



# RISK MANAGEMENT

Corporate Governance

**RiskMANAGEMENT**



# Project Risk Management

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- ❑ Risk management includes the processes concerned with the identifying, analyzing and responding to project risk.
- ❑ It includes maximizing the results of positive events and minimizing the consequence of adverse events.

# Major Processes

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- RISK IDENTIFICATION - determine which risks are likely to affect the project and documenting the characteristics of each.
- RISK QUANTIFICATION - evaluating risk and risk interaction to assess the range of possible project outcome.
- RISK RESPONSE DEVELOPMENT - defining enhancement steps for opportunities and response to threats.
- RISK RESPONSE CONTROL - responding to changes in risk over the course of the project.

RISK



# RISK

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## ❖ RISK RISING CONDITIONS

- Lack of Limited Knowledge.
- Lack of experience or Information.
- Uncertainty about the future.
- Changes in relationships between parties involved in partnerships.

## □ CHANGES IN RELATIONSHIPS BETWEEN PARTIES INVOLVED IN PARTNERSHIPS

- Current reforms in the supply.
- Ownership.
- Operations and Maintenance of Assets for public purposes.
- Contracting and Private Sector Participation initiatives.

# WHAT DOES RISK MANAGEMENT PROVIDE

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## ❖ RISK MANAGEMENT PROVIDES

- ❖ A structured way of providing and analyzing potential Risk.
- ❖ Devising and implementing responses appropriate to their impact.

## ❖ RESPONSES GENERALLY DRAW ON

- ❖ Strategies of risk prevention
- ❖ Risk transfer
- ❖ Impact mitigation or risk acceptance.

# RISK ANALYSIS IS A PART OF RISK MANAGEMENT

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❖ Risk Management addresses the question

❖ “What might go wrong as compared with expectations”

❖ While Risk Management, as well as asking this question, seeks to resolve

❖ “What should be done about this.”

# How do Risk Management Processes Assist

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## ❖ RISK MANAGEMENT PROCESS

- ❖ Assist planners to systematically identify risk
- ❖ Develop measures to assess them and their consequences

## ❖ AIM

- ❖ Produce more reliable planning.
- ❖ Greater certainty about financial and management outcomes.
- ❖ Improved decision making.



# Terminology

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## ❖ RISK

- ❖ The possibility that an outcome is not achieved or is replaced by another, or that an unforeseen event occurs.
- ❖ This broad view of risk includes both uncertainty due to future events and the consequences of limited knowledge, information or experience.
- ❖ It measures in terms of consequences and likelihoods.

# Terminology

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## ❖ RISK EXPOSURE

- ❖ Arises from the possibility of economic, financial or social loss or gain, physical damage or injury ,or delay.
- ❖ The significance of risk is the impact they may have on the achievement of proposal objectives, delivery goals or management effectiveness.

## ❖ RISK CONSEQUENCES

- ❖ The impacts on desired outcomes from the risk event occurring. The concern focuses on loss as although windfalls may result they do not create a liability or cost.
- ❖ These consequences create the need for management attention.

# Terminology

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## ❖ RISK ANALYSIS

- ❖ The process of identifying risks, estimating their likelihoods and evaluating potential consequences.

## ❖ RISK MANAGEMENT

- ❖ The set of activities concerned with identifying potential risks, analyzing their consequences and devising and implementing responses to ensure that proposal or project objectives and delivery goals are achieved.

# RISK MANAGEMENT PROCESS



# RISK MANAGEMENT PROCESS

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- The objective of Risk Management is to identify and analyse risks and manage their consequences. Risk Management involves several key steps that have general application and can be applied at various stages of the asset cycle



