



Government Actuary's
Department

A perspective from Government

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Why does Government have actuaries?

And what do they do?

Let's start...

Who are actuaries?



Full of potential



Learn broadly



Crystallises



Secured expertise



Let's start...

Who are actuaries?



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But we really love Venn Diagrams

What is an actuary?



Government hold more obligations, in more areas and can't walk away

And how does uncertainty affect them?

Demographic Risks

Pensions - Health - Social Care



Economic Risks

Homes - Growth - Guarantees



Environmental Risks

Public Services - Physical Assets

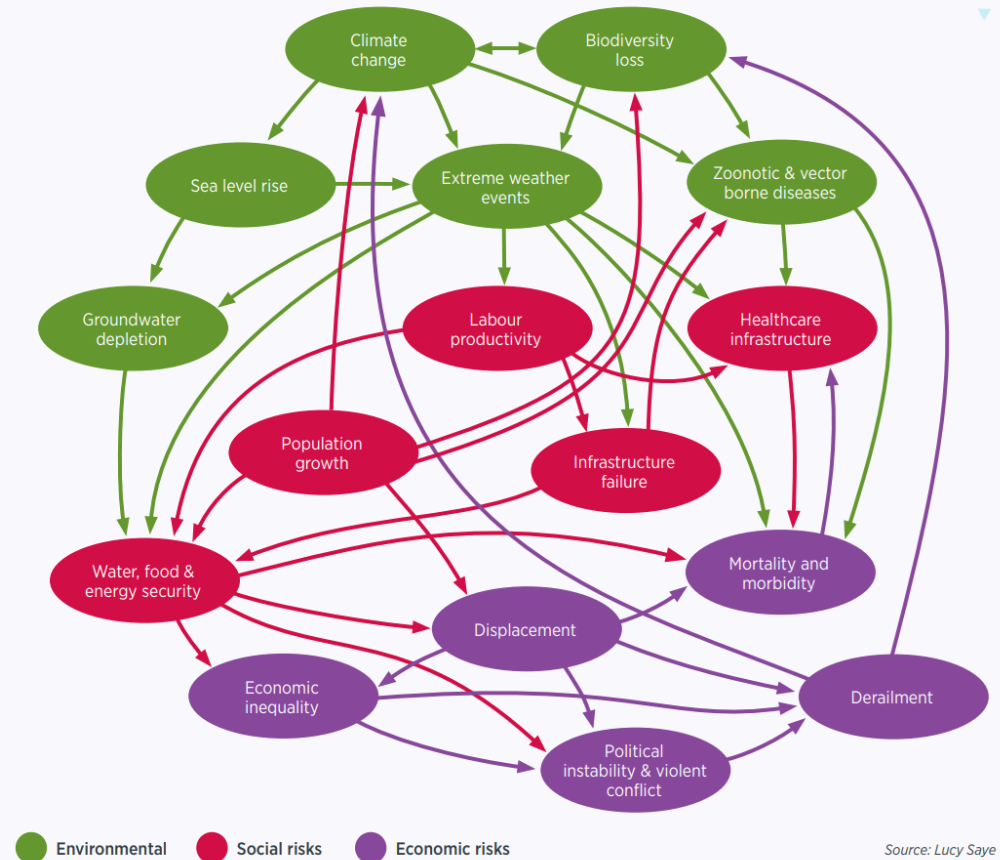


What's the weather going to be like tomorrow?

The need for GAD is changing with a changing environment



Image by [mizzy_moo](#) from [Pixabay](#)



Source: Lucy Saye

But wait!

How many actuaries do you need?



Full of potential



Learn broadly



Crystallises



Secured expertise



Let's reframe...

