NZAAA Conference 2012

Risk Management – My Friend

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NAVIGATUS

Contents

Tell them what you are going to tell them

Tell them what you want to tell them

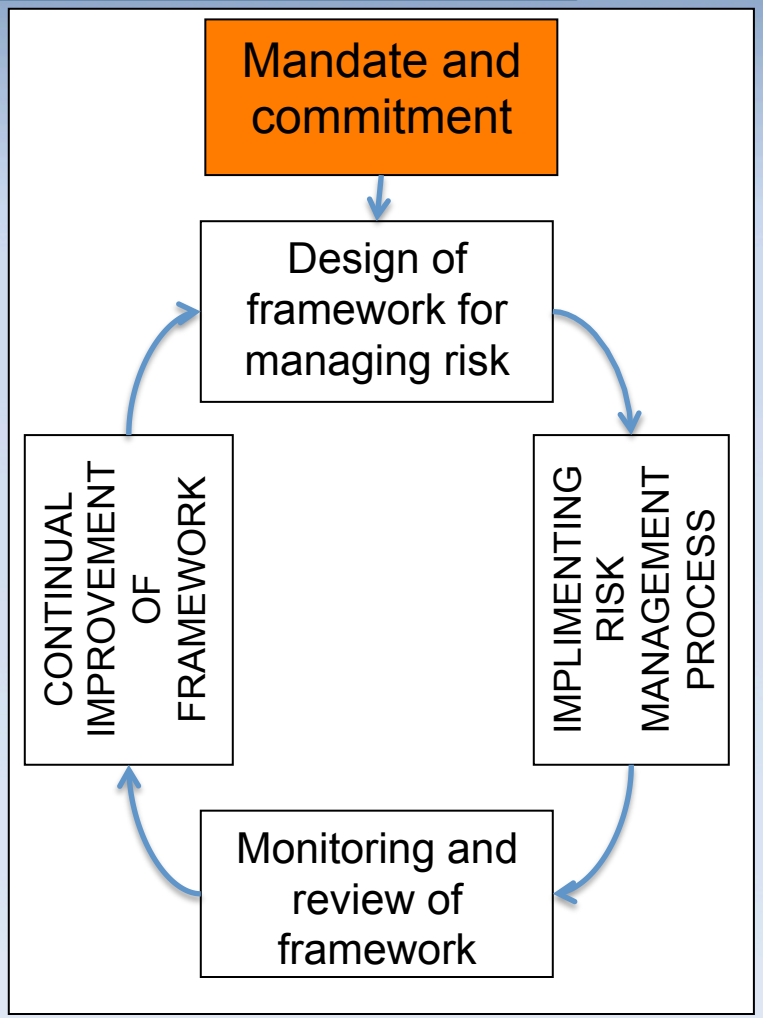
Tell them what you told them

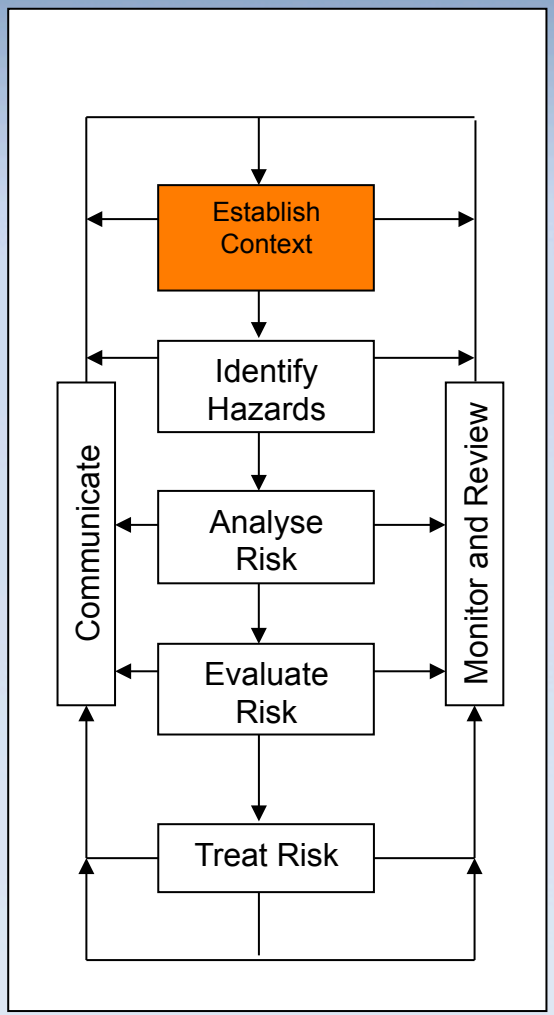
- Risk Management - Theory
  - Principles/Framework/Process
- The right appraoch? – Coal face RM
  - Coal face example
- Aircare Risk Assessment Process / Matrix
  - When to use / not use