# MAIN OUTPUT

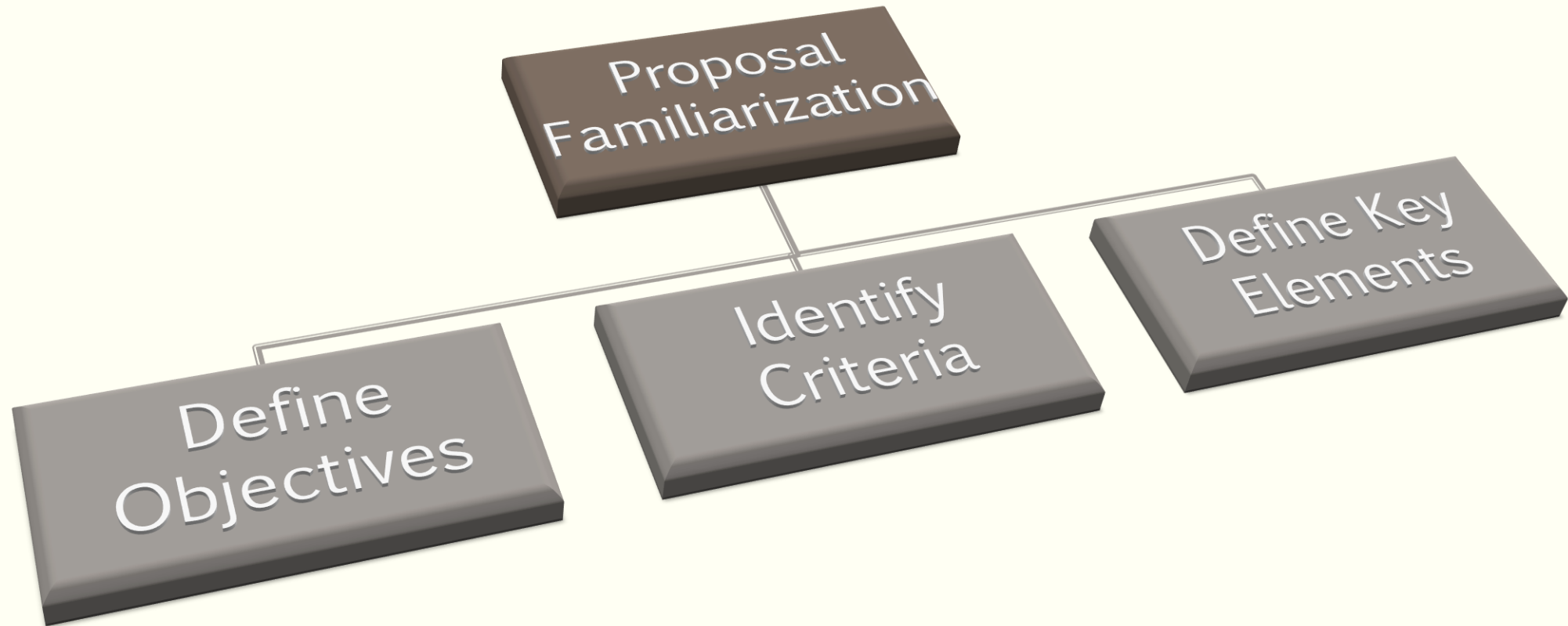
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- The main output from the process
- Definition of action schedules
- Management measures
- Assignment of responsibility for implementation
- For designated undertaking
  - The risk management plan summarizes the risk analysis process
  - Documents in detail
  - Action strategies for managing individual risk
  - Monitoring and evaluating implementation is essential.

# PROPOSAL FAMILIARIZATION

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# PROPOSAL FAMILIARIZATION

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## ▪ PREPARATORY STEP

- Gain familiarity with the proposed project or activity
- Identify key parameters and assumption
- Familiarization can be seen to comprise three activities:
  - Define Objectives
  - Identify Criteria
  - Define Key elements



# DEFINE OBJECTIVES

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- This involves the risk management group becoming familiar with:
  - The nature and scope of the proposal, its key objectives.
  - The relationship between these and the agency's objectives and strategies.

This step links risk management into the agency's main strategic plans, including :

- Its services
- Capital investment
- Asset maintenance
- Disposal strategies
- Agency's procurement
- Operating, maintenance and disposal procedure.

# IDENTIFY CRITERIA

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- The assessment criteria for a proposal or project are concerned with how well its objectives will be met and how appropriate are these objectives.
- They will reflect the principal purposes of the proposal and its means of execution and assist in defining key elements.
- In the planning stages of the asset cycle, the criteria will reflect strategic concerns,
- while in the delivery, maintenance and disposal stages the criteria are likely to concern the efficient completion of procurement, cost control, service delivery, and quality.

