



International Actuarial Association  
Association Actuarielle Internationale



# From Artificial Intelligence to Actuarial Intelligence

AAE GA, Cologne

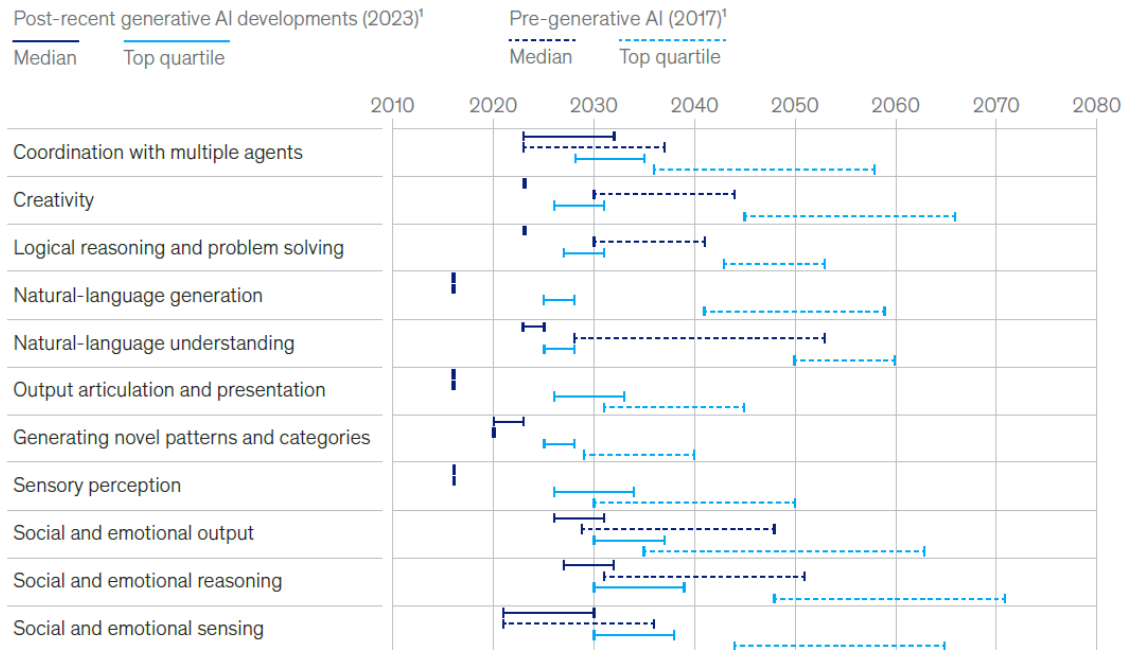
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# From Artificial Intelligence to Actuarial Intelligence

## The Future of Generative AI...?

Estimated range for technology to achieve human-level performance, by technical capability



<sup>1</sup>Comparison made on the business-related tasks required from human workers.  
Source: McKinsey Global Institute occupation database; McKinsey analysis



# From Artificial Intelligence to Actuarial Intelligence

## Risks and Opportunities

### Common Risks

#### Data Privacy, Security & Cyber

The use of AI involves handling large amounts of data, which raises concerns about data privacy and security. There is a risk of unauthorized access, data breaches, or misuse of sensitive information. Advances in AI and tech can also accelerate the arms race in the Cyber space (i.e. increased sophistication of hackers as well as opportunities for improved cyber defences).

#### Bias and Fairness

AI systems can inherit biases from the data they are trained on, leading to biased outcomes or discriminatory decisions. This can have ethical, legal, and reputational implications for businesses.

#### Lack of Transparency (auditability)

Some AI algorithms, such as deep learning models, can be complex and difficult to interpret. Lack of transparency in AI decision-making processes may make it challenging to explain or understand the reasoning behind certain outcomes.

#### Technical Limitations ("AI hallucination") & E&O risks

AI systems are not infallible and may have limitations. They can make errors, especially in complex or unfamiliar situations, leading to incorrect decisions or unreliable results. This also presents E&O risks, where AI is used in client work without the necessary peer reviews and other controls.

#### Copyrights

AI presents risks relating to IP infringement and ability to effectively enforce copyrights.

#### Operating Model / Strategic/ Disruption/ Disintermediation

AI can disrupt existing businesses and enable new competition.

#### People / Change / Transition risks

People & Change risks also need to be considered, e.g. effective utilisation of AI opportunities requires colleagues who are willing and able to "work with AI as colleagues". In the short to medium term there may be some colleague anxiety around the introduction of AI, particularly given the exponential progress and the perception of AI undertaking some colleagues' roles and activities.



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## Risks and Opportunities

### Common Opportunities

#### Enhanced Decision-making

AI systems are capable of analysing large data sets very quickly and providing valuable insights, supporting improved decision-making. It can identify patterns, trends, and correlations that humans may overlook.

#### Personalisation and Customer Experience

AI can support more personalised customer experiences by analysing customer preferences and offering tailored recommendations, marketing and products.

#### Advanced Analytics and Prediction

AI techniques like machine learning enable businesses to extract actionable insights from complex data sets. It can help in predictive analytics, demand forecasting, risk assessment, and optimizing business operations.

