PROJECT RISK MANAGEMENT

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RISK MANAGEMENT

"…the process involved with identifying, analyzing, and responding to risk. Risk is part of every project we undertake and the objective is always that to maximise the results of positive risk whilst minimising the impact and consequences of negative events"

CHANGING BUSINESS ENVIRONMENT

Funding the digital agenda, managing risk and reducing costs are possibly today's true pain points for organisations and businesses.

Addressing the above three aspects effectively will essentially dictate the destiny of each organisation.

Organisations need to ensure that projects and offerings are sensitive to the developments and risks brought about by the new digital age.

Historical data shows that 89% of companies forming part of the Fortune500 list in 1955 no longer exist.

CHANGING BUSINESS RISKS

Source: IDC
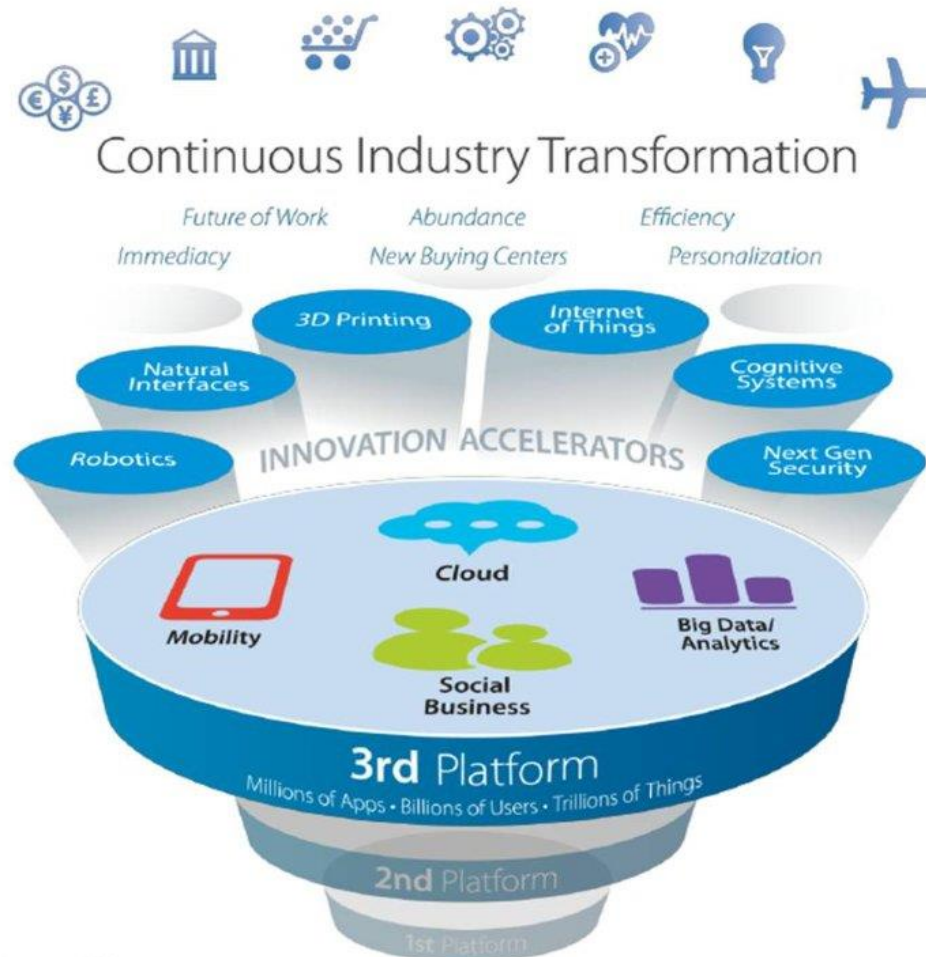
Continuous business transformation and increased adoption of the 3rd platform is rapidly shifting and changing the way projects originate and are implemented. Going forward an effective risk management approach needs to continuously adjust itself to meet the constantly changing business risk.

WHY DO WE MANAGE RISK?

Project setbacks can be reduced substantially by embracing the correct risk methodology as an integral part of project planning. Recent history has indicated that planning and controlling project risk is critical to secure high-quality project outcomes in today's fast-paced environment.