A different mix



Full of potential



Learn broadly



Adaptable

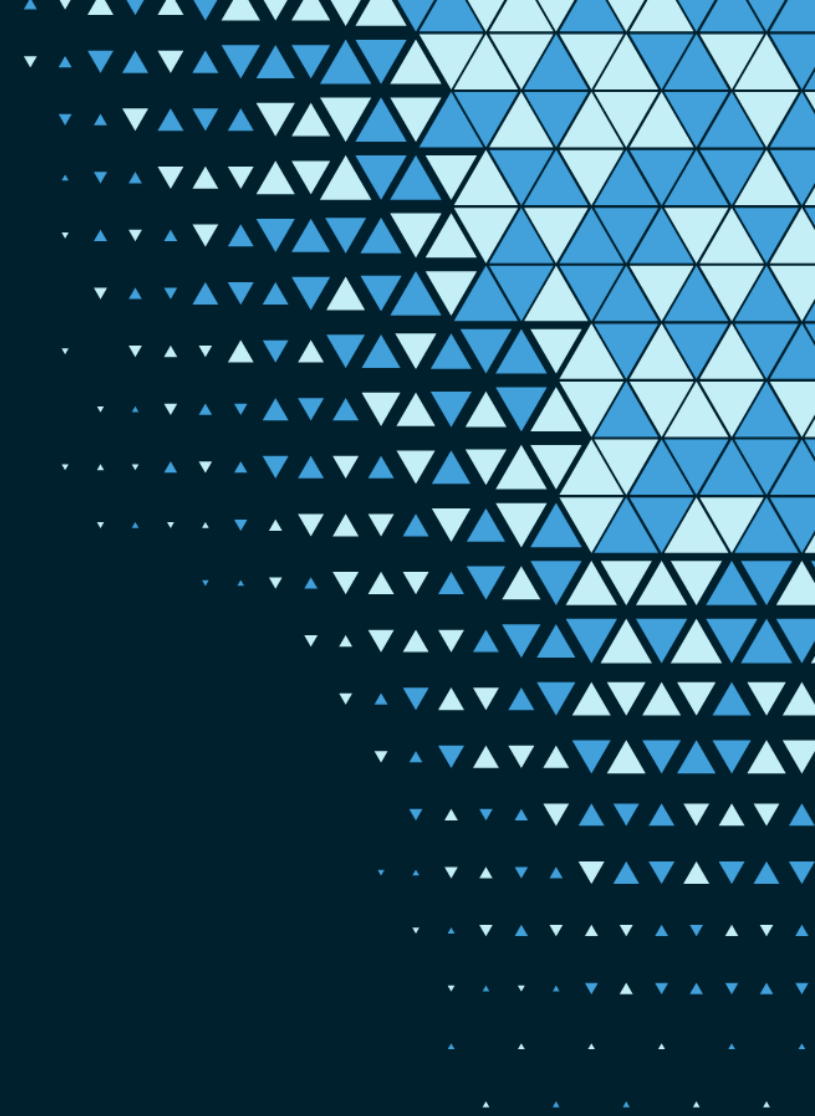


Decision Focussed



Uncertainty and pandemics

Fingers crossed.



Vaccines: how long could it take?

Estimating uncertainty in novel environments



Context



Decision Point



Challenge



Image by [Alexas_Fotos](#) from [Pixabay](#)



