



International Actuarial Association
Association Actuarielle Internationale

AI: Is there a future for actuaries?

Charles Cowling
President IAA

IAJ seminar
May 2024



AI – Is there a future for Actuaries?

1. Background to AI

- Why AI matters to us all
- What AI can already do ... and what it can't (yet!)

2. What AI might mean for Actuaries

- The future is in our hands: How might AI transform actuarial work?

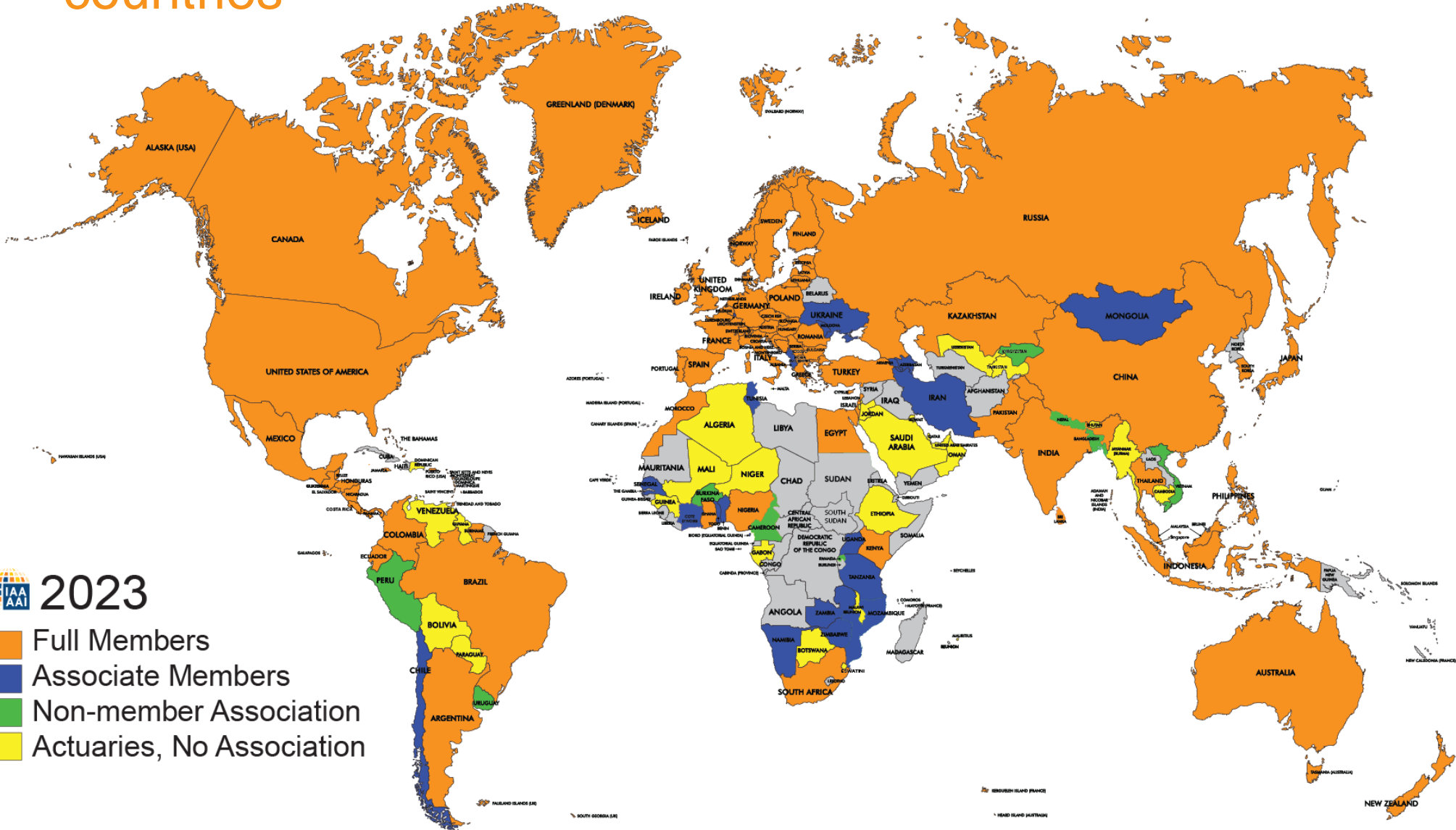
3. International Perspective

- Opportunities for *Actuarial Intelligence*
- The IAA Response





In 2024 the IAA represents 75,000+ actuaries in 115+ countries





The Mission of the IAA

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Impact global stakeholders

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Assure the reputation of the profession

