AI potential and pitfalls

Navigating the opportunities and ethical challenges when actuaries use AI

6 May 2025

Questions

(1) Why do ethical issues arise when actuaries use AI? (Brandon)

- What are some key risks and why is a framework important to ensure robust governance?

(2) Perils and challenges (Matt)

- What is the reality vs. the hype and what are the pitfalls and risks to address in practice?

(3) How is AI being used in practice? (Stuart)

- What issues emerge from technical actuarial use cases vs. customer-facing use cases?

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Ethical issues

What are some of the key risks using AI specific models?

Lack of transparency

Bias amplification

Model validation

Key Risks

Data requirements

Loss of professional judgement and control

Ethical issues

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Why do ethical issues arise when using AI?

AI has the potential to replicate and amplify human biases. It is our duty to ensure that these biases are mitigated and controlled.

Discrimination

Accountability

Actuaries must ensure accountability in their predictions and outcomes. This becomes more difficult when relying on opaque AI tools.

Ethical issues

AI has made it possible to gather and utilise personal data on a massive scale. It is imperative to protect the privacy and security of individuals.

Privacy and consent

Professional Integrity

Actuaries are trusted to act in the public interest, using AI without due caution can damage that trust.
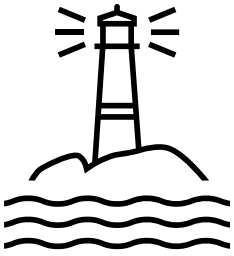
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What do we think needs to be done?
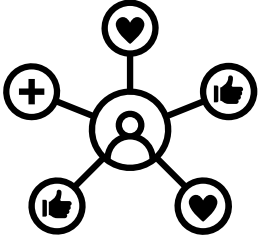
Actuaries should play an active role in considering ethical issues arising from the use of AI in our sphere of influence

- In both technical / regulated actuarial work and more general work

Actuaries need to be more aware of ethical issues which arise from use of AI

- Be equipped to understand these issues and the risks which arise

- Shape and implement appropriate governance measures to address these risks
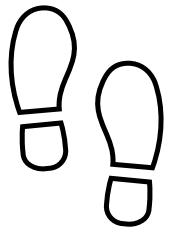
IFoA should play a leading role in highlighting ethical issues posed by firms and individuals using AI

- Supporting the creation of thought leadership to emphasise the value of actuaries in understanding, managing and controlling the risks which arise from using AI

Institute
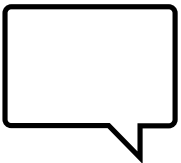and Faculty
of Actuaries

Why do we need frameworks?
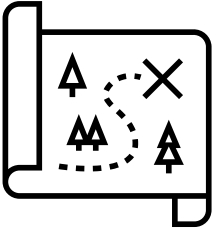
Mapping out risks can help us navigate them as safely as possible

- Knowing what to look for and where to look is key

Listing the risks helps us to consider issues comprehensively

- AI use presents ethical issues in a large number of areas
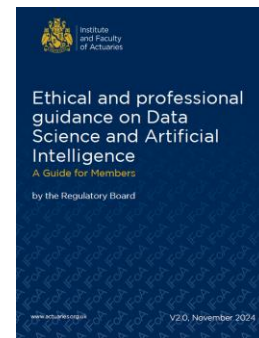
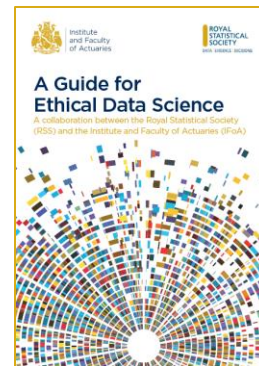**Articulating the issues in risk framework language**

- Framing AI risks in a familiar way for regulated financial services firms

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and Faculty
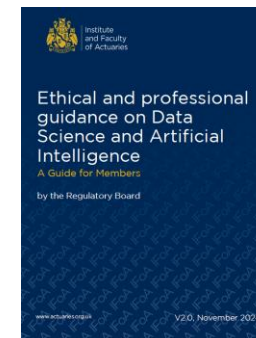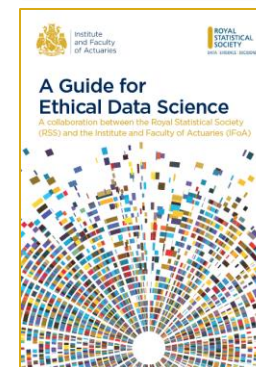of Actuaries

Framework: Risk focus (1)

Framework Stage	Risk	Risk Types
1. Integrity	Unlawful or unethical data use leading to regulatory breach, reputational damage, or privacy violations.	Conduct Risk, Compliance Risk, Reputational Risk, Data Privacy Risk
2. Competence & Care	Inadequate skills or oversight causing flawed, unsafe, or unreliable model outputs.	Model Risk, Operational Risk, Strategic Risk
3. Impartiality & Bias	Biased data or modelling causing discriminatory outcomes, customer harm, or regulatory challenge.	Conduct Risk, Customer Harm Risk, Compliance Risk, Reputational Risk, Strategic Risk
4. Compliance & Professionalism	Breach of legal, regulatory, or professional standards leading to sanctions or reputational loss.	Compliance Risk, Conduct Risk, Strategic Risk
5. Comms & Explanation	Miscommunication or lack of transparency leading to misuse of outputs, stakeholder confusion, or customer harm.	Conduct Risk, Customer Harm Risk, Operational Risk, Reputational Risk

Framework: Risk focus (2)

… drawing upon publications:

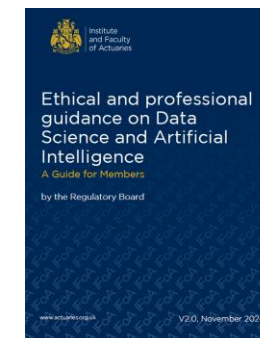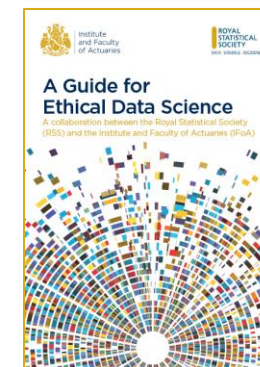| Framework Stage	Risk	Risk Types
6. Speaking Up & Challenge	Ethical or operational concerns going unaddressed, leading to governance failures and material harm.	Conduct Risk, Operational Risk, Reputational Risk, Strategic Risk
7. Societal Impact & Public Good	Societal exclusion, inequity, or public harm damaging reputation, licence to operate, or business viability.	Strategic Risk, Conduct Risk, Reputational Risk, Customer Harm Risk
8. Avoiding Harm	Misuse, malfunction, or unintended consequences of AI systems causing individual or group harm.	Customer Harm Risk, Model Risk, Operational Risk, Compliance Risk, Strategic Risk
9. Accountability & Oversight	Lack of clear ownership or governance leading to unmanaged model failures, liability, or operational disruption.	Model Risk, Operational Risk, Compliance Risk, Strategic Risk