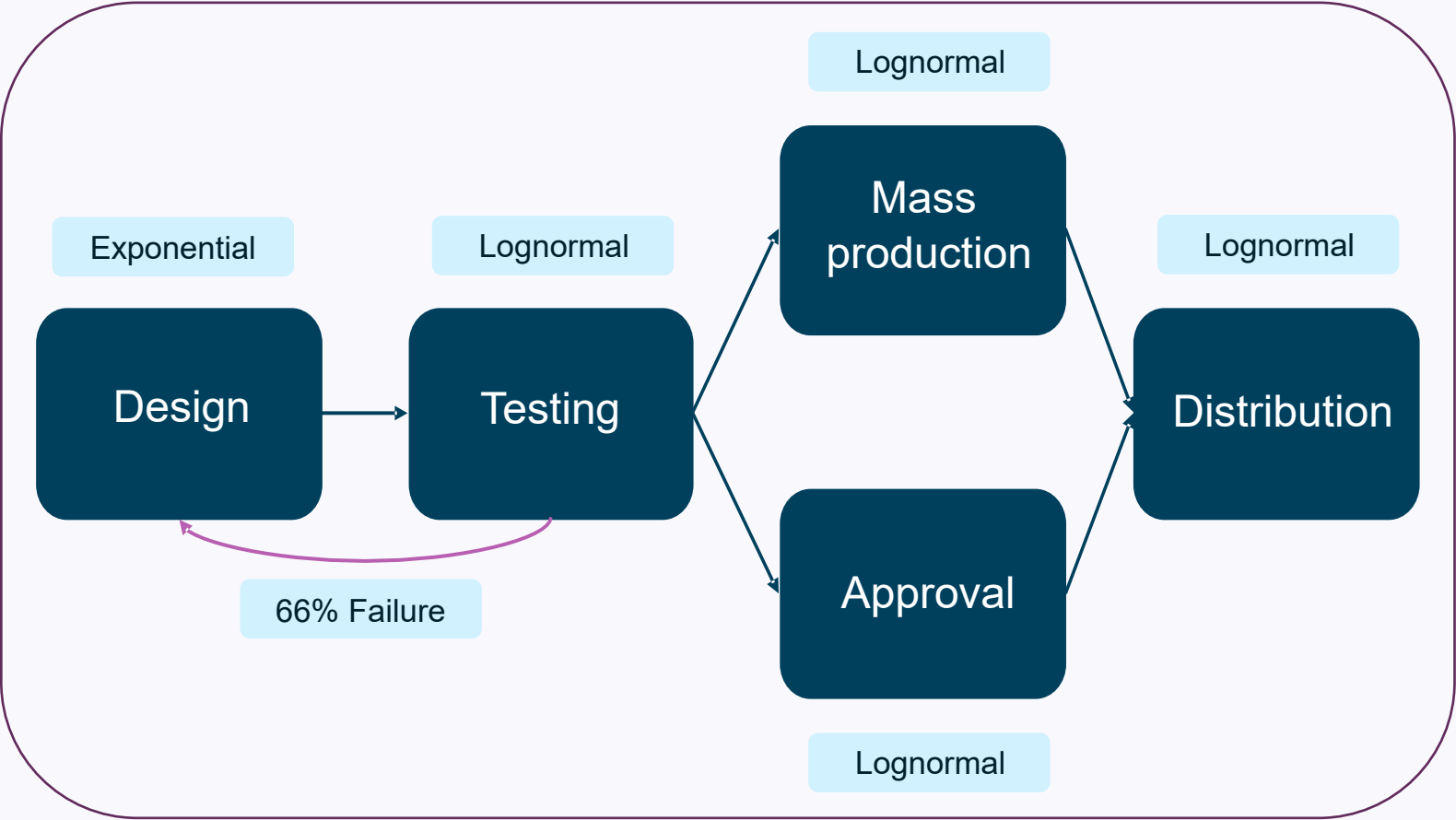
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Building a model from available data and external expertise

Vaccine Production



Economic Conditions

Hospitality GVA: £59.3 billion pa

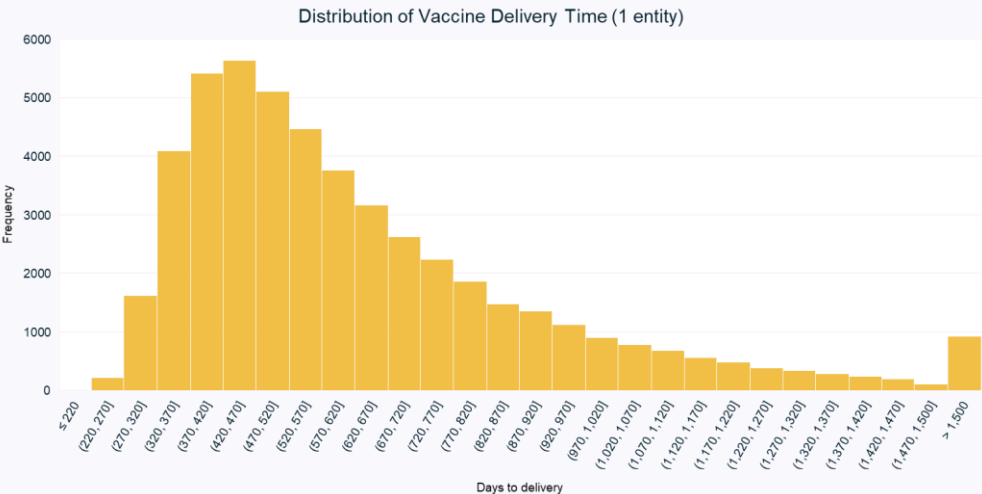
Industry state	Duration	% total GVA
Closed	2 months	9%
Open (low activity)	2 months	37%
Open (high activity)	1 month	54%

