Presidential Town Hall

Looking to the Future

Charles Cowling, IAA President
Seoul, South Korea
May 21, 2024
Agenda

Looking to the Future

- Welcome & Introductions
  Charles Cowling

- Artificial Intelligence
  Charles Cowling, Frank Chang, Peter Withey, Henning Wergen & Jill Hoffman

- Supporting the Growth of the Profession
  Charles Cowling, Mukami Njeru & Yeside Kazeem

- Supporting Individual Actuaries
  Clemens Frey, Samuel Cywie & Daniel Jung

- Future for Population Change
  Chang-Han Chin, Alex Lee & Yi-Ling Lin

- Q&A
Welcome and Introductions

President:
Charles Cowling
(UK)

Immediate Past President:
Micheline Dionne
(Canada)

President-Elect:
Bozenna Hinton
(Australia)

Executive Director:
Mathieu Langelier
(Canada)
Artificial Intelligence (AI)

Charles Cowling, Frank Chang, Peter Withey, Henning Wergen & Jill Hoffman
Actuaries in an AI World: Four Futures

Adjustment to actuarial roles

Impact to actuarial roles

Names borrowed from Jim Weiss’ article in the Actuarial Review, a CAS bi-monthly
Doomsday

Arguments For:

1. Routine automatable work: e.g. rate or reserve reviews, or predictive model refreshes
2. AI is better than actuaries at finding data
3. If we’ve created it, it’s out there
4. AutoGPT: self-correcting, self-learning, can decompose tasks

What Does This Look Like?

First, AI starts taking mundane tasks, including data gathering.

Hallucination is solved for regulated industries.

Next, we train AI on more complex actuarial work, and it learns from the large body of existing work (4, 5).

Finally, a few actuaries may be needed for work that absolutely cannot be performed by AI.
Massive Update for Auto-GPT: Code Execution!

Auto-GPT is now able to write its own code using #gpt4 and execute python scripts!

This allows it to recursively debug, develop and self-improve... 😎👎

autogpt was trying to create an app for me, recognized I don't have Node, googled how to install Node, found a stackoverflow article with link, downloaded it, extracted it, and then spawned the server for me.

My contribution? I watched.
Training Day

Arguments For:

1. “Doomsday lite”: many jobs are doable via AI, but some aren’t

2. There are professionals who specialize in prompt engineering, RAGs, and tuning

3. AI start-ups, even famous ones are outspending their revenues - we could be reaching a peak

4. Again, humans are unpredictable

What Does This Look Like?

Actuaries begin adopting AI to help with low-risk, automatable tasks.

As AI continues to develop, actuarial judgment will determine whether or not new methods are applicable.

Actuaries will continue to balancing stakeholder needs, including regulators.

In order to perform this job task, the actuary of the future will need to understand enough about AI and its power and limitations.
From Artificial Intelligence to Actuarial Intelligence
IAA Task Force

AITF ToR

- **Structure**
  - Task Force of the EC
  - Complete initial work by end 2024 – further work will be subject to further ToR as required

- **Purpose:**
  - to establish and promote responsible use of Artificial Intelligence (AI) within the profession, showing the actuarial response to the challenges posed by the usage of AI beyond the actuarial profession, and support the work of other stakeholders such as governments and regulators in the responsible use of AI, thus contributing to the wellbeing of society.

- **Objective:**
  - Advance the competency of the profession with respect to AI by creating awareness of the risks and opportunities related to AI, facilitating knowledge sharing, and educating actuaries.
  - Promote the role of the actuary in existing and emerging wider fields and raise its profile.
  - Prepare the IAA, as the voice of the global actuarial profession, to proactively engage with Supranational organizations on AI-related risks and provide actuarial perspectives in their own related initiatives.
AITF Composition

• Involvement
  – Call for nominations from Member Association’s sent 8 Jan 2024 responses by 22 Jan 2024
  – 97 volunteers from 27 Member Associations
  – Most responses accepted with an allocation of 1 member of an Association to each workstream, with more in case of some of the larger FMA's

