

# The Rise of Actuarial Engineers

**Merging Tech, Data, and Domain Expertise**

A new persona for actuaries working at the intersection of InsurTech, Automation, and Data Science.

Presented By

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AlnsurCo



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# Why the Insurance Industry needs a makeover ?

## Actuarial Risk Meets Operational Risk

### ✓ The Spreadsheet Saga

Legacy systems often ran on spreadsheets, copious coffee, and a silent prayer that the macros wouldn't crash. A recipe for 'controlled chaos'.

### ✓ Innovation Roadblock

A staggering 70% of UK insurers admit legacy systems are their biggest barrier to real innovation. It's like trying to run a marathon in concrete shoes.

### ✓ Operational Risk are rising

Operational risks in actuarial teams are growing due to heavy reliance on spreadsheets and EUCs, which often lack proper controls, auditability, and documentation

### ✓ Regulatory Drive

The FCA is pushing for full digital solvency submissions by 2026, making manual processes a risky, regulatory tightrope walk.



# The Spreadsheet crisis

## From Versatile Tool to Hidden Liability

✓ In a recent survey, 72% of actuaries said they had to recreate models from scratch due to version loss. One in five insurers say spreadsheet-related model risk is “very high” on their risk register.

✓ 60% of UK insurers still use Excel as their primary actuarial modelling platform. Only 30% of insurers say their spreadsheet models are fully auditable end-to-end.

✓ Over 50% of regulatory misreporting cases reviewed by the PRA involved manual EUC tools.

✓ 88% of spreadsheets contain errors (University of Hawaii). Spreadsheet errors cost businesses over £7 billion



# Momentum for Change

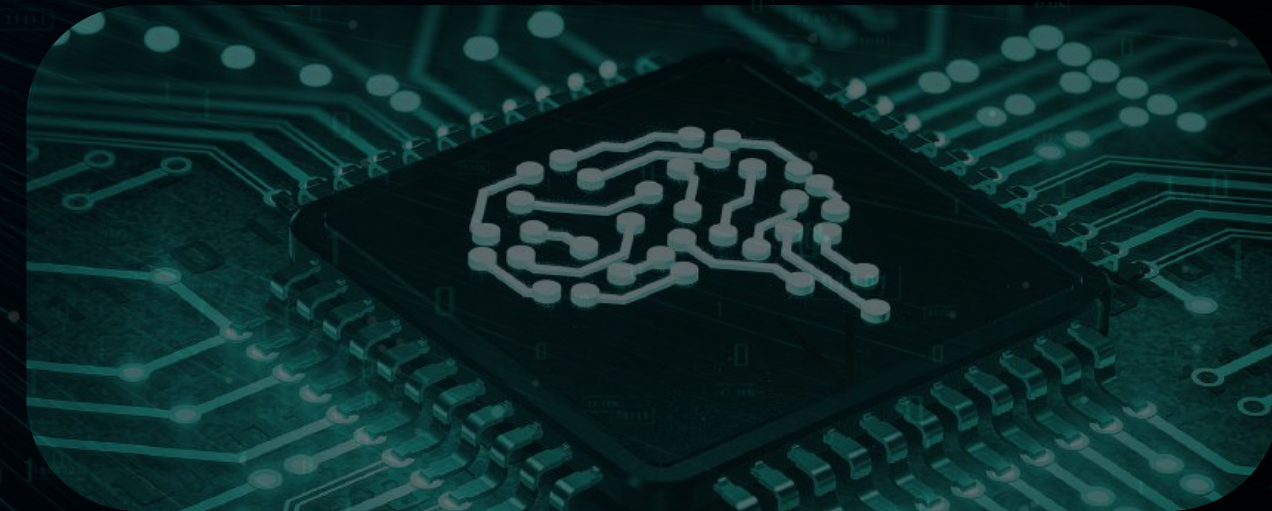
## Tech Investment + Regulatory Pressure

- **£1.6B** invested in UK InsurTech in 2024 alone (CB Insights).
- McKinsey: automation can reduce actuarial costs by **20–30%**.
- **72%** of insurers are increasing tech spend in actuarial and risk teams.
- IFRS 17 exposed structural weaknesses in model transparency and scale.





# You Know You Need an Actuarial Engineer When...



## Version Control Nightmares

Your model is called FINAL\_v9\_REALLYFINAL\_FINAL.xlsm, and you still can't find the 'true' final version.

## Intern Superiority

Interns building in Python while team leads debug macros.