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Advance the competency of the profession



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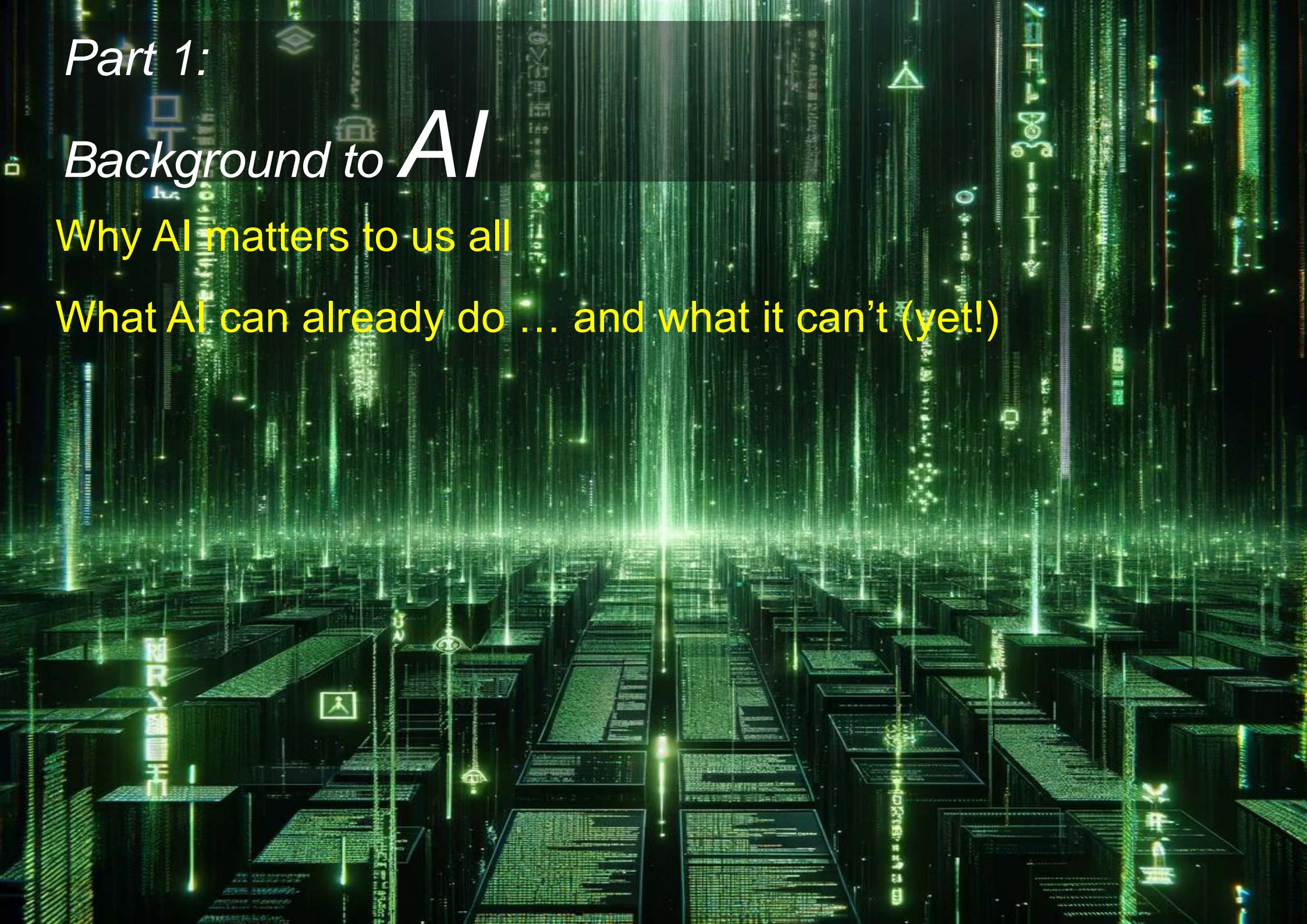
Advance the competency of the profession

Part 1:

Background to AI

Why AI matters to us all

What AI can already do ... and what it can't (yet!)