• Structure:
  – Central Steering Committee made up of key leaders of the initiative and Workstream leads
  – 5 workstreams
    • 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

Singapore Summit
From Artificial Intelligence to Actuarial Intelligence
IAA Task Force

Singapore Highlights
• Energy
• Enthusiasm
• Young

Key challenges
• Maintaining Inertia/Impetus
• Limiting Overlap & Maintaining Focus
• Consolidation of thought not duplication of FMA activities
• Continued FMA support
• Not creating an indefinite existence for the TF
• Avoiding document graveyards
• Be practical
Deliverables

• Main Inputs to AITF programme
  • Develop an assessment of AI Ethical risk classification/taxonomy with specific focus on professional aspects related to such risks E.g. IFOA document Risk Taxonomy Ethics risks in AI models
  • Develop a document of professionalism considerations when working with AI - Likely in a questions format
  • 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 messaging to Supranational organisations and other possible alliances on how actuaries and AI contribute to their mandates

• Other Actions
  • Create a repository of AI professionalism and ethics related sources (e.g. AAE AI paper)
  • Contribute to a glossary of AI terms to support a common understanding of AI (for actuaries)
  • Input professionalism considerations to use cases/case studies
Deliverables

• AI Questionnaire (May 2024)
  • Sample FMA's in terms regarding scope and application of AI in their jurisdiction

• AI “Guidance document” (Sept 2024) covering
  • AI Control Cycle & Data Management
  • Model Development
  • Model Governance (align & collaborate with the 'Governance' workstream)
  • Model Production & AI Tools

• AI Training Materials (Dec 2024)
  • Build on AI guidance document being applied to specific case studies across different sectors of actuarial practice.
  • Develop guiding principles on the design, usage and maintenance of AI tools / models

• Other
  • Review of literature of practical relevance and produce a standard glossary of AI terms
Deliverables

• Comparison on AI regulation/guidelines worldwide Identifying particular challenges of actuarial relevance (July 2024)
  • Repository of existing regulations/guidelines (a starting point)
  • Comparison chart of AI regulations (vs. guidelines)
• Identifying challenges of existing AI regulation/guidelines vs actuarial relevance (Dec 2024)
  • Implications of AI regulation/guidelines on the actuarial work
  • Benchmarking (weak vs strong implications)
• Develop governance framework on, for example (Dec 2024):
  • 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 – ensure responsible use of AI
• Outline of guidance notes on (Target 1 per quarter)
  • Validation – input and output
  • Testing – customer outcome
  • Documentation
From Artificial Intelligence to Actuarial Intelligence
IAA Response – Education

Statement of Intent:
• Determine potential impacts of AI on the education and training of actuaries (both initial and continuing education)

Key Issues
• What do actuaries need to learn? - different actuaries will have different needs
• Given the pace of change, it will be challenging to keep a syllabus up-to-date
• How should assessment of actuaries [with AI] evolve?
• Ensuring timely sharing of best practice examples and case studies with FMAs and individual actuaries

Deliverables after AI Summit
• Collect information on AI Education Plans around the globe (end of July 2024)
• Create a repository for AI-enhanced Actuary Case Studies (end of October 2024)
• Create a proposal for Key AI Education Topics (end of November 2024)
From Artificial Intelligence to Actuarial Intelligence - Needed for the Future Actuary

Host public competitions and hack-a-thon type events to promote AI innovation in actuarial context.

Produce podcasts and interview content to promote the AI task force and AI for Actuaries (#AIForActuaries)

Online tools to build a global online Actuarial AI community

Future Actuary is a Problem Solver, Multi-Skilled, Analytical, Proactive

Show off these skills to build Supply and Demand.
Supporting the Growth of the Profession

Charles Cowling
"Modern society will no doubt need tomorrow’s actuary to go back to the early cradle of our profession, that is as a data driven and model guided financial decision maker in a world governed by uncertainty."