# Define Key Elements

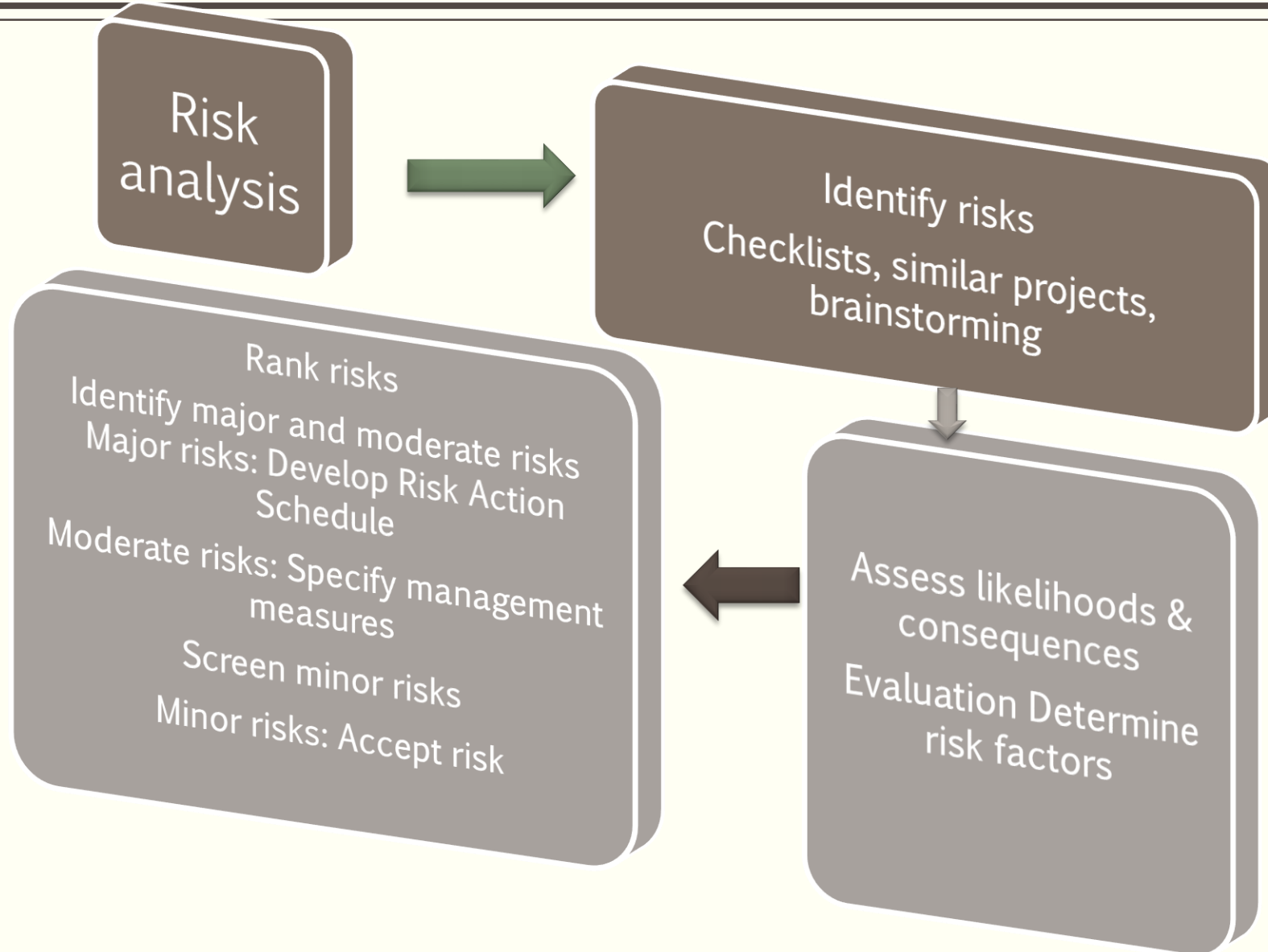
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- This involves separating the proposal or project into a set of base elements for structuring the analysis.
- The initial separation is usually into the major items or activities, but the detailed structure depends on the nature of the associated risks.
- A broad view of the asset or activity at this stage is more appropriate than a detailed one to concentrate focus on the main issues and to establish a balanced framework for the analysis.

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- In practice, a range of 20 to 50 items or elements is commonly targeted.
  - The items should be distinct and meaningful, and cover the entire proposal scope or procurement and operational aspects.

# Risk Analysis

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What's the exposure?

