Actuaries Institute

GENERAL INSURANCE PRACTICE COMMITTEE

Information Note: Insurance Concentration Risk Charge – Other Accumulations Vertical Requirement

August 2013

Purpose of the ICRC

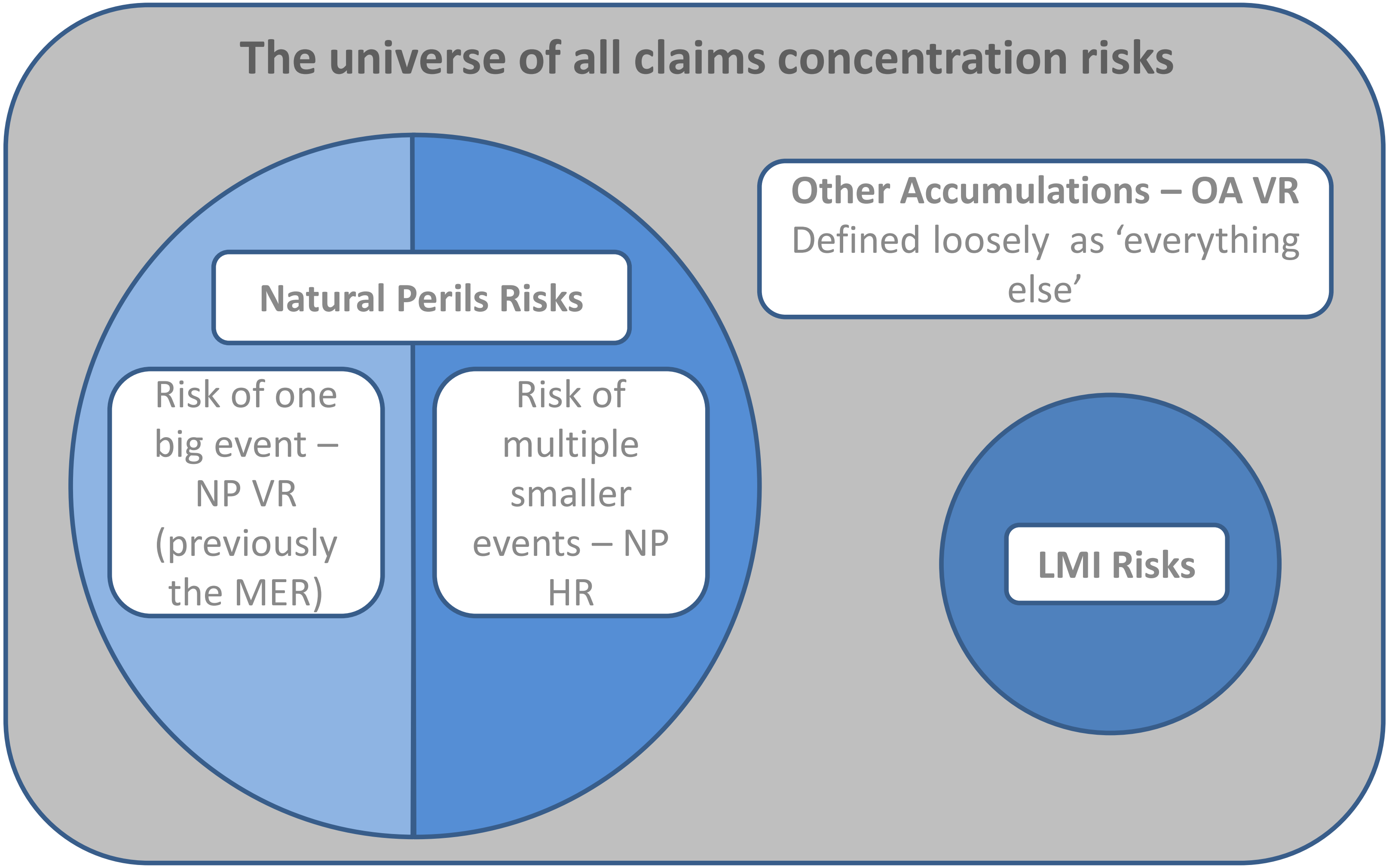
GPS 116: “The ICRC... is intended to represent the net financial impact on the regulated institution from either a single large event, or a series of smaller events, within a one year period.”

