified the need to radically transform the healthcare system to ensure its long-term sustainability. Urgent action is required to maintain the system's survival due to changing demographics.

In the report, developed by the Society of Actuaries and the Canadian Institute of Actuaries, the methodology involved applying actuarial techniques to directly capture the increasing healthcare costs associated with Canada's ageing population and resultant reduced growth in GDP.

The study concluded that without reform, it would be almost impossible for provincial and territorial governments to service their debts and fund other services such as education, infrastructure and social welfare.

It was identified that significant actions needed to be taken, including changes which substantially reduce the increase in the costs of health care, boosting GDP growth and raising taxes/fees or investing in preventative approaches, to mitigate the problem. The report recommended containing

the cost of delivering healthcare and providing economic stimulus to increase provincial and territorial government's revenues, while maintaining a high quality healthcare system for all Canadians.

Winning the war against antimicrobial resistance

Since the earliest days of the profession, actuaries have been active in the study of mortality. This remains a critical area where the profession can contribute to the quality of public debate, and importantly lead in the development of new thinking.

A recent study, published in the Institute and Faculty of Actuaries Longevity Bulletin, focused on the threat presented by antimicrobial resistance (AMR). It was noted that during the past decade, the risk of AMR has increased significantly; meanwhile there has been a decline in the research and development of new antibiotics to deal with it.

AMR presents a serious risk to our society. Already an estimated 50,000 deaths per year have occurred recently in Europe and the US, due to antibiotic

resistant infections, and far greater numbers worldwide. Projected figures present a worrying picture, with material mortality likely to worsen.

A key finding of the report was the immediate need to invest in research and to create sustainable market models to allow for the appropriate investment in the search for new antibiotics.

Actuaries play an important role in the healthcare sector by helping to quantify the potential demographic impact facing society under health pandemic scenarios. They do this by considering the economic effects of healthcare issues such as an AMR catastrophe, and quantifying its impact on financial markets, health provision and pension funding.

Better managing the impact of climate change

Climate change is affecting economies and communities around the world.

There is growing acknowledgement among insurers that the impact of climate change on future insured losses is likely to be profound, and

the impact could negatively affect the sustainability of some insurance businesses.

Being unpredictable in nature, climate change presents insurers with the challenge of how to develop predictive models for potential climate change related losses or opportunities and for risk management strategies. However, in order to remain solvent, insurers must be able to sufficiently price, pool and spread risk. However, changing climate characteristics continue to bring increasing variability to modelled losses.

Recognising the need to better understand the risk presented by Climate Change, a consortium of North American actuarial bodies has developed the Actuaries Climate Index (ACI), to be released by the end of 2016.

The ACI has been designed to be an objective, easy to understand educational tool on climate change and its related risks. It focuses on measuring frequency and intensity of extremes rather than averages and can be used to monitor long-term climate trends or compare trends against other sources of climate data. These

are all crucial steps in determining sustainable insurance models.

The ACI will enable insurers to better understand the climate change problem, so that it is better equipped to develop innovative insurance products, which will enable it to mitigate the threat of climate change.

Actuaries provide insight to help prevent future financial crises

The global financial crisis (“GFC” 2007-2009), spurred by irresponsible subprime mortgage lending in the US, ultimately came down to financiers losing track of risk.

The GFC resulted in a long, protracted global economic slump with concerns being raised around the management and oversight of the financial services industry. While actuaries cannot prevent irrational behaviour, actuarial methods can mitigate its impact and reduce uncertainties.

