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# Outward reinsurance framework

## Glitches in the ReMatrix

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“Unfortunately, no one can be told what the [ReMatrix] is. You have to see it for yourself.”

- *Morpheus* (kinda)



# Introduction

- The Life & Health Reinsurance Working Party (“ReWP”) was established in 2014, and is composed of 11 members representing a mix of reinsurance buyers, sellers, advisors and intermediaries.
- Diversity means that individual members’ views might sometimes differ on specific aspects.
- Purpose of the ReWP is to discuss industry concerns and issues, explore different approaches to reinsurance, challenge the ‘habitual thinking & approach’ and present alternative perspectives.
- We presented “***Reinsurance should be a tool, not a habit***” at 2015 Life Conference and “***Glitches in the ReMatrix – Misconceptions, inefficiencies and mistakes in Life & Health reinsurance***” at the 2018 Life Conference.



# Why “Glitches in the ReMatrix”?

- Reinsurance is extensively used by insurers, having a significant impact on performance, operations and risks.
- As a WP, we observe poor choices regarding new reinsurance arrangements and management of existing ones. The consequences are far-reaching.
- Reasons for sub-optimal reinsurance decisions range from simple misunderstandings and misconceptions to explicit inefficiencies and errors.
- What’s worrying is that unless an appropriate framework is used for assessing the ‘quality’ of the program, it could be sub-optimal without even being noticed.
- Our purpose in this presentation is to discuss observed pitfalls and produce a resource to help all practitioners make better-informed reinsurance decisions.



## 01 You need to know where you're going!



Do you link the risk management framework to your commercial objectives?

## 02 Current arrangements

How well do the current Reinsurance arrangements meet your above objectives? Do you know?



## 03 Qualitative & Quantitative goals

$f(x)$  = {optimisation function including profitability, solvency, volatility}

If you don't have a quantitative framework for measuring the value of your reinsurance program, how do you know if it's supporting or worsening your company's financial metrics?



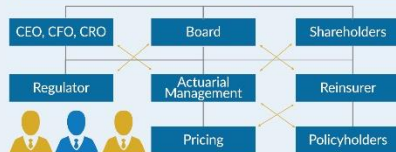
## 08 Partnerships, and the value of Transactions



Do you consider your reinsurance relationship collaborative? Are you able to, and do you, challenge the status quo? Does win-win really necessitate perfectly matched



## 04 Consideration of stakeholders



Does your reinsurance program consider all stakeholders? Does it fulfil their needs?

## 07 Review Inertia

/i'nə:ʃə/ noun

A tendency to do nothing, or remain unchanged

What does it take to review your reinsurance arrangements?

Who (or what) can trigger a review?

When last did you actually review one?



## 06 Structure and terms of reinsurance treaties



Do you understand your treaty wording? Can it be misinterpreted? Do they do what you think they do?

## 05 Structuring and terms of reinsurance treaties

Proportional	Non-proportional
Cost	Benefit
Traditional	Structured
Profit commission	Pure risk
Upfront commission	Ongoing commissions

Are your treaties structured to meet your needs? Are they cost effective, and reasonable compared with the market? Do the features, constraints, rights and obligations make sense?

# Agenda

Chapter	Title
1	You're unclear when you're going
2a	Making sure you know why you need reinsurance – qualitative
2b	Making sure you know why you need reinsurance – quantitative
3a	Key parties: internal
3b	Key parties: external
3c	You're not talking to the right reinsurers and counterparties
4	Getting the structure and terms of your reinsurance right
5	Reinsurance contract wording
6	Management of in-force
7	The insurer/reinsurer relationship



# 1. You're unclear where you're going

“Because you're not going anywhere else.”