#### Innovation and Competitive Advantage

AI can encourage innovation by enabling incumbent and new entrant businesses to explore new opportunities, develop novel products or services, and gain a competitive edge in the market.

#### Improved Efficiency and Resource Optimization

AI systems can optimize processes, streamline workflows, and allocate resources more effectively. This can lead to cost savings, reduced waste, and improved operational efficiency.

#### Enhanced Customer Support

AI-powered chatbots and virtual assistants can provide round-the-clock customer support, answer common queries, and handle interactions, improving customer service and reducing response times.



# From Artificial Intelligence to Actuarial Intelligence

## IAA Task Force – Initial ideas for Immediate Outcomes

### Education and Training

- Enhance actuarial curricula to include foundational AI concepts, data analytics, and relevant tools and techniques.
- Develop training programs and workshops to upskill actuaries in AI-related areas, focusing on practical implementation, ethical considerations, and the handling of public-private data.
- Incorporate AI-driven work flow and automation practices into actuarial education, enabling actuaries to leverage efficient processes and enhance productivity.
- Develop comprehensive training modules that cover the effective use of automated tools and workflows to streamline actuarial processes, improve accuracy, and save time.





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## IAA Task Force – Initial ideas for Immediate Outcomes

### **Professionalism and Ethics**

- Develop guidelines and principles for actuaries to navigate ethical considerations related to AI, including transparency, fairness, accountability, privacy preservation, and addressing biases in AI algorithms.
- Incorporate AI-related professionalism and ethics topics into actuarial codes of conduct and continuing professional development requirements, covering issues such as insurance pooling, privacy, biases, fairness, and transparency.
- Encourage actuaries to engage proactively in ongoing professional development focused on AI ethics, staying informed about emerging standards and guidelines related to insurance pooling, privacy, biases, fairness, and transparency.



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## IAA Task Force – Initial ideas for Immediate Outcomes

### Changing Role of Actuaries

- Identify areas where AI can augment actuarial workflows, such as data preprocessing, model calibration, or predictive analytics, freeing actuaries to focus on more complex tasks.
- Develop training programs to enhance actuaries' understanding of AI technologies, enabling them to collaborate effectively with data scientists and leverage AI tools.
- Facilitate the integration of AI tools into actuarial practice, allowing actuaries to leverage AI for complex risk assessments, scenario analysis, and strategic decision-making.
- Encourage actuaries to develop expertise in areas where human judgment remains critical alongside AI, such as interpreting and validating AI outputs, identifying limitations, and assessing model risks.



# From Artificial Intelligence to Actuarial Intelligence

## IAA Task Force – Initial ideas for Immediate Outcomes

### **Governance of AI**

- Monitor and evaluate existing AI governance frameworks, policies, and regulations, identifying gaps and areas where actuarial expertise can contribute.
- Participate in policy discussions, consultations, and industry forums related to AI governance, emphasising the actuarial profession's perspective and advocating for fair and transparent AI practices.
- Engage with regulators, standard-setting bodies, and policymakers to contribute actuarial insights to the development of AI governance frameworks, ensuring the profession's perspectives are considered.





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## IAA Task Force – Initial ideas for Immediate Outcomes

### **Fostering a Culture of Innovation**

- Cultivating a growth mindset among actuaries, emphasising the belief in continuous learning and the potential for skills and intelligence to be developed through dedication and effort.
- Encouraging innovation, courage, and imagination among actuaries, empowering them to challenge conventions, take calculated risks, and think creatively.
- Promoting the value of diverse mindsets and perspectives within the actuarial profession, fostering an inclusive culture that welcomes and values different viewpoints.
- Creating an environment that supports collaboration, creativity, and innovation, enabling actuaries to address complex challenges and meet the evolving needs of society.



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# Thank you for your attention

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# Additional Information



## IAA Officers 2023



**President:**  
Micheline Dionne  
(Canada)



**President-Elect:**  
Charles Cowling  
(UK)



**Immediate  
Past  
President:**  
Roseanne Harris  
(South Africa)



## About the IAA

Founded in 1895, and reformed in 1998 with a new constitution, the International Actuarial Association (IAA) is the worldwide association of professional actuarial associations.

- 73 FMAs (Full Member Associations)
- 27 AMAs (Associate Member Associations)
- Representing 70,000+ Actuaries in 115+ countries

2023

- Full Members
- Associate Members
- Non-member Association
- Actuaries, No Association

## The Vision of the IAA



The actuarial profession is globally recognized as leading experts in risk and financial security, contributing to the well-being of society.





# The Values of the IAA

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The IAA adheres to the values of

- integrity,
- diversity and inclusion,
- accountability,
- transparency, and
- objectivity

when dealing with Member Associations, other stakeholders and the public.

# Mission

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## **Impact: Supranational Relationships**

Develop relationships with key supranational institutions, providing actuarial expertise on issues of relevance in global forums.

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## **Assure: Promotion of the Profession**

Support the development of the actuarial profession worldwide and promote appropriate professional/education standards through Member Associations.

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## **Advance: Development of Competence**

Promote the advancement of scientific knowledge and the skills of the actuarial profession