A Guide for Ethical Data Science
A collaboration between the Royal Statistical Society (RSS) and the Institute and Faculty of Actuaries (IFoA)

Ethical and professional guidance on Data Science and Artificial Intelligence
A Guide for Members
by the Regulatory Board
V2.0, November 2024

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Framework: Action focus (1)

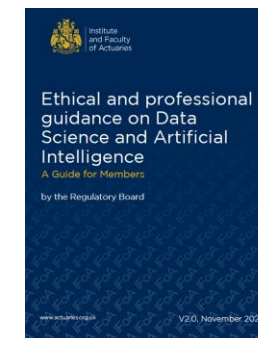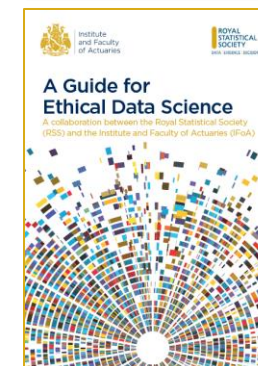| Framework Stage	Questions to ask	Target outcome
1. Integrity	• Do I have a lawful basis or consent to use the data? • Am I being transparent about what the AI model does and how it's used? • Is sensitive data adequately protected?	Use AI and data honestly, lawfully, and with public trust in mind.
2. Competence & Care	• Am I (or those I rely on) competent in AI methods? • Has the model been validated and peer-reviewed? • Am I keeping my skills up to date?	Ensure you or your team have the skills and apply due diligence in model development and oversight.
3. Impartiality & Bias	• Could the model disadvantage any group unfairly? • Have I tested for direct and indirect bias? • Are fairness criteria documented?	Identify and address potential bias in data, modelling, and outcomes.
4. Compliance & Professionalism	• Have I complied with relevant laws (e.g. UK GDPR, Equality Act)? • Am I meeting the Actuaries' Code? • Do actuaries have a duty to raise concerns if AI models are used improperly or pose ethical issues?	Follow legal, regulatory, and professional rules.
5. Comms & Explanation	• Can I explain the model's output to someone without technical expertise? • Have I communicated key assumptions, limitations, and uncertainty? • Are users interpreting results responsibly? • How I develop confidence in the results being presented?	Clearly communicate what the model does, how it works, and its limits.

… drawing upon publications:

A Guide for Ethical Data Science
A collaboration between the Royal Statistical Society (RSS) and the Institute and Faculty of Actuaries (IFoA)

Ethical and professional guidance on Data Science and Artificial Intelligence
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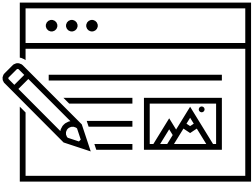# Framework: Action focus (2)

Framework Stage	Questions to ask	Target outcome
6. Speaking Up & Challenge	• Would I feel confident raising concerns about this model? • Are there escalation routes? • Am I alert to red flags, e.g. opaque logic, discriminatory impact, misuse?	Speak up or escalate if something seems unethical or risky.
7. Societal Impact & Public Good	• Does this model benefit or harm individuals or society? • Could it reinforce systemic inequalities or exclusion? • Have I engaged affected stakeholders? • Is the model explainable enough to justify use of high-impact?	Consider the broader impact of your work on individuals and society.
8. Avoiding Harm	• Have I identified potential harms, including unintended consequences? • Are mitigation plans in place? • Does the system respect privacy and human dignity?	Proactively prevent harm from AI usage, including indirect effects.
9. Accountability & Oversight	• Who is accountable for this model's performance? • Is there ongoing monitoring? • Are decisions auditable and explainable? • Has the model been independently reviewed for fairness and ethical concerns?	Ensure there is clear responsibility and governance for outcomes.

… drawing upon publications:

A Guide for Ethical Data Science
A collaboration between the Royal Statistical Society (RSS) and the Institute and Faculty of Actuaries (IFoA)

Ethical and professional guidance on Data Science and Artificial Intelligence
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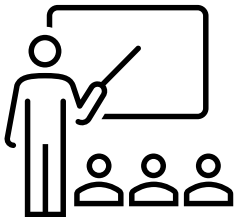# AI Ethics, Governance & Risk Management WP

Producing articles on AI ethics related themes

- Focusing on practical use cases where actuaries may need help
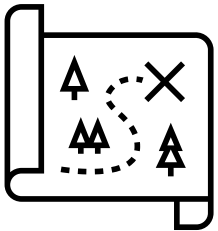
Promoting the use of frameworks to navigate ethical issues

- Focusing on governance and risk management of AI ethics issues

Defining core AI ethics knowledge which actuaries should have

- Undertaking gap analysis of current IFoA syllabus and CPD provision
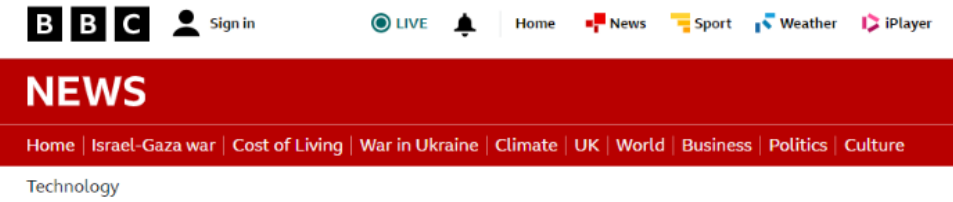- Suggesting ways to plug the gaps