Some positives include:

- Broader info available during the planning phase

- Improved probability of project success in meeting the intended scope

Perceived negatives include:

- Belief that all risks are accounted for and controlled

- Project cut short due to risk level (negative from a project promoter perspective)
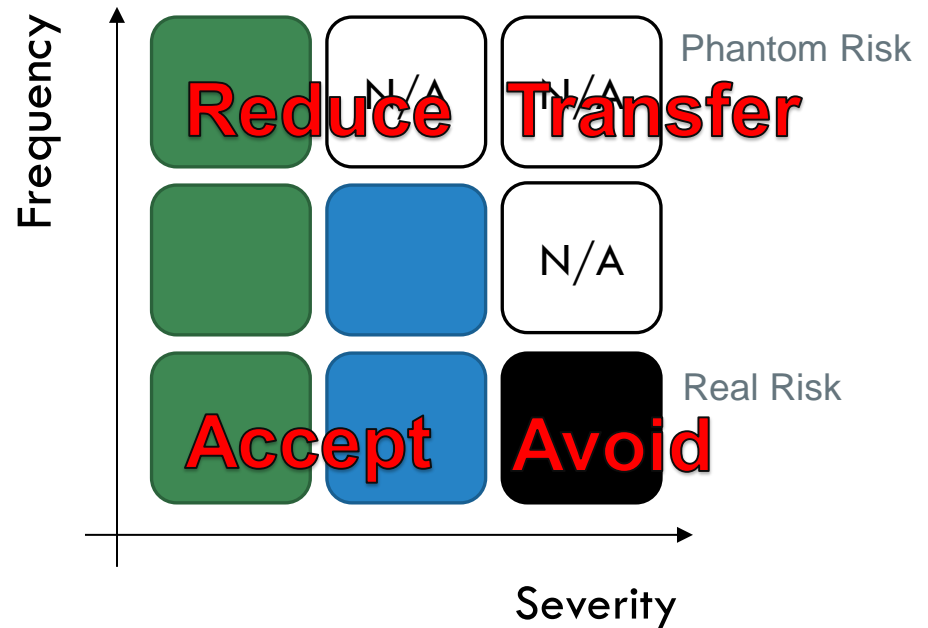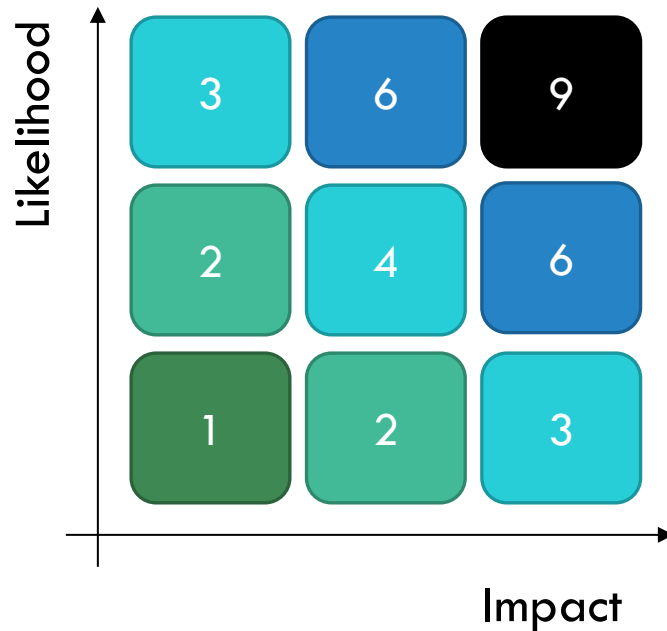
RECENT EVOLUTION OF RISK MANAGEMENT

Customary Approach → More Agile Approach

KEY RISK-RELATED TERMS

Risk Factors

- *Probability* of occurrence
- *Range* of possible outcomes (impact and stake)
- Expected *timing* of event
- Anticipated *frequency* of risk events

Risk Severity - Level of criticality

Risk Tolerance - The amount of acceptable risk

Scope baseline - Approved project scope used during scope change management to prevent scope creep

Risk Adverse - Conservative and unwilling to take risks

ISO 31000

ISO 31000 applies to existing legacy management practices to formalise and improve risk management processes. On implementing ISO 31000, attention is to be given to integrating existing risk management processes in the new paradigm addressed in the standard.

The main focus of ISO 31000 is harmonisation of programmes aiming at:

- Transferring accountability gaps in the context of enterprise risk management

- Aligning objectives of the governance framework (as part of the standard)

- Embedding management system reporting mechanisms

- Creating standardisation of risk criteria and evaluation metrics

KEY ISO PRINCIPLES

Main ISO principles identified as part of risk management as an ongoing process include:

- being a **systematic** and **structured** process

- being **dynamic**, **iterative** and **responsive** to change

- being open to **continuous improvement** and enhancement

- being an integral part of organisational **decision making process**

- being based on the best **available** and **dependable** information

HOW DO WE MANAGE RISK?