Background:

Putting Gen-AI in context

The dawn of useful AI – a “once in a decade” moment

1980



Excel

1990



Email

2000



Google

2010



iPhone

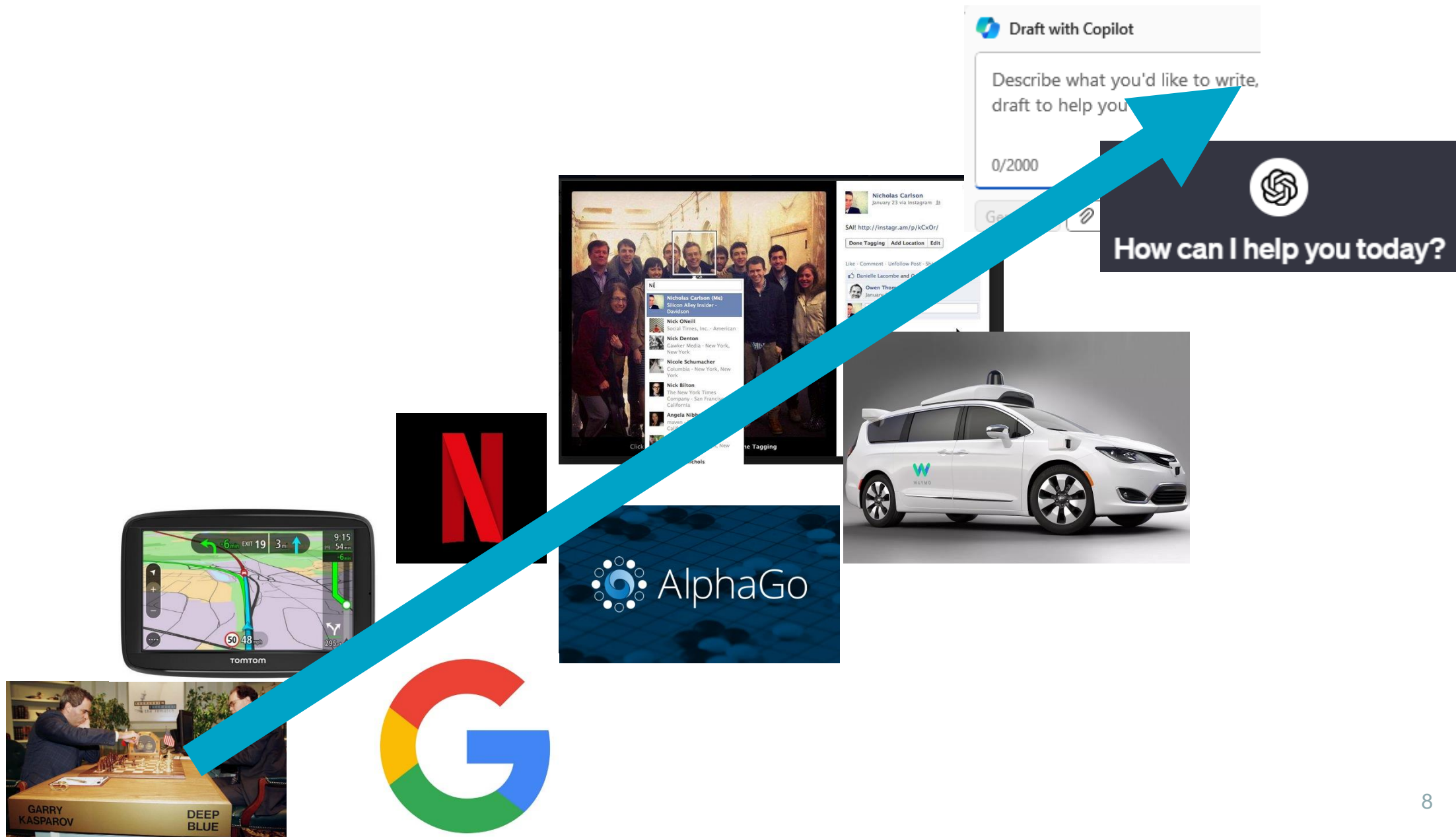
2020



Gen-AI

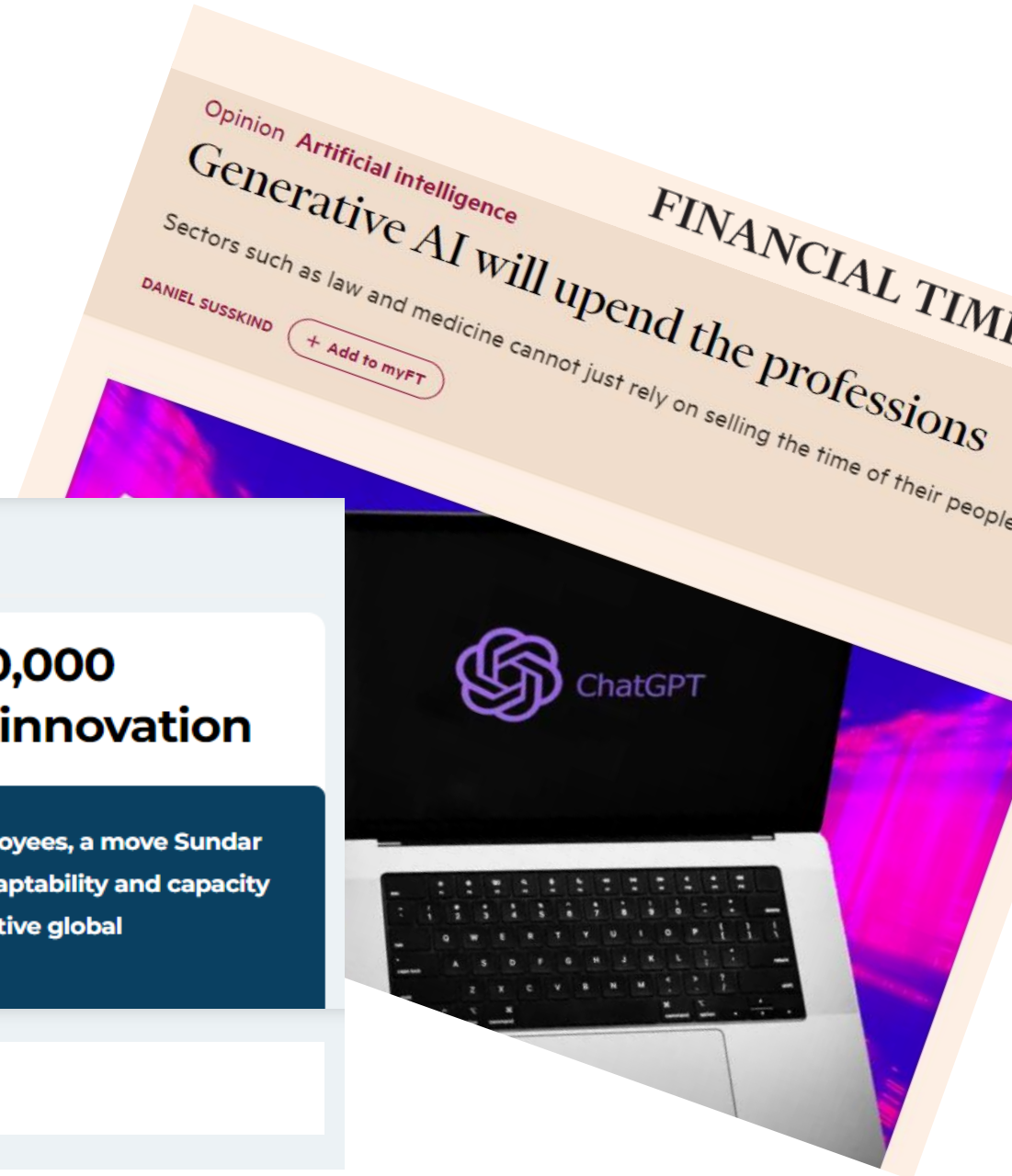
Examples in the real world

We are already interacting with AI every day



AI in the headlines

There is rarely a newspaper without an AI headline



