

Risk Management/ Gestion des Risques

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In the context of Projects & Organisations

PH department, DT-Science-Techno Tea meeting, September 2011

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RISK Management – **CONTEXT** - What is it ? Why do it ?

WHAT IS IT ?

- Risk management **involves**identifying, analysing, evaluating, treating, monitoring and communicating **risks** associated with **any activity, function or process**.
- It is an **iterative process**enable continuous **improvement in decision-making** and facilitate continuous improvement in performance.

WHY DO IT ?

- Organizations that manage risk effectively and efficiently are more likely to achieve their objectives and do so at lower overall cost.
- Enable organizations to minimize losses and maximize gains.

*All the above is an extract from the **Standard AS/NZS 4360:2004***



RISK REGISTER

[XX] DEPARTMENT

-04-15 12:55

Risk ID	Risk Label	Cat	L	I ₀	I _R	I _F	I _S	S	Current response	Management decision	Comments
FI-211	Failure of a Member State at paying its contribution	M	1	5	3	5	1	5	Acceptance	—	
AB-PO-05	Major failure of the power converter of PS Main Ring	0	3	5	3	3	1	15	Mitigation	PS & SPS Consolidation project	

Example of a risk register as proposed in the past.

Will come back to this later.....

RISK Management – Background - Standards

Risk Management. Standardisation of practices.



FERMA = Federation of European Risk Management Associations

COSO = American. Committee of Sponsoring Organizations for the Treadway Commission.

AS/NZS = Australian and New Zealand Standards.

ISO = International Organization for Standardization.

Copy from slide of Pierre Bonnal CERN.

INTERNATIONAL
STANDARD

ISO
31000

First edition
2009-11-15

**Risk management — Principles and
guidelines**

Management du risque — Principes et lignes directrices



Reference number
ISO 31000:2009(E)

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RISK Management **Process** –from ISO 31000