Using the six risk management processes

- Plan Risk Management
- Identify Risks
- Perform Qualitative Risk Analysis
- Perform Quantitative Risk Analysis
- Plan Risk Responses
- Monitor and Control Risks

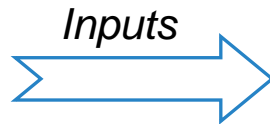| Plan Risk Management | Identify Risks | Perform Qualitative Risk Analysis | Perform Quantitative Risk Analysis | Plan Risk Responses | Monitor and Control Risks |

PLAN RISK MANAGEMENT

Project Scope
Statement

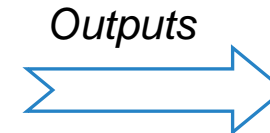Cost Management
Plan

Schedule
Management Plan

Enterprise
Environmental Factors

Organizational
Process Assets

Inputs →

Planning Meetings and
Analysis

Outputs →

Risk
Management
Plan

Tools & Techniques

| Plan Risk Management | → | Identify Risks | → | Perform Qualitative Risk Analysis | → | Perform Quantitative Risk Analysis | → | Plan Risk Responses | → | Monitor and Control Risks |

WHAT IS A RISK MANAGEMENT PLAN?

Methodology – Approach, tools, & data

Roles & Responsibilities

Budgeting – Resources to be put into risk management

Timing – When and how often to review

Risk Categories – Risk Breakdown Structure (RBS)