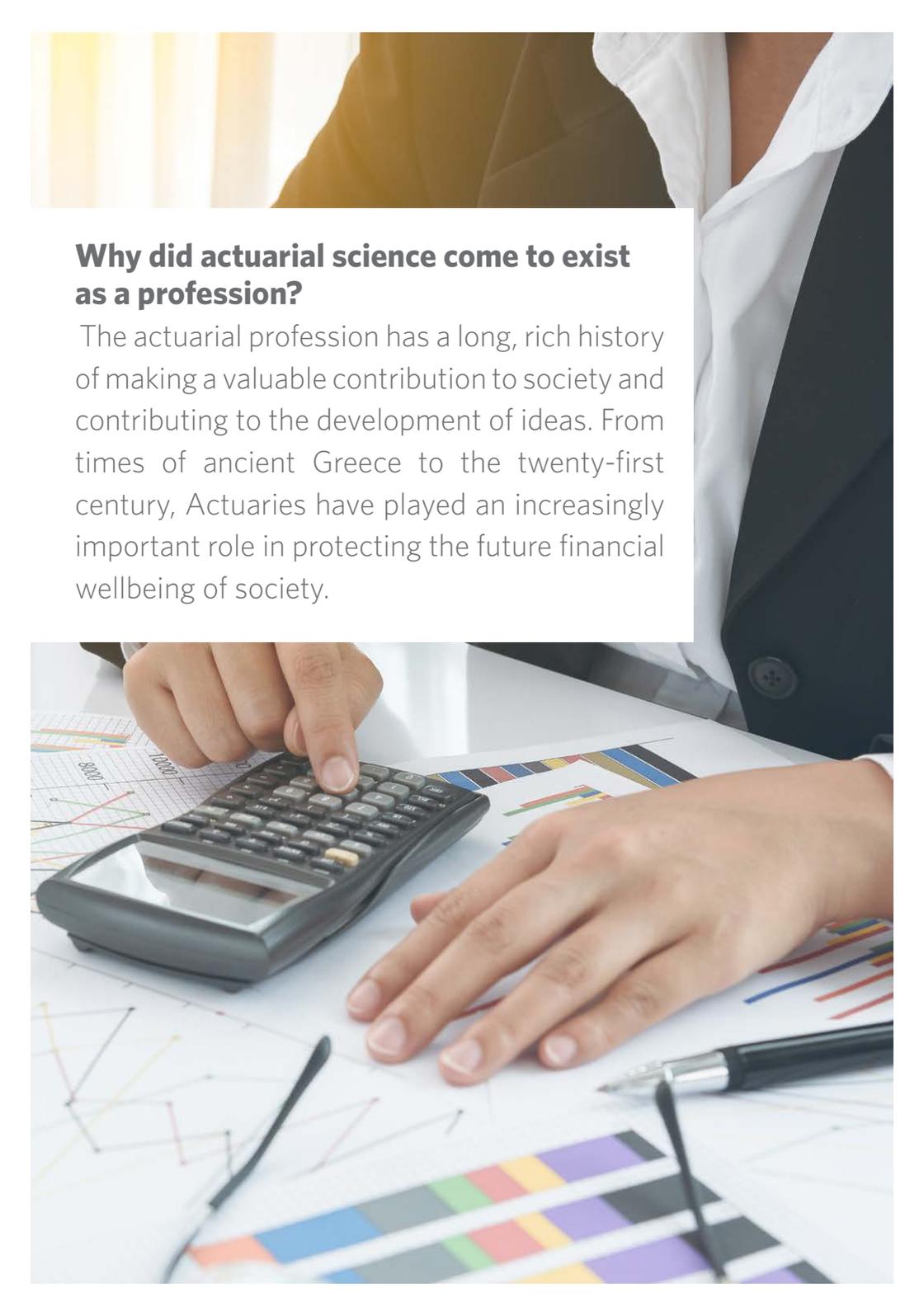
Building on the lessons learned from the causes and subsequent fallout of the GFC, the International Actuarial Association, representing the global actuarial profession, suggested

potential reforms, improvements and solutions applicable across the financial services sector.

The IAA made clear a number of necessary initiatives to mitigate risk including: strengthening transparency and accountability, enhancing sound regulation, promoting integrity in financial markets, reinforcing international co-operation and reforming international financial institutions.

The IAA went further to suggest a number of initiatives at a “micro” level for individual entities and at the “macro” level for the system as a whole, to help prevent future financial crises.

It also highlighted the growing importance of tools and methodologies being developed in the emerging field of Enterprise Risk Management (ERM) to all financial market participants and their regulatory supervision in the future.

A person in a white shirt and dark suit jacket is working at a desk. They are using a calculator and looking at various financial charts and documents. The scene is brightly lit, suggesting a professional office environment.

Why did actuarial science come to exist as a profession?

The actuarial profession has a long, rich history of making a valuable contribution to society and contributing to the development of ideas. From times of ancient Greece to the twenty-first century, Actuaries have played an increasingly important role in protecting the future financial wellbeing of society.

While pensions existed as far back as ancient Greece, a number of milestones came together in the seventeenth century that made predicting future events a science.

Notable events include: the probability theory, founded by Blaise Pascal and Pierre de Fermat in the mid-seventeenth century, James Dodson's pioneering work on the level premium system and Richard Price's textbook on life contingencies, first published in 1771.