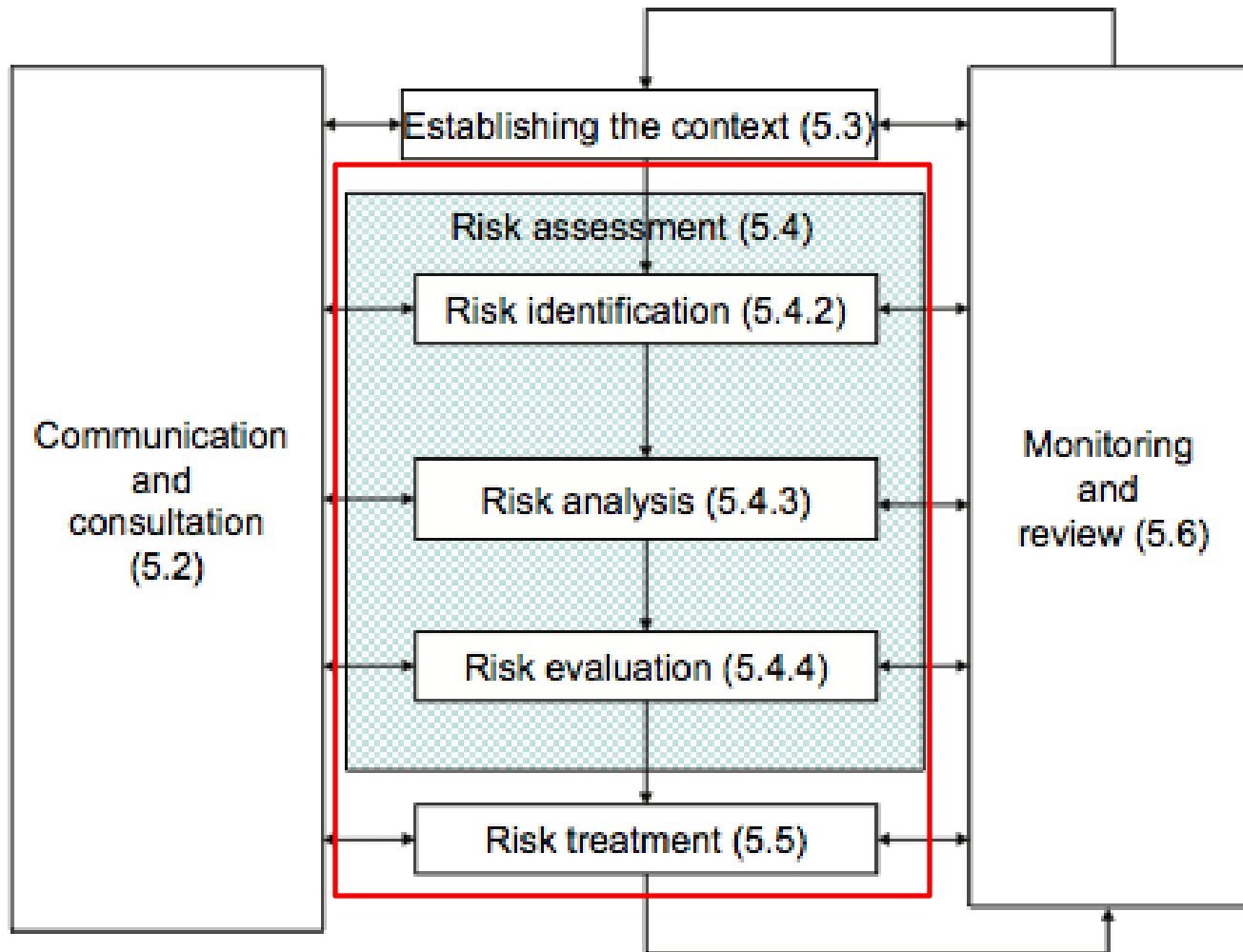


Figure 3 — Risk management process

RISK Management – Background – Standards - Comparison

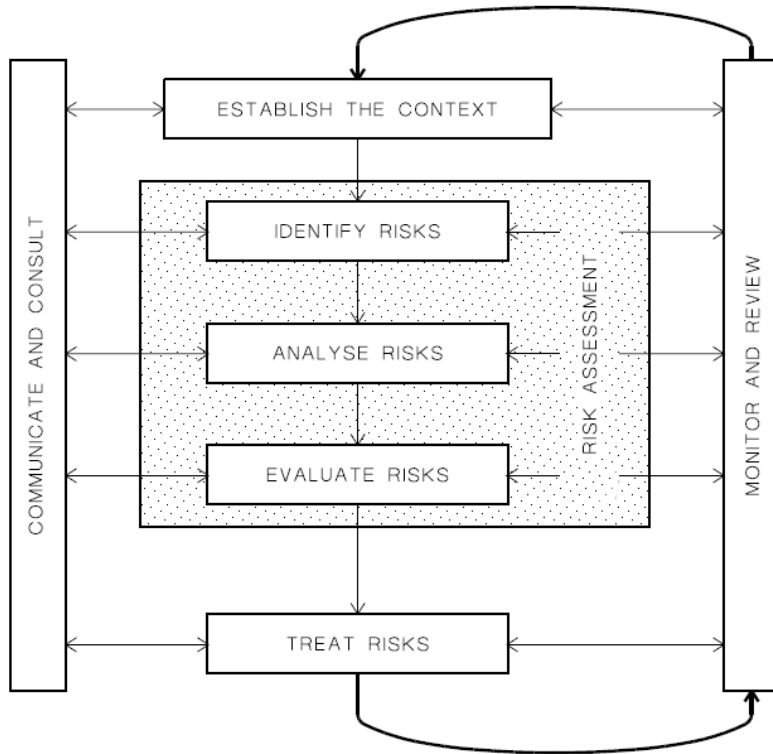


FIGURE 2.1 RISK MANAGEMENT PROCESS – OVERVIEW

AS/NZS 4360:2004

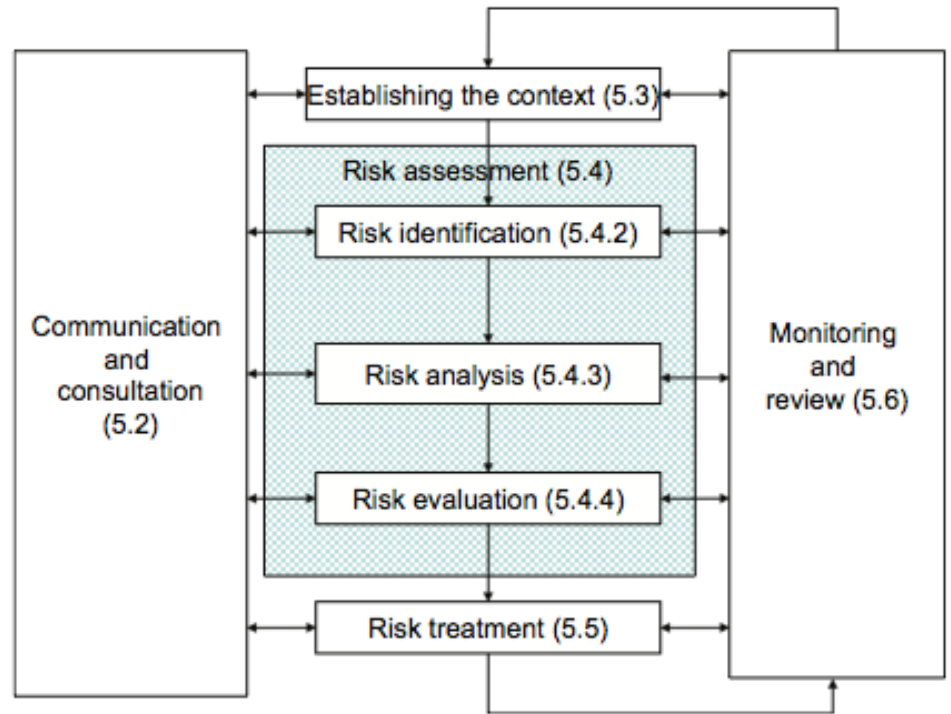


Figure 3 — Risk management process

**INTERNATIONAL
STANDARD**

**ISO
31000**

RISK Management – Activities – Objectives – Risks



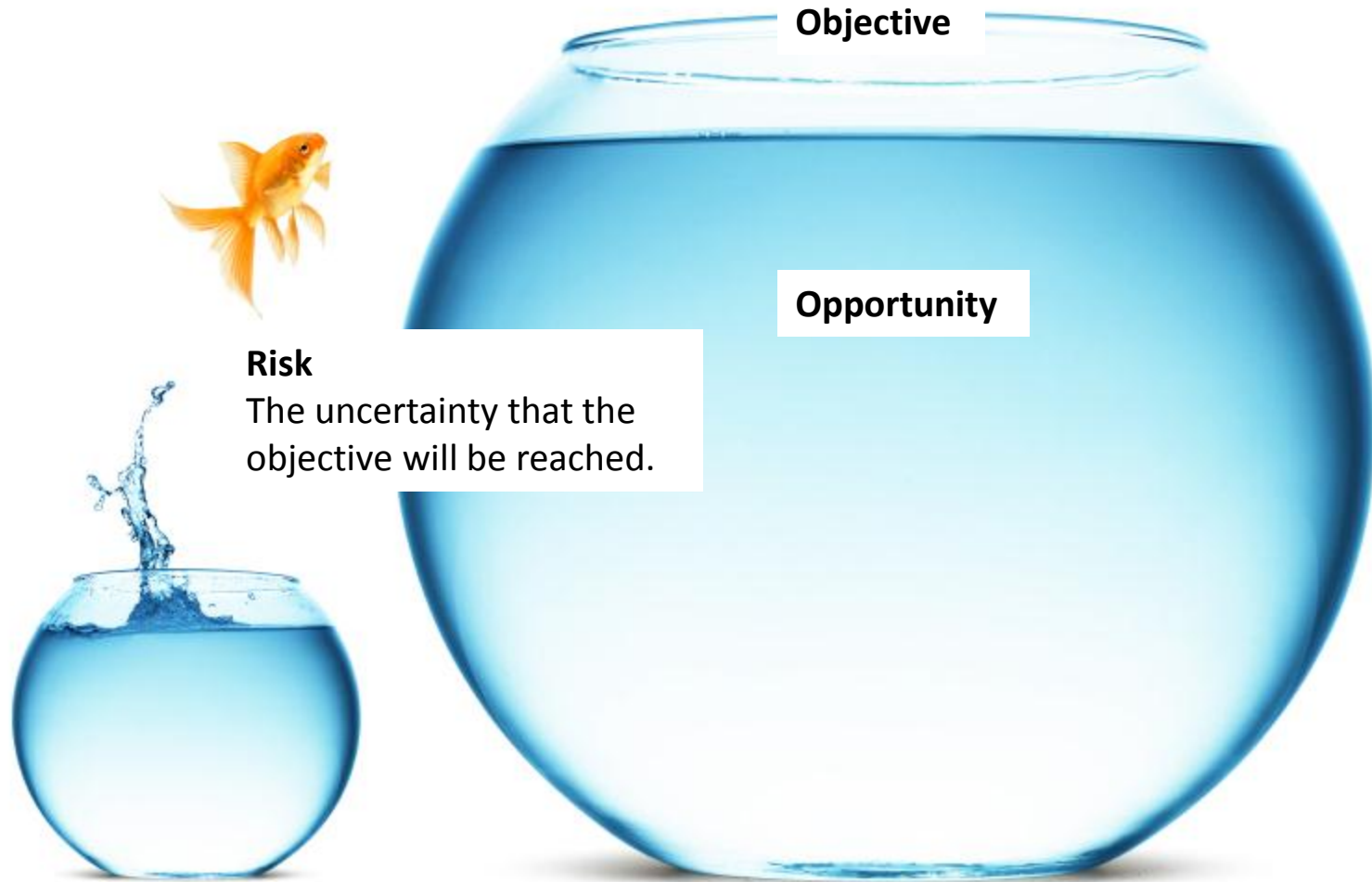
WE ALL HAVE **ACTIVITIES**. WITHIN THOSE ACTIVITIES WE HAVE **OBJECTIVES**.