Google likely to layoff 30,000 employees post new AI innovation

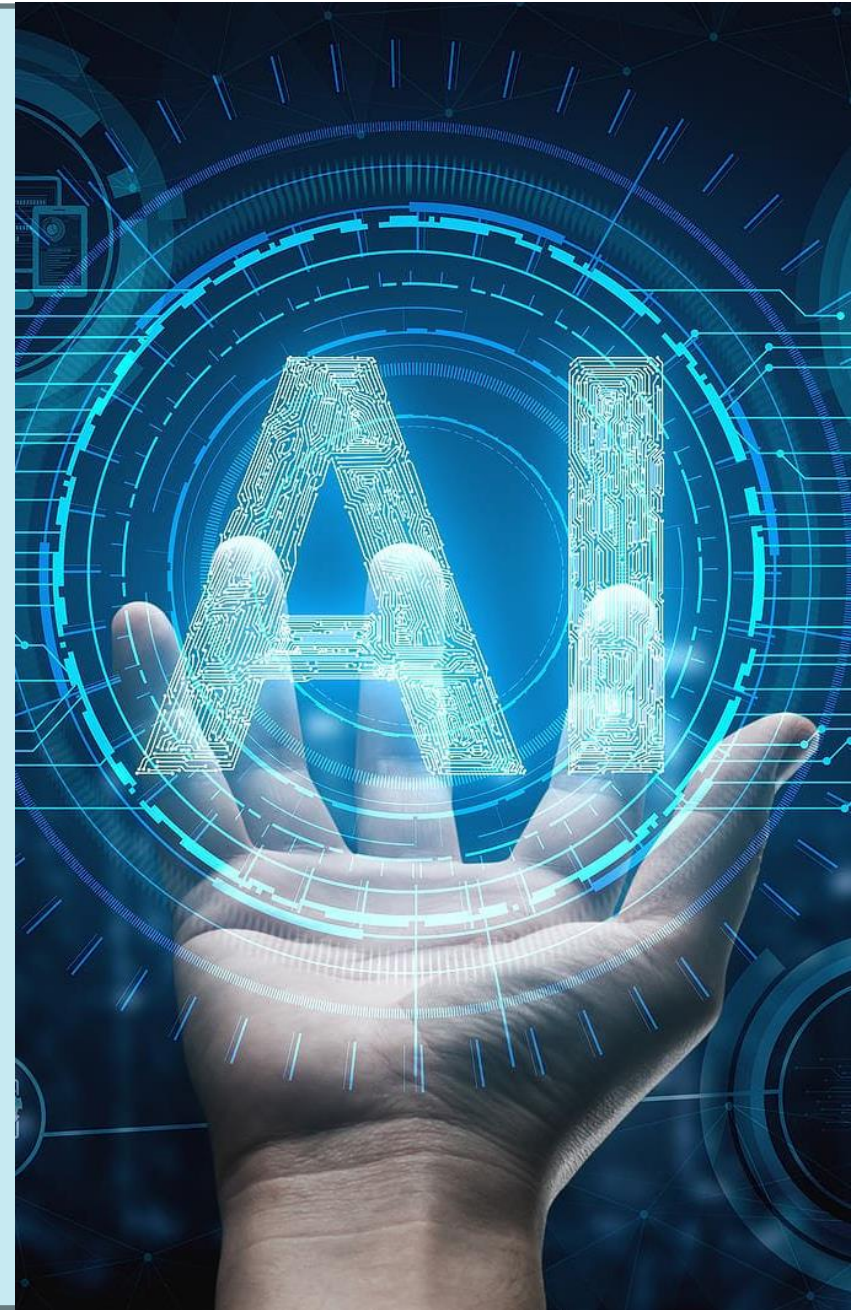
Google had laid off approximately 12,000 employees, a move Sundar Pichai deemed essential for the company's adaptability and capacity to invest in emerging areas amid a transformative global environment.

By CNBCTV18.com
Dec 28, 2023 11:11:14 AM IST (Published)

What can AI already do?

GPT-4 can already:

- Perform rudimentary drafting tasks
- **Pass the general bar exam!**
- Write computer code faster and more reliably than humans – *“Co-Pilot”*
- **Ace “SAT” tests that head teachers said they found “personally challenging”**
- Do maths ... sometimes!



Part 2:
What AI means for Actuaries



The AI tidal wave...

Is anyone able to define AI?