- *Trinity*



# 1. You're unclear where you're going

Economic, financial, regulatory, industry and competitive environments

Firm's ambition & values, corporate set-up, and stakeholders' objectives

ERM, accounting and tax frameworks

Risk appetite, capital, dividend and business plan, and capabilities

Reinsurance strategy and plans

Reinsurance Arrangements



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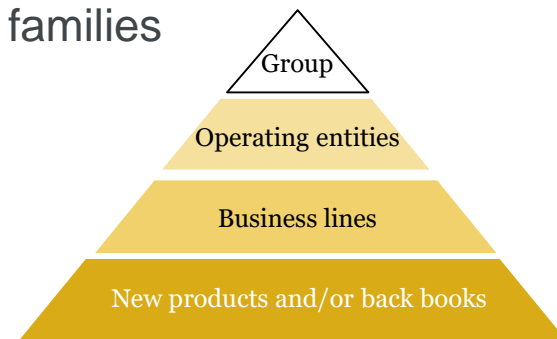
# 1. You're unclear where you're going

- This is really obvious – so why is it being raised here?
- The reality is that many reinsurance decision-makers don't appear to take sufficiently into account their shareholder objectives (illustrative of a principal-agent problem).
- The top-down flow from the company's objectives to reinsurance is generally broken.
- Reason is often that top-down risk & capital frameworks and risk appetite (when they exist) are not granular enough to make reinsurance decisions (or do not consider sufficiently business needs and the insurer's capabilities – the bottom-up flow).
- Corporate finance and capital-motivated reinsurance deals are handled better in this regard than traditional life protection reinsurance arrangements.
- ALM programmes are generally materially better 'connected' than reinsurance

# 1. You're unclear where you're going

In our experience, motivations can be classified under few families and depend on who's the ultimate decision-maker.

Traditional	Risk appetite	Innovation, Services & Know-how	Business generation
Non - Traditional	Liabilities and required capital	Assets creation	Regulation, accounting or pricing opportunities



- Risk mitigation: cap peak insurance risks (or claims frequency) protect solvency ratio and reduce volatility of earnings
- Enable business lines to be written outside the usual risk profile and reduce uncertainty on new / specific risks (e.g. life protection)
- Access reinsurers' underwriting, claims management and pricing capabilities (e.g. life protection reinsurance)
- Support business development, innovation and product design by giving access to reinsurers' knowledge and expertise
- Reduce the Solvency II and/or risk capital requirements (e.g. annuity reinsurance and mass lapse reinsurance)
- Give access to funding from reinsurers (e.g. new business financing and contingent capital)
- Optimise capital efficiency by improving balance sheet, profitability and/or return on capital (RoC)
- Accelerate value extraction, improve free surplus generation, alleviate accounting and/or tax strain (e.g. VIF monetisation)
- Improve capital transferability and fungibility (e.g. intra-group reinsurance and central reinsurance mixer)

## 2. Making sure you know why you need reinsurance

“Neo, sooner or later you're going to realize that there's a difference between knowing the path and walking the path.”

- *Morpheus*



## 2. Making sure you know why you need reinsurance



### Qualitative Benefits

**Service**-related benefits like product development, pricing, medical underwriting (manuals & supports), claims audits, research, innovation, behavioural economics, etc.

### Quantitative Benefits

Optimising various financial and risk **metrics**, subject to targets, tolerances, priorities, etc.



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## 2a. Making sure you know why you need reinsurance

### *Qualitative*

“It just sounds to me like you need to unplug, man.”

- *Choi*



## 2a. Making sure you know why you need reinsurance

### *Qualitative*

- Here we consider not the financial and risk benefits but the service-related ones.
- Traditional life protection reinsurance has largely been around access to these services.
- Usually insurers haven't built frameworks to quantify these benefits and assess the opportunity to build their own capabilities because these services have been deemed sufficiently 'value add' (or cheap).
- Reinsurers may also struggle to put an objective 'price' on these services.
- There has not been much unbundling of the reinsurance offering to date.
- Potential to change rapidly with the advent of insurtech/fintech, regulatory capital and accounting standards (e.g. IFRS 17), etc.



## 2b. Making sure you know why you need reinsurance

### *Quantitative*

“Never send a human to do a machine's job.”