....but how might we measure this?

“Measure what can be measured, and make measurable what cannot be measured.”

— Galileo Galilei

Segmentation of the ICRC



The ICRC is taken as the maximum of these 4 components

Actuaries Institute

Natural Perils

Other Accumulations

Measurement Challenges

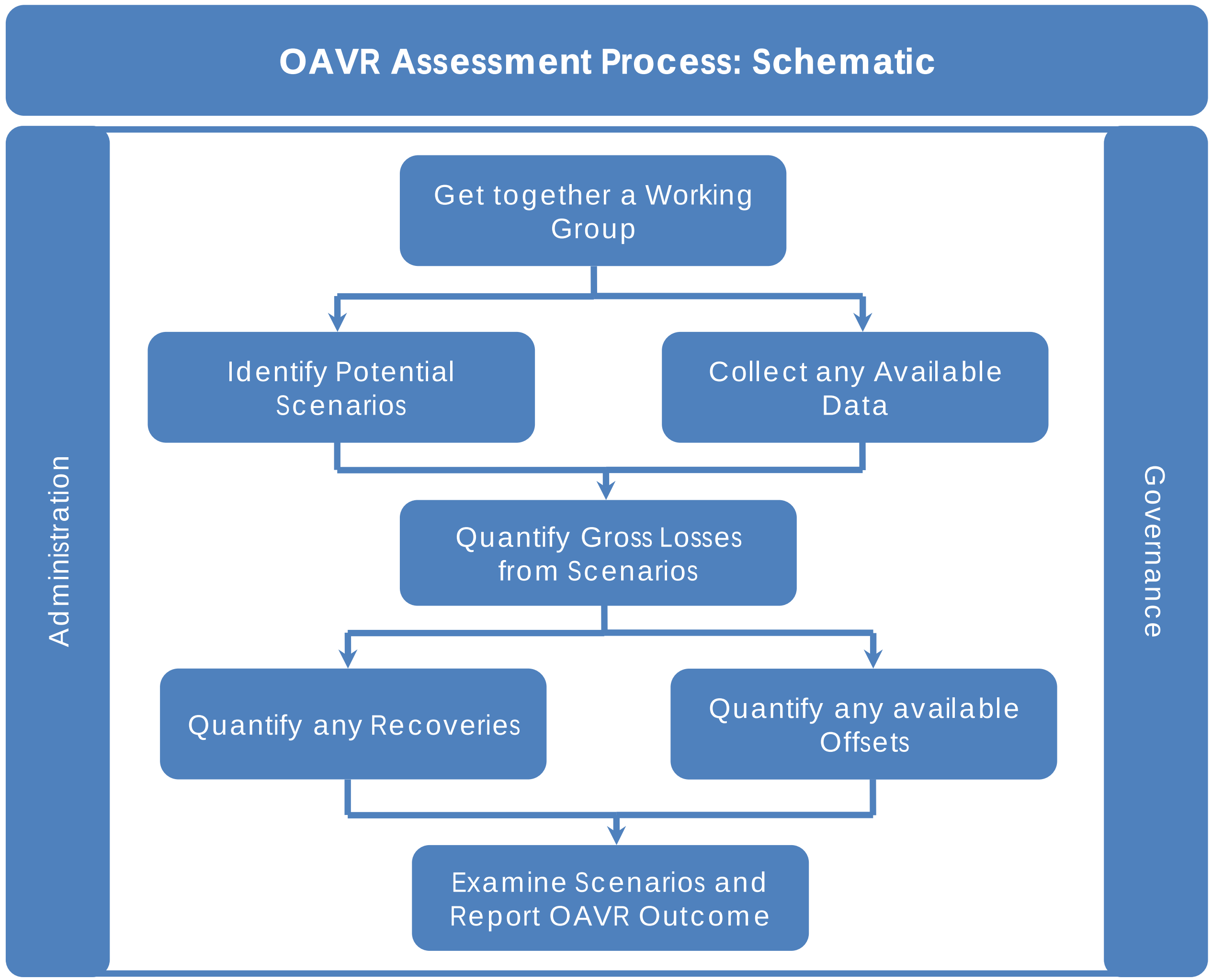
GPS 116: The **OA PML** is the **gross loss** arising from the **occurrence** of a **single event**, where that loss has **0.5 per cent probability of occurrence over 12 months**. An insurer must consider **all classes of business** and all business underwritten....