Risk Management – Theory

Risk Management – ISO31000

a) Creates Value
b) Integral part of organisational processes
c) Part of decision making
d) Explicitly addresses uncertainty
e) Systematic, structured, timely
f) Based upon best available information
g) Tailored
h) Takes human and cultural factors into account
i) Transparent and inclusive
j) Dynamic, iterative and responsive to change
k) Facilitates continual improvement and enhancement of organisation





Principles → Framework → Process

* Source: ISO31000

SMS ‘Elements’ (ICAO/Draft AC)

1. Safety policy and accountabilities;
2. Coordinated emergency response planning;
3. Development control and maintenance of safety management documentation;
4. Hazard identification;
5. Managing risk;
6. Investigating occurrences;
7. Monitoring and measuring performance;
8. The management of change;
9. Continuous improvement of the SMS;
10. Internal audit Programme;
11. Management review;
12. Safety training and education programme;
13. Communication of safety critical information.

Draft AC mapped to RM best practice

a) Creates Value
b) Integral part of organisational processes
c) Part of decision making
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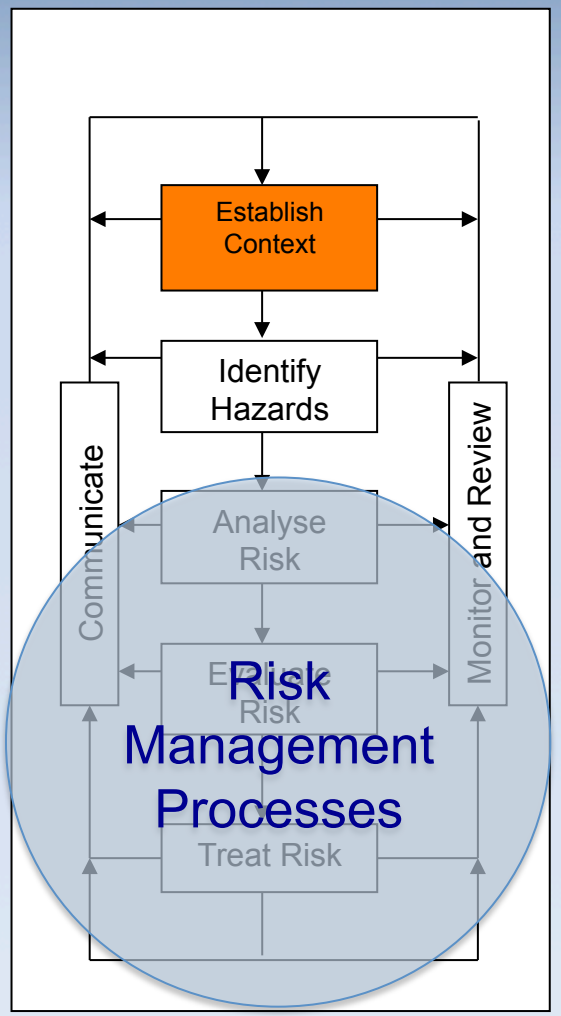
1. Safety policy and accountabilities;
2. Development control and maintenance of safety management documentation;
3. Monitoring and measuring performance;
4. The management of change;
5. Continuous improvement;
6. Internal audit Programme;
7. Management review;
8. Safety training and education programme;

