Working Party Research Topic/Title:-	**AI and Machine Learning - GI Pricing and Underwriting Applications**
Practice Area Research Committee Member Shadow:-	TBC
Source of idea/"Initiator":-	GI Pricing Research Group (Ed Plowman)
Working Party Chair:-	To be selected through volunteer vacancy process
What issue is this research topic trying to address:-	The working party will focus on the practical applications and implications of AI and machine learning in GI pricing and underwriting, and in producing useful tools and guidance to pricing actuaries looking to implement these concepts. Some potential detailed workstreams are outlined in the Appendix; initial meeting(s) of the WP will focus on narrowing the scope.
Who will be the audience for this research:- *(We need to understand who we believe this research will be of interest to – to ensure we have an end consumer for the research)*	Mainly pricing actuaries and other pricing professionals, chief actuaries, underwriters. WP aims to cut across both personal lines and commercial / London Market business. Some aspects of research may interest a broader audience including senior management at insurance companies, regulators, consumer groups, the IFoA, etc.
What do we see as being the output/deliverables of this research:-	See appendix

What are the time scales of this research:-	Ongoing but we would aim to present an initial update paper at GIRO 2026
What previous work has been done in this area recently, within the profession please email libraries@actuaries.org.uk, other professions/academia:-	There is overlap with work done in the Data Science group / AIDSET practice area. However, we will be focused less on theory and more on frontline application. We see significant gaps in useful IFoA research and output on this key topic for the profession's future
Will 3rd party data be used? If so a protocol will be developed to support you	Unlikely - difficult to get companies to share pricing data as it is too commercially sensitive.
Proposed membership:- *The IFoA is registered as a Data Controller in terms of the Data Protection Act 1998. The contact details provided (i.e. names and email addresses) will be shared among the members of this working party, the Practice Area Research Committee and the relevant Practice Area Board in relation to the research topic detailed above. The information provided will be used for the purposes of facilitating the completion of the proposed research. The IFoA will not pass your personal information to any other third party without your consent. If you would prefer that your details are not shared in this way, please contact a member of the Communities Team.* *Professional.communities@actuaries.org.uk*	Founding members to be selected through volunteer vacancy process.
If currently operational, add list of members:	n/a
Additional volunteers required:-	Yes – the scope is broad and would need a larger group to fully address; this should be a topic of keen interest for many pricing actuaries
Frequency and type of meeting:-	Monthly co-ordination meeting; individual workstream meetings.
Engagement with external stakeholders – Public Affairs will support and arrange for you	Some output may be of interest to external media. Potential for useful interaction with other professional bodies (e.g. Royal Statistical Society) and academia on some topics Possible engagement with regulators on any AI related proposals
IFoA resource and support required:- *The Communities Team and Research and Knowledge teams can offer various levels of support during the life of your working party; however we would ask that a member of your working party be responsible for*	Co-ordination with AIDSET practice board Interaction with IFoA Education area

keeping minutes or action points from each of your meetings. *It is important that the working party provides updates to the Communities Manager on an on-going basis, preferably after every meeting. This will ensure that the Board and other committees are kept informed of the work of the working party.*	

Working Party Terms of Reference

(In conjunction with the 'Guidance for Member Led Research Working Parties' and the Volunteer Induction Pack)

Legal Issues to Note

Intellectual property issues

As our members and the wider public will appreciate, we want to ensure that the work produced by our working parties remains the intellectual property of the IFoA and not of individual members, their employers or of the working party itself. This means that that work can be used and disseminated by the IFoA to its members, stakeholders and the wider public to advance all matters relevant to actuarial science and promote the work of the wider actuarial profession.

The IFoA is very grateful to the members and their employers for the time, effort and work which is devoted to the working parties for the shared benefit of all members and the public. However, we also appreciate that employers may have their own intellectual property rights in that material – or even license it to/from third parties – and we need to make sure that the working party is not using that material without the employer's, or third party's consent. Members should remember that they need to get the consent of their employer or relevant third party to bring that material to the working party to use.

In recognition of the support provided by individuals and their employers, all material which is permitted to be used will, of course, be credited – noting the sources or contributors by name in the final work product generated by our working parties. Employers can also raise their own profile by allowing staff to sit on working parties and to have their firms acknowledged as supporting contributors in the final products.

The IFoA has some very short consent forms for our members to use if they do wish to use their employer's or a third party's work which will enable the Executive to compile a list of contributors to be referenced in the final work product. Please approach your relevant Practices Manager for more details. Again, the IFoA cannot provide members with advice in relation to intellectual property law and members may need to consult their own in-house lawyers or external legal advisers about this if they are in any doubt as to their obligations or if they have any concerns.

Further guidance

- The UK Intellectual Property Office has some helpful guidance for members on basic intellectual property issues.

- The World Intellectual Property Office's website also provides some helpful guidance on intellectual property matters.

Competition law issues

It is the IFoA's policy to comply with competition law – this applies both to the IFoA itself and to our members. Some working parties will come across competition law issues due to the nature of their research work. Members who are on such working parties must be aware of this issue and be prepared to take steps to avoid any breach of the relevant competition laws.

