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# Embedding data analytics in internal audit

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# Introduction

- Who we are
- The purpose of this presentation



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# What is internal audit

Developed from Senior Management requirement to 'pre-empt' external audit findings.

## History

- Initial focus on financial management and accounting controls.
- In the 1930s there was a move by some large corporates to include operational audits.

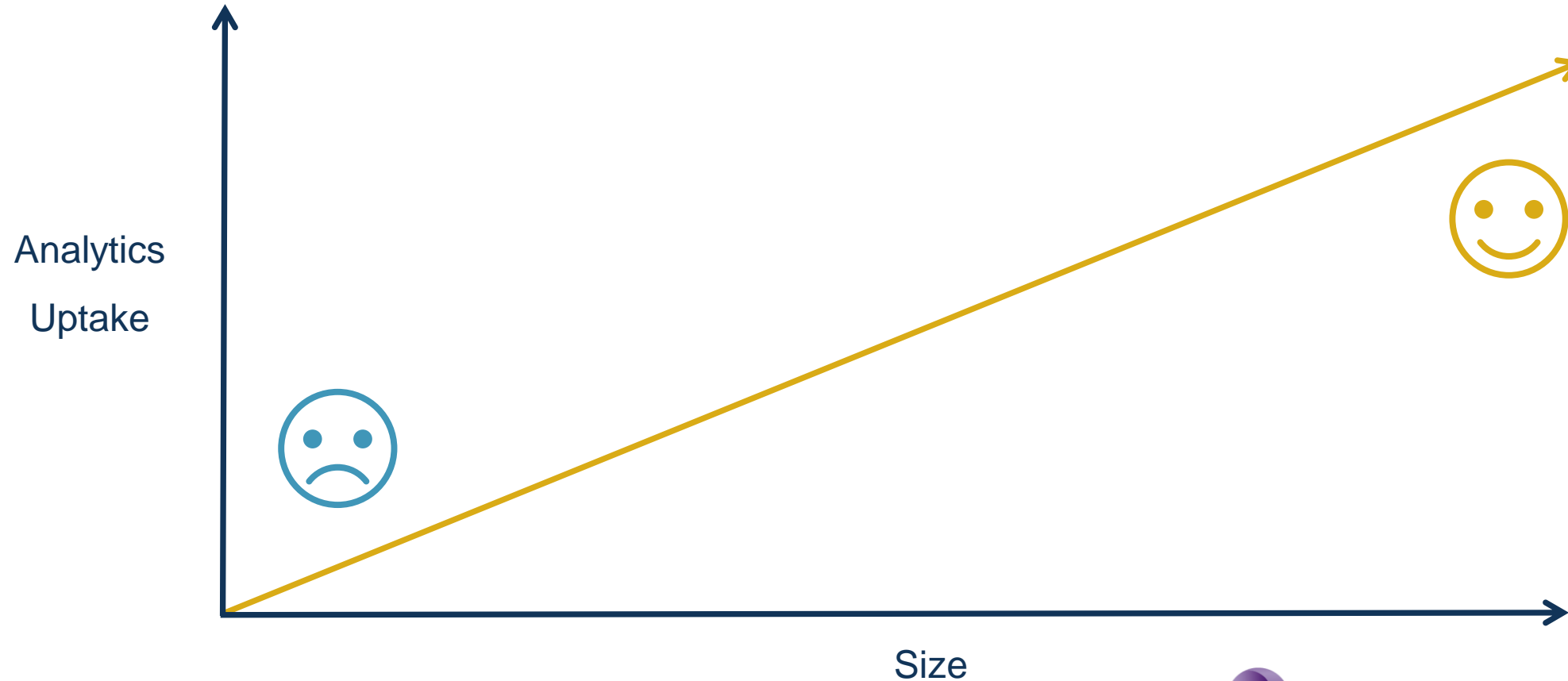
## Today

- Auditors test Control Design Effectiveness ('DE') and Operational Effectiveness ('OE')
- Internal Audit ('IA') is often integrated into a 'three lines of defence' corporate governance model, particularly in Financial Services.
- Data analytics is used, but its uptake is patchy
- Controversial statement - is IA 'internal consultancy'?



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# Graph to show the uptake of analytics in internal audit functions as a function of their organisational size



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# Audit universe and methodology

## Audit Universe

- Audits are targeted at the areas of greatest risk posed by an organisation, no cyclical audit plans.
- IA should have an 'Independent view of risk'.

## Design Effectiveness

- Who, what, why, when, where?
- Auditor judgement on whether the control mitigates the risk posed
- Some limited opportunity for the use of analytical techniques

## Operational Effectiveness

- Test a sample of events to see if the control has operated effectively.
- Use a statistical sample, but in everyday practice 'just test 30'.
- Widespread opportunity for the use of analytics in OE.



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# State of internal audit analytics today

SOx was a gamechanger for control automation and automated control testing globally.

However, '95%' of Internal Audit Teams remain at the starting block in using analytics and technology.

## Financial Services, Large & Complex Organisations.

- Large banks and insurers are ahead of the curve, typically with teams between 10-40 individuals who specialise in analytics.
- Focus on tool building and automation.
- Expected that auditors do analytics to an 'excel level' e.g. Pivot Tables.
- Limited use of Data Science.

## Everyone Else.

- Challenges in understanding how Data Analytics can help due to a lack of skills.
- Limited or no analytics drive and focus from the Audit Committee.



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# Internal Audit within insurance

Specific challenges exist within the insurance industry from an IA perspective.

## **Both size and complexity of data within an insurer is large**

- Large volumes of data from disparate systems
- Multiple regulatory touch points and different controls and use of data

## **Recent evolution in financial reporting and data landscape**

- Significant changes in regulatory approach for internal audit over the recent past
- Increasing use of complex external and/or unstructured data sources across operational functions
- Potential changes to Solvency II post-Brexit and ESG considerations on the horizon.



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# Data science in internal audit

## Data analytics tools that don't require an army of developers

- Growing range of tools available for identifying and monitoring risks in live environments
- Platforms increasingly quick to deploy and operationalise “on the fly” and agnostic to data platform
- Can potentially be embraced more by smaller insurers

## Different techniques can be applied across a wide range of functional areas

- Applications with examples for using data analytics within IA include:
  - Predictive insights: Customer churn prevention, supply chain monitoring
  - Red flag triggers: Concentration risk breaches, expense fraud
  - Operational modelling: Projecting potential operational risks across functional areas
  - Cognitive analytics: Sentiment analysis from on-line “chat” applications.



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- *<insert embedded video here>*



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# Greater role of Actuaries within internal audit

Actuaries have a role to play both within and as support to IA and their use of data analytics, both through industry knowledge and statistical acumen.

## Industry knowledge

- Detailed technical knowledge regarding data and potential risks and issues
- Thought leadership on building an audit roadmap and potential new areas of focus

## Modelling and statistical skills

- Helping identify an appropriate statistical method for a particular problem
- Specific validation of tests and triggers
- Wider model validation and communication support.



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# Summary

- Regulatory and data landscape for IA has seen significant recent changes
- Data analytics is a growing field within IA, although uptake is not consistent across the industry
- Recent developments in tools available have impacted the way IA can approach data analytics
- Actuaries have a key role in enabling and supporting the evolution in use of data analytics within insurance internal audit teams



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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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