Measuring this is a challenge, due to:

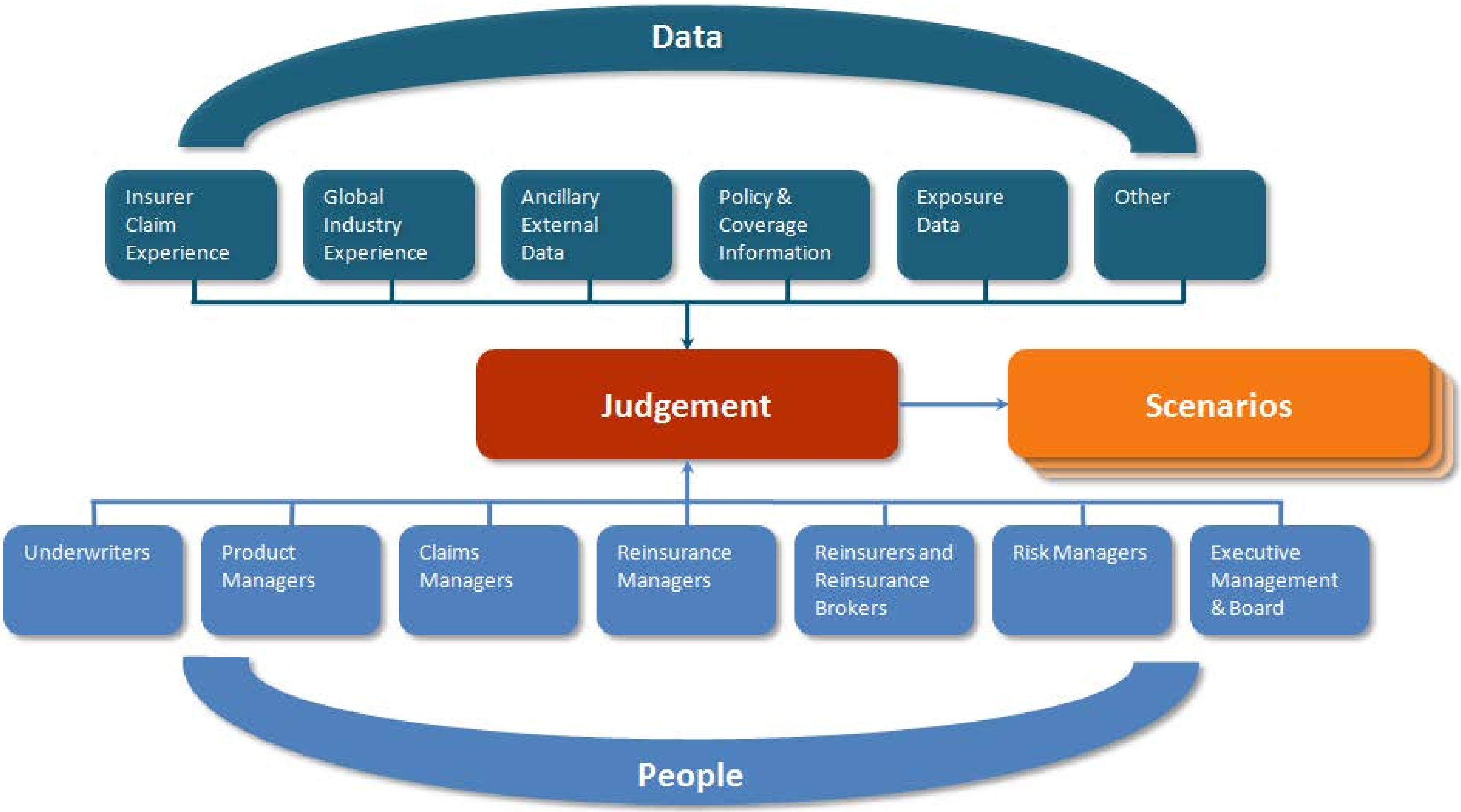
- Breadth of the event set
- Lack of existing models
- Lack of data or information

But all is not lost...