We have produced an informative video clip which sets out some helpful guidance that working party members should bear in mind regarding competition law. However, we cannot provide advice to members, individual members may need to consult their own in-house lawyers or external legal advisers about this if they are in any doubt as to their obligations or if they have any concerns.

For members who are interested, the IFoA has also produced a short note on competition law issues which may impact our working party members. (See Appendix B, page 15)

Further guidance

The Office of Fair Trading (OFT) investigates competition law issues and has some handy guides which members might find useful.

The OFT also mentions the Competition Pro Bono Scheme which offers some free legal advice to individuals and businesses who believe that their rights under competition law have been infringed or who are concerned that they may be in breach of any relevant laws. Members may also find this useful.

Conflicts of Interest

Consider any conflicts of interest issues which might arise by virtue of a member's membership on the working party and which might breach the Actuaries' Code provisions

APPENDIX

Potential workstream / output ideas.

In this structure, each workstream would look at both Personal Lines ("PL") and more generally, data rich areas, and London Market ("LM") or data sparse areas.

These could be separated, but the thought is that a crossover perspective could be very interesting – what can each area learn from the other; how does the LM approach to AI/ML look from the PL perspective, and vice-versa.

Workstream 1 — Modelling Approaches & Technical Frameworks
Focus: The *core* technical questions actuaries face in the practical application of an AI/ML-driven pricing paradigm.
- Practical considerations in shifting to GBM-based, NN-based, or hybrid modelling frameworks (GLM/GAM + GBM or NN, etc.).
- Role of the pricing actuary in an AI/ML modelling process — how to add value beyond "just coding the model."
- Importance of modelling technique vs. high-cardinality feature engineering (e.g., postcode, vehicle classification, occupation encoding).
- Avoiding overfitting in "wide" datasets, especially when the number of explanatory variables explodes.
- Useful approaches for small/sparse datasets and for large, rich datasets.
- Cross-over learnings between PL and LM: who is overfitting vs who is underfitting, and why.

Possible outputs: technical guide, diagnostics checklist, code/pseudocode annex.

Workstream 2 — Data Strategy, Streaming Data & Unstructured Inputs
Focus: The *data side*—because ML success in pricing is 80% data engineering.
Topics included:
- Analysis of telematics / IoT / connected vehicle or property devices:
  - architectures
  - streaming/real-time vs batch ingestion
  - feature engineering
  - anomaly detection
- Dealing with and extracting meaning from unstructured data (documents, photos, free text, bordereaux, endorsements).
- Data augmentation.
- Data architecture requirements for ML-driven pricing (feature stores, reproducible pipelines).

Possible outputs: data stack blueprint, exemplar telematics pipeline, unstructured data playbook.

Workstream 3 — AI for Pricing, Underwriting & Operational Automation
Focus: The *applications* of AI/ML across the pricing–underwriting–ops continuum.
Topics included:
- Pricing applications beyond "core technical pricing models":
  - price optimisation
  - lifetime value
  - propensity, retention, churn
  - fraud signals
  - claims triage
- In LM:
  - what AI/ML can realistically do with sparse data
  - algorithmic underwriting: what works, what doesn't, and what is hype
  - what is the endgame: can AI replace underwriters?
- Why personal lines pricing structures don't seem to converge on a common truth when everyone is supposedly modelling the same underlying risk.

Possible outputs: Use-case catalogue; maturity roadmap for PL vs LM; case studies.

Workstream 4 — Fairness, Affordability, Governance & Consumer Duty
Focus: Compliance, model risk management, explainability and ethical considerations.
Topics included:
- How to incorporate "fairness" or affordability considerations into complex models.
- Consumer Duty implications for ML: explainability, monitoring, justification of variables.
- Governance frameworks for pricing models:
  - documentation
  - validation
  - model cards
  - monitoring dashboards
  - drift detection
- Bias identification and mitigation (especially for high-cardinality variables).
- Differences in governance required for PL vs LM.

Possible outputs: fairness framework, Consumer Duty checklist, model governance templates.

Workstream 5 — People, Education & Actuarial Capability
Focus: The *human* side—skills and team structure required to actually use AI/ML well.
Topics included:
- Pricing team composition in an AI era:
  - actuaries
  - data scientists
  - ML engineers
  - product owners
- Do actuaries need to become more collaborative to succeed?
- How actuaries can stay relevant and add value in an AI-enhanced workflow.
- Training and education requirements for both PL and LM pricing teams.
- How pricing actuaries can interpret, challenge, and validate ML models built by others.
- Surveying market practice: how teams are structured today across the industry.

Possible outputs: capability framework, curriculum, recommended team structures.

Workstream 6 — Market Intelligence, Research Digest & Horizon Scanning
Focus: Staying ahead of the curve and feeding insights back into the community.
Topics included:
- Regular digest of webinars, conference talks, papers, academic research, and vendor activity.
- Monitoring regulatory statements and global guidance on AI generally and AI in insurance specifically (UK, EU AI Act, NAIC, APRA, MAS).
- Emerging trends: foundation models for insurance, multimodal AI, RAG for underwriting.

Possible outputs: quarterly digest, reading list, summary slide packs.