What's the hazard?

What's the risk?

## IDENTIFY RISK

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- The analysis begins with listing the risks that might affect each key element of the project.
- The aim is to generate a comprehensive list of the relevant risks and document what each one involves.
- The analysis should include a description of the risk and how it might arise, possible initiating factors, the main assumptions and a list of the principal sources of information.

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- *There are several ways to identify risks:*
  - Risk checklists provide a useful starting point for some projects.
  - Agencies carrying out many similar projects can construct their own checklists based on their experience or project databases, or
  - Draw on information from specialist industry, research, insurance, or management expertise.



## IDENTIFY RISK

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- Examining similar current or previous projects, risk analyses or project evaluations.
- Brainstorming or work shopping may be valuable for projects involving new or unusual risks, innovative management arrangements or to develop initial checklists.
- Risk Management teams comprising multi-disciplinary backgrounds are well suited to this phase.

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- They can be supported by the many specialist techniques applicable to particular kinds of projects or risks.
  - For example, hazard analysis may be directed to specific safety issues or complex environmental applications, while failure modes analysis can be used for examining risks in technical systems

## Identify Risk – Main Risk Areas

Planning and proposal Stages	Project Procurement and management stages
Commercial	Construction and maintenance
Technological	Health and safety
Contractual	Human factors
Economical	Natural events
Environmental	Organisational
Financial	Systems
Political	

Table – Main Risk Areas

# ASSESS RISK LIKELIHOOD AND CONSEQUENCES

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- The second step of the analysis is to determine or estimate both the likelihood of a risk arising and its potential consequences.
  
- All available data sources should be used to understand the risks.
  
- These may include:
  - Historical Records;
  - Procurement Experience;
  - Industry Practice;
  - Relevant Published Literature;
  - Test Marketing And Market Research;
  - Experiments And Prototypes;
  - Expert And Technical judgment and independent evaluation.

# ASSESS RISK LIKELIHOOD AND CONSEQUENCES

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- The assessment involves:
- Estimating the likelihood of each risk arising.
- This might be done initially on a simple scale from ‘highly unlikely’ to ‘almost certain’, or using numerical assessments of probability might be made
- Estimating The Consequences Of Each Risk, In Terms Of The proposal/project criteria.

## DETERMINE SIGNIFICANT RISKS

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- The objective is to identify significant risks that must be managed, and to screen those minor risks that can be accepted and so excluded from further consideration.
- To compare risks a ranking mechanism is used.
- For straightforward risks, qualitative assessment estimates the likelihood and impact of each risk, and to set cut-off points for the determination of major, moderate or minor status.

# DETERMINE SIGNIFICANT RISKS

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- A more formal structured approach is recommended for more complex assessments.
- There are many suitable methods available, including the preparation of risk factors.
- Risk factors are a simple instrument for ranking risks and are based on scaling and then combining the likelihood of a risk and the severity of its impact.
- A risk factor will be high if the risk is likely to occur or its impacts large, and highest if both are present.

## DETERMINE SIGNIFICANT RISKS

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- A risk-ranking matrix (Figure) can provide a graphic presentation of risk classes and assist reporting.
- The risk ranking and risk factors provide a basis to set cut-off points to determine which risks may be discarded (minor) or identified as major and moderate risks.