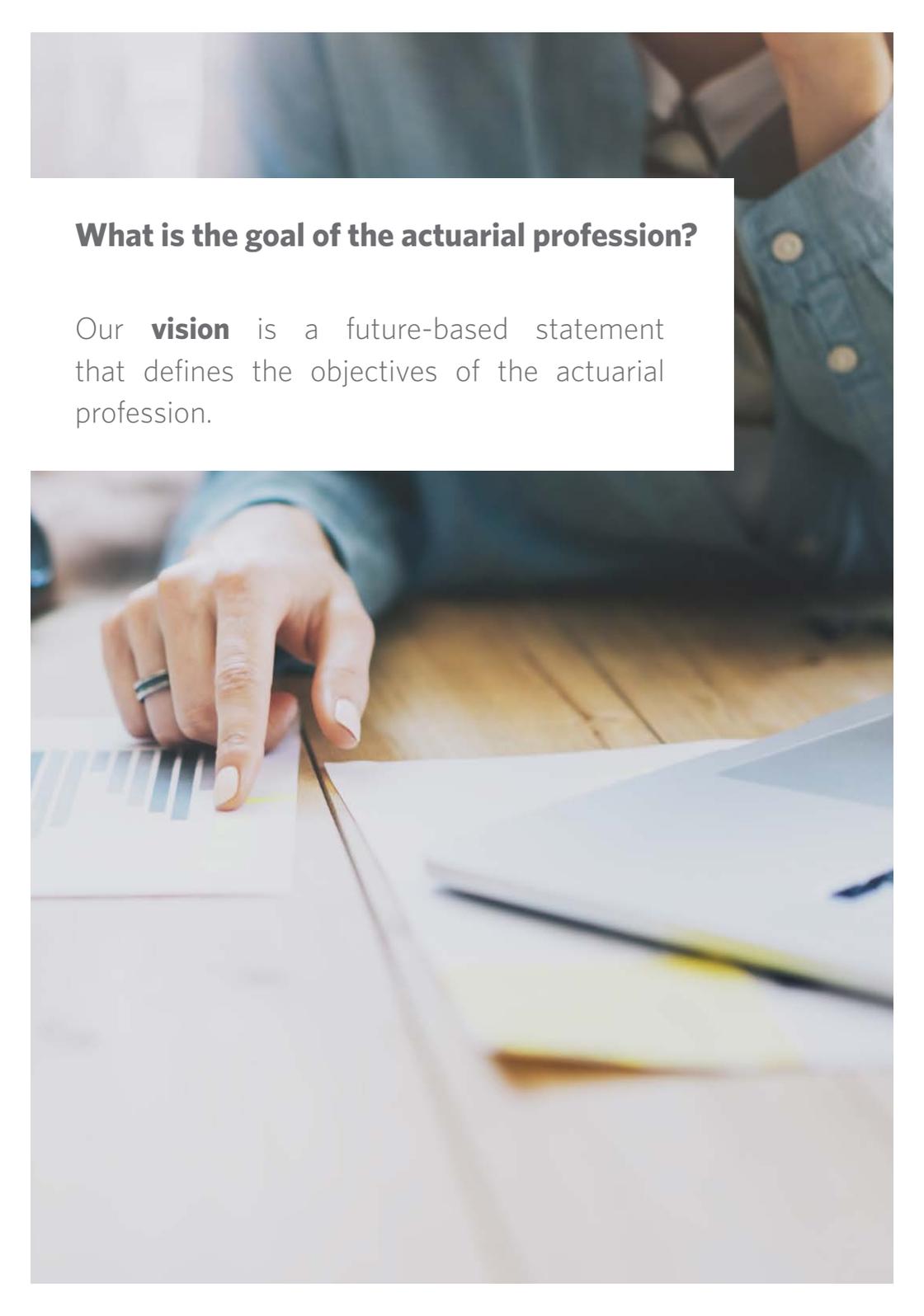
But perhaps the single event that led to the formation of the profession was when the mathematician, Edmond Halley, published a paper in 1693 using real data from the Breslaw Bills of Mortality to construct a life table and describing for the first time how to use such a table to work out the purchase price of a life annuity. This led, decades later, to the establishment of pension funds and life assurance companies founded on scientific principles.

During the first half of the twentieth century the role of actuaries became increasingly important given the historical circumstances of the time including two World Wars and the

influenza pandemic of 1918. This period also saw the Introduction of group insurance, actuarial involvement in pensions, social security, World War II and the advent of computers. What happened in this period shaped the roles of actuaries today.

The economic environment of the early 1990s resulted in the collapse of a number of large life insurance companies. This was compounded by the global financial crisis of 2008. This has left the actuarial profession with the job of analysing the causes that brought these results and recommending changes so as to re-establish confidence in the financial services and insurance industries.

Today, actuarial science is increasingly sought after, not only in new geographies but also in new industries, with actuarial skills in demand in a host of industries that require risk management, such as banking, and in new fields such as data analytics.

A person wearing a blue button-down shirt is pointing their right index finger at a document on a wooden desk. The document features a bar chart with several vertical bars of varying heights. The person is also wearing a ring on their ring finger. The background is softly blurred, showing more of the desk and the person's arm.

What is the goal of the actuarial profession?

Our **vision** is a future-based statement that defines the objectives of the actuarial profession.

Our vision

To be the foremost profession in the management of complex problems and their associated risks and opportunities

What are the values that guide our profession?

Our **values** are what we feel are the most important principles guiding our actions.