IF WE ARE **CERTAIN** TO ACHIEVE OUR OBJECTIVE THEN THERE IS **NO RISK**.

IF WE ARE **UNCERTAIN** THEN THERE IS A **RISK**.

RISK IS THE EFFECT OF **UNCERTAINTY ON OBJECTIVES** (ISO 31000)

RISK Management – Risks & Opportunity



RISK Management – Risk Process – Identification of Risks

RISK IDENTIFICATION

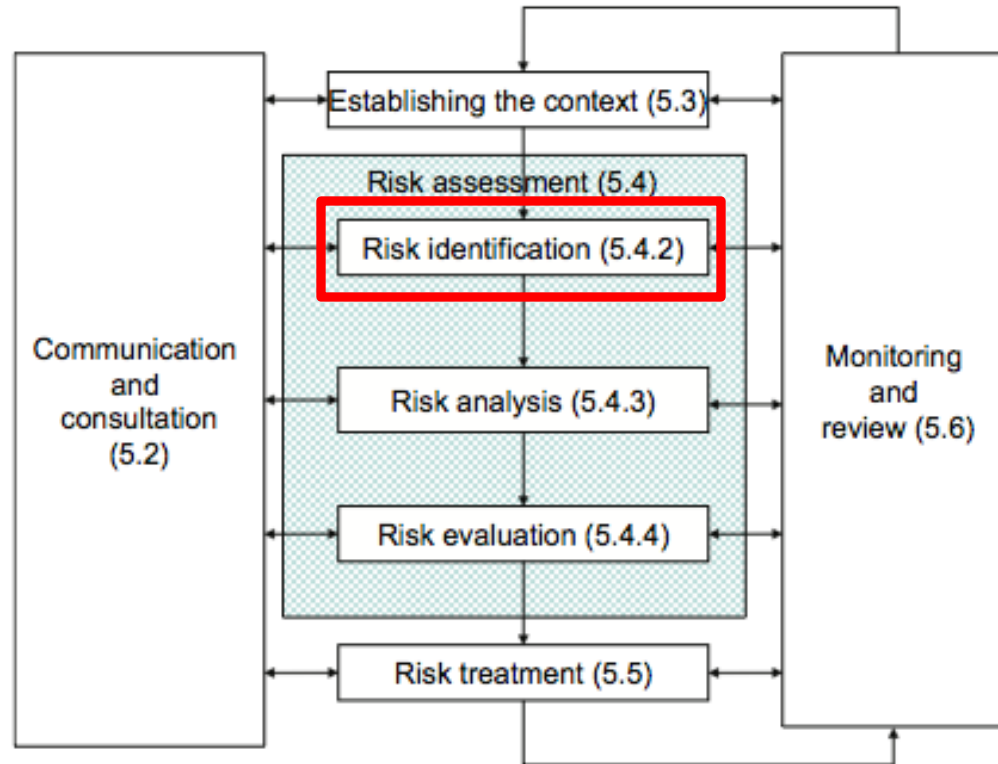
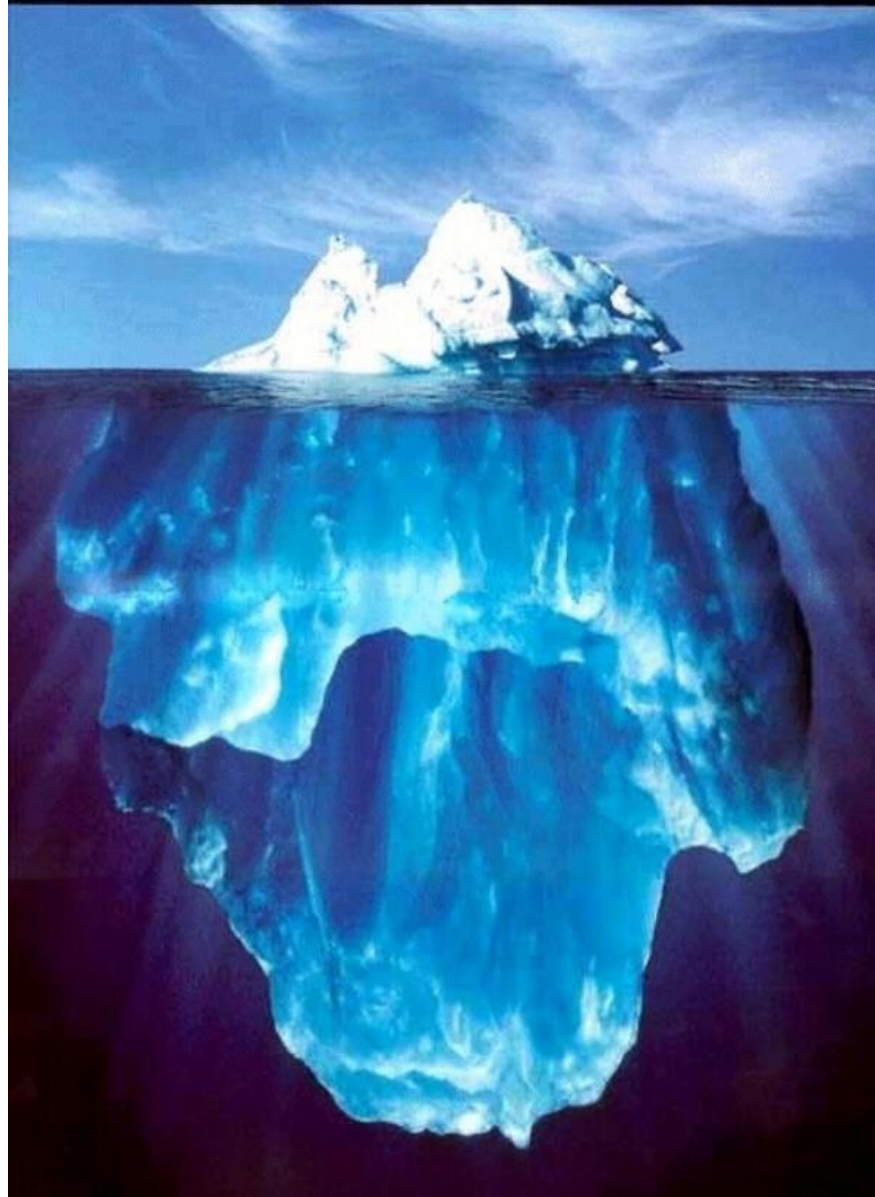