Safety Management System



Principles → Management system → Process

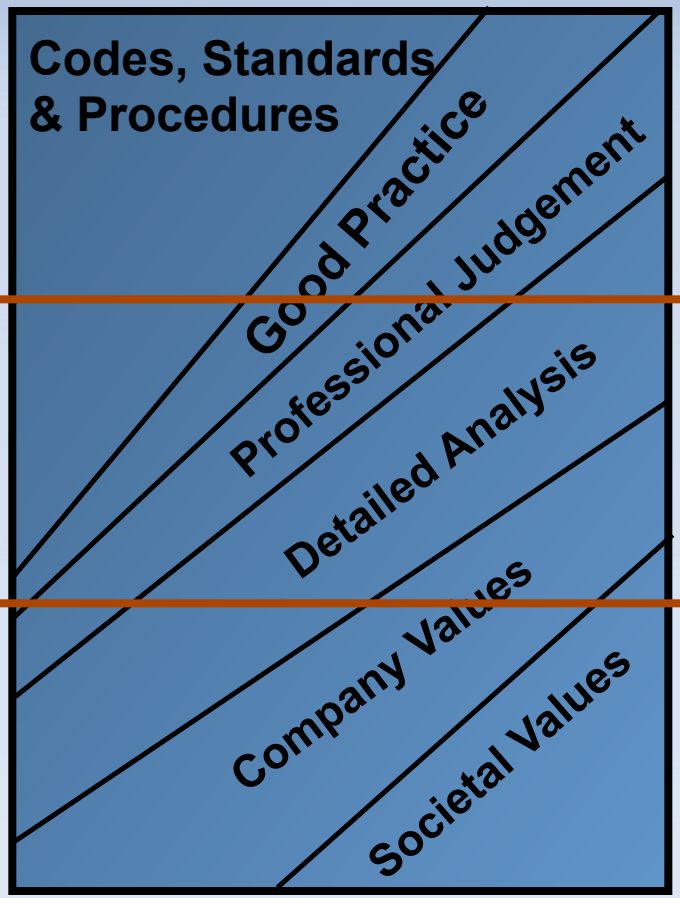
Risk Mng - At the coal-face

Risk Management Techniques

1. Codes / Standards / Procedures
2. Good practice
3. Professional judgment
4. Risk analysis
5. Company values
6. Societal values