Lesson: Diversity is fantastic! (as is diversification)

Vaccine experts helped us quickly unlock a workable model

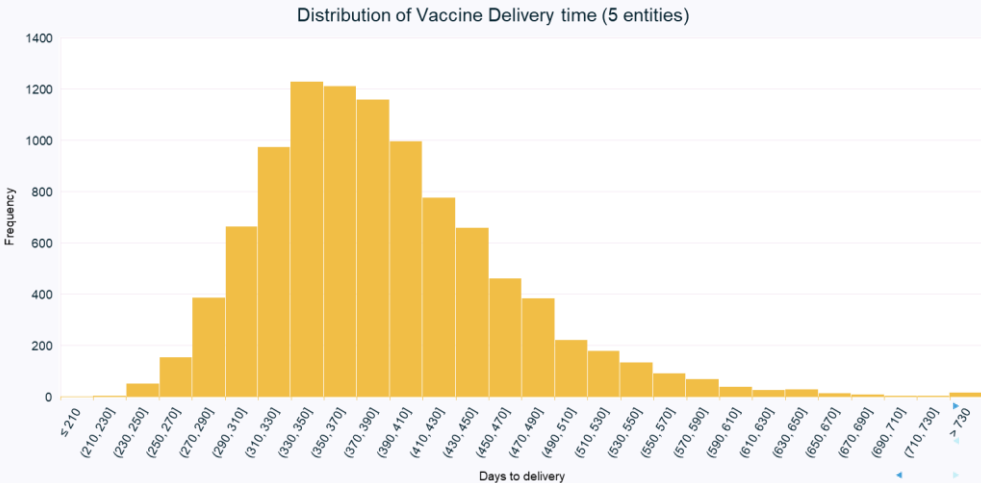
Single Vaccine Investment

Chance	Likelihood	Development Time (days)	Cost impact (£bn)
1 in 2	50%	558	19.6
1 in 5	20%	820	28.6
1 in 10	10%	1,034	34.4
1 in 20	5%	1,229	41.5
1 in 100	1%	1,697	57.1