Figure 3 — Risk management process

RISK Management – Risk Process – Identification of Risks



How do you know if you have identified ALL the risks ?

Sources of risk

Areas of Impact

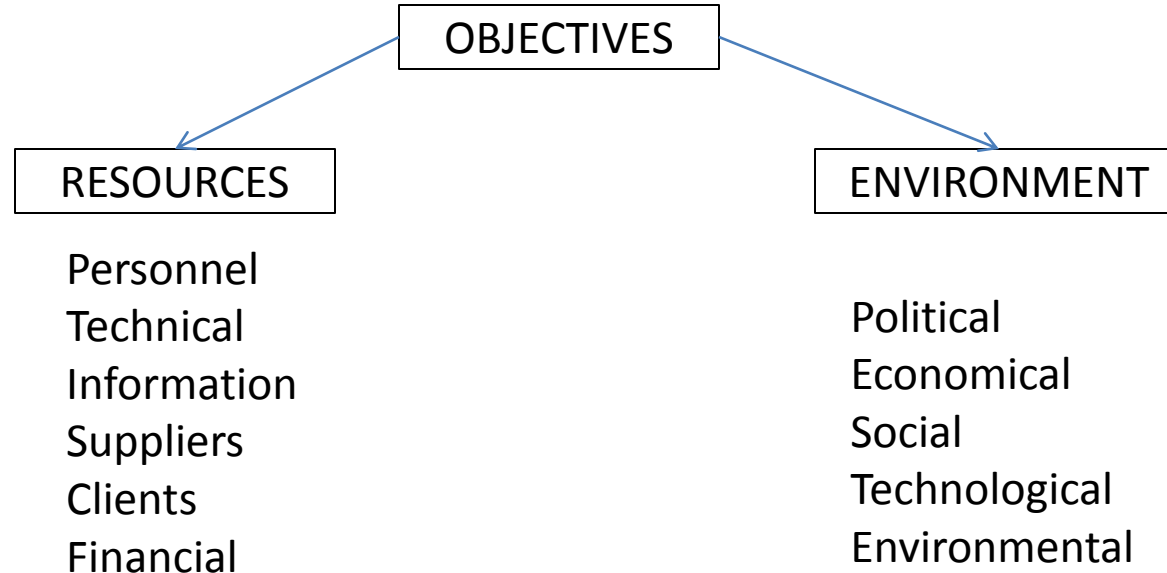
RISK Management – Risk Process – Identification of Risks

HOW TO IDENTIFY RISKS ? Through ACTIVITIES and OBJECTIVES.

INDIVIDUAL ASSESSMENT (Questionnaire, Interview, Own assessment.....)

GROUP ASSESSMENT

- NEED AN ANIMATOR (external is good)
- BRAINSTORM.



Look for the SOURCES of risk and the areas of IMPACT.

Categories of risk IMPACT/ CONSEQUENCE

MANAGEMENT

OPERATIONS

REPUTATION

FINANCIAL

SAFETY

RISK Management – Risk Process – Identification of Risks

Risk Management: An International Journal 2005, 7 (4), 53–66

Table 4. Consolidated list of tools and techniques for risk identification

Assumptions analysis	Examination of vulnerabilities and weaknesses	Prompt lists
Benchmarking	Expert opinion	Prototyping
Brainstorming	Fault tree analysis	Questionnaires
Cause and effect diagrams (Ishikawa or fishbone diagrams)	Flow charts	Risk assessment workshops
Checklists	Hazard and operability studies (HAZOP)	Root cause analysis
Constraints analysis	Historical data	Scenario analysis
Delphi technique	Incident investigation	Stakeholder analysis
Diagramming techniques	Influence diagrams	Structured interviews
Documentation reviews	Interviewing	SWOT analysis (strengths, weaknesses, opportunities, threats)
Evaluation of other projects	Lessons learned	System engineering techniques
Event tree analysis	Nominal group technique	Systems analysis
Examination of past risk experience in similar organisations	Peer review	Taxonomies
Examination of past risk experience in the organisation	Personal observation	Technology readiness levels
	Previous experience	Testing and modelling
	Project monitoring	

