EARL Conference
16 October 2020

Steve Marriott
Senior Pricing & Reinsurance Actuary

Samir Khimani
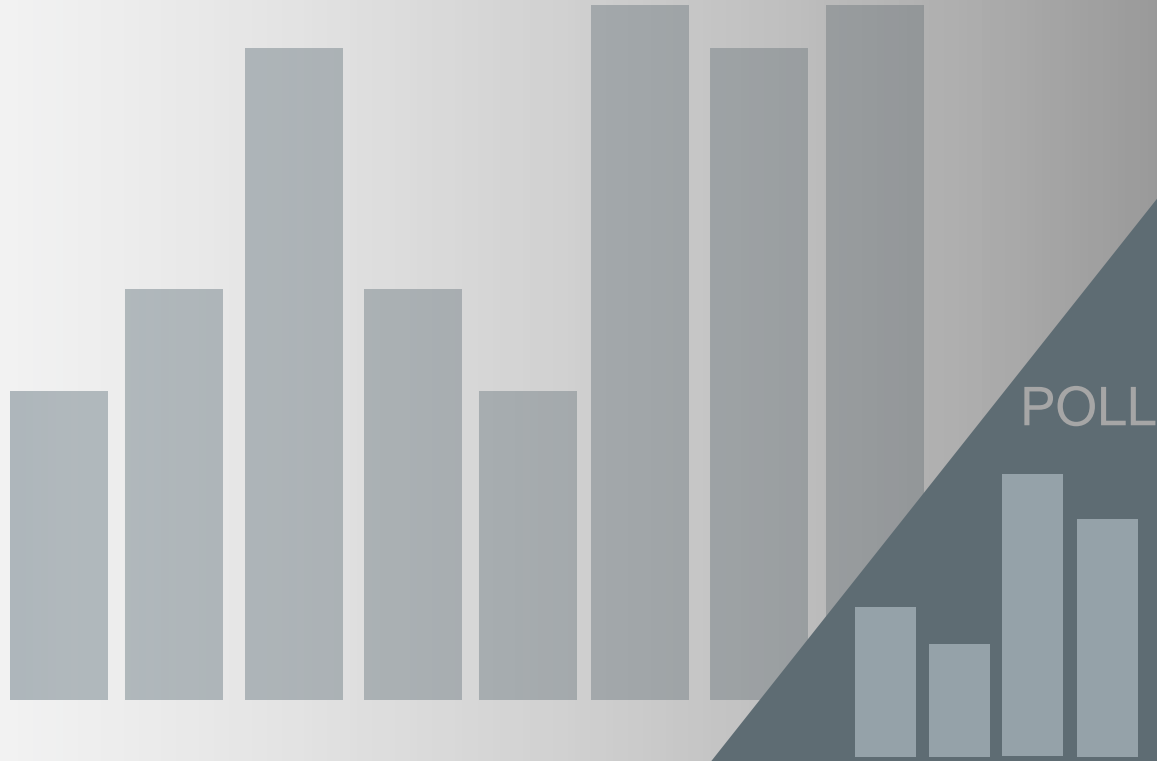Senior Actuarial Analyst

Let us introduce ourselves…

And who are we talking to today?

What's your sector?

- Government
- Pharma
- Retail
- Utilities
- Marketing
- Insurance
- Finance
- Other

POLL

And what the #@£% is an actuary?