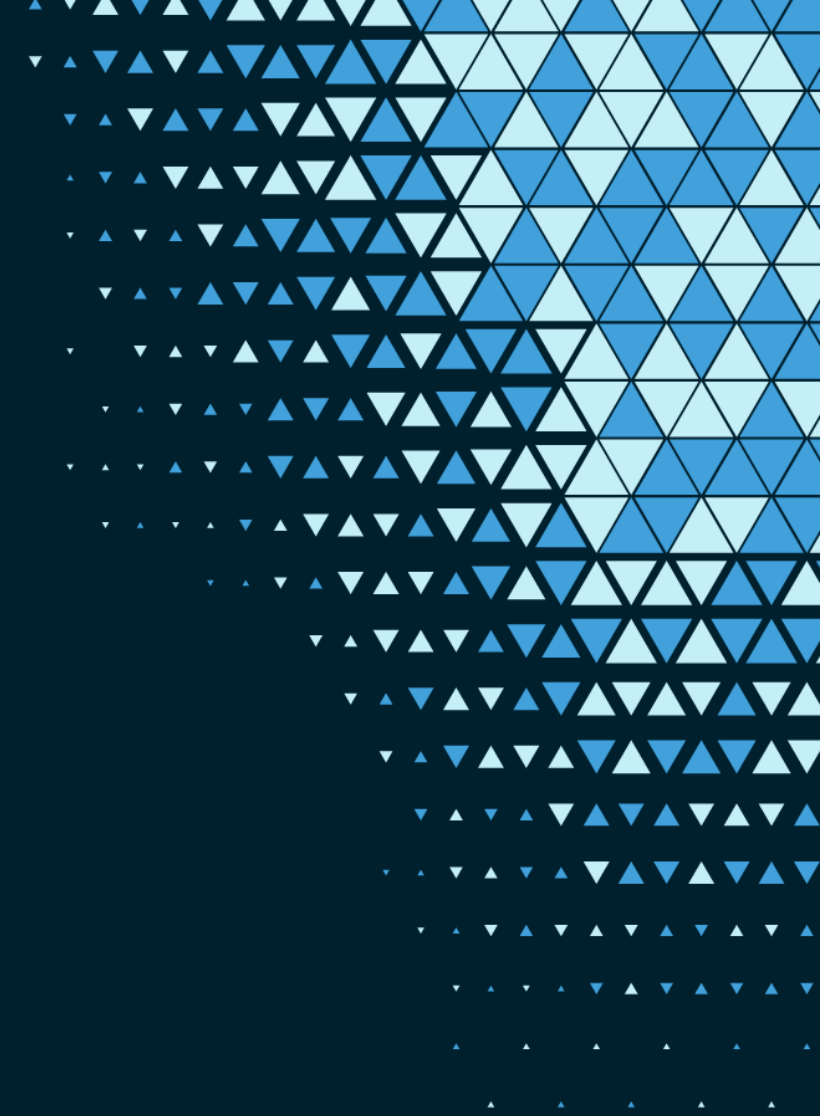
Multiple Vaccine Investments

Chance	Likelihood	Development Time (days)	Cost impact (£bn)
1 in 2	50%	375	14.1
1 in 5	20%	326	11.7
1 in 10	10%	303	10.1
1 in 20	5%	285	9.8
1 in 100	1%	258	9.8



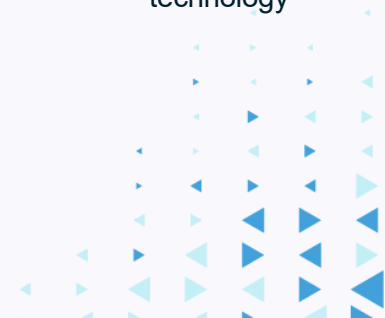
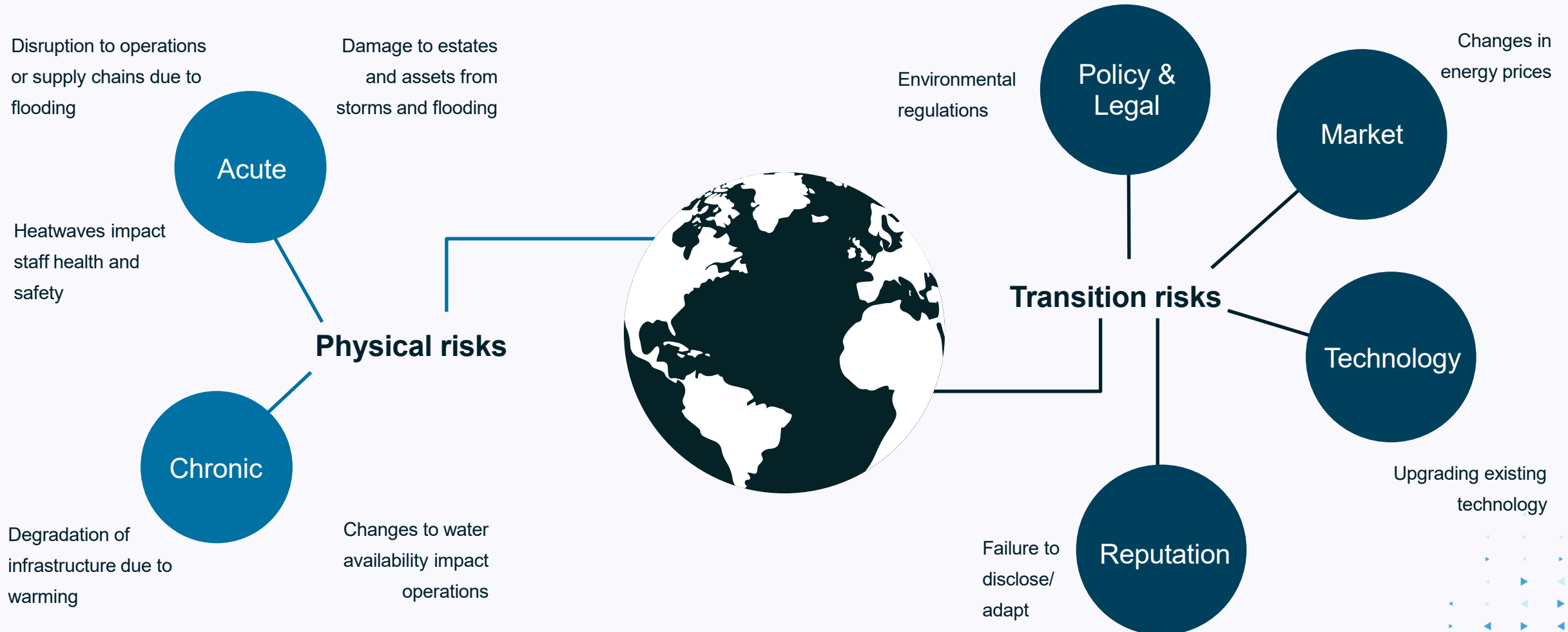
Prioritising in a changing world

Is it getting hot in here?