RISK Management – Risk Process – Analysis

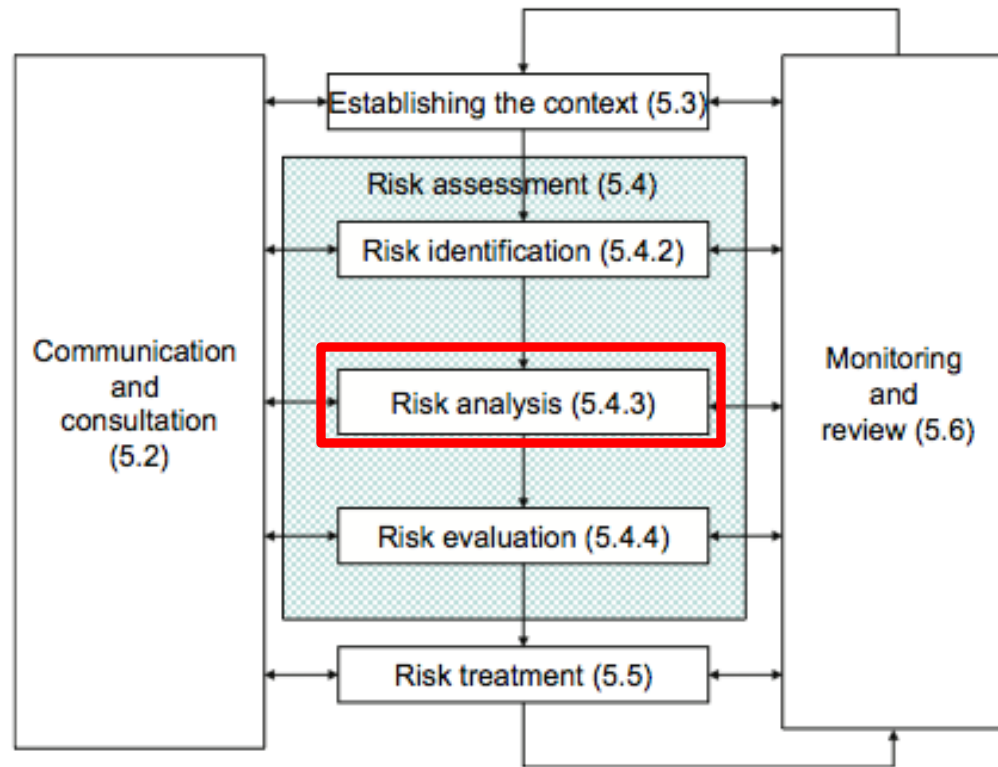
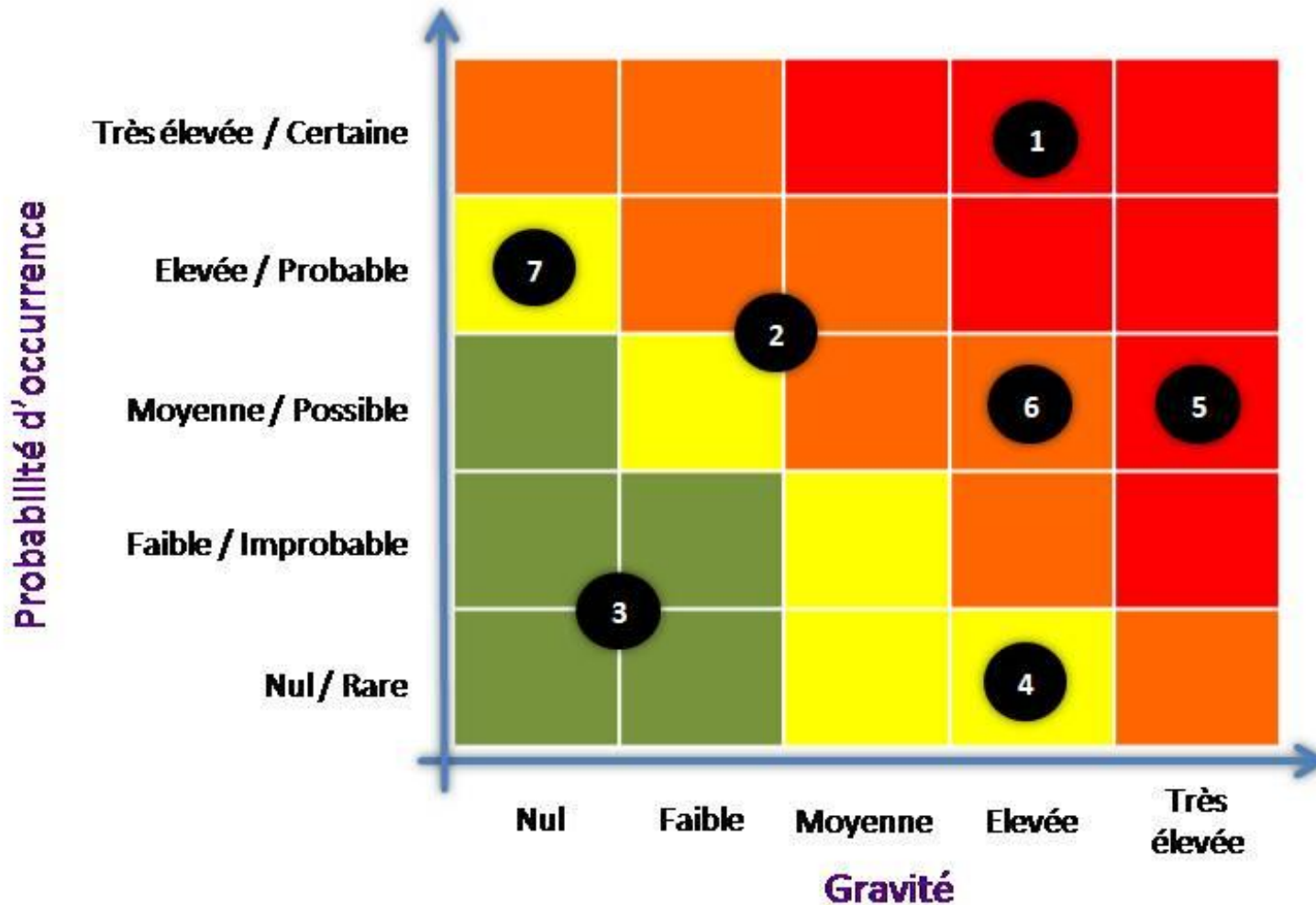


Figure 3 — Risk management process

RISK Management – Risk Process – Analysis

Probability and Impact (Consequences) are considered for each risk.