Decision making under risk

Risk Management Decision Regimes

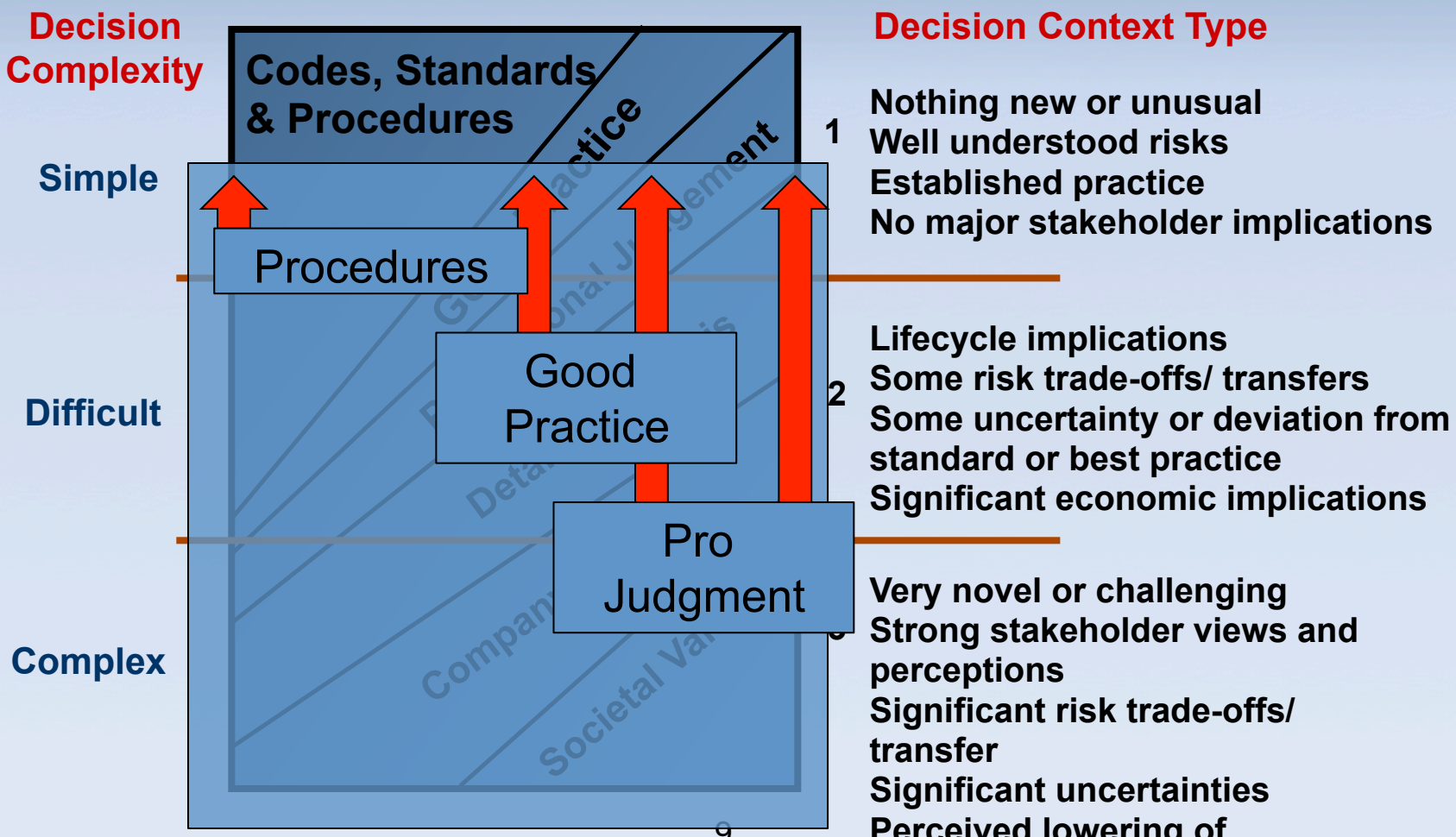


Decision Complexity	Decision Context Type
Simple	Nothing new or unusual Well understood risks Established practice No major stakeholder implications
Difficult	Lifecycle implications Some risk trade-offs/ transfers Some uncertainty or deviation from standard or best practice Significant economic implications
Complex	Very novel or challenging Strong stakeholder views and perceptions Significant risk trade-offs/ transfer Significant uncertainties Perceived lowering of standards