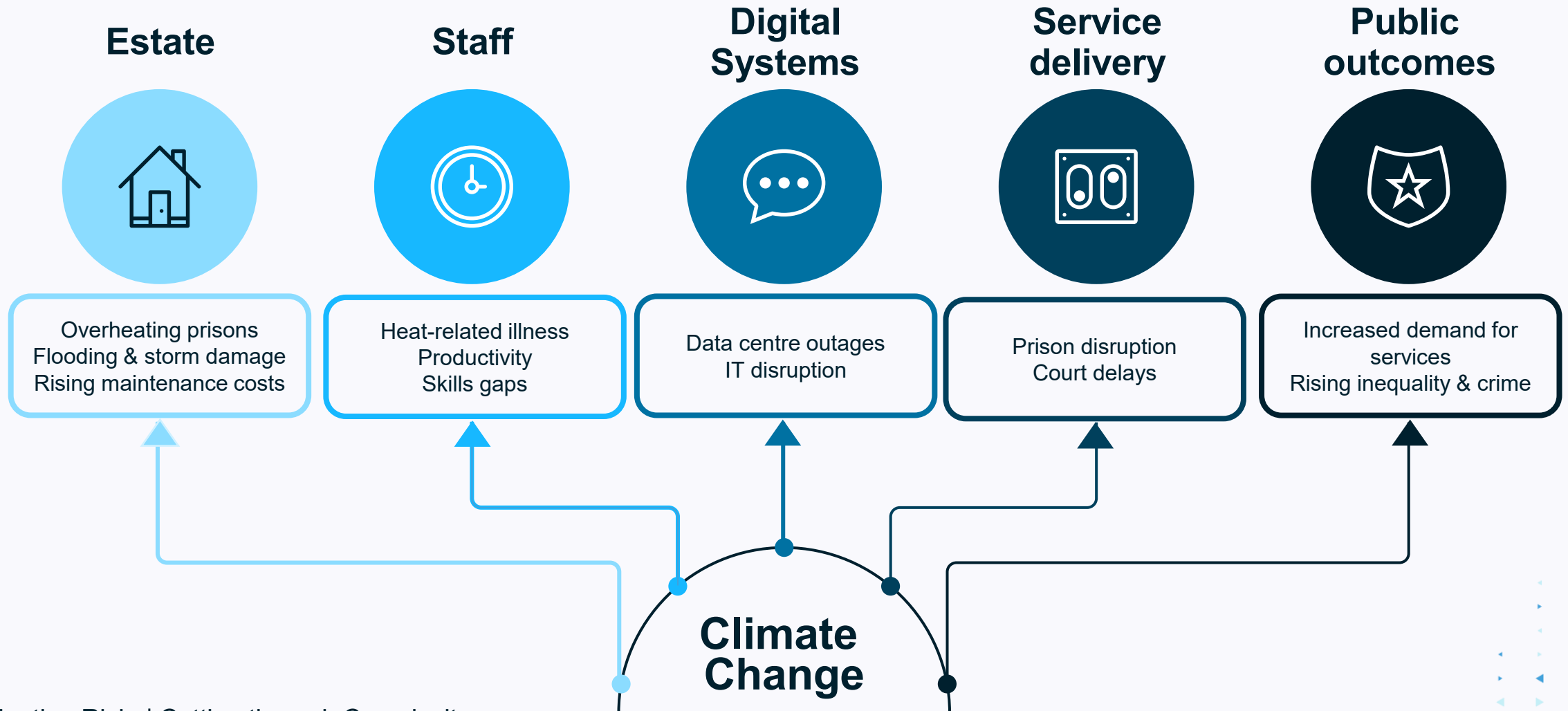
As government, we have to be prepared for a changing world

How do we describe risks associated with a changing climate?