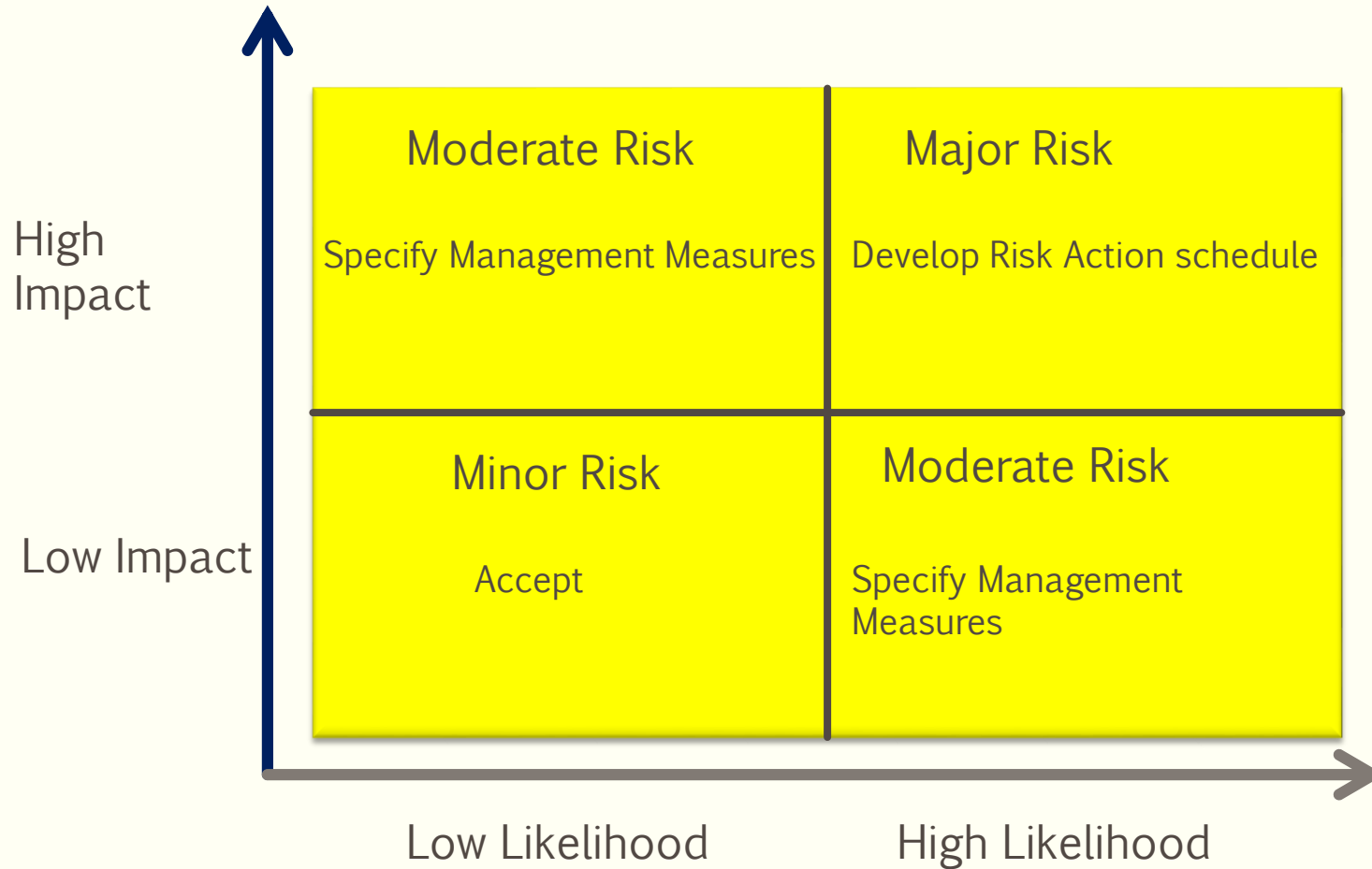


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- Minor risks can be accepted or ignored
  - Moderate risks are either likely to occur or to have large impacts but not both. Management measures should be specified for all moderate risks
  - Major risks are those risks with both a high likelihood of arising and a large impact. These risks will require close management attention, and the preparation of a formal risk action schedule