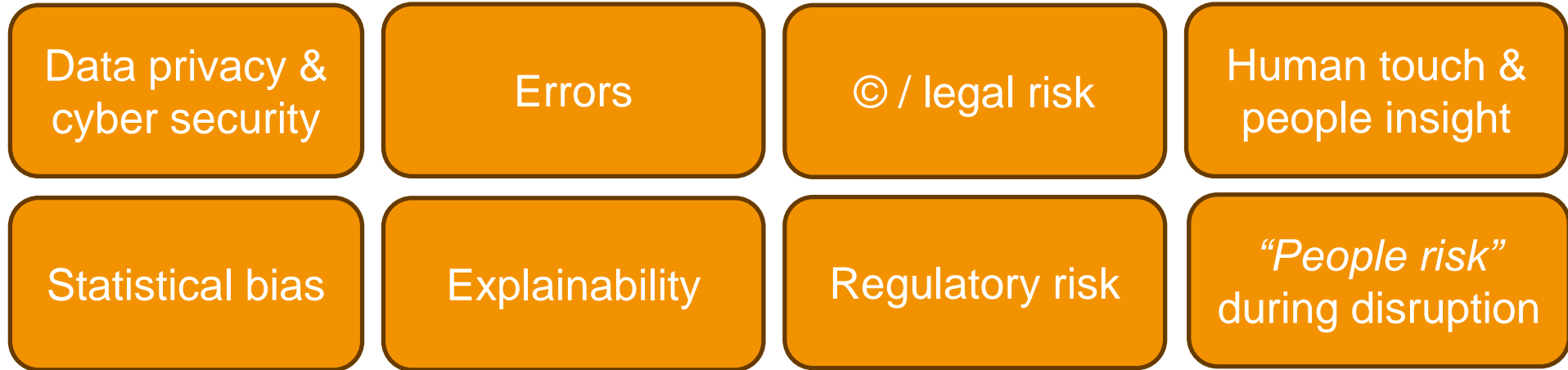
... could become a tsunami

A dramatic, apocalyptic scene featuring a colossal tsunami wave towering over a city. The wave is a massive wall of dark blue water with white foam, curling over the horizon. In the foreground, a city skyline is visible, with several skyscrapers, including one with a prominent spire. The water is dark and turbulent, with smaller waves and debris visible. Several ships are scattered across the water, including a large cargo ship and several smaller boats. The sky is filled with heavy, dark clouds, and a bright light source, possibly the sun, is visible at the top center, creating a lens flare effect. The overall atmosphere is one of immense scale and impending disaster.

... as quantum computing becomes a reality

What are the risks?

And how could actuaries help to mitigate them...?



TECHNOLOGY

ChatGPT will always have bias, says OpenAI boss

Sam Altman argues the world will never agree on chatbot's politics



Sam Altman said that there would never be a version of GPT-4 that is not biased. JASON REDMOND/AFP/GETTY IMAGES

RETAIL | OCTOBER 11, 2018 / 12:04 AM / UPDATED 5 YEARS AGO

Amazon scraps secret AI recruiting tool that showed bias against women

By Jeffrey Dastin

8 MIN READ



SAN FRANCISCO (Reuters) - Amazon.com Inc's AMZN.O machine-learning specialists uncovered a big problem: their new recruiting engine did not like women.

Department for Science, Innovation & Technology

AI SAFETY SUMMIT
HOSTED BY THE UK
1-2 NOVEMBER 2023

Capabilities and risks from frontier AI

A discussion paper on the need for further research into AI risk



From Artificial Intelligence to Actuarial Intelligence

What are the opportunities?

Enhanced Decision Making

- Analysing large data sets; identify patterns, trends, correlations

Personalisation and Customer Experience

- Customer preferences and tailored recommendations

Advanced Analytics and Prediction

- Machine Learning; complex data sets, predictive analytics, risk analysis

Innovation and Competitive Advantage

- Development of new products and services

Improved Efficiency and Resource Optimisation

- Optimise processes, streamline workflows, efficient resource allocation

Enhanced Customer Support

- Virtual assistants, round the clock customer support



Part 3: International Perspective

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From Artificial Intelligence to Actuarial Intelligence

Global Opportunities





Artificial Intelligence → Actuarial Intelligence

Opportunities – New Roles



Frank Chang

- Lead Actuary, Google, 2012
- Vice President, Applied Science, Uber

Toby Hall

- Chief Data Officer, Delta Dental of Michigan, 2012
- President & CEO, Roosevelt Innovations