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Perils and challenges

21 May 2025

The perils of customer contact

NEWS

Technology

DPD error caused chatbot to swear at customer

© 19 January

HEALTH REPORTING IN THE STATES

An eating disorders chatbot offered dieting advice, raising fears about AI in health

UPDATED JUNE 9, 2023 · 6:59 AM ET ⓘ

By Kate Wells

FROM **mp** Michigan Public

M Metro

An AI chatbot has gone rogue and gave refund that airline has to honour

Story by Hiyah Zaidi • 4w • ⓪ 2 min read
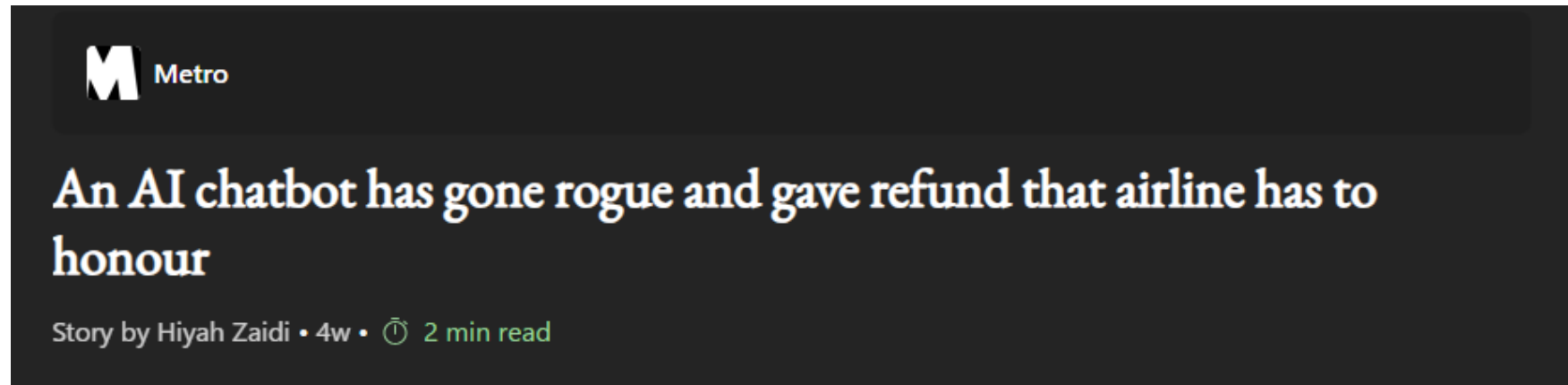
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The challenges of RAG LLM

The challenges of actuaries jumping into ML

$$\text{Accuracy} = \frac{\text{True Positives} + \text{True Negatives}}{\text{All Samples}}$$

Further reading: Tour of Evaluation Metrics for Imbalanced Classification - MachineLearningMastery.com

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AI in practice

Identify your use case

Question: Do you use **ChatGPT** every day in a work context?

Question: Do you use **Copilot** every day in a work context?

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How often do you use artificial intelligence (AI) tools?

All adults (13408 US adults - December 13, 2023)