Climate risks have different impacts depending on the public service

An example from the Ministry of Justice



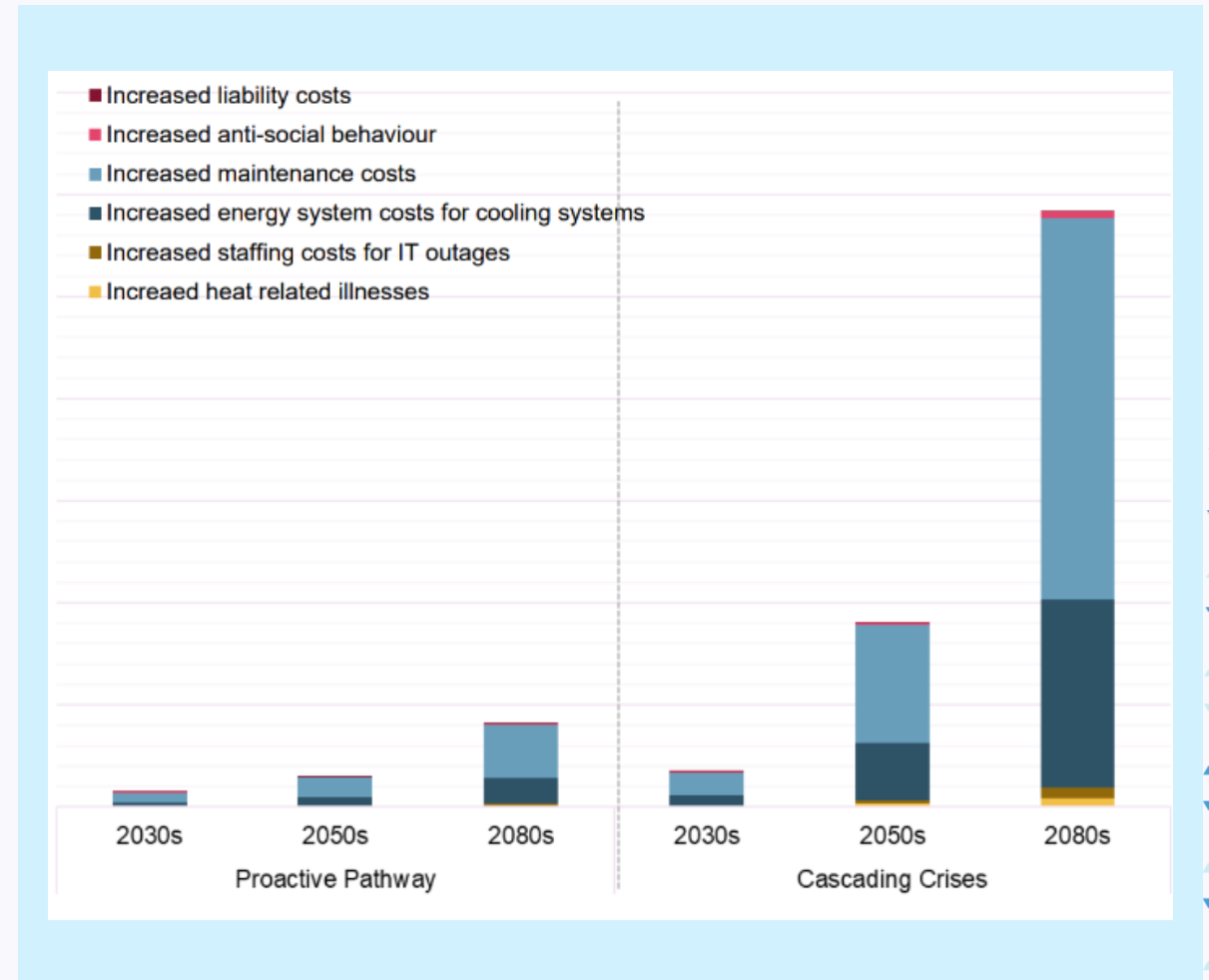
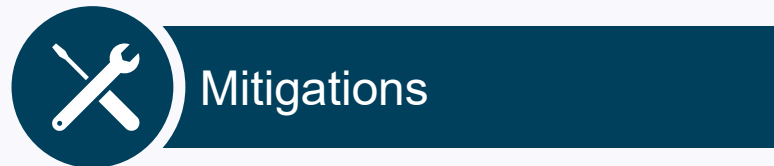
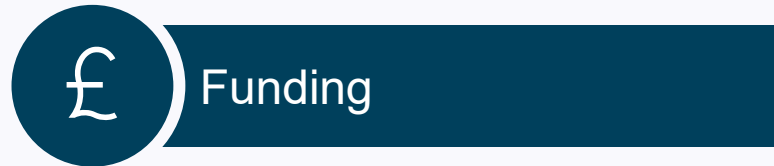
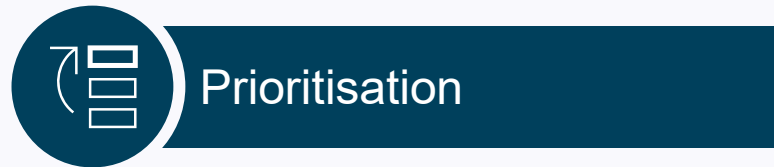
But we can bring this back to normal actuarial concepts