Other Accumulations PML



Inputs


Data
Insurer Claim Experience
Global Industry Experience
Ancillary External Data
Policy & Coverage Information
Exposure Data
Other
Judgement
Scenarios
Underwriters
Product Managers
Claims Managers
Reinsurance Managers
Reinsurers and Reinsurance Brokers
Risk Managers
Executive Management & Board
People

Scenario identification

Class	Terrorism	Political	Economic	Social	Technology	Other
CTP						
Marine						
Aviation						
Construction/ Engineering						
PIDO						
Medical Indemnity						
Extended Warranty						
Consumer Credit						
Trade Credit						
Personal accident						
Workers' Compensation						
Travel						
General Liability						

Quantification

Scenario ID	Event Description	Probability	Gross Impact (all classes)	Reinsurance Recoverable (all classes)	Premium Liability Offset	Reinstatement cost	Net impact (all classes)
Physical 1	A plane crashes into Sydney Airport's main terminal and closes airport for extended period	0.5%	$200.0m	$150.0m	$0.1m	$5.5m	$55.4m
Physical 2	An offshore oil rig explodes and causes an oil spill that impacts on an environmentally sensitive area	0.5%	$500.0m	$450.0m	$0.1m	$16.5m	$66.4m
Terrorism 1							
Political 1							
Economic 1							
Social 1							
Technology 1							
…	…	…	…	…	…	…	…

Other Approaches

Mathematical

- A event loss table approach
  - Event, Freq, mean, sd, sdc, Exposure, etc…
  - Copulas, correlations etc…

Lloyds

- Prescribed Scenarios plus some bespoke

Other Approaches

Lloyds

Lloyds managing agents must complete:-

- A prescribed set of 14 compulsory scenarios
  - (mainly significant industry event driven)
- Several more by class of business
  - Aviation, Liability, satellite etc..
- Plus 2 bespoke

Lloyd's does not prescribe how managing agents should calculate losses from these scenarios. But guidance is available

Why are we really doing this?
Show of Hands?

a. Because "the regulator" says so
b. *To estimate capital to hold to cover ensure we don't go bust should these events occur (with a .5% probability over a one year time frame)*
c. *To prompt action*
d. *For fun*
e. *All of the above*

Outcomes

Quantification can lead to action

- *Avoid - change wordings, pull out…*
- *Mitigate - Prompt claims action, training..*
- *Reduce - sublimit, excesses…*
- *Transfer - Reinsurance*

- *Capital is a last resort, best to avoid the situation than to buy yourself out of it…*

Case Study

AVIATION COLLISION

Assume a collision between two aircraft over a major city, anywhere in the world, using your two highest airline exposures. Assume a total liability loss of up to USD4bn: comprising up to USD2bn per airline and any balance up to USD1bn from a major product manufacturer's product liability policy(ies) and/or an air traffic control liability policy(ies), where applicable.