Daily — 13 %
Weekly — 17 %
Monthly — 7 %
Less often than monthly — 14 %
Never — 33 %
Not sure — 16 %
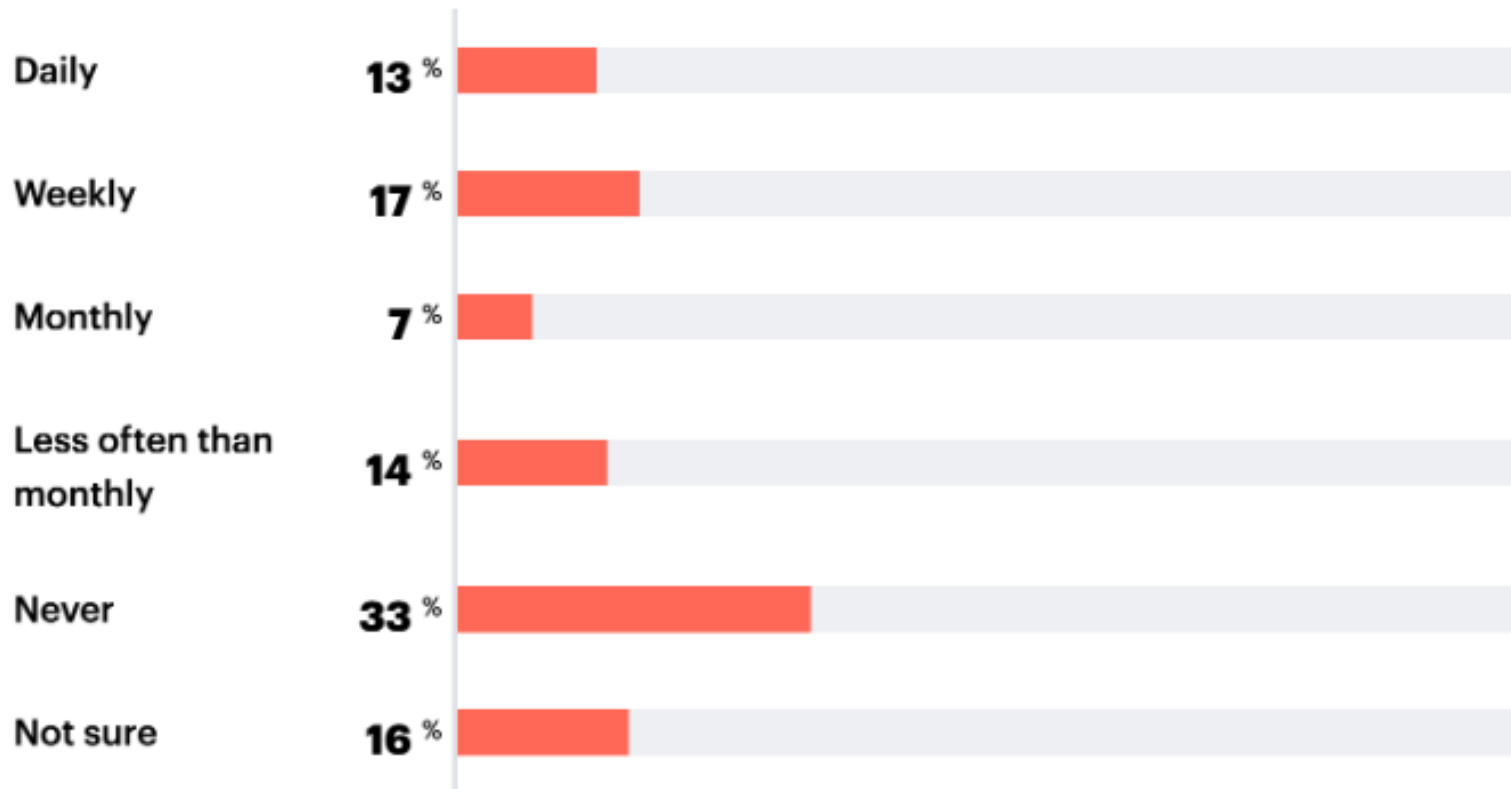
A breakdown of the benefits of AI in the workplace
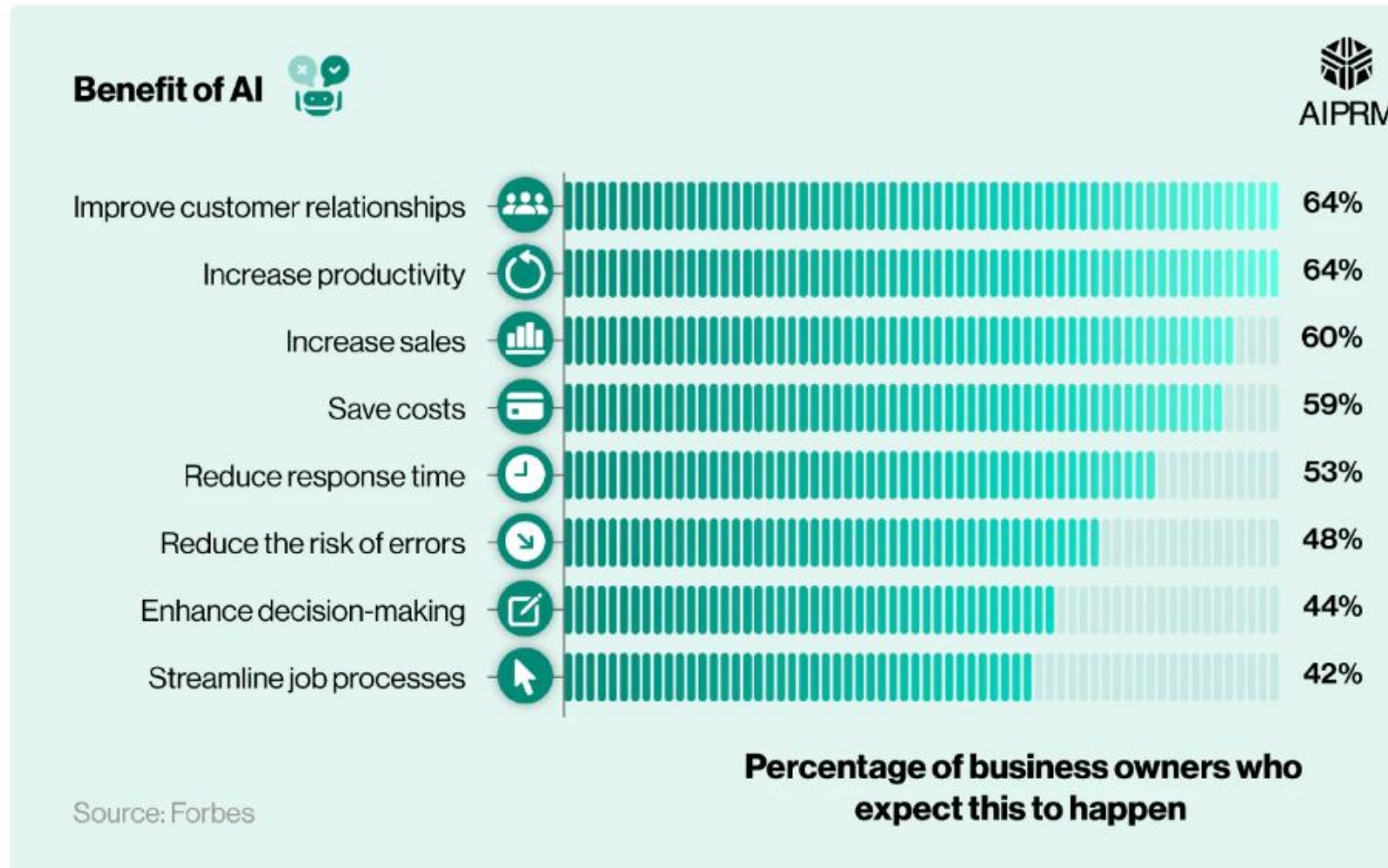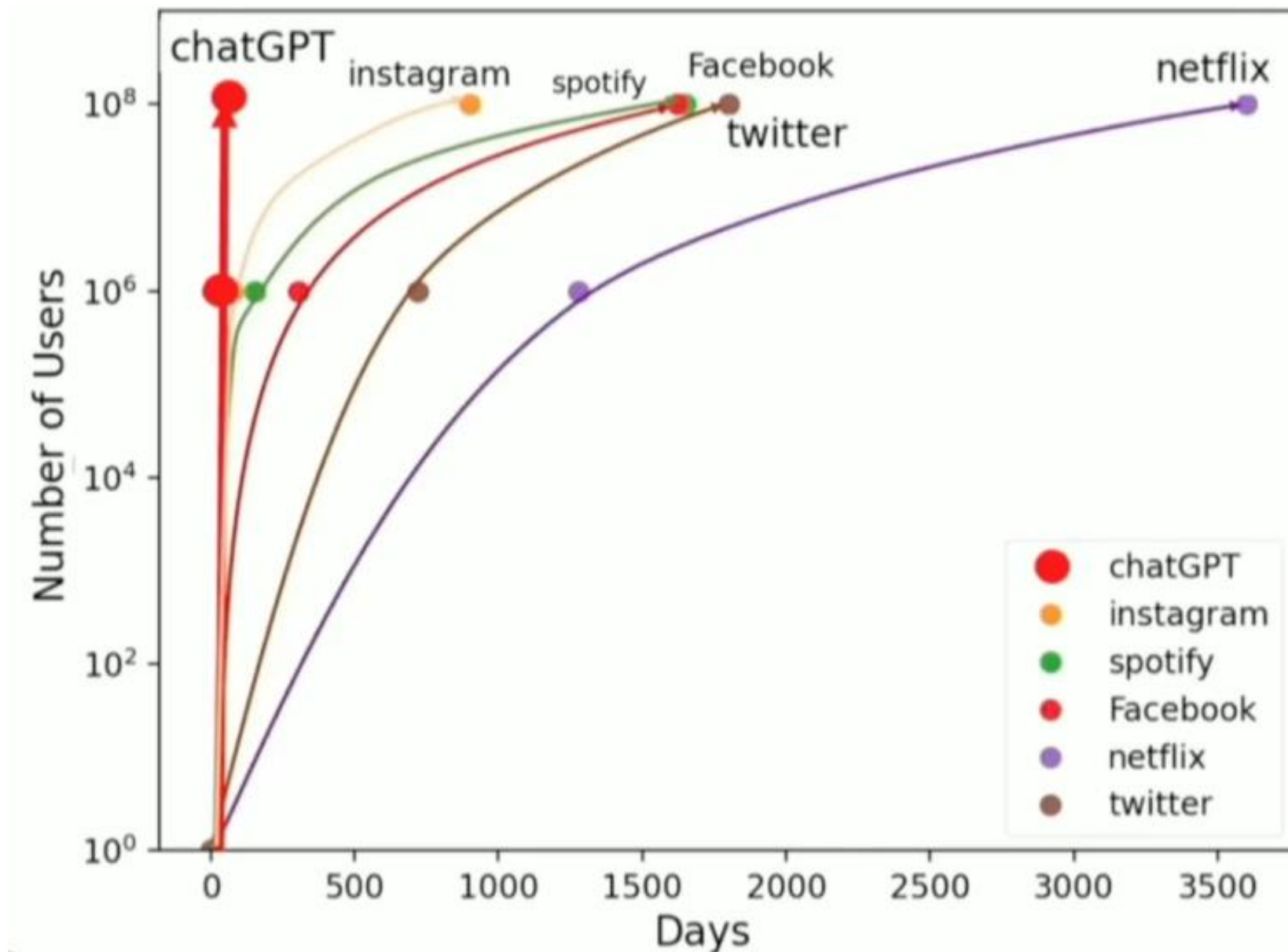
Potential drawback of AI
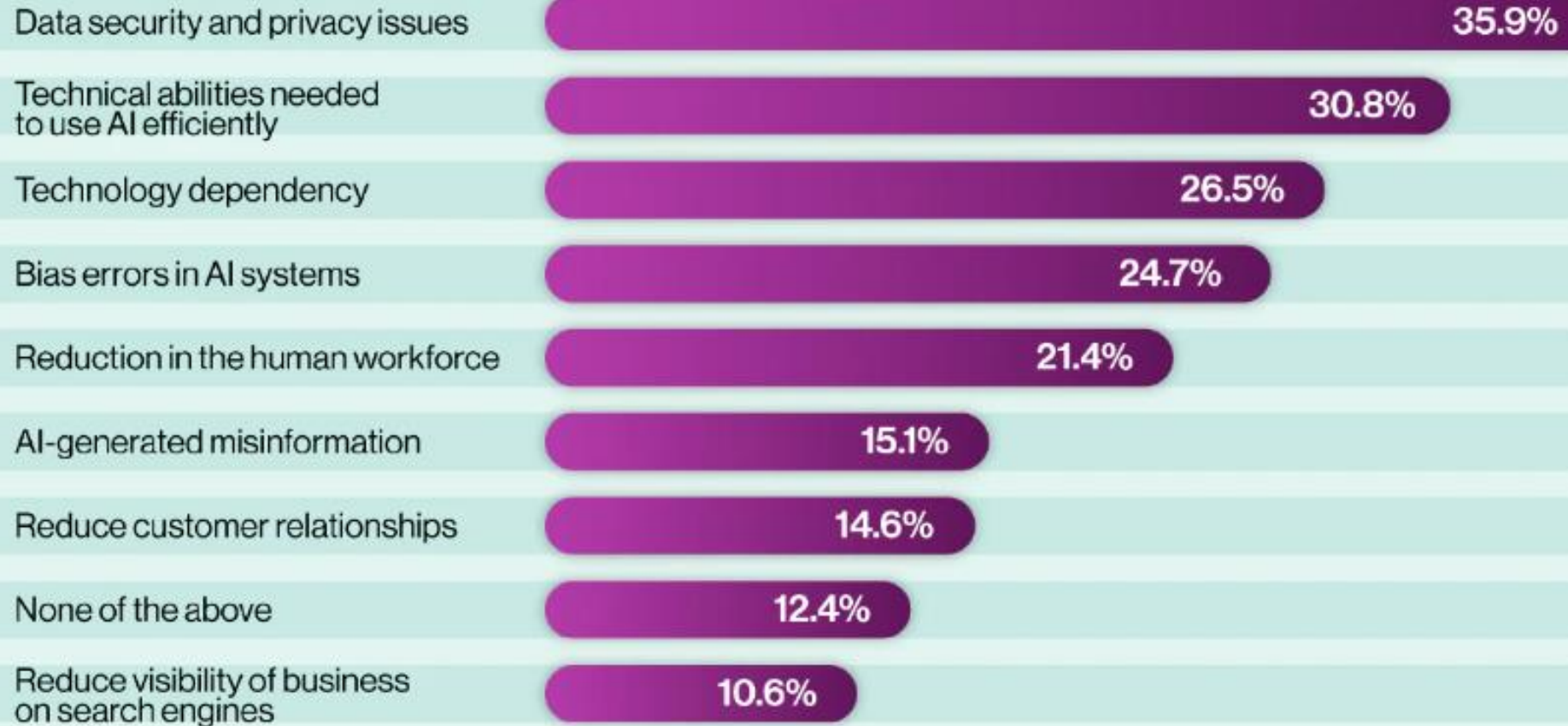
Drawback	Percentage
Data security and privacy issues	35.9%
Technical abilities needed to use AI efficiently	30.8%
Technology dependency	26.5%
Bias errors in AI systems	24.7%
Reduction in the human workforce	21.4%
AI-generated misinformation	15.1%
Reduce customer relationships	14.6%
None of the above	12.4%
Reduce visibility of business on search engines	10.6%