# Risk Ranking Matrix

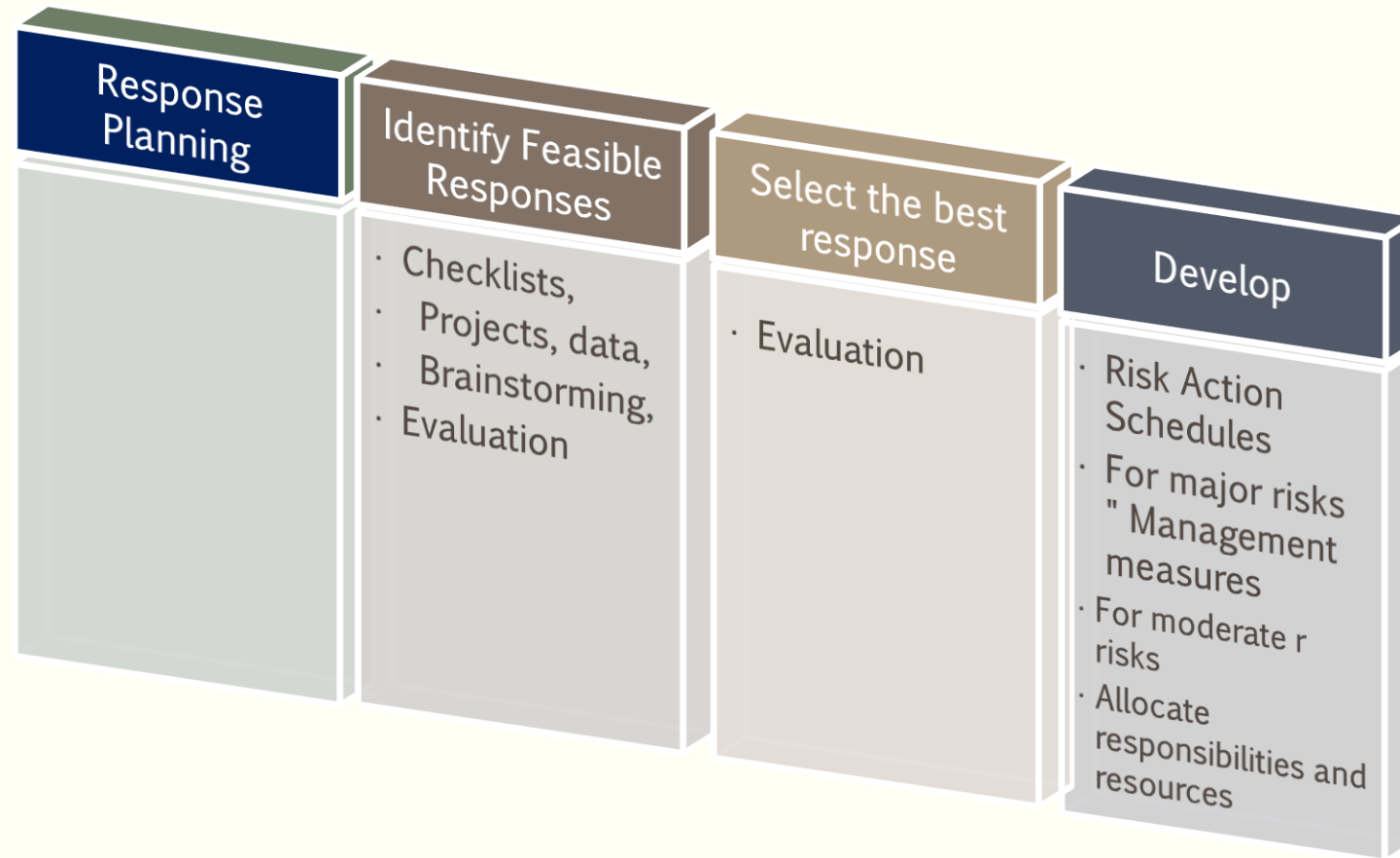
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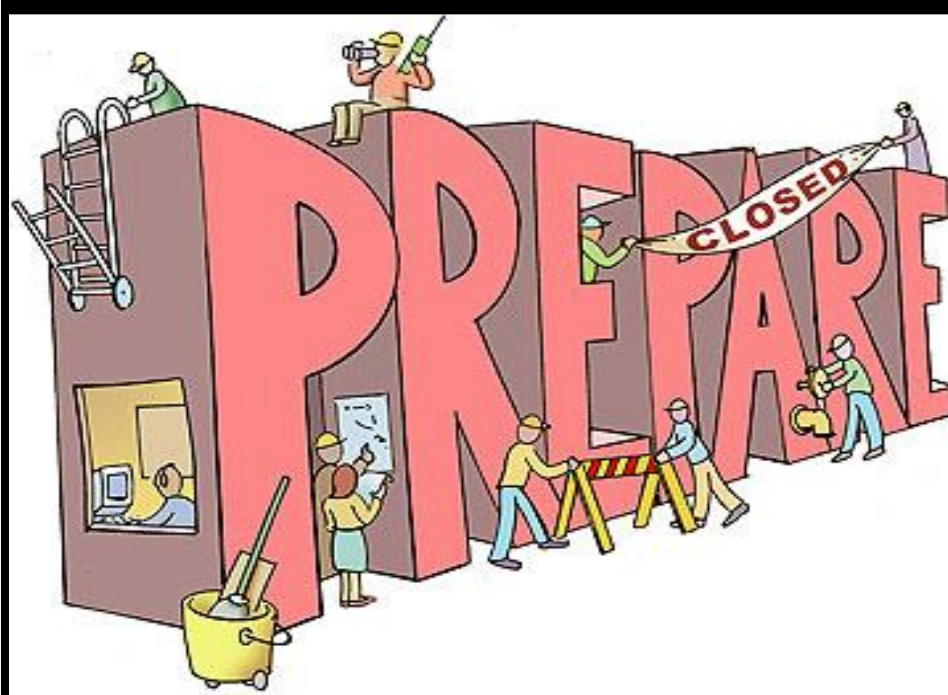
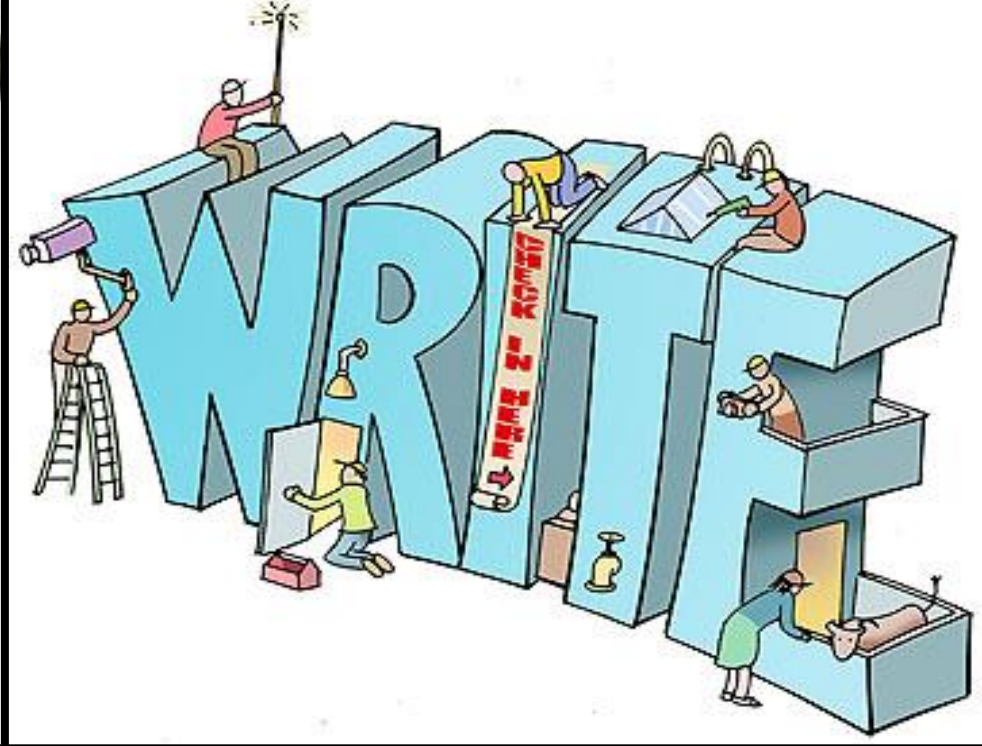
▪ Figure