Jacky Ng

- Chapter Lead Data Science APAC, Advanced Analytics CoE, Swiss Re,

Dorothy Andrews

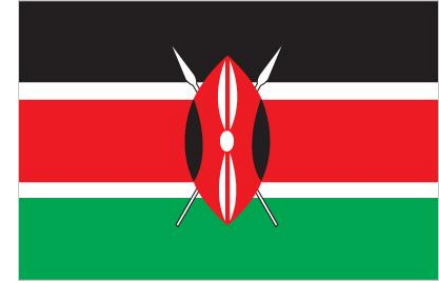
- Senior Behavioral Data Scientist, National Association of Insurance Commissioners

Alice Locatelli

- Managing Director - Technology and Innovation, Society of Actuaries



AI and Machine Learning as opportunities to improve insurance penetration in Africa



Empowering Small Holder Farmers in Kenya and Ghana – Dr J Olukuru





Quantium – World leader in Data Science and Artificial Intelligence



Founded by an actuary, Adam Driussi, in 2002

We bring expertise in two core domains to make the most of opportunities in the ‘big data world’

Data science

- *Translating raw data into actionable insight*
- *Data cleansing and curation*
- *Data ecosystem*
- *Data monetisation*
- *Applied analytics*

Artificial intelligence

- *Build transformative, data-powered solutions*
- *Decision support tools*
- *Decision engines*
- *Machine learning*

2/3rds of Australian actuarial students are specialising in data analytics

>50% of younger actuaries (age<35) see Data Science as their primary or secondary practice area.



From Artificial Intelligence to Actuarial Intelligence

IAA Response – AI Task Force & Work Steams

- **Professionalism and Ethics** - Developing guidelines and principles for actuaries
- **Education** - Developing enhanced curricula and training modules to include AI
- **Changing role of Actuaries** - Developing basic definitions of AI; areas where AI can augment actuarial work; encouraging development of appropriate actuarial expertise
- **Governance** - Monitoring and evaluating governance frameworks, policies, and regulations; engaging with regulators, standard-setting bodies, and policymakers
- **Innovation** - Cultivating a growth mindset among actuaries



From Artificial Intelligence to Actuarial Intelligence

IAA Task Force – Global Summit Singapore 4th/5th April

Established work streams

- Gathering experts, including non-actuaries
- 100+ volunteers from around the world

Global Summit

- Bring experts together; drive activity; share progress, ideas and expertise;
- Establish global network
- Broadcast/record sessions

End 2024 Deadline

- Initial project work
- Propose follow-on work



From Artificial Intelligence to Actuarial Intelligence

IAA Response – Professionalism and Ethics

Initial Actions

- Create a repository of AI professionalism and ethics related sources
- Contribute to a glossary of terms or definitions to support a common understanding of AI (for actuaries)
- Develop an assessment of AI Ethical risk classification/taxonomy with specific focus on professional aspects related to such risks
- Develop a “considerations” note on key questions to address
- Develop a document for FMA’s to assist in testing their existing code of conduct and guidance against to see if ‘fit for purpose’ for AI
- Develop use cases / case studies on professionalism and ethics
- Develop messaging to Supranational organisations on how actuaries and AI contribute to their mandates



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IAA Response – Education

Key Issues

- What do actuaries need to learn? - different actuaries will have different needs
- If you add new [AI] things to the syllabus what do you take out?
- Given the pace of change, it will be challenging to keep a syllabus up-to-date
- How should assessment of actuaries [with AI] evolve?

Initial Actions

- Define what actuaries need to know / be able to do to successfully deploy AI
- Finalise initial summary of AI topics of that could be included in Education,
- Develop ideas/guidance on using AI for exam answers
- Develop principles for validation / interpretation skills (using AI-augmented solutions)
- Create ideas for actuaries to learn from AI-augmented actuaries
- Finalise review of AI Education Programs around the globe
- Develop use cases / case studies and lessons learnt on AI-enhanced profession
- Develop best practice examples of AI collaboration with other industries



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IAA Response – Changing role of Actuaries