Definitions – Risk probabilities and impact

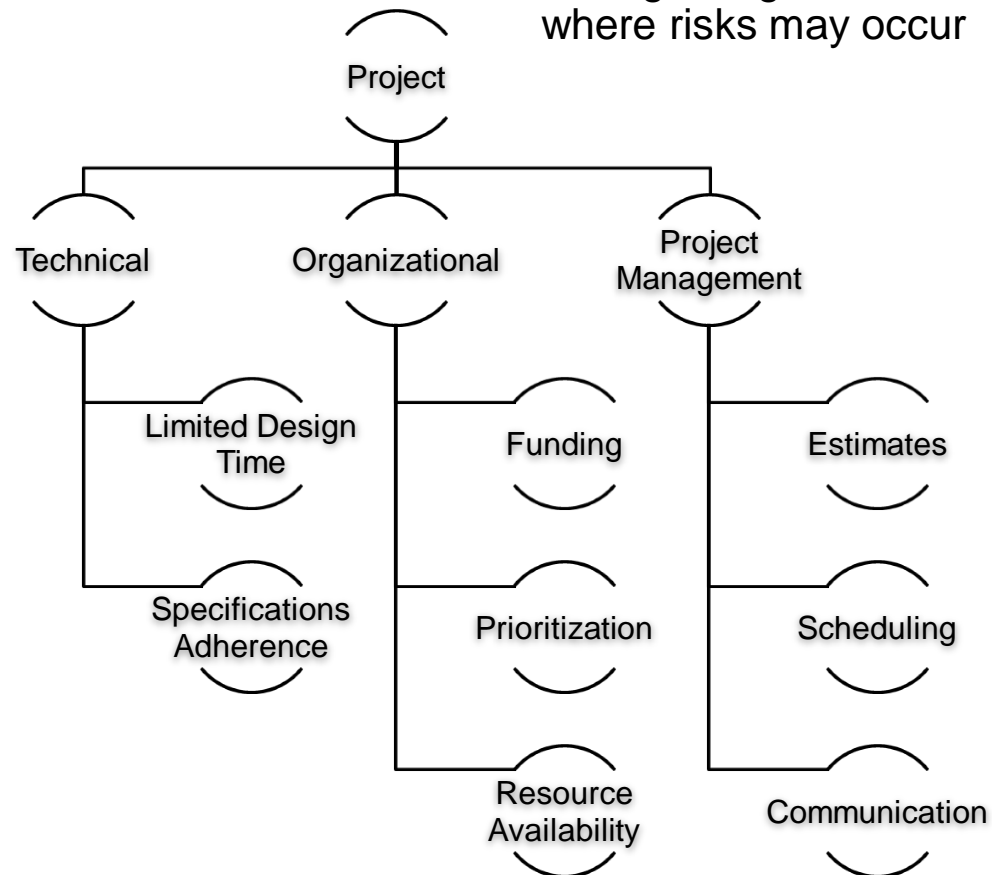Severity and Frequency Matrix

Stakeholder tolerances

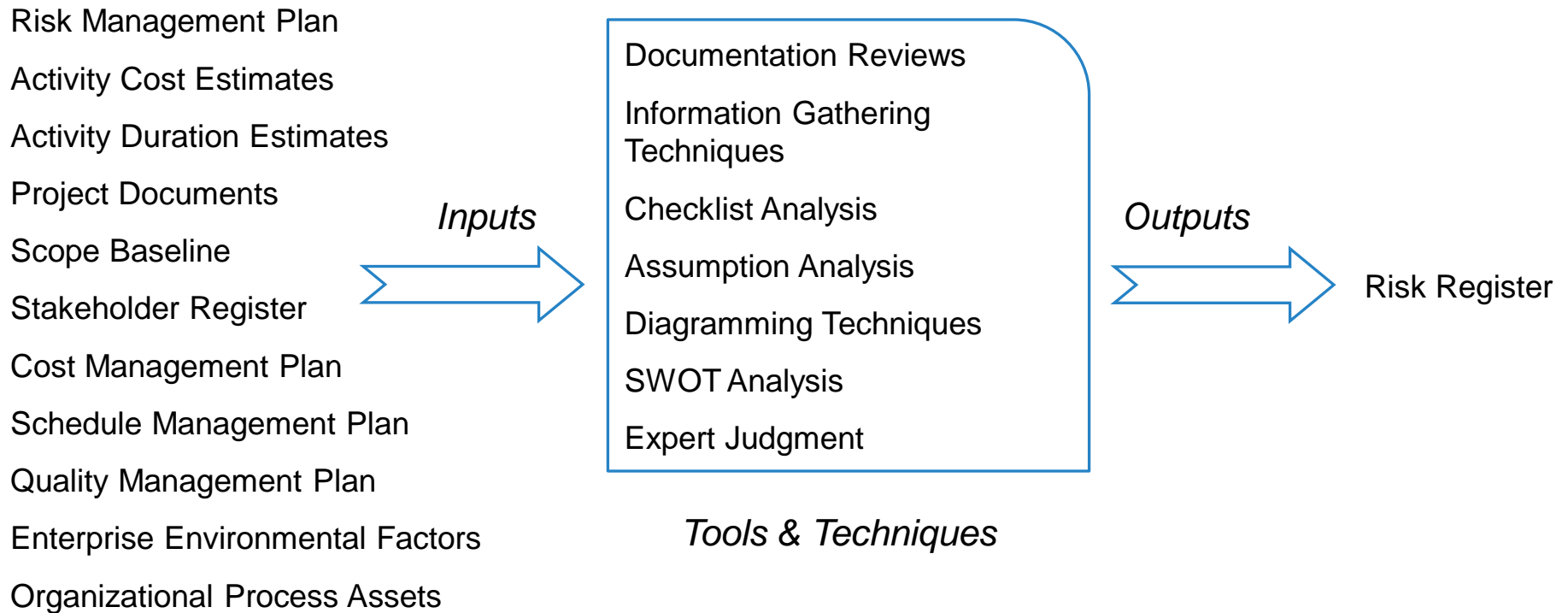Reporting formats

Establish tracking methods

RISK BREAKDOWN STRUCTURE

Listing categories and subcategories where risks may occur

IDENTIFY RISKS

Risk Management Plan

Activity Cost Estimates

Activity Duration Estimates

Project Documents

Scope Baseline

Stakeholder Register

Cost Management Plan

Schedule Management Plan

Quality Management Plan

Enterprise Environmental Factors

Organizational Process Assets

Inputs

Documentation Reviews

Information Gathering Techniques

Checklist Analysis

Assumption Analysis

Diagramming Techniques

SWOT Analysis

Expert Judgment

Tools & Techniques

Outputs

Risk Register

| Plan Risk Management | Identify Risks | Perform Qualitative Risk Analysis | Perform Quantitative Risk Analysis | Plan Risk Responses | Monitor and Control Risks |