As before we rely on experts to provide data and underlying assumptions

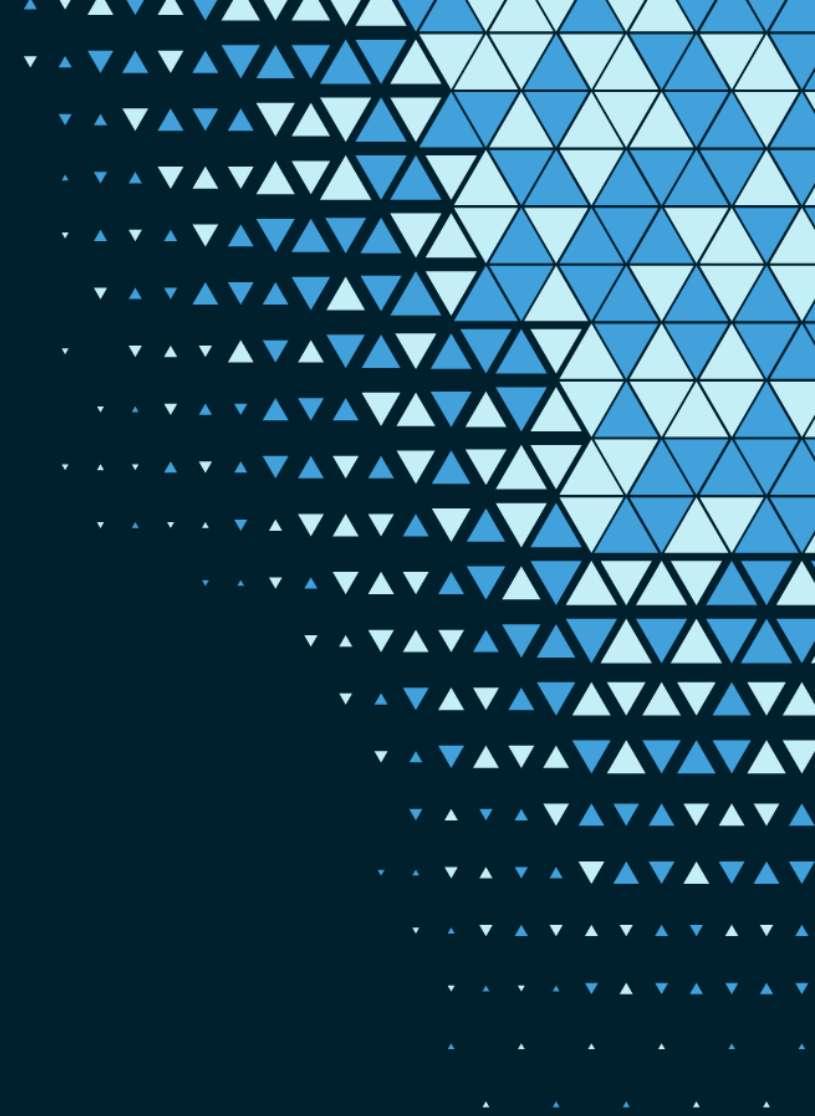


The benefit is in what we do today to improve the near and medium term

What do our clients gain?



And finally...





THANK YOU!

**ANY
QUESTIONS?**



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