While actuaries are driven by a number of values, these are the three-standout values that consistently ring true for our profession.



Our values

Excellence

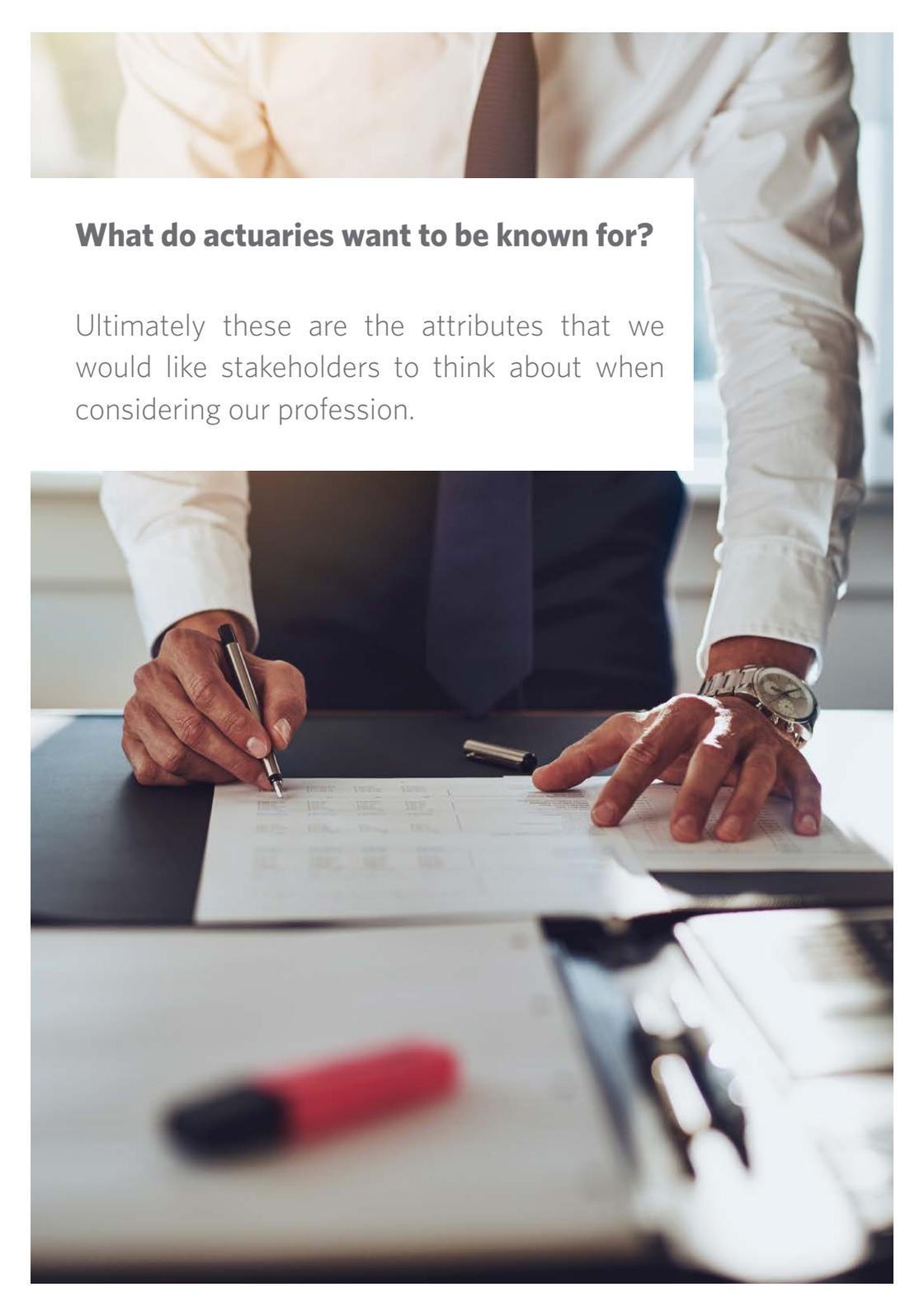
- We consistently deliver and evaluate quality work
- We commit to continuous professional development
- We maintain the highest professional standards

Integrity

- We commit to ethical decision-making
- We provide objective advice
- We communicate professionally

Accountability

- Adhere to a professional code of conduct
- We consider the long-term impact of our advice
- We take into account the public interest

A person in a white shirt and tie is writing on a document. The person's hands are visible, with a silver watch on the left wrist. The document is on a dark desk, and a laptop is partially visible in the foreground. The background is blurred, showing a window with light coming through.

What do actuaries want to be known for?

Ultimately these are the attributes that we would like stakeholders to think about when considering our profession.

Actuaries want to know for

Our Integrity

Our expertise in solving
complex problems

Our professional and
collaborative approach

Our positive impact on
Society



International Actuarial Association
November 2016