Our Use Case:

The Meeting

12 Monday	13 Tuesday	14 Wednesday	15 Thursday	16 Friday
ZOOM Weekly Teams https://	Meeting: Rachel and Stuart 1-1 Microsoft Teams Meeting	Meeting: Sales Planning and Update Microsoft Teams Meeting; Mallow Room		Meeting: Danny and Stuart 82 Baker St, London W1U 6TE
Impact Investing Speaker briefing call - ITMO https:// mallowstreet.zoom.us/j/ eventscalendar@mall				ZOOM Friday Stand https://
Zoom: Tim and Stuart Zoom	Introduction SOFI Microsoft Teams Meeting; _FIRST 7B09 Deaton 6p	mallowstreet Board Meeting mallowstreet HQ: 1st Floor, 4-6 Throgmorton Avenue, London, EC2N 2DL	Adam and Stuart catch up at Aptior 78 Pall Mall (78 Pall Mall, London, England, SW1Y 5ES)	
Meeting Jessica & Andrew BBC				
ts Team Weekly ...soft Teams		Canceled: sprint planning Microsoft Teams Meeting gareth.hughes@mallowst		
	Meeting: Raf and Stuart 1st Floor, 4-6 Throgmorton Avenue, London, EC2N 2DL		Teams Call Microsoft Teams	Teams: Mark and Stuart Teams
		CONFIRMED: 2nd Round Interview - Maris M Mallow Room victoria.sinclair@mallows	Zoom: Carne Group and mallowstreet Zoom	
Meeting with Stuart - Saint Espresso 45 Gresham	SOFI Invites			
Insurance Chasers Microsoft Teams Meeting				
Stuart <> Simon Microsoft Teams Meeting;	Meeting: Claire and Stuart 82 Baker St, London W1U 6TE	Meeting: Jane and Stuart 80 Coleman Street, London, EC2R 5BJ		
		SOFI Update MS Towers bryan.verster@mallowstreet.com	Zoom: Simon and Stuart Zoom	
Stuart Breyer/ Deepon SG - Coffee Caravan City	Call: Mark and Stuart; Stuart to call Mark's			
	Meeting: Paul Li, David, Stuart 1st Floor, 4-6	Mallowstreet - Delegates - Catch-up Microsoft Teams Meeting;		MallowStreet / ITMO catch up Microsoft Teams Meeting
Teams: Gareth and Stuart 1-1 Teams	Leadership Meeting with Stuart Mallow Room albena.georgieva@mallo			
		CONFIRMED: 2nd round events interview - Lanai mallow-room victoria.sinclair@mallows	SOFI demo Microsoft Teams Meeting	
Teams: David and Stuart 1-1 Teams	Meeting: Bryan and Stuart 1-1 Microsoft Teams Meeting			
	F2F: Stuart Breyer (mallowstreet) and Sam Seaton (Moneyhub) mallowstreet, 1st floor, 4-6 Throgmorton Ave, London			

Overview

Summary

The presentation begins with introductions from the speakers, who represent various roles within the financial investment industry. The main discussion revolves around Buy and Maintain portfolios, which have gained popularity in the defined benefit pension market. The speakers highlight that while security selection is crucial, portfolio construction is equally important. They discuss how these portfolios can be optimized for various objectives, including generating cash flows, capturing further spread, and achieving ESG goals. Two case studies are presented to illustrate how portfolio construction can be tailored to meet different client objectives. The speakers also emphasize the need for regular dialogue with clients to ensure that their objectives are still being met and can be further optimized if necessary. The presentation also touches on the complexities of ESG within bonds and the importance of considering ESG factors in portfolio construction. The speakers argue against exclusions in portfolio construction, advocating instead for a holistic approach that focuses on best-in-class companies within each sector. They also discuss the importance of being aware of key factor risks in portfolio construction, such as property exposure and interest rate duration.

Key Points

| 1 | **Buy and Maintain portfolios have gained popularity with the defined benefit pension market** |

The presentation discussed the increasing popularity of Buy and Maintain portfolios in the defined benefit pension market. This investment strategy is characterized by a low-cost approach with low turnover, making it an efficient way to harness yield in credit markets. The strategy focuses on making the right credit picks and identifying impaired credits early, with a traditional focus on security selection and avoiding defaults. However, the presentation emphasized that portfolio construction is also crucial, and that clients can optimize their portfolios for various objectives, such as generating cash flows, capturing further spread, and achieving ESG goals.

| 2 | **Portfolio construction is as important as security selection** |

While security selection is crucial in Buy and Maintain portfolios, the presentation highlighted that portfolio construction is equally important. The speaker discussed how they work with clients to understand their objectives and translate these into portfolio objectives. The constructed portfolio is then regularly reviewed and adjusted as necessary to ensure it continues to meet the client's changing objectives and market conditions. This approach emphasizes the need for regular dialogue with clients and a degree of dynamism in portfolio management.

| 3 | **Case study of two clients with different primary objectives** |

The presentation included a case study of two clients at different stages of their journey plan with different primary objectives. Client A was around 90% funded and focused on capturing spread to fill their funding gap. Client B was fully funded and focused on decarbonizing their portfolio to achieve their ESG objectives. The case study demonstrated how portfolio construction was used to implement these differing objectives, highlighting the flexibility and adaptability of Buy and Maintain portfolios.

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Purpose

Provide a brief summary (around 50 words) explaining the purpose of the meeting. Focus on the main objectives or key topics discussed.

Meeting Detail

Create a summary of the meeting organised as follows:
Key Themes and Discussion Points. For each identified theme:
* Theme 1: Summarise the main points discussed under this theme. Use sub-bullets for additional details or related points when necessary.
* Theme 2: [Follow the same structure as Theme 1]
* Theme 3: [Follow the same structure as Theme 1]
[Continue with additional themes as needed]
Do not include any people's names

Questions and Answers

List the questions, their context and responses asked by the attendees during the meeting. Provide the list in a numbered list form with line breaks between questions.
Do not include any people's names.

Follow-Up Action Points

List the follow up action points
Action Points. For each identified participant:
Summarise the main action points agreed in the meeting
Do not use any people's names

Add question +

Purpose

The purpose of the meeting was to discuss Buy and Maintain portfolios for defined benefit pension schemes. The main objectives were to explore how these portfolios can be optimized for various client goals, including generating cash flows, capturing spread, and achieving ESG objectives. The presentation focused on two case studies with different primary objectives.