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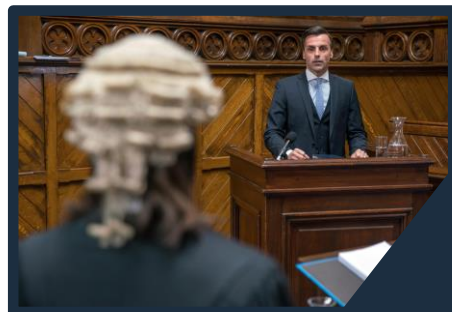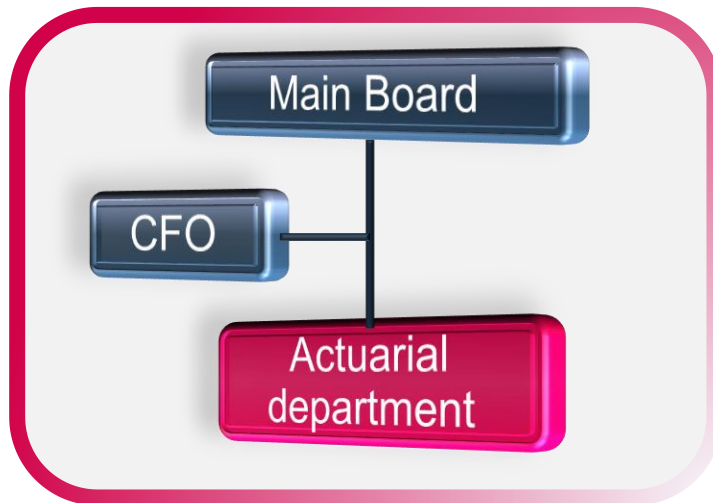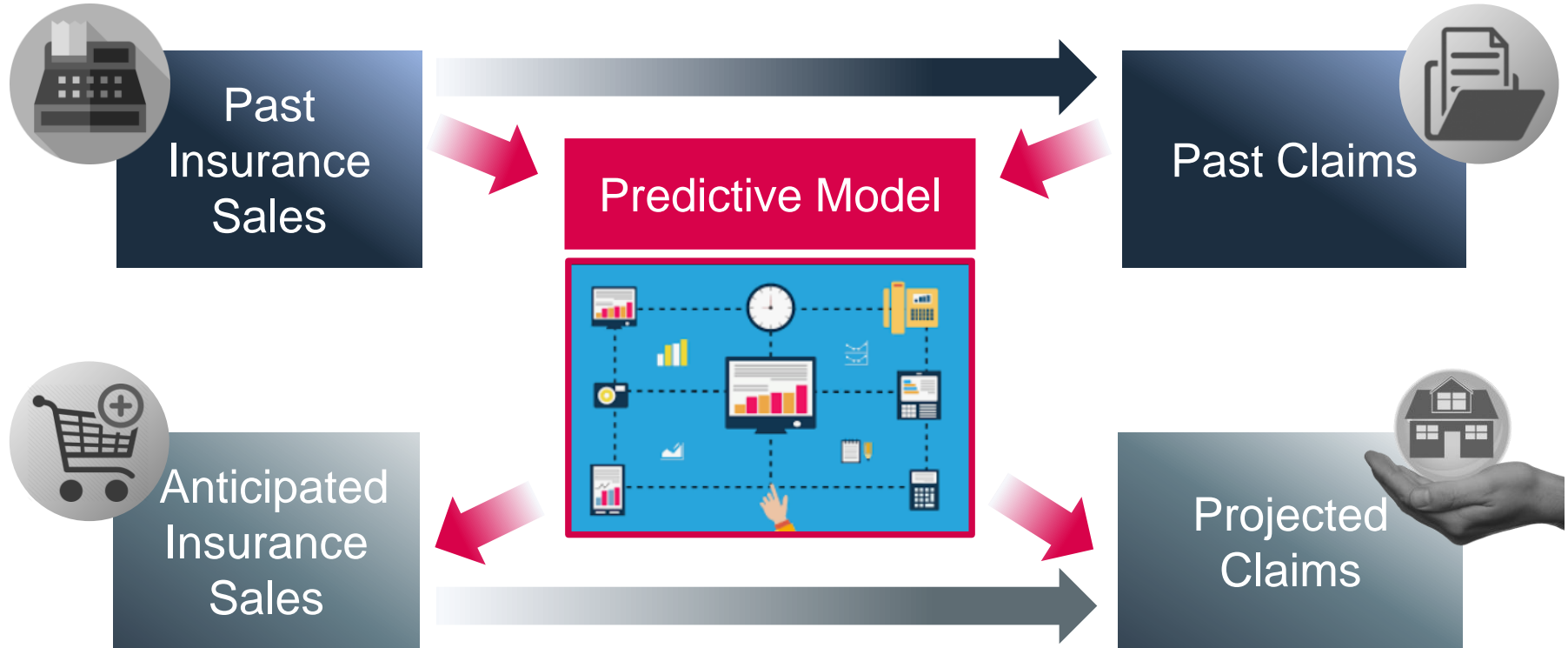
Profile of a 2020 actuary