RISK Management – Risk Process – Analysis of Risks

Likelihood	Near Certainty	5	10	15	20	25
	Highly Likely	4	8	12	16	20
	Likely	3	6	9	12	15
	Low Likelihood	2	4	5	8	10
	Extremely Improbable	1	2	3	4	6
		Minimal	Minor	Major	Serious	Catastrophic
		Severity / Impact				

Risk Value Legend

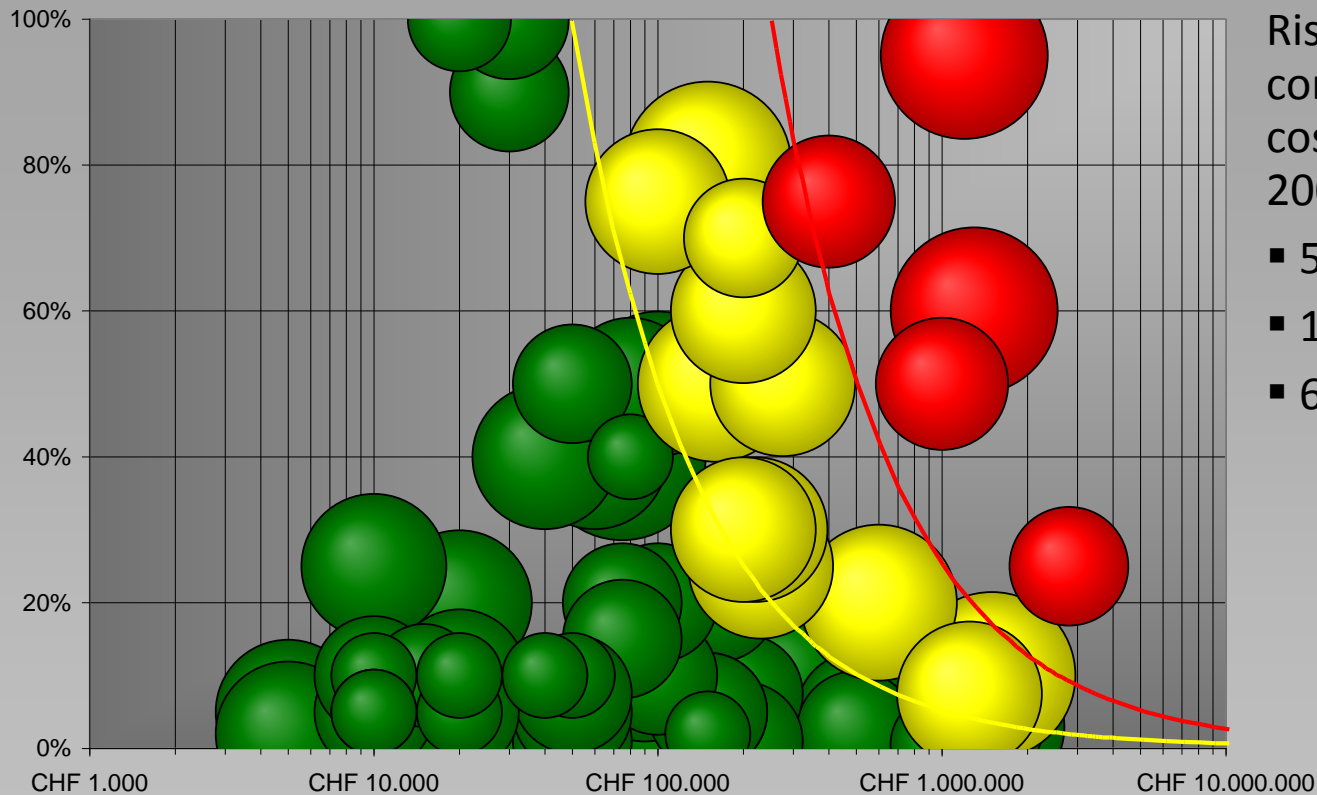
Low: ≤ 5 – Green

Med: $>5, \leq 12$ – Yellow

High: > 12 – Red

Recent CERN project **example** - Cost Risks

Overview – **Before** Mitigations (Treatment/Response)



Risks of **budget overrun** compared to overall project cost estimate (baseline 2009):

- 5 high risks
- 12 medium risks
- 63 low risks

RISK Management – Risk Process – Evaluation & Treatment

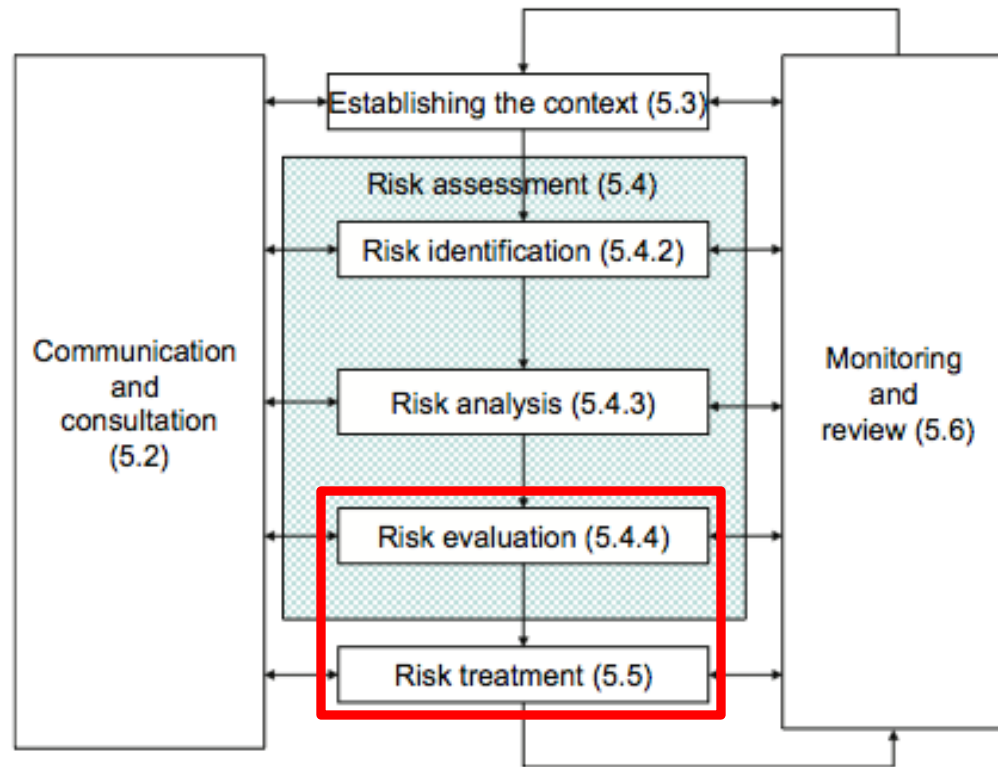


Figure 3 — Risk management process

RISK Management – Risk Process – Evaluation & Treatment

LOW
RISK



The risk
can be
accepted
as such!