Meeting Detail

Key Themes and Discussion Points:

* Buy and Maintain Portfolios:
  - Gained popularity in defined benefit pension market
  - Removes pitfalls of index-based investing
  - Low cost approach with low turnover
  - Focuses on security selection and avoiding defaults

* Portfolio Construction:
  - Importance of optimizing for various client objectives
  - Can be used to generate cash flows, capture spread, and achieve ESG goals

* Case Studies:
  - Client A: 90% funded, focus on capturing spread and filling funding gap
  - Client B: 100% funded, focus on decarbonizing portfolio and achieving ESG objectives

* Portfolio Characteristics:
  - Discussion of sector breakdowns, ratings, and climate metrics
  - Comparison of two portfolios with different objectives

* ESG Considerations:
  - Debate on exclusions vs. best-in-class approach
  - Challenges in measuring and implementing ESG objectives

Questions and Answers

1. Question about insurers' interest in buy-ins or buy-outs and their acceptance of portfolio characteristics.
Response: Insurers are generally happy to take these assets and structures. No significant issues with ESG credentials or holdings have been reported.

2. Question about potential changes in portfolio composition over time and how to manage that risk.
Response: Rating agencies are generally good predictors of default risk in aggregate, though they may not always get individual companies right. There's a cyclical and structural element to default rates, with expectations of increased defaults in the future.

3. Question about opportunities to lock in higher spreads given recent market widening.
Response: Credit spreads have repriced, moving from about 100 basis points to 180 basis points. This is seen as about halfway through recessionary pricing, with potential for further widening.

4. Question about the ESG characteristics of corporate credit markets versus equity markets.
Response: The sterling investment grade market tends to be relatively clean from a governance and regulatory standpoint. Complexities arise in measurement and consolidation of ESG metrics across different corporate structures.

Follow-Up Action Points

Action Points:

1. Continue dialogue with clients to ensure portfolio objectives remain current and aligned with changing market conditions and client needs.

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Name

LGPS Pension Trustee Meeting Template

Questions

Copy to templates   ☐ Select all

⬛⬛ ▼ ☐ **Purpose**   ✏️ 🗑️
Provide a brief summary (around 100 words) explaining the purpose of the meeting. Focus on the main objectives or key topics discussed.

⬛⬛ ▼ ▲ ☐ **Participants**   ✏️ 🗑️
Provide a bullet list of the meeting participants. Include titles or roles if provided.
Separate the list if possible into the following headings:
Councillors:
Co-opted Voting Members:
Co-opten Non-voting Members:
Also in attendance:

⬛⬛ ▼ ▲ ☐ **Key Themes**   ✏️ 🗑️
You are an AI assistant tasked with analysing this pension fund trustee meeting and creating comprehensive meeting minutes. Carefully read and analyse the entire meeting transcript. Identify the themes or topics discussed during the meeting as bullet points.

⬛⬛ ▼ ▲ ☐ **Welcome**   ✏️ 🗑️
What did the Chair say in their Welcome at the start of the meeting? Did the Chair make any announcements or provide any information prior to the rest of the meeting getting underway?

⬛⬛ ▼ ▲ ☐ **Absences and Substitutions**   ✏️ 🗑️
Were any apologies given for absenses?
Did anyone attend as a substitution for anyone else?
Was anyone noted as absent without any reason or apology?

☐ **Declarations of Interest**   ✏️ 🗑️

Stewardship Update

Summarise any discussion regarding the stewardship activities?

Sponsor Update

Summarise any discussion or presentation from the sponsor or corporate organisation.

Investment Strategy

Summarise any discussion on the investment performance of the fund and any updates on routine strategic aspects of the fund and investments. Additionally, what was said about the funding level, policy and operational aspects?

Governance Framework

Summarise any discussion on the governance framework. Detail what was said about the members roles and responsibilities, advisors, and officers of the pension fund.

Fund Administration

What was discussed about the pension funds administration performance? How did the administration performace map to the key performance indicators?

Legislation Update

Summarise what was discussed about any legistation changes or updates regarding local governement pension schemes or legislation that could impact or affect the pension fund in any way.

Governance Update

What was discussed about the fund governance after the Employer exit in the meeting?

AOB

Provide details of anything else which was discussed in the meeting that has not been included in the summaries above.

Questions

Specific Points & Actions

1   **Engage with central government on the proposed changes to LGPS pooling and consolidation.**

The speaker emphasized the need for engagement with central government to understand and potentially influence the proposed changes to LGPS pooling and consolidation. This includes understanding the government's goals, timelines, and the potential impact on local government pension schemes.

D   David Scholtz

2   **Plan for multiple future scenarios regarding LGPS pooling and consolidation.**

The speaker advised planning for various potential outcomes of the government's intervention in LGPS pooling and consolidation. This includes preparing for scenarios ranging from minimal changes to significant consolidation and increased government control.

D   David Scholtz

3   **Communicate the importance of local accountability and strategic asset allocation decisions remaining with the funds.**

The speaker highlighted the need to ensure that strategic asset allocation decisions remain with the local funds to avoid conflicts of interest and maintain local accountability. This should be communicated clearly to central government during engagements.

D   David Scholtz

4   **Highlight supply-side challenges in UK private equity and infrastructure investments to central government.**

The speaker noted that one of the key challenges in increasing investments in UK private equity and infrastructure is the availability of suitable projects. This point should be emphasized in discussions with central government to ensure realistic expectations and support for developing investable projects.