Paul Embrechts, Lugano, 2017
Supporting the Growth of the Profession

MWACS PER TIER

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Growth:
- 2020: 8.3%
- 2021: 8.0%
- 2022: 7.5%
- 2023: 13.5%
- 2024: 8.0%
Supporting the Growth of the Profession

**TIER 1 FMAS**

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Growth Rates:
- 2022: 12.19%
- 2023: 23.31%
- 2024: 7.96%

TOTAL GROWTH: 7.96%
Supporting the Growth of the Profession

**TIER 2 FMAS**

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GROWTH:
- 7.84%
- 24.76%
- 19.85%
- 22.85%
Supporting the Growth of the Profession

**TIER 3 FMAS**

- **Total Tier 3**
- **Colombia**
- **Kenya**
- **Philippines**

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Growth:
- 2020: 13.48%
- 2021: 140.00%
- 2022: 100.00%
- 2023: 257.14%

IAA Presidential Town Hall – May 21, 2024
AADA presentation

Promoters: Mukami Njeru       Yeside Kazeem       Yvonne Palm

Advisers: Lusani Mulaudzi, Mohamed Amrani, Achille Sime

African Actuarial Development Academy
Académie Africaine de Développement Actuariel

May, 2024
Introducing the AADA

- **Africa-wide** Academy to develop the actuarial profession in Africa as industry is recognizing the need for actuarial talent given its crucial role in assessing risk and analytical work leading to overall growth.
- AADA is focused on **actuarial professionals** as well as developing the pipeline as there are very few experienced and qualified actuaries on the continent.
- The actuarial skill set requires significant investment in time, exam support and on the job training in order to adequately develop an experienced and qualified person, thus AADA is built on **four foundational pillars**
- AADA relies mainly on a **virtual environment** to attain a wide reach
- **Actuarial Academy of East Africa AAEA** will be used as our proof of concept and will be providing support
AADA Proposed Pillars

**Professional Development**
Support actuarial professionals with training, workshops, Master classes, webinars/courses, professional education via Analytical Foundational Programme (AFP)

**Educational Development**
Aid corporations to develop their actuarial study programmes. Support universities’ actuarial accreditation and upskilling faculty.

**Tutorials**
Provide access to tutorials to help prepare actuarial candidates for exams, giving them equal footing with international candidates

**Mentorship**
Provide mentorship opportunities for actuarial professionals and candidates to develop. One to one and group mentorship.
Indicative Timeline: Soft Launch
Jan 2025

2024:
● Sign on host and actuarial partners; allocation of key team members
● Identify actuarial specialists; prepare RFPs for key resources/platforms
● Sign on Local Actuarial Partners; Develop Governance Structure; allocation of all team members
● Sign on additional organisations/support hosts; Announcement of AADA

2025:
● Go live with Tutorials; Masterclasses; Mentorship and Accreditation Support

2026:
● Go live with Analytical Foundational Programme
Supporting Individual Actuaries

Clemens Frey, Samuel Cywie and Daniel Jung
ASTIN Masterclass – Model Risk Management by Andrew Smith

➢ Will be featured in Webinars on June 26th (2 time zone options)
➢ Complimentary access for everyone
➢ Register and share with your members and colleagues!

REGISTER HERE
Young Actuaries Initiative

IAA Presidential Town Hall
Tuesday, 21st May 2024

Dr. Clemens Frey, Samuel Cywie, Dr. Daniel Jung
Motivation of the Young Actuaries Initiative

- FMAs share the need to involve and engage with young actuaries under the age of 35

- Most associations do have national programmes and offerings, but there is no complementary international effort where also individual expertise and best practices can be shared and potentially merged - this institutional gap should be filled with the Young Actuaries Initiative

- The overall objectives are to create a broad network of actuarial associations that wish to intensify their interaction with young professionals as well as actively offering an additional access platform to get into exchange with peers from other associations

- This pioneering endeavour initiated by France and Germany, with a strong multilateral perspective, is designed along three dimensions...
Vision and Mission of the Young Actuaries Initiative