A* Student
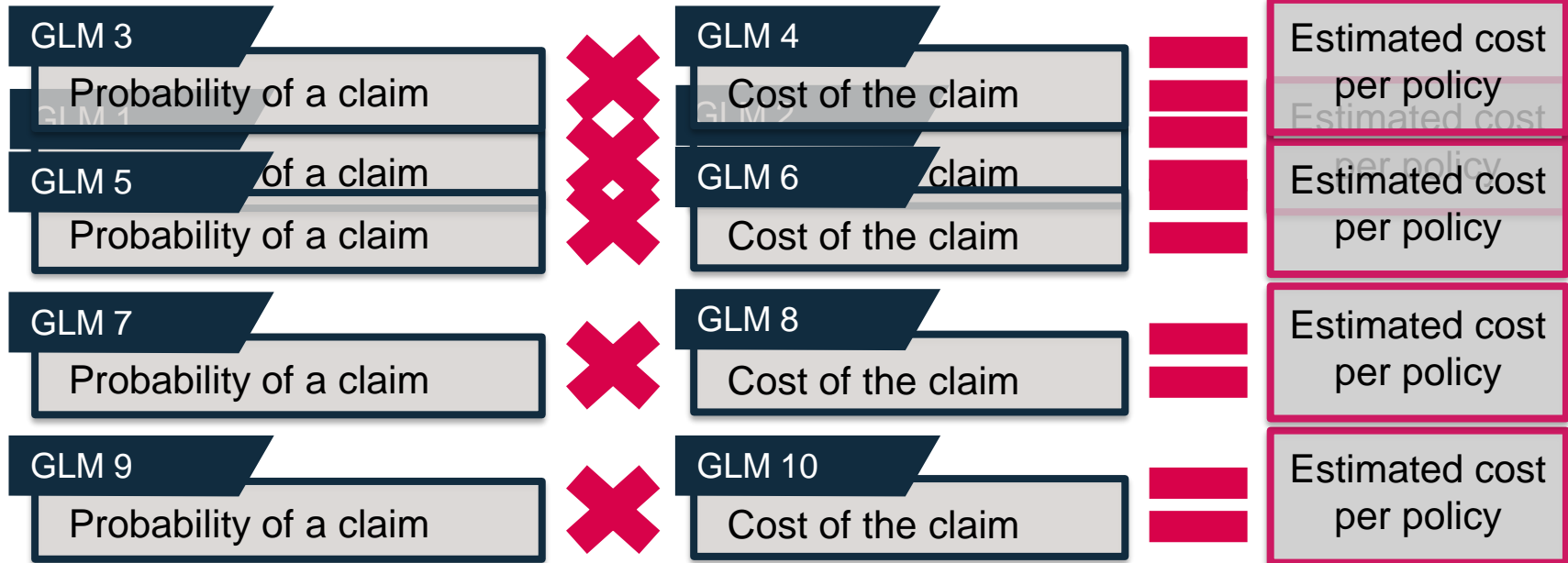
Professional Exams

Highly Skilled

Life as an actuary

And what are we modelling?

Past Insurance Sales

Predictive Model

Past Claims

Anticipated Insurance Sales

Projected Claims

What's the data like?

