

Institute and Faculty of Actuaries, **Regulatory Board**

Subject	Thematic Review Programme – Data Science and AI
Meeting date	14 February 2024
Previous Steer/Approval	February 2021 – <u>Ethical and professional guidance for members</u> September 2022 – approval of thematic review topic July 2023 – deep dive and approval of <u>AI Risk Alert</u>
Related horizon scan code	HS02 - Complex modelling
International issues considered?	Applicable
Author	Alan Marshall, Review Actuary
Reviewer	David Gordon, Senior Review Actuary
Purpose	Approval

A: Executive summary

1. The Actuarial Monitoring Team (AMS) has completed its thematic review looking at the work of actuaries in data science and AI.
2. This paper sets out the key findings and conclusions from the review and seeks approval for publication of the Report. The Board's response to the review findings, including any possible actions, are discussed **under agenda item 9**.
3. There are findings across the following key themes:
 - Rapidly changing environment
 - Increasing involvement of actuaries
 - Supporting actuaries
 - Opportunities for collaboration
4. The main conclusions are:
 - The increasing use of data science and AI, and the demand for relevant skills, presents continuing opportunities for actuaries. To remain competitive actuaries will need evolving resources covering professional development and standards to support them as builders or users of AI systems and outputs.
 - There is also considerable change and activity from a global regulatory perspective, with further developments likely during 2024. This provides important context for the IFoA and other regulators in considering actions which continue to provide clear expectations and support to actuaries working in this domain. There will be challenges in ensuring standards and guidance remain proportionate and relevant to the growing applications of data science and AI where actuaries may apply their skills, whilst recognising the changing risk landscape.

B: Introduction and Scope

5. The profession has been, and continues to be, well-placed to use data science, and associated modelling techniques to provide solutions to a wide range of problems.
6. There is a heightened focus on data science and artificial intelligence ('AI'), with both access to models and tools, and capability of the technology expanding rapidly.
7. This brings into play increased risks and opportunities for our members, and a responsibility to play our part in ensuring safe, transparent, and inclusive use of the technology in the public interest.
8. This is not to discourage innovation, rather to support and promote the work of actuaries across existing and new domains, in a way that serves the wider good of society and seeks fair outcomes from data science and AI.
9. From late 2022 we have observed the rapid rise of generative AI tools, becoming widely available for the first time, and rarely a day has passed since without media coverage extolling the huge advances this may bring about for humanity, or alternatively the acceleration of the end of the world. Ongoing opportunities such as greater insights on key risks, product innovation, and competitive advantage, need to be balanced with challenges around the potential for misuse of data, adverse consumer outcomes, lack of model transparency and reputational damage.
10. It therefore seems timely to consider where we have reached in terms of the use of data science and AI technologies by actuaries, and how our standards and guidance (and other regulatory tools) can continue to support our members.
11. The review has considered various case studies where actuaries are applying or looking to apply their skills in this area. We have also researched additional information to enhance the picture of actuarial activity in data science and AI.
12. Additionally, we have considered the developing standards and regulatory landscape across the globe, with a view to help inform actuaries of the environment in which they are working.

C: Detailed Review Findings

13. These headline findings and conclusions aim to highlight the involvement of actuaries in data science work, along with key areas of potential risk.

14. Rapidly changing environment

Increased capacity, availability, and profile of data science and AI tools all feeds into a rapidly changing environment. This, coupled with technological advances and ever-growing sources of data, potentially changes existing risks, and introduces new risks where such tools are adopted in areas of actuarial work.

From a regulatory perspective, both in the UK and globally there is evidence of governments and agencies developing knowledge and resources, with an increasing focus on safe adoption and use of AI. There is likely to be emerging standards, rules, and regulations in several jurisdictions, with challenges around consistency of aims and outcomes.

15. Increasing level of involvement of actuaries

There is an increasing level of actuarial involvement in AI and data science across a range of domains, and also plans to further increase usage. The range of application of these techniques is widening significantly into many traditional actuarial areas of work. There is also some evidence of emerging involvement of actuaries in wider fields.

Often actuaries will be working alongside data scientists, and other experts, with organisations being more focused on relevant skills than professional qualifications. This may bring challenges in maintaining demand for actuaries in certain types of work, at a time where there is increasing demand from employers to use data science and AI techniques.

16. Supporting actuaries

The IFoA supports its members through standards and guidance, lifelong learning, and support for volunteers.

The principles of the Actuaries' Code are relevant, and there is also additional non-mandatory guidance covering ethical use of data science in the public interest.

At present there is material in parts of the underlying Associateship and Fellowship curriculum for actuarial students. Additionally, there have been lifelong learning opportunities, for example through the IFoA Data Science certificate. There are ongoing plans to develop both of these strands to help ensure our members continue to be well-placed to contribute to this field.

17. Opportunities to collaborate

The IFoA has a strong record of collaboration with other stakeholders in prominent fields of work. There exist wide-ranging opportunities to continue this in data science and AI, seeking out new avenues to influence future paths. There is extensive ongoing IFoA volunteer activity, further supported by IFoA executive teams, which can help drive this.

D: Conclusions

18. The main conclusions from the report are:

- The increasing use of data science and AI, and the demand for relevant skills, presents continuing opportunities for actuaries. To remain competitive actuaries will need evolving resources covering professional development and standards to support them as builders or users of AI systems and outputs.
- There is also considerable change and activity from a global regulatory perspective, with further developments likely during 2024. This provides important context for the IFoA and other regulators in considering actions which continue to provide clear expectations and support to actuaries working in this domain. There will be challenges in ensuring standards and guidance remain proportionate and relevant to the growing applications of data science and AI where actuaries may apply their skills, whilst recognising the changing risk landscape.

19. The Board is asked to approve publication of the report and provide a steer on wording of report Foreword.

E: Appendices

- Appendix 1, Draft full report