** Source: NSOOA: 2000*

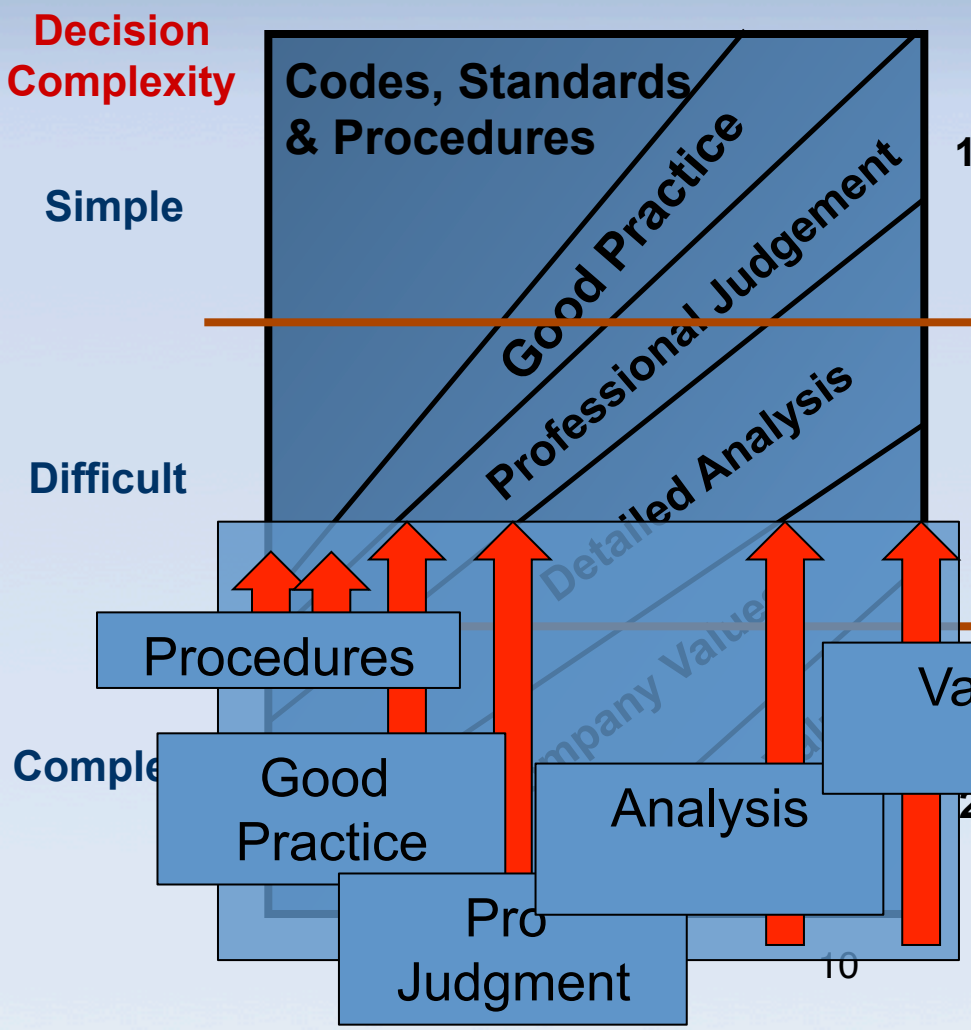
Decision making under risk

Risk Management Decision Regimes



Decision making under risk

Risk Management Decision Regimes



Decision Context Type

1

- Nothing new or unusual
- Well understood risks
- Established practice
- No major stakeholder implications

- Lifecycle implications
- Some risk trade-offs/ transfers
- Some uncertainty or deviation from standard or best practice
- Significant economic implications

2

- el or challenging
- takeholder views and
- ons
- Significant risk trade-offs/ transfer
- Significant uncertainties
- Perceived lowering of standards

Complexity at the coal face

Tasks:

1. Develop an SMS for the Rena Recovery
2. Be the Salvor's Safety Office

- Extremely hazardous
- Culture clash (within team / between orgs)
- Language(s)
- Unknowns / uncertainty
- The sea - unforgiving
- Limited control

Mitigating / Controlling Risk

1. Isolate
2. Minimise
3. Protect

Physical
Procedural
Training
Control
Information

Risk Assessment (Aircare)

- Practical
- Aimed at GA
- Operational integrity
- Not individual flight planning
- Part of SMS – embedded use

Risk Assessment (Aircare™)

Organisational Risk Assessment Scales and Matrix for GA Operators

Notes:	
A:	This set of risk assessment scales and matrix is for the assessment of organisational and overall operational risk. This version is not intended, and is not suitable, for assessing risk of individual flights and short term operations.
B:	Risk associated with individual flights and the associated planning must be managed using recognised aviation procedures and principles. All flight hazards must be addressed within the context of the conditions and location and each mitigated using established flight planning methods and the application of sound airmanship by suitably trained and qualified personnel. Use an alternative risk assessment matrix designed specifically for flight operations to supplement these established flight planning methods.
C:	The level of business impact shown in the Consequence Table depends upon the nature, size and condition of the operator's business. Each operator needs to consider the context of their business and complete the $ impact values in the table as appropriate for their business.
Prerequisite 1:	The operator has considered the context of their business and operation and completed the 'business impact' parts of the Consequence Table.
Prerequisite 2:	A risk management framework is in place that includes a method of systematically and effectively identifying and evaluating risk, as well as a process for tracking risk, mitigations and controls, and for reviewing these as appropriate.

Use of Tables	
Step 1:	Use best available information and group discussion to identify and consider the situation or circumstances that may occur and the possible outcome or range thereof. Record any assumptions made and any areas of uncertainty.
Step 2:	Use the indicative word pictures and prompts in the Consequence Table to define and record the level of harm that could be expected for the current or future situation or circumstances being considered. A range of outcomes may need to be considered.
Step 3:	Consider, research and use experience and knowledge to judge and if required use data to analysis the likelihood of the unintended events occurring, or situation or circumstances developing. Use the Likelihood Table to define and record the associated likelihood. It may be necessary to consider a range of likelihoods.
Step 4:	Use the Risk Matrix to determine the level of risk of each defined event, situation or circumstance being considered.
Step 5:	Prioritise the mitigation of risk based upon the calculated level of risk. Mitigation should first aim to eliminate the risk. If this is not possible, aim to put in place controls to minimise and then protect against the risk. Multiple layers of mitigating controls (layers of defence) tend to be more resilient against error and change than individual controls.