**Personal level**
Comprehensive individual career development and cross-border networking opportunities

**Professional level**
Contribute constructively to the shaping and development of tomorrow’s actuarial profession by attending or organising both physical and virtual events

**Intercultural level**
Enabling transnational community-building among young actuaries and embracing diversity through various unifying social activities
First Activity of the Young Actuaries Initiative

After successive planning over 2023 and in the first quarter of 2024, the Young Actuaries Initiative has been kicked off with a Convention A Europe slot in March 2024 on „The Actuary of the Future“ which featured two 30 minutes sophisticated presentations held by young actuaries from Institute des actuaires and DAV...

- **ESG, a sustainable investment for young actuaries**
- **Shaping the Future of Actuarial Data Science**
Next Activities of the Young Actuaries Initiative

- Project kick-off (March 2024)
- Young Actuaries On-Site Forum (December 2024)
- 1st Young Actuaries Online Career Day (March 2025)
Visit [www.youngactuaries.eu](http://www.youngactuaries.eu) and subscribe to the newsletter to stay tuned!

The conceptualization and operationalisation of the Young Actuaries Initiative is ongoing and FMA input and feedback is much appreciated.

*If you are interested about any activities on an institutional level, please either get in contact with samuel.cywie@institutdesactuaires.fr or daniel.jung@aktuar.de or meet us for a brief personal talk and exchange from 10:30 to 11:30 AM in Conference Room #1 of Westin Josun Seoul!*

Thank you for your attention to this topic!
Fertility & Population Change

Chang-Han Chin, Alex Lee & Yi-Ling Lin
Fertility & Population Change

Fertility rates  Total, Children/woman, 1970 – 2022

Source: Family Indicators

Demography - Fertility rates - OECD Data
Fertility & Population Change

[Graph showing the world's total population over time, with a medium variant line and a 95% prediction interval shaded area.]

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Fertility & Population Change
Population Trends for Chinese Taipei

21 May 2024 in Seoul

Source: Population projections report of National development Council in August 2022
Low Birth Rate
Factors for Low Birth Rate in Chinese Taipei

Factors contribute to women's choices for marriage and childbirth.

- Longer continuation of schooling,
- Increased job opportunities for women,
- Heavy burden of childrearing, and
- Difficulty in balancing work and family
Low Birth Rate

1 Increase in unmarried women
   - In the past 20 years, the proportion of unmarried women between 15 and 49 years old has risen by 10.4 percentage points.

2 Marital children are still in the mainstream in Chinese Taipei
   - Since the proportion of non-marital childbirths is only 3-4% in Chinese Taipei, the phenomenon of non-marriage is certain to affect the number of births.
Low Birth Rate

3 Delayed marriage and childbearing

- As women continue to delay their first marriage, this in turn delays the age of first childbearing and further contracts their reproductive period.

4 Reduced chance of having multiple children

- As women delay their first birth, the chance of their having multiple children also decreases. The rate of women giving birth to a third child was 14.9% in 2001, and has remained around 11% in recent years.
Decline in Fertility Rate

Under the factors mentioned above, the total fertility rate has been lower than 1.2 since 2003, except for the Year of the Dragon (2012), and fell to 0.98 in 2021.

As the total fertility rate and the number of women of childbearing age have decreased, the number of births also has fallen from 260 thousand in 2001 to 154 thousand in 2021.
Population Trend
Main Factor to Population Change

- The scale of the natural population decrease is an important factor affecting the future population of Chinese Taipei.
- Without a significant increase in the total fertility rate, Chinese Taipei 's population is projected to decline faster and faster in the future.
The 2022 population pyramid is lantern-shaped, being small at the upper and lower ends and large in the middle, indicating a plentiful labor supply.

The 2070 population pyramid takes the shape of an inverted bell, being wide at the top and narrow at the bottom, indicating a heavier burden on society.

Note: The values for 2022 and 2070 are the results of medium-variant projections.
Questions & Comments

Wishing everyone great meetings in Seoul!