TYPICAL INFORMATION GATHERING TECHNIQUES

Brainstorming

Delphi technique
- Successive anonymous questionnaires on project risks with responses summarized for further analysis
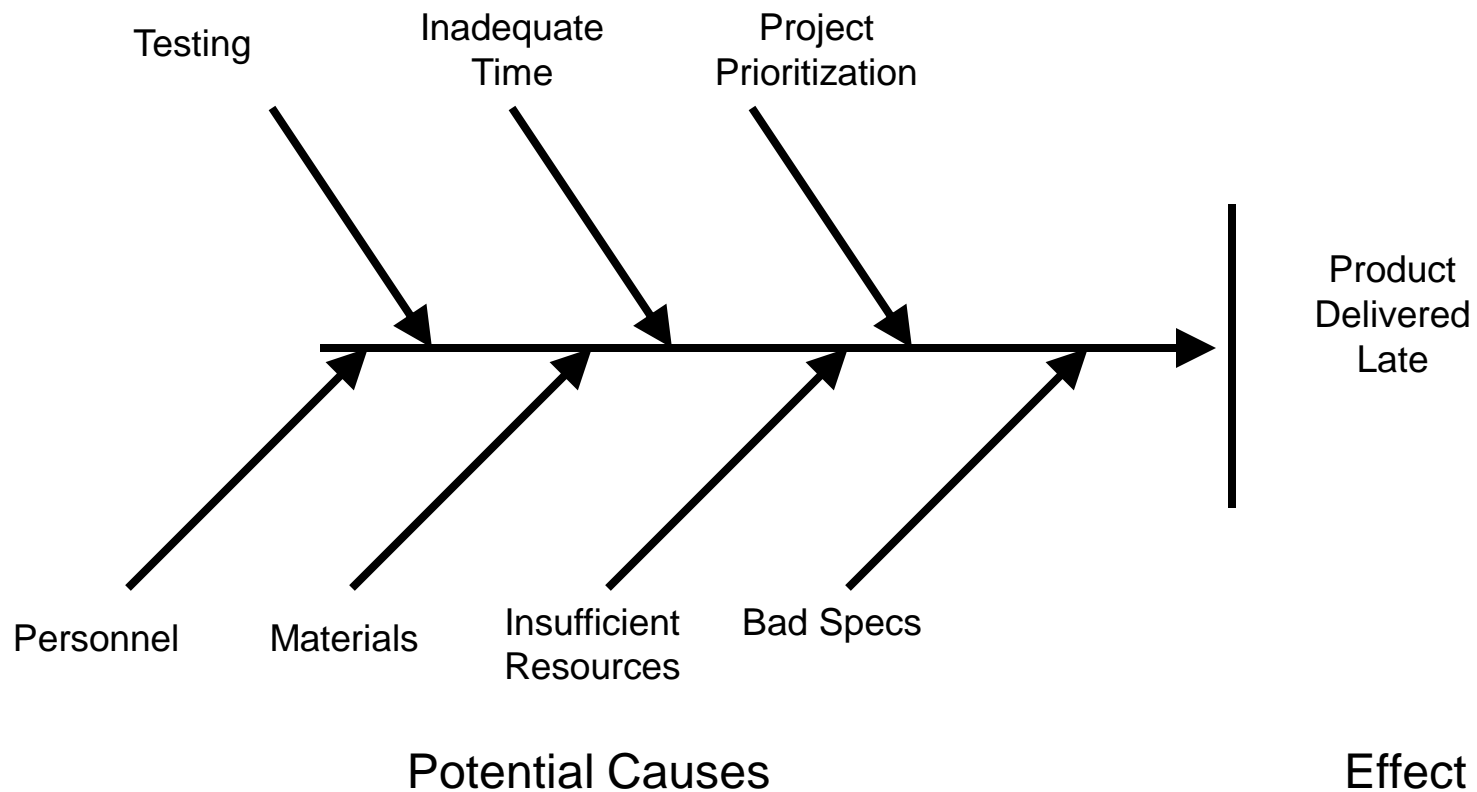
Interviewing key individuals

Root cause identification

Strengths, weaknesses, opportunities, and threats (SWOT) analysis

Political, Economic Socio-cultural, Technological, Environmental and Legal (PESTEL).