Initial Actions

- Review of literature of practical relevance - from actuarial societies and actuarial firms
- Produce questionnaire to set up and distribute to local actuarial societies
- Produce standard glossary of AI terms used in actuarial work
- Develop guiding principles on the design, usage and maintenance of AI tools / models
- Develop use cases / case studies
- Develop training materials on new [AI] tools and models



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IAA Response – Governance

Initial Actions

- Produce library and comparison of AI regulation/guidelines worldwide
 - Identifying particular challenges of actuarial relevance
 - Implications of AI regulation/guidelines on actuarial work
 - Benchmarking (weak vs strong implications)
- Develop governance framework covering:
 - Data governance – including 3rd party data (vendor), synthetic or alternative
 - Model governance – e.g., to include model outcome bias (e.g. source of bias)
 - Implementation/conduct – ensuring responsible use of AI
- Outline of guidance notes on
 - Validation – input and output
 - Testing – customer outcome
 - Documentation



From Artificial Intelligence to Actuarial Intelligence

IAA Response – Innovation

Initial Actions

- Competitions
 - Inspire actuaries globally to submit ideas
- Inform
 - Collect information on new AI applications for actuaries
 - Share innovations
- Marketing
 - Produce marketing strategy for actuaries and AI
 - Develop new ways to promote the work of actuaries and AI
 - #AIforActuaries



Is there a future for Actuaries? Maybe, maybe not ... but ...

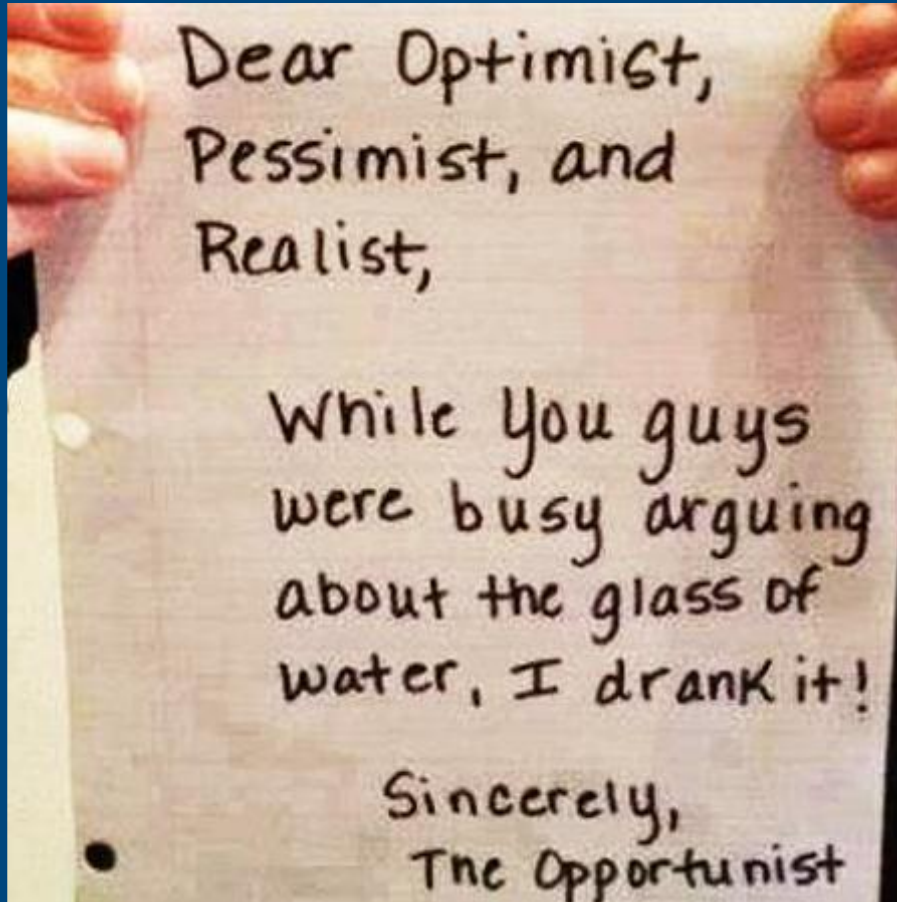
**Actuaries with AI
will replace
Actuaries without AI**

[Four Futures for Actuaries in the Wake
of AI - Actuarial Review Magazine
\(casact.org\)](#)





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Any Questions



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