Property reference #	Explanatory Variables			Response Variables	
	House or Flat	Number of Bedrooms	Builder Experience Score	Claims Made Y/N	Claim Value £
A0001	House	2	3	N	
A0002	House	2	3	N	
A0003	House	2	10	N	
A0004	House	3	7	N	
A0005	Flat	5	4	N	
A0006	House	5	10	Y	£8,018
A0007	House	3	5	N	
A0008	House	5	1	N	
A0009	House	1	4	N	
A0010	Flat	1	5	N	
A0030	Flat	3	4	N	
A0031	Flat	3	2	N	
A0032	House	1	10	N	
A0033	House	4	5	N	
A0034	House	2	8	N	
A0036	House	1	5	N	
A0037	Flat	2	6	N	
A0038	House	4	10	Y	£2,907

The modelling approach

GLM 3 — Probability of a claim	✕	GLM 4 — Cost of the claim	= Estimated cost per policy
GLM 1 — ...of a claim	✕	GLM 2 — ...claim	= Estimated cost per policy
GLM 5 — Probability of a claim	✕	GLM 6 — Cost of the claim	= Estimated cost per policy
GLM 7 — Probability of a claim	✕	GLM 8 — Cost of the claim	= Estimated cost per policy
GLM 9 — Probability of a claim	✕	GLM 10 — Cost of the claim	= Estimated cost per policy

The established actuarial platforms

An R modelling challenge…

…but not as we know it, Jim

The Delivery

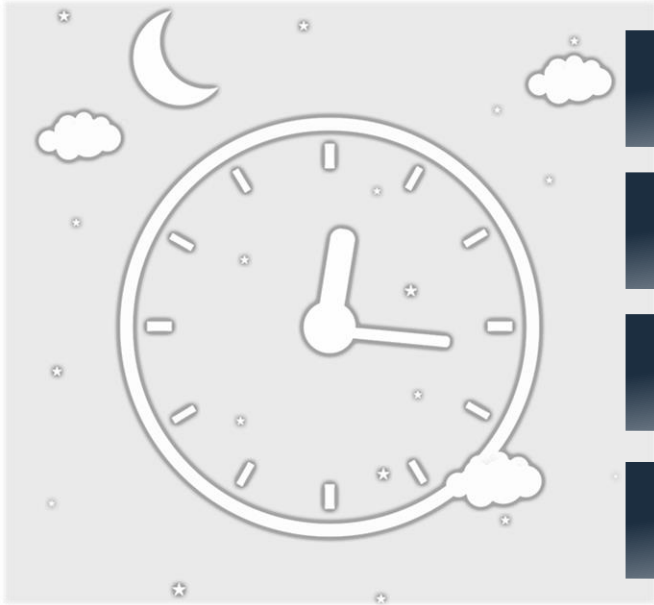- Good understanding of what is required and how to get there

The Practitioner

- Advanced domain knowledge
- Strong base modelling skills

Scrutiny / Accountability

- The results / approach subject to detailed review
- High professional standards apply

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What kept us up at night having decided on R
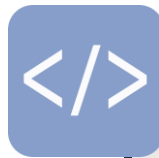

Non-delivery

Resourcing

Wider buy-in

Governance / Auditability

Fundamentals for the project

Shiny interface

Interleaving model logging within code

Requiring the backend code to function alone

External support

Learning the hard way

- Need for specialist IT support
- Criticality of package selection
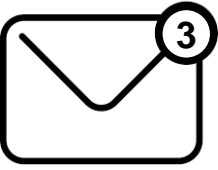- Establishing controls for package updates
- Accommodating larger datasets
- Time required to develop Shiny app
- Interfacing with SQL
- Interfacing with external support

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What's still in the inbox?

Gitlab

Enhancement of the Shiny app

Establishing R coding protocols

Would we do it again?

Robust GLM Modelling platform up and running in approx. 12 months

"**ABSOLUTELY!**"

In *our* gift to develop it how we want

Catalyst for upgrading other processes/analyses to R/SQL

No licence fee (though choosing to have ongoing support)

Ready-made packages for enhanced feature selection

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Demo

If you only remember one thing….

What to say if you get asked what an actuary is !

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Questions