MEDIUM
RISK



Measures
can
be taken
to lower
the risk.

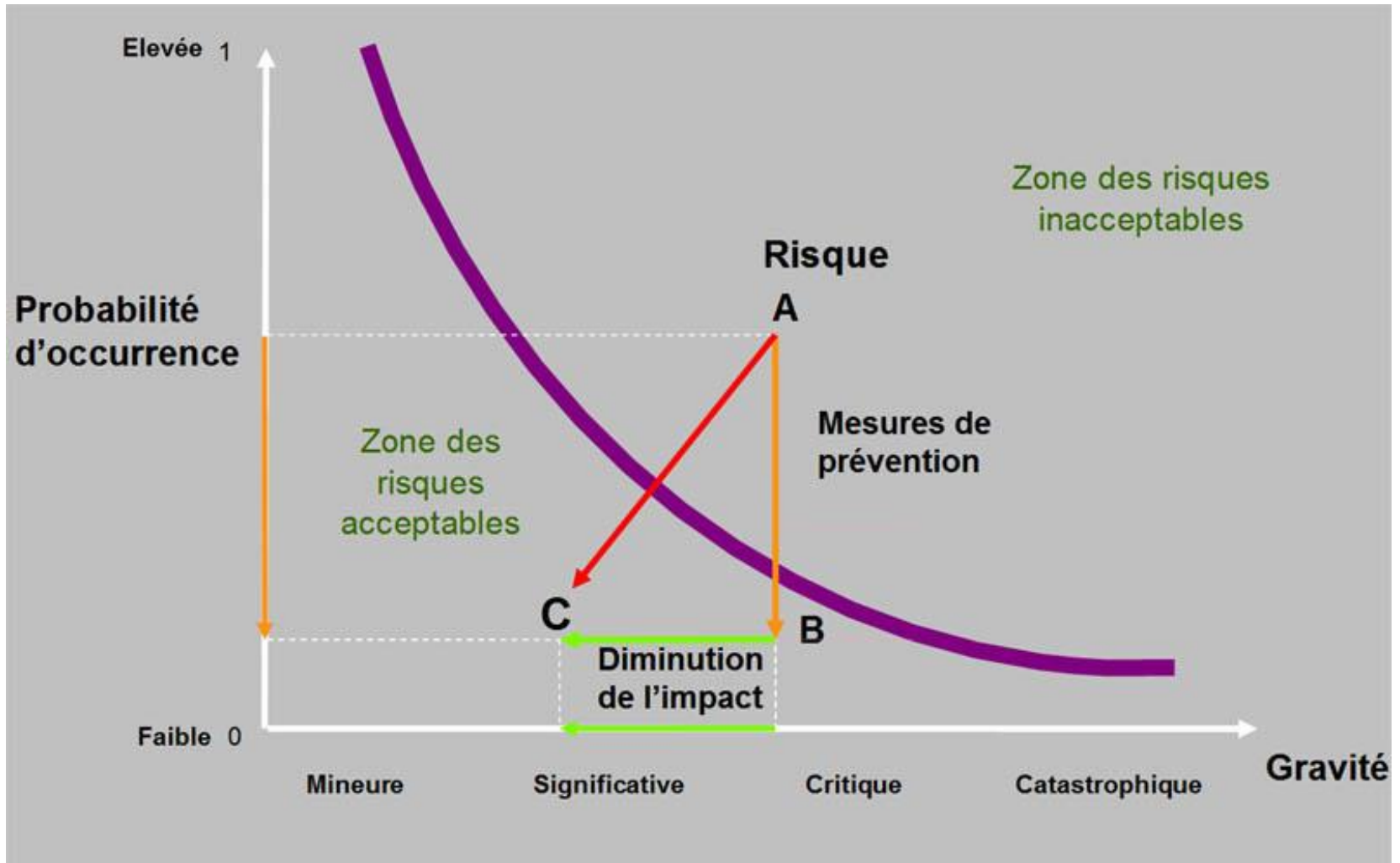
HIGH
RISK



Measures
must
be taken
to lower
the risk.

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RISK Management - EVALUATION and TREATMENT OF RISKS



Use can be made of the risk matrix to:

- **PRIORITIZE** the risk treatments
- **RESIDUAL** risks that are left after treatment.