Consequence Table

Consequence descriptor	Safety			Business disruption			Environmental
	Operational Safety	Health and Safety	CA Act Compliance	*Business Impact (general description)*	*Example causes / situations / events that could impact business*	*Business Impact ($ value)*	
Catastrophic	Loss of aircraft, crew and PAX, and possibly people on the ground	High energy or similar incident causing multiple staff and or public fatalities					
Severe	Operational incident or condition that would be expected to result in death	Workplace incident that would be expected to result in death	Loss of AOC due to CAA concerns regarding safety	Collapse of the business with resulting significant losses	Certification: eg, Loss or suspension of Aircare Accreditation, loss of DOC access, etc. Regulatory: eg, RMA non-compliance and resulting case, etc. Legal: eg, Criminal or civil prosecution, civil prosecution, etc. PR: eg, bad press, etc. HR: eg, loss of key staff, staff out of date quals, not competent, long term illness, etc. Assets: eg, damage to aircraft or other key asset, loss of IT system and or data etc. Third party: eg, theft etc. Financial: eg, poor cash-flow, poor book keeping, etc. Commercial: eg, loss of corner stone customer, loss of market base, etc.	> $ ..... loss or unintended costs	Environmental incident causing very significant or long term harm to the environment
Major	Operational incident that would be expected to result in permanent significant injury. *Compromised airworthiness of aircraft*	Workplace incident that would be expected to result in permanent significant injury	Withdrawal of AOC for a period due to safety concerns	Critical commercial situation threating or significantly undermining the business		> $ ..... loss or unintended costs	Environmental incident causing significant harm to the environment that is difficult to mitigate
Serious	Operational incident that could be expected to cause injury. *Airworthiness of aircraft brought into question*	Workplace injury incident. Significant hazard exposure.	Findings or circumstances leading to imposed operational restrictions	Situation materially effecting business		> $ ..... loss or unintended costs	Environmental incident causing some harm to the environment - recoverable over time
Moderate	Operational occurrence or similar unintended event	Minor harm incident. Exposure to recognised hazard.	Key non-compliance(s)	Business or commercial impact requiring re-planning		> $ ..... loss or unintended costs	Environmental incident needing professional clean up
Minor	Sub-optimal process	Fright or discomfort. Exposure to incidental hazards.	Minor non-compliance(s)	Business or commercial impact absorbed as 'business as usual'		> $ ..... loss or unintended costs	Minor incident - easily cleaned up
Negligible				Incidental		< $ ..... loss or unintended cost	Incidental environmental incident

Likelihood Table

Likelihood descriptor	Likelihood of occurrence within the Operator's own operations and business....		
	Indicative Frequency (per year)	(expressed as expected events per year)	Indicative frequency (expressed as time between events (yrs))
Probable	Almost bound to occur	1	1
Even chance	Could go either way	0.5	2
Unlikely	Not expected to occur that often	0.2	5
Improbable	Unlikely to occur	0.1	10
Highly improbable	Highly unlikely to occur	0.05	20
Barely credible	Is conceivable	0.02	50

Risk Matrix

Descriptors	Negligible	Minor	Moderate	Serious	Major	Severe	Catastrophic
Probable	Low	Medium	High	Very High	Extreme	Extreme	Extreme
Even chance	Very Low	Low	Medium	Very High	Very High	Extreme	Extreme
Unlikely	Very Low	Low	Medium	High	Very High	Extreme	Extreme
Improbable	Very Low	Very Low	Low	High	Medium	Very High	Extreme
Highly improbable	Very Low	Very Low	Very Low	Low	Medium	Very High	Very High
Barely Credible	Very Low	Very Low	Very Low	Low	Low	High	Very High

Notes

User guidance

Consequence scales

Probability scales

Risk matrix

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B: Risk associated with individual flights and the associated planning must be managed using recognised aviation procedures and principles. All flight hazards must be addressed within the context of the conditions and location and each mitigated using established flight planning methods and the application of sound airmanship by suitably trained and qualified personnel. *KISS - Identify hazards – mitigate the associated risk. The right people – the right attitude - the right thing - the right way*

C: The level of business impact shown in the Consequence Table depends upon the nature, size and condition of the operator's business. Each operator needs to consider the context of their business and complete the $ impact values in the table as appropriate for their business.