# Risk Response Planning

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# Risk Response Planning

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- Identify feasible responses
  
- There are four broad strategies for dealing with risks and their consequences
  1. Risk prevention
  2. Impact mitigation
  3. Risk transfer
  4. Risk acceptance

# Risk Response Planning

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- RISK PREVENTION
- Risk prevention is directed to eliminating sources of risk or substantially reducing the likelihood of loss from their occurrence.
- Examples include the selection of alternative proposals, design and engineering changes,
- quality assurance procedures,
- asset utilisation studies,
- operations reviews,
- regular audits and checks and preventive maintenance.

# Risk Response Planning

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- IMPACT MITIGATION
- Impact mitigation is directed to minimising the consequences of risks.
- Some risks, such as those associated with market variations or weather, cannot be avoided.
- Risk Management must then be directed to coping with their impacts.

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- Impact mitigation measures include contingency planning,
  - contract terms and conditions,
  - Inspections and checks to detect technical compliance or security breaches,
  - And recovery programs



# Risk Response Planning

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## ▪ RISK TRANSFER

- Risk transfer shifts responsibility for a risk from the agency to another party, who ultimately bears the consequences if the risk arises.
- The agency will normally incur a cost for the other party assuming the risk.
- Insurance is a well-known risk transfer strategy for physical and other assets and activities and for a limited range of commercial risks. .