## VLOOKUP Obsession

You're still meticulously using VLOOKUPs for cashflow matching, and enjoying it a little too much.

## The Spinning Wheel of Death

Your screen regularly features the dreaded spinning wheel of death as Excel valiantly battles a monstrous spreadsheet.



# Enter the Actuarial Engineer

(a.k.a. Actuary 2.0)



## ✓ Hybrid Thinker

A fusion of actuary, coder, and data scientist – the ultimate triple threat in risk management.



## ✓ Audit-Ready Results

Delivering audit-ready models with speed and adaptability, transforming compliance into a competitive advantage.



## ✓ Fluent in Tech

From stochastic reserving and SQL to IFRS 17 and Git, they speak the language of modern finance and development.



## ✓ Bridging Worlds

Equally at home in Excel and Python, they seamlessly connect traditional actuarial methods with cutting-edge tools.



## ✓ Time Saviour

Their true KPI isn't just balancing tables, but the invaluable time saved through automated, efficient workflows.



# The Actuarial Engineer Toolkit

## Your New Actuarial Stack

01

**Python:** for model automation, simulation, and reporting.

02

**Git:** for audit trails and model governance.

03

**Streamlit:** build tools your Ops team will actually use.

04

**Cloud integration:** for real-time regulatory response and deployment.

05

**Mindset:** “Don’t Stop Retraining” — the learning never stops.





# Quantifying the Impact

Real Stats, Real Fast



Insurers using streamlined actuarial models released **up to 18%** more capital for reinvestment and solvency flexibility.



Firms using automated actuarial reporting reduced month-end timelines by **25–40%**.



McKinsey projects automation can cut actuarial costs by **20–30%**. We're just getting started.



**87%** reduction in human error in financial models.





# Why Python is Winning in Insurance:

## The Snake Charming Act

- 01 Open & Flexible**  
Its open-source nature means boundless flexibility and lightning-fast prototyping for bespoke solutions.
- 02 Rich Ecosystem**  
Access to thousands of actuarial and machine learning libraries means less building, more innovating.
- 03 Streamlit Surge**  
Streamlit adoption rocketed by 140% year-on-year on GitHub, proving its power in creating interactive web apps.
- 04 Top Skill**  
Python is now the top programming language listed in UK actuarial job postings.
- 05 Cloud Integration**  
Seamlessly integrates with Azure and AWS for real-time reporting, bringing the cloud closer to your data.





# But What About the Humans?

## Are We Obsolete?

Fear not, fellow actuaries! We don't replace actuaries; we upgrade them. Think of it as an extreme makeover for your career.

### ✓ Upskilling Paths: For the Modern Actuary

- Excel → Python: Transitioning from manual drudgery to automated glory.
- Git 101 for Actuaries: Mastering version control, because 'Final Final' is never final.

### ✓ The Results: Supercharged Professionals

- 2x Productivity: More time for strategic thinking, less for manual toil.
- Better Communication: Bridging the gap between technical and business teams with clarity.







# CFO Lens:

## Why This Matters to Finance Leaders

At AlnsurCo, we understand that actuarial innovation must align with business outcomes. Our automation-first tools help finance leaders close books faster, improve controls, and respond swiftly to regulatory demands — without compromising on accuracy or governance.