RISK Management – Risk Process – **Treatment**



➤ ACCEPT

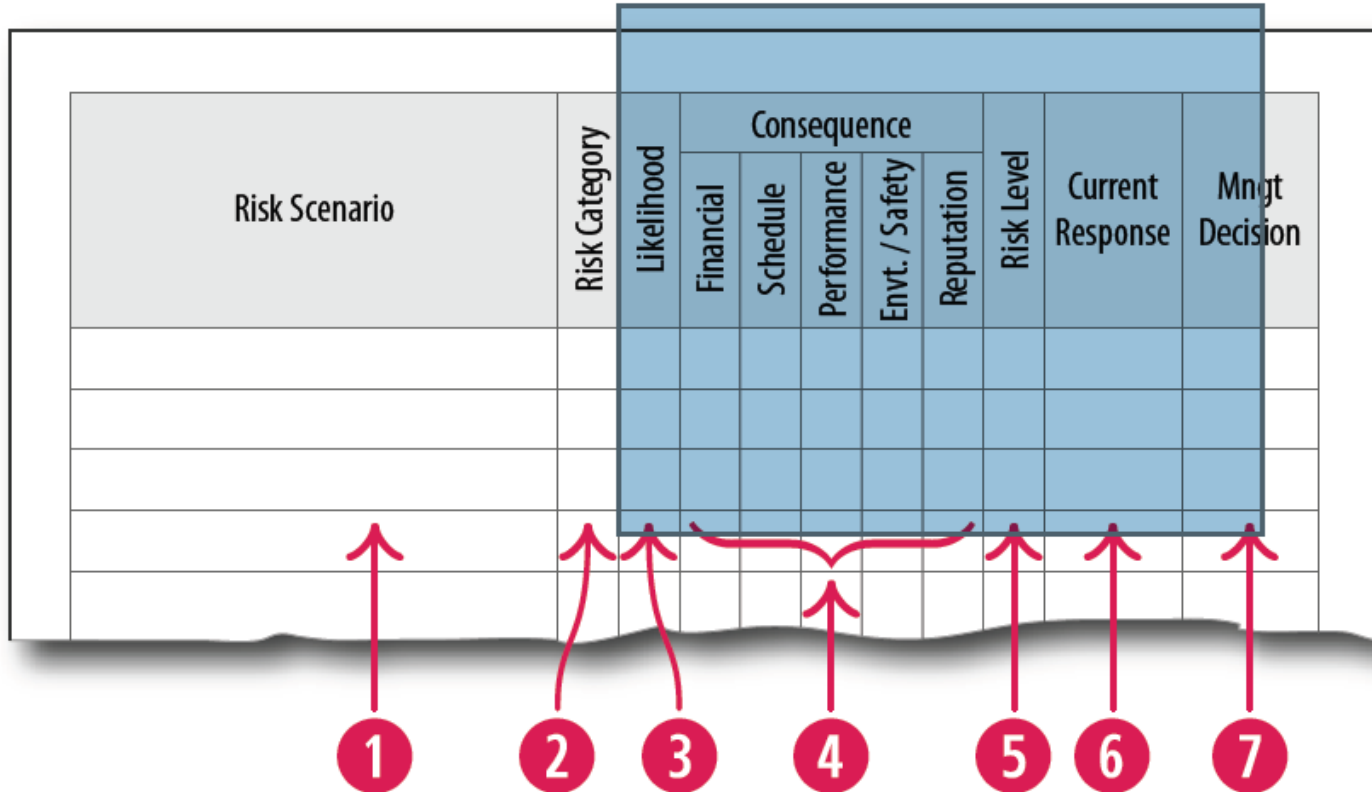
➤ AVOID

➤ REDUCE THE PROBABILITY

➤ REDUCE THE IMPACT

➤ TRANSFER

Risk Register.



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RISK Management – Risk Process – Communication (Risk Registers, reporting, managing)



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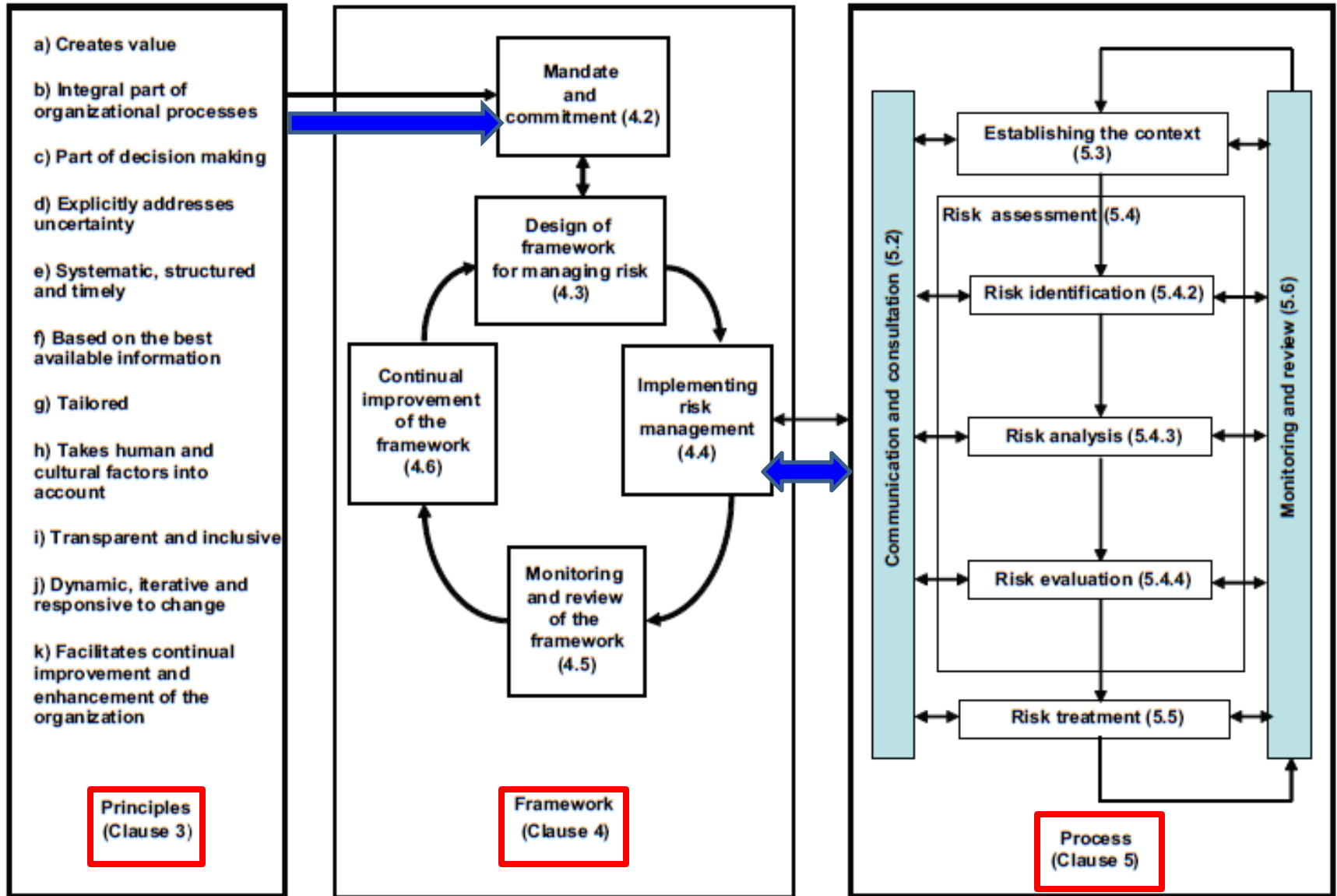
Risks should be reported and communicated. Need to consider TRANSPARENCY and DISCRETION at The appropriate levels.

MONITORING and MANAGING. This should be a repetitive process and NOT a one off exercise that is Not followed up.

The risk treatments need to be checked to see what progress is being made. The exercise should be REPEATED and IMPROVED upon regularly.

RISK Management – The bigger picture (Extract from ISO 31000)

Figure 1 — Relationships between the risk management principles, framework and process



Risk Management – WHY?

- Provides **Risk Informed decision** making at ALL levels
- Consideration of **resource needs** and **priorities** when key decisions are made
- Demonstrates a **responsible attitude** and **shows accountability**
- Makes for a more **resilient** activity/project/organization