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Scales (Aircare™)

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	Operational Safety	**Health and Safety**	**CA Act Compliance**				
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Scales

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Mapping the Matrix to the situation

Not suitable

Eg:
Nothing new or unusual
Well understood
Procedures in place
High level of control
Emergency / urgency

Most suitable

Eg:
Change (internal)
Change (external)
New or unusual
Not well understood
Incomplete procedures
Some uncertainty
Trade-offs
Limited control

Partially suitable

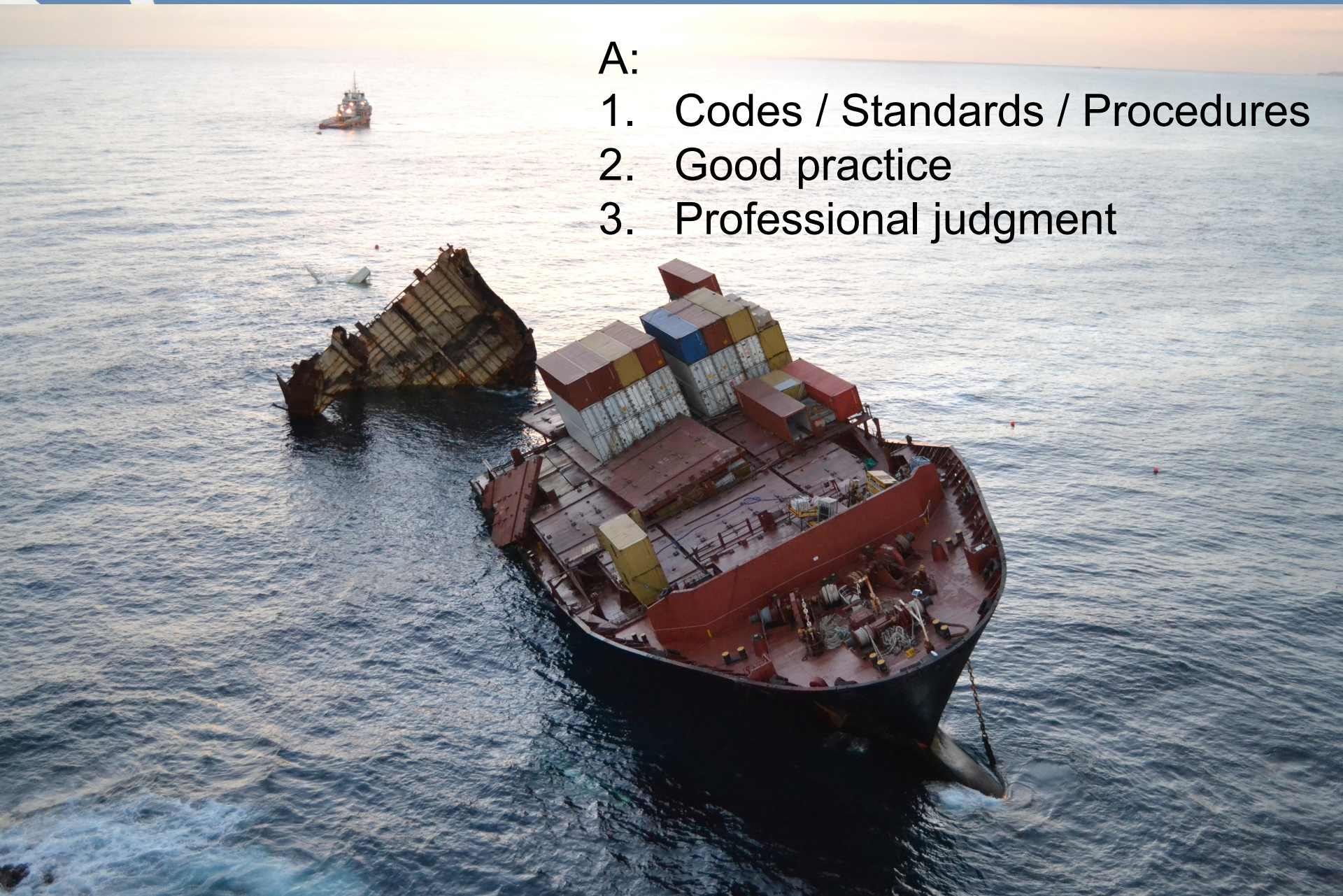
Eg:
Technical complexity
V.High levels of risk
Procedure design
V.High levels of uncertainty

The right people – the right attitude - the right thing - the right way

Summary

- Risk Management - Theory
  - AS/NZS ISO31000
  - Principles/Framework/Process
  - SMS
- The right appraoch? – Coal face
  - Six techniques
- Complexity – Rena example
- Aircare Risk Assessment Process / Matrix
  - When / when not to use

Q: How should the master have managed the risk?



A:

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2. Good practice
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