- *Agent Smith*



$$f(x) = \{\text{optimisation function incl. profitability, solvency, volatility}\}$$
[illegible]

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## 2b. Making sure you know why you need reinsurance

### *Quantitative*

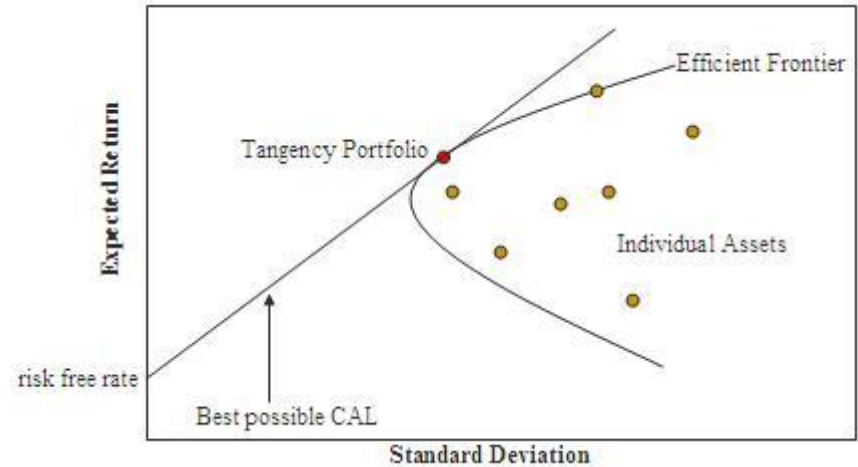
- Consider a choice of two individual life protection reinsurance structures:
  - 50% quota share (QS) of a critical illness portfolio (CI);
  - £50k surplus treaty (SP), where 50% of the CI sum-at-risk gets reinsured.
- How would you decide which option is ‘optimal’ for the insurer?
- You can model each of the positions:
  - Capital, earnings and/or cash flows gross of reinsurance, net of quota share, net of surplus.
  - but which one is better?
- To decide, you need to constrain the model ...



## 2b. Making sure you know why you need reinsurance

### *Quantitative*

- Define scope and understand restrictions are necessary. Detailed risk appetite targets, limits and tolerances may help to create these constraints.
- This is similar to the standard two-dimensional efficient frontier used for investments and asset portfolios.
- However risk vs. profitability is not enough.
- e.g. what metrics for risk? Solvency II capital? Volatility of the IFRS earnings?



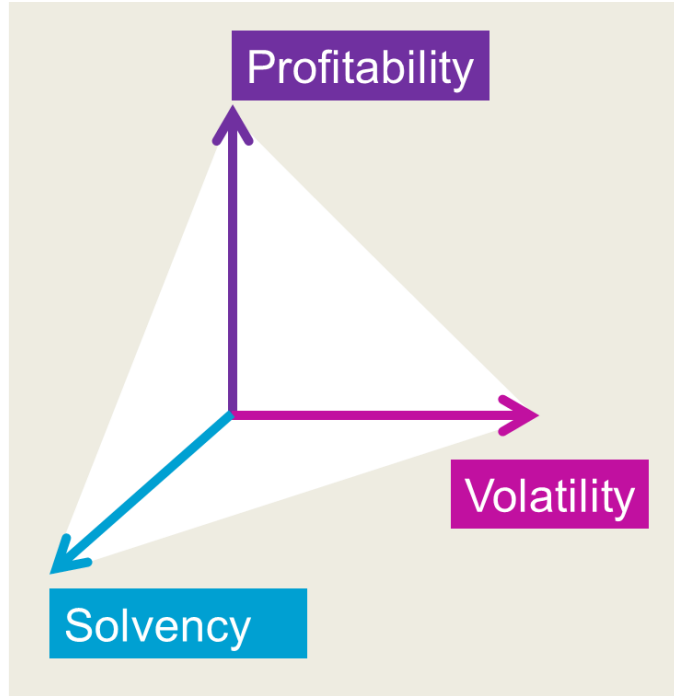
[https://en.wikipedia.org/wiki/Efficient\\_frontier](https://en.wikipedia.org/wiki/Efficient_frontier)



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## 2b. Making sure you know why you need reinsurance

### *Quantitative*



- Regulatory, accounting (local GAAP, IFRS) or economic approach?
- Profitability: short vs. long term? Average year?
- Volatility: 1:10 threshold? 1:40?
- Capital: Solvency II 1:200?
- \$ %
- RoRAC, RARoC
- VAR, TailVAR



## 2b. Making sure you know why you need reinsurance

### *Quantitative*

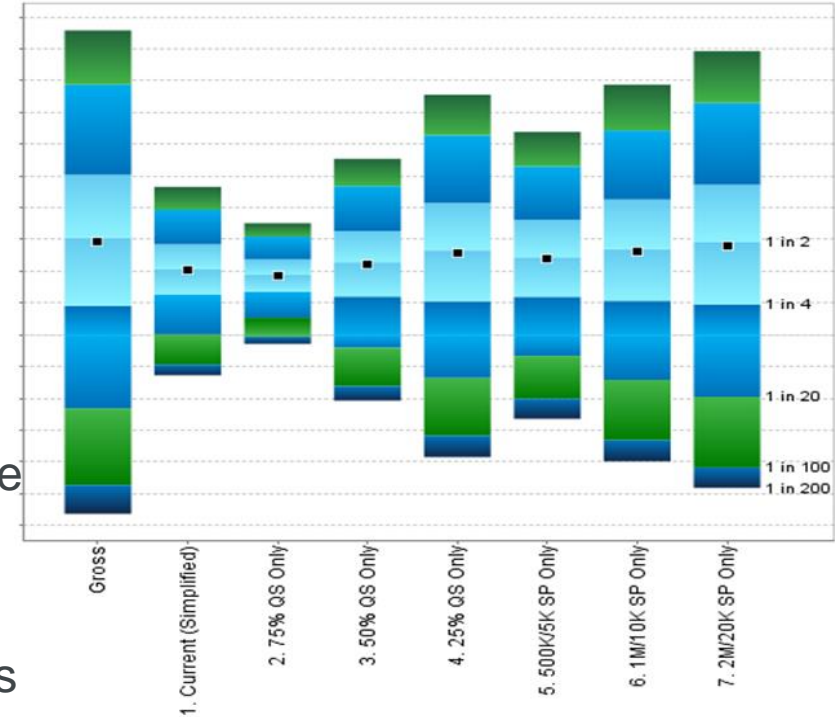
- Back to our example ...
  - The insurer might have a greater need for volatility management than maximising profitability or solvency ratio, relative to risk tolerances.
  - However the reinsurer might hold more capital against Surplus than QS.
  - Surplus might still be the ‘preferred’ structure given the priorities and cost-benefits.
- Optimisation of reinsurance takes this further
  - Even if Surplus is the preferred structure, you still need to optimise the retention.
  - The process of ‘constraining’ your vectors to achieve this follows basically the same principles.



## 2b. Making sure you know why you need reinsurance

### *Quantitative*

- Examples of dollar-based profits depending on the reinsurance structures
- Gross-of-reinsurance is better than reinsured from a dollar-based profit perspective.
- However it says nothing about whether the RoC increases or decreases.
- 75% QS may be better from a standard deviation perspective however it is not as good as the £5k Surplus under the base case assumption.



## 2. Making sure you know why you need reinsurance

- Overall there is nothing to say that insurers should choose quantitative over qualitative.
- We're emphasizing that insurers should be explicit and deliberate around both.
  - They should consider their needs, their targets and their constraints, they should explicitly consider the cost services and benefits and compare this with alternatives.
- We are not saying your reinsurance programme is wrong, we're saying that
  - If you haven't done this exercise, how can you prove that the various KPIs you're trying to optimise are better than with any other reinsurance arrangement (and without reinsurance)?
  - if you can't 'prove' it's right for the insurer, it might very well be making things worse.



## 2 Making sure you know why you need reinsurance

**Step 1:** Create a robust assessment framework.

**Step 2:** Clarify and detail your assessment criteria, rank and weight them.

**Step 3:** Identify several reinsurance structures and assess each of them.

IFRS operating profits

Solvency II capital  
and balance sheet

Embedded value and  
dividend generation

Risk

Speed and ease of  
execution, exit solutions  
and contingency plan

Services,  
relationships and  
others

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### 3. Key Parties

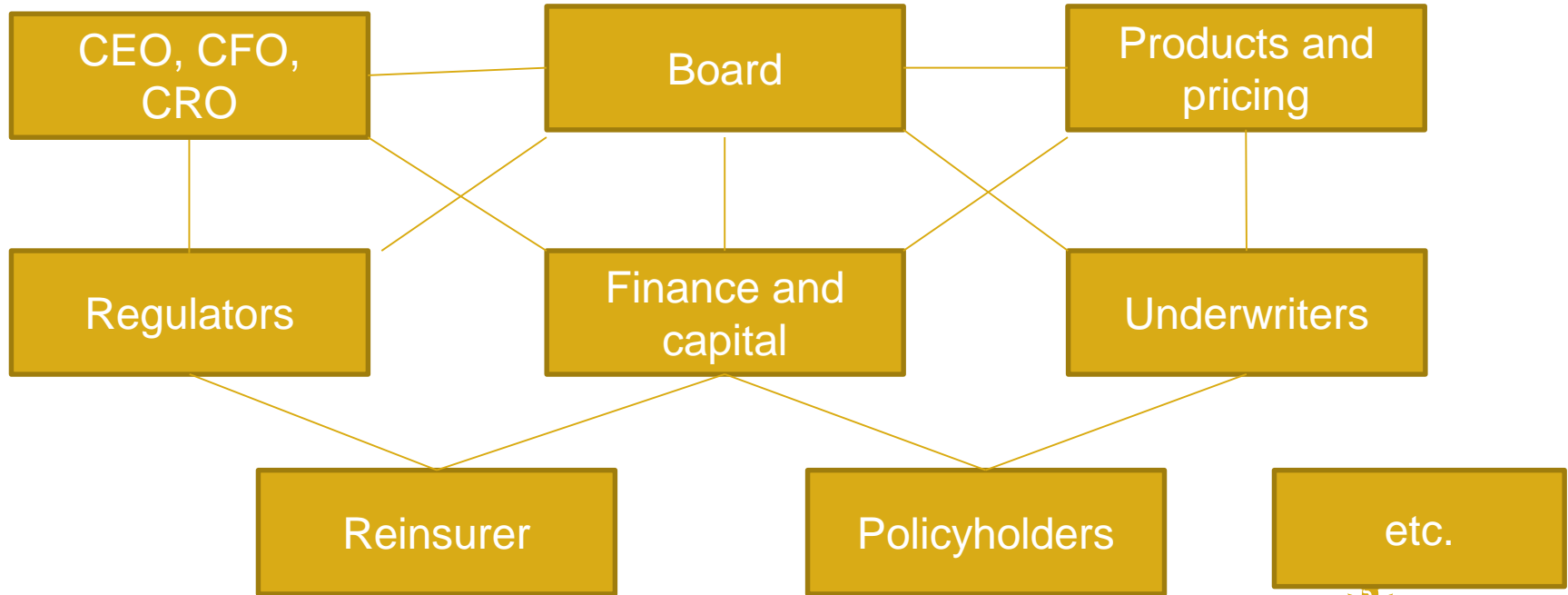
“We've survived by hiding from them, by running from them. But they are the gatekeepers. They are guarding all the doors, they are holding all the keys.”

- *Morpheus*





### 3. Key Parties



### 3a. Key parties: internal

- The Chief Actuary may be trying to boost solvency while the CFO is trying to save on reinsurance spend.
- The pricing actuary wants a Fin Re arrangement to reduce capital and thus increase the RoC on business to exceed the hurdle rate, while the capital management team already has to deal with excess capital.
- Even if everyone agrees to use an additional reinsurer for CI, the admin team knows the reinsurance admin system can't accept a second reinsurer.
- Governance, Reinsurance Committee, Decision-makers, Veto rights, Users (actuaries, underwriters, business origination etc.)
- Approved reinsurers, Internal business case.



## 3b. Key parties: external



## 3c. You're not talking to the right reinsurers and counterparties

- Some common misconceptions include:
  - If you've spoken to the ones you know (or the big ones), then you've covered the market.
  - Risk appetite and capabilities of reinsurers do not change over time.
  - Use of intragroup reinsurance or Insurance Linked Securities is too complex.
  - Any financial rating below AA is weak (and if a reinsurer is AA, there's no credit risk).
- Solutions include:
  - Know and follow the market, approach it widely, test it with new ideas.
  - Leverage relationships existing with your colleagues from other departments.
  - Share your business problem with reinsurers and request innovative, bespoke solutions.
  - Active counterparty management and reinsurance counterparty credit risk modelling.
  - Develop a comprehensive and coherent risk transfer framework.



## 4. Getting the structure and terms right

“The Matrix is everywhere. It is all around us.  
Even now, in this very room. ”

- *Morpheus*



## 4. Getting the structure and terms right

Traditional

Structured

Proportional

Non proportional

Natural expiry

Loss occurrence

Profit Commission

Pure risk

Ongoing commission

Upfront commission

No collateral

Collateralised

Cost

Benefits



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## 4. Getting the structure and terms right

- Instinctively you may prefer one choice over another, but this ‘actuarial judgement’ (or experience) may not be supported by the current assessment framework.
- Let’s consider profit commission ...
  - How different does your ‘vector’ model look, with and without profit commission?
  - For example, how does the cost (profitability vector) compare with value in a bad year (volatility vector), or a really bad year (solvency vector)?
  - Are you more worried about downside, or excited about upside?
  - What if your capital model (unrealistically) doesn’t take appropriately into account the profit commission mechanism?
  - What’s your risk appetite and assumptions on this product vs. the reinsurer’s?



## 4. Getting the structure and terms right

- There are many other features and terms to decide upon:
  - Long term guarantees on reinsurance rates to cover the cancer business?
  - Right to increase retention (how much? in-force too? catch-up? at a price?)
  - Exit and termination clauses
  - Eligible collateral assets
  - Clauses which ‘clash’ with regulations or tax
  - Exclusions – or buying covers you were not initially considering
  - Etc.





## 4. Getting the structure and terms right

- And getting your reinsurance placement right
  - How many reinsurers?
  - Just one (“He’s my best friend forever”)?
  - Or pick the best price each time? Since a correlation matrix exists, how to identify the ‘best’ reinsurer for that reinsurance cover?
  - Or use a preferred reinsurer panel with varying ceded shares? e.g. a pool of full-service and follower-only reinsurers, pieced together in a way that ensures price tension and rewards the real ‘value’ providers.
  - A mix of external and internal reinsurers?
  - What is the minimum financial strength rating you can accept for each reinsurer?

## 5. Reinsurance Contract Wording

“Because I don't like the idea that I'm not in control of my life.”

- *Neo*



## 5. Reinsurance Contract Wording

- We brought together buyers, sellers, advisors and intermediaries on the Working Party, then invited a lawyer into the mix.
- We discovered many misconceptions, inefficiencies and mistakes.
  - An agreement doesn't have to be signed to be legally binding.
  - Back-dating contracts can get you in a lot of trouble.
  - Multiple and contradicting definitions – whereas other terms are never defined.
  - 'Material impact' and 'reasonably expected to' are used all over the place.
  - Many triggers are defined without clear consequences - 'so what happens then?'
  - 'covenants' and 'warranties' etc.
- Reminder: just because you have a beautifully-worded reinsurance arrangement, doesn't mean your reinsurance structure is correct.



## 5. Reinsurance Contract Wording

**Make  
Efforts**

**Make  
Reasonable  
Efforts**

**Make Best  
Efforts**

**Make All  
Efforts**

Do you know the difference between the above?

What are the interpretations from case law examples and precedents in England?

What should you expect for agreeing a re-pricing or an update of the collateral assumptions? An accounting, regulatory or tax law change?



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## 5. Reinsurance Contract Wording

- Reinsurance contracts can be very one-sided:
  - If both parties don't agree with Party A's proposal, then Party A can terminate (???)
  - If one party has the right to increase rates when experience deteriorates, then why doesn't the other party have the reciprocal right to decrease rates when experience improves?
  - Contracts may place obligations that cannot realistically be achieved where the inevitable happens.
  - OK, they don't have to be perfectly balanced e.g. personal info, credit risk, etc.
- Think carefully about who can terminate when, with what notice, under what triggers, with what implications?
- We're not saying it must be one way or another, but we hope that anything in a contract is there on purpose, with forethought rather than by accident



## 6. Management of in-force

“We're willing to wipe the slate clean,  
give you a fresh start.”

- *Agent Smith*



## 6. Management of in-force



**Inertia** /ɪˈnəːʃə/ (noun)

A tendency to do nothing, or remain unchanged

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That's why companies are left with hundreds and even thousands of reinsurance contracts, the majority of which are basically in run-off.



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## 6. Management of in-force

- Reinsurance arrangements are generally left to run off naturally, even when it's a really old arrangement, the product itself was never a success, it's financially irrelevant, etc.
- We are surprised at how seldom insurers review their reinsurance programmes and use dashboards to monitor the need and performance of these programmes.
  - No culling exercise every now and then – except in the event of M&A or regulatory, accounting, tax or IT/operational change?
- Even if you get the structure right on day 1, it may become non-optimal few years later. Trends or 'parameter realisation' may have rendered the risk transfer out-of-the-money, or may completely invalidate the value of a profit sharing.
- Whose responsibility is it to manage and review in-force reinsurance arrangements – and to monitor associated reinsurance counterparty default risks?





## 6. Management of in-force

- Reinsurance exit and recapture mechanisms are often poorly defined, even when a 'commutation value' is defined.
- This is often defined using some form of EV, but ...
  - In the reasonable opinion of just *one* party?
  - Shouldn't be designed to lock in a specific level of profitability as expected at  $T_0$
  - What parameters should be used, if the world has changed?



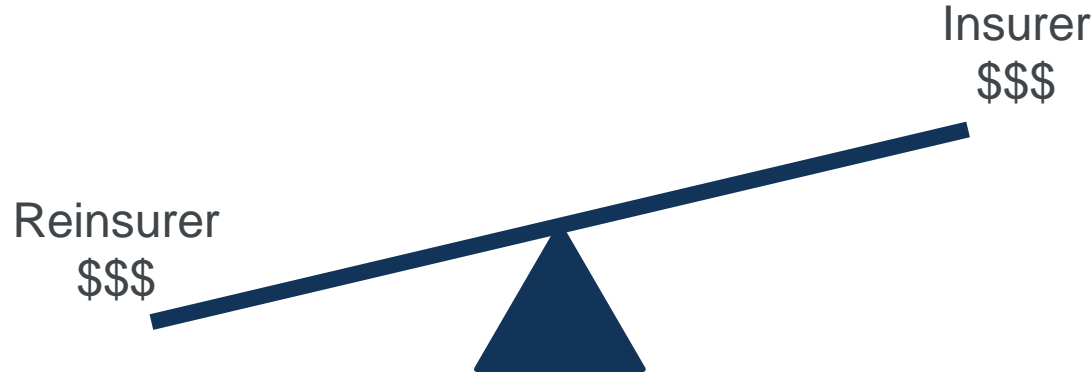
## 7. The insurer/reinsurer relationship

“You take the red pill - you stay in Wonderland  
and I show you how deep the rabbit-hole goes.”

- *Morpheus*



## 7. The insurer/reinsurer relationship



Do you consider your reinsurance relationship collaborative?

Are you able to, and do you, challenge the status quo?

Does win-win really necessitate perfectly matched?



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## 7. The insurer/reinsurer relationship

- Reinsurance is ultimately an agreement between two consenting parties.
- It's a relationship, with a start, exchanges, cycles and potentially an end (sometimes and rarely definitely).
- There needs to be a balance: the insurer isn't always right, nor should the reinsurer always dominate.
- Dashboards, again, will help the parties show what's been going in and out.
- The insurer may have different relationships with its reinsurers. Similarly the reinsurer may have different relationships and priorities across its clients.
- Consider the Pros and Cons of:
  - Relationships / partnerships / segmentation
  - Commoditization of reinsurance / purely transactional



“I'm trying to free your mind, Neo. But I can only show you the door. You're the one that has to walk through it.”

- *Morpheus*

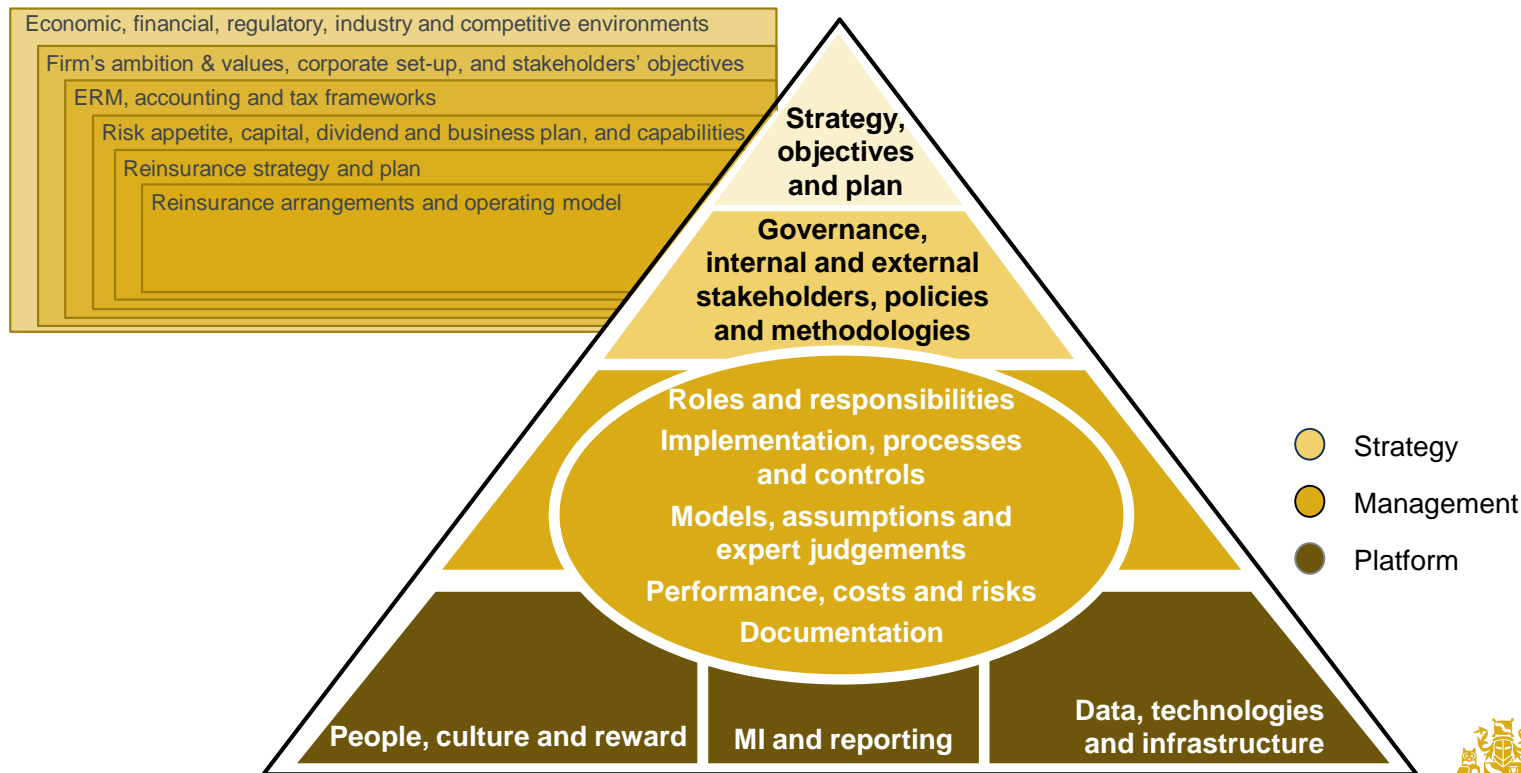


# Conclusion

- Today's session was more of a high level summary – the draft paper has a lot more detail.
- Key takeaways are:
  - Be clear on the objectives and assessment criteria;
  - Consult internally and externally;
  - Measure the impacts, optimise and manage.
- “Reinsurance should be a tool not a habit.”
- We welcome your input – all comments and suggestions will be considered for the final paper.



# Conclusion



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# Questions

# Comments

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