DIAGRAMMING TECHNIQUES

Cause and Effect Diagram
(also known as fishbone diagram)

Testing   Inadequate Time   Project Prioritization

Product Delivered Late

Personnel   Materials   Insufficient Resources   Bad Specs
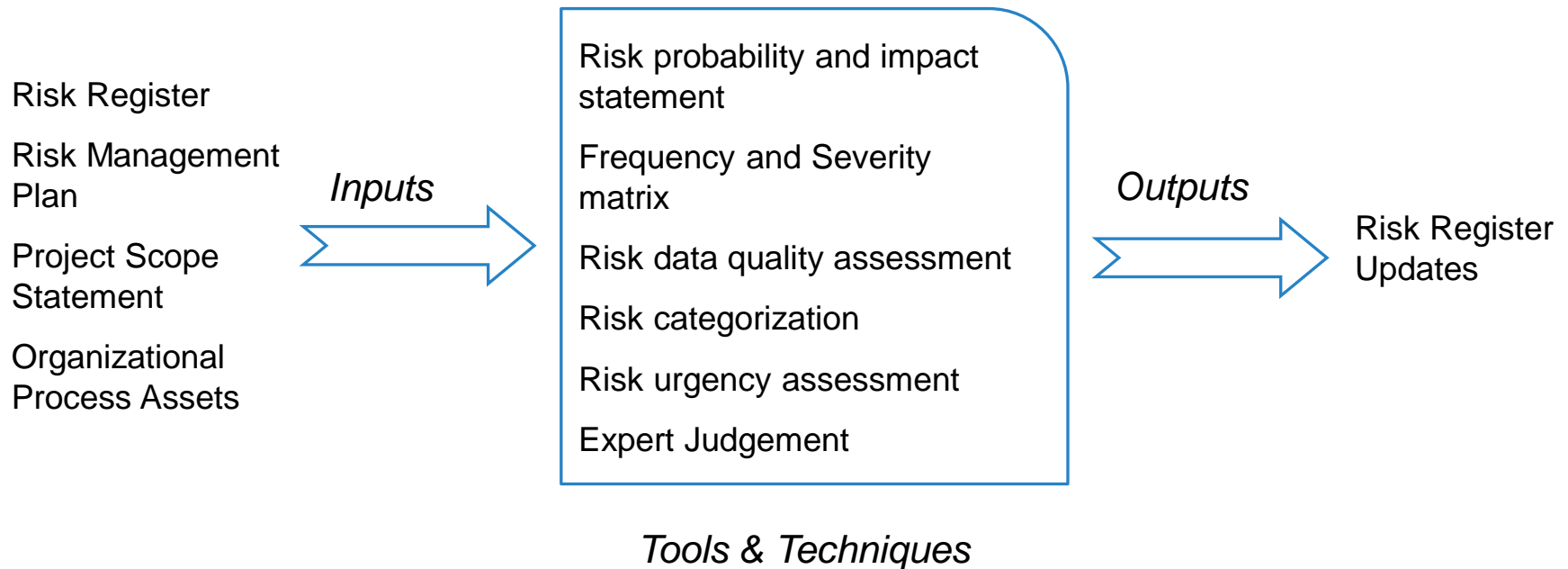
Potential Causes   Effect

RISK REGISTER

The Risk Register is a risk management tool essential to fulfil regulatory compliance (ISO / PRINCE2).

The register acts as a repository for all risks identified and includes additional details about each risk including:

- Identified risks

- Potential responses

- Root causes

Updating risk categories (if required)

PERFORM QUALITATIVE RISK ANALYSIS

Risk Register

Risk Management Plan

Project Scope Statement

Organizational Process Assets

Inputs

Risk probability and impact statement

Frequency and Severity matrix

Risk data quality assessment

Risk categorization

Risk urgency assessment

Expert Judgement

Tools & Techniques

Outputs

Risk Register Updates

| Plan Risk Management | Identify Risks | Perform Qualitative Risk Analysis | Perform Quantitative Risk Analysis | Plan Risk Responses | Monitor and Control Risks |

COMMONLY USED METHODOLOGIES

- Based on Failure Modes and Effects Analysis (FMEA)

- Frequency and Severity Matrix

- What-If Analysis

- Hazard and operability study (HAZOP)

- Fault tree analysis (FTA)

FREQUENCY AND SEVERITY MATRIX

In a typical frequency and severity matrix each risk is rated in line with the frequency rating and expected severity

	SEVERITY			
	Minor	Moderate	Major	Extreme
Seldom	Very Low	Low	Medium	Medium
Often	Low	Low	Medium	High
Quarterly	Low	Medium	High	High
Weekly/Daily	Medium	High	Very High	Very High

FREQUENCY

RISK REGISTER

Typical Risk Register - Model to be aligned to the risk profile of the project

RISK REGISTER UPDATE

As part of the risk register updating process it is important to:

- Add severity and frequency matrix results

- Perform quality check on results

- Categorize the risks to make them easier to handle

- Perform urgency assessment (prioritization) to determine which risk need immediate attention

PERFORM QUANTITATIVE RISK ANALYSIS