### ✓ Faster Reporting:

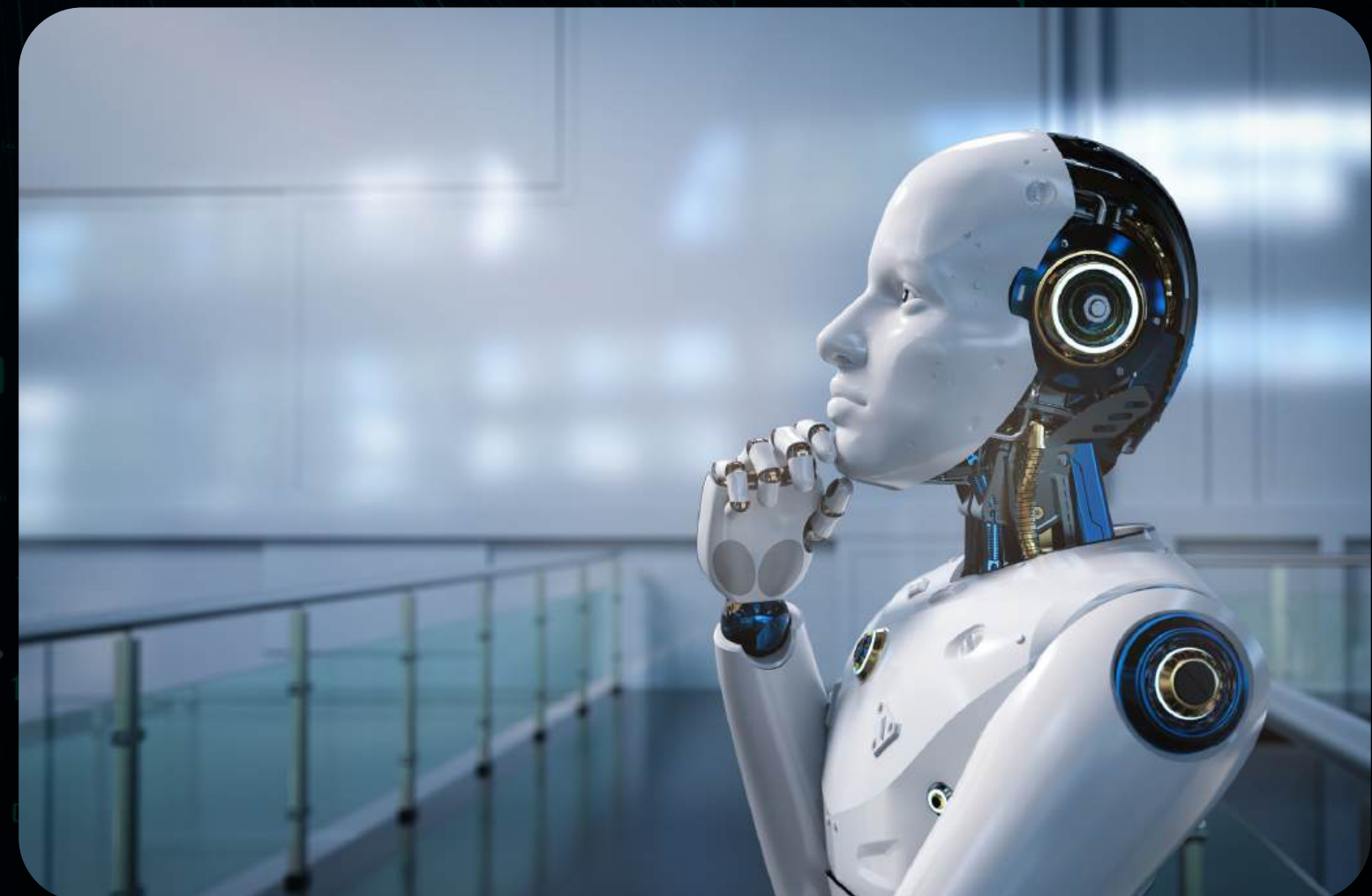
Seamlessly integrate actuarial cashflows with the General Ledger, making month-end a breeze.

### ✓ Improved Audit Trail:

Git-versioned code beats messy manual Excel reviews every single time. Transparency, check!

### ✓ Secure Deployment:

Python tools hosted securely in the cloud, no more emailing sensitive spreadsheets around.





# Building the future

The Future Is Actuarial. The Present Is Engineered.



Actuarial engineers combine traditional judgment with modern tooling.



Code-based models provide traceability, scalability, and consistency.



The future of actuarial work is automated, auditable, and actionable.



Automation frees actuaries to focus on strategy, communication, and decision-making.



The world still needs actuaries it just needs a different kind.



Technical debt is reduced, and regulatory compliance is strengthened.





# Thank You

**We're here to help you engineer your actuarial future.**

Whether you're scaling models, modernising workflows, or preparing for regulatory change, AlnsurCo is your partner in transformation.

Presented By

**Neha Agarwal**

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"The future is actuarial. The present is engineered."



# Appendix:

## Sources & References



### **Actuarial Transformation & Automation**

- McKinsey – Automation in Insurance (2024)
- Swiss Re – Capital Efficiency Models
- LCP – Future of Reserving Report
- EY – IFRS17 Actuarial Risk
- Internal benchmarks from AInsurCo clients (2023–24)



### **Spreadsheet Risk & Reporting Limitations**

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- Financial Times – £6.2M Fine Story
- Deloitte – Blockchain in Insurance 2024
- LCP – Reserving Transformation Barriers



### **Python & Tech Adoption in Insurance**

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- GitHub – Streamlit Adoption Stats
- Microsoft – Cloud Tools for Finance
- CB Insights – UK InsurTech Funding