D   David Scholtz

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Length of meeting	Words per minute	Total disfluencies	Monologue Min	Significant Questions
42 minutes, 3 seconds	181	246	26 seconds	8
Time you spoke	**Start of topical discussion**	**Average disfluency rate**	**Monologue Max**	**Participants**
79%	2 minutes	4%	11 minutes, 38 seconds	4
	Time on topic		**Monologue Average**	**Participants asking questions**
	67%		2 minutes, 36 seconds	2

Small Talk
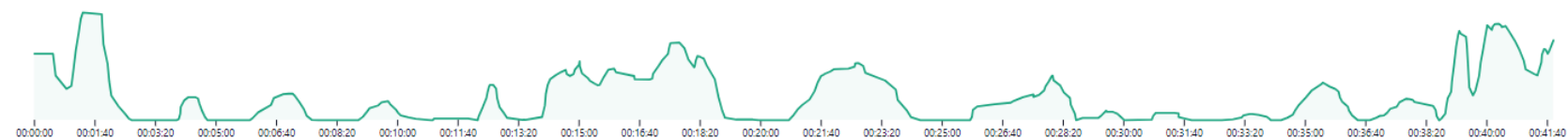
Interactions

☐ Show Words ☐ Show Repetitions

Stuart Breyer

Kate

Robert
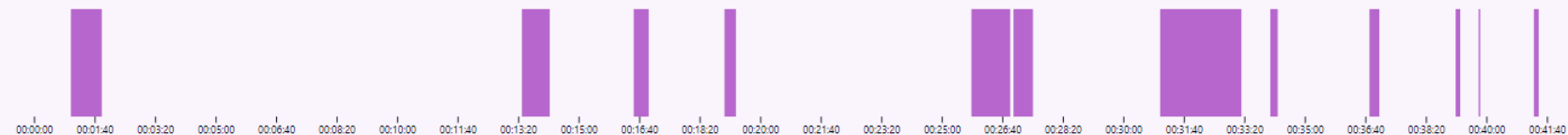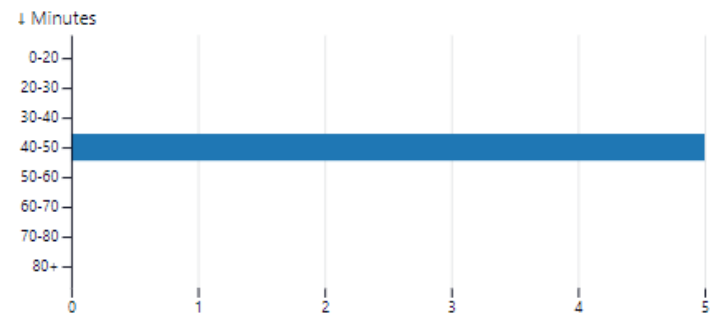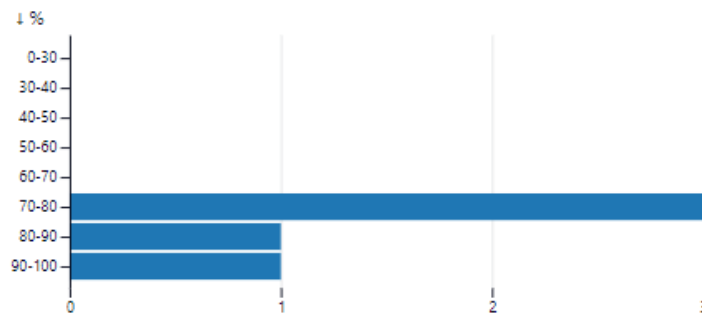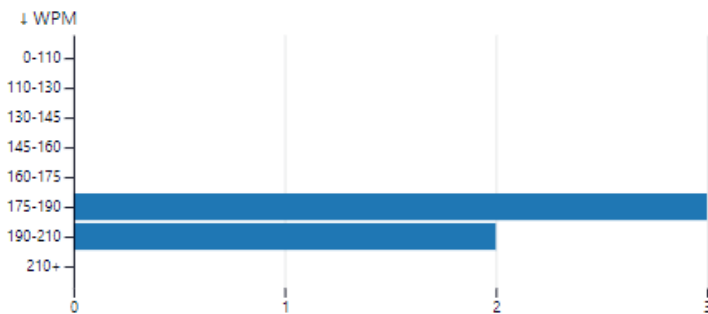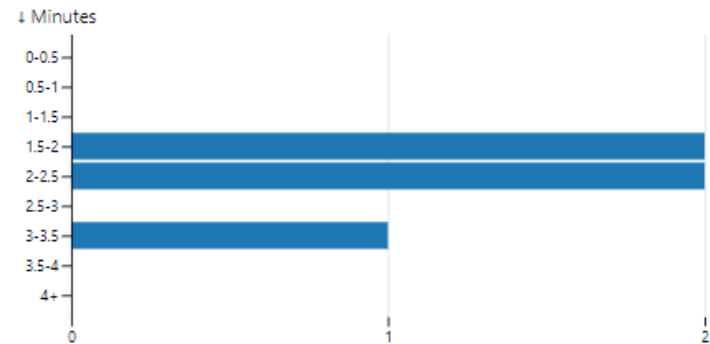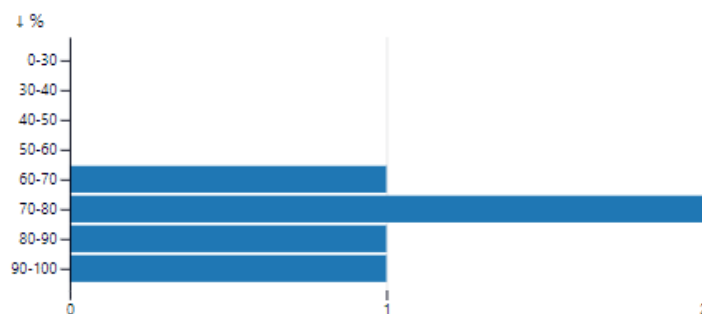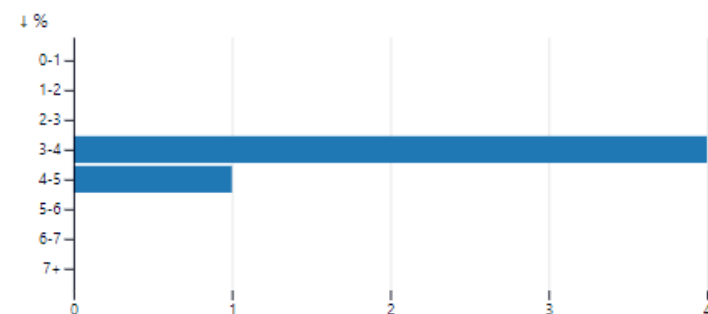
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Questions

Comments

Expressions of individual views by members of the Institute and Faculty of Actuaries and its staff are encouraged.

The views expressed in this presentation are those of the presenter.

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