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- In procurement, contracts and agreed procedures entered into between an agency and its contractors or suppliers are the primary means of allocating risk between the parties involved
  - The specific terms of a contract also provide a means of transferring risk.
  - The aim is to place or neutralise significant sources of risk via contractual measures between the agency, the prime contractor and insurance providers.

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# Risk Response Planning

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- RISK ACCEPTANCE
- Risk acceptance occurs when risks cannot be avoided or transferred, or the costs of doing so would not be worthwhile.
- Risks must then be accepted.
- Impact mitigation measures and monitoring may be appropriate and should be recommended in these circumstances.

# REPORTING

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# Reporting

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- Formal reporting is an important phase of the Risk Management process, particularly given what may be long project lead times, complex procurements and lengthy operational life cycles.
- For formal reporting of designated or major undertakings, a Risk Management Plan summarises the results of the Risk Management process, action strategies and implementation framework.

# Reporting

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- In particular, it describes the Risk Management measures and action schedules to be implemented to reduce and control risks.
- The Plan includes provision for implementation and ongoing reporting.
- For projects that are not designated, collation and summary of action schedules and management measures provides an adequate basis for reporting.

# Risk Management Implementation

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# Risk Management Implementation

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- The most important task in Risk Management is implementing the action schedules and management measures and allocating management resources.
- This should be followed by monitoring the effectiveness of these measures over time.
- Planning for implementation requires particular attention to resources required, management responsibilities and timing of tasks.

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- Monitoring of risks and Risk Management effectiveness should be a routine and recognized activity.
  - The frequency of monitoring, and the responsibility for it, should be specified in either the Risk Management Plan or summary documentation.



# CHECKLIST



# CHECKLIST FOR RISK MANAGEMENT

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## ✓ Stage 1 Initiation

- Assemble Risk Management resources
- Appoint the team leader and ensure a breadth of skills/experience within the team
- Assign Risk Management responsibilities appropriate to task

## ✓ Stage 2 Proposal Familiarization

- Specify objectives and criteria
- Familiarise the team with the proposal, assemble documentation and define the key objectives
- Assess the proposal in relation to the Agency's objectives and strategies
- Determine assessment criteria for proposal
- Define key elements (target 20-50 elements, items or activities) to structure risk analysis

# CHECKLIST FOR RISK MANAGEMENT

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## ✓ Stage 3      Risk Analysis

- Identify risks
  - Prepare a comprehensive schedule of risks for each element
  - Describe each risk and list the main assumptions
  
- Assess risk likelihoods and consequences
  - Assemble data on risk and their consequences
  - Assess risk likelihoods
  - Assess risk impacts
  
- Identify significant risks
  - Rank risks to reflect impacts and likelihoods
  - Where applicable, estimate risk factors
  - Discard/accept minor risks
  - Identify moderate risks for management measures
  
- Identify major risks for detailed risk action planning

# CHECKLIST FOR RISK MANAGEMENT

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## ✓ Stage 4      Risk Response Planning

### Identify feasible responses

- For each moderate and major risk, identify the feasible responses

- Responses may include:

- a) risk prevention

- b) · impact mitigation

- c) · risk transfer and insurance

- d) · risk acceptance

### Describe each feasible response and list main assumptions

### Select the best response

- Evaluate the benefits and costs for each response

- Select the preferred response

# CHECKLIST FOR RISK MANAGEMENT

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- Develop management measures and action schedules
  - Specify Risk Management measures for moderate risks
  - Develop risk action schedules for major risks
    - a) Actions required (what is to be done?)
    - b) Resources (what and who?)
    - c) Responsibilities (who?)
    - d) Timing (when?)

## ✓ Stage 5      Reporting

- For designated proposals, produce the Risk Management Plan
- For other projects, collate and summarize risk action schedules and measures



# CHECKLIST FOR RISK MANAGEMENT

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## ✓ Stage 6      Risk management Implementation

- Implement measures and action strategies
- Monitor the implementation
  - a) Assign responsibilities
  - b) Timing
- Undertake periodic review and performance evaluation

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End of Session