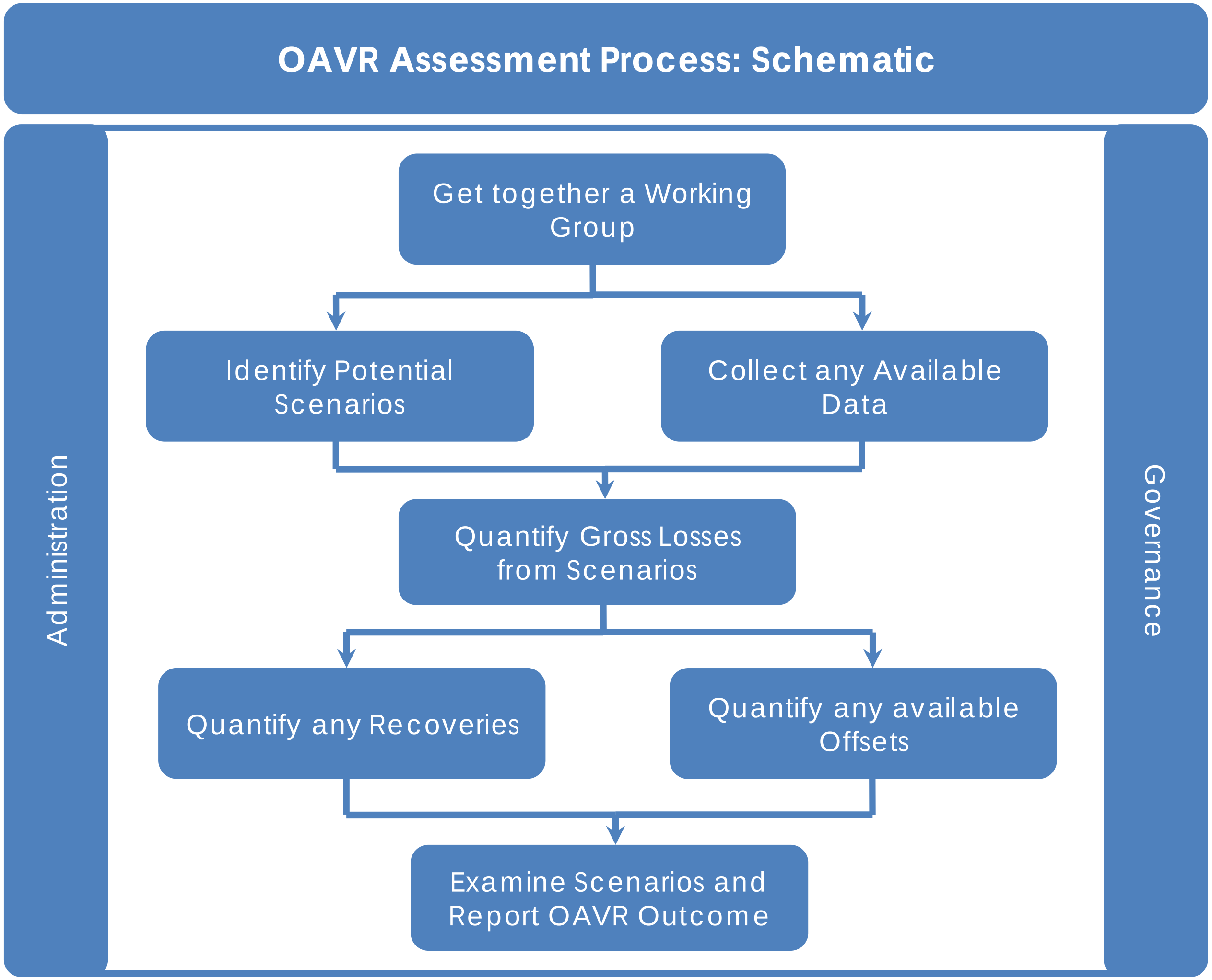
Consideration should be given to other exposures on the ground.

Assumptions should be stated clearly using the event commentary facility in form 990.

(Re)/Insurers should include the following information in their return;

1) the city over which the collision occurs;
2) the airlines involved in the collision;
3) the airline policy limits and syndicate's line and exposure per policy;
4) maximum hull value per aircraft involved;
5) maximum liability per aircraft involved;
6) name of each product manufacturer and the applicable policy limits; and
7) name of the air traffic control authority and the applicable policy limit.

Other Accumulations PML - revisited



Discussion points

Scenarios at 1-in-200

vs

Event Loss Table

Time horizon:
1 year?

Reserve risk:
in or out?

Latent claims:

in or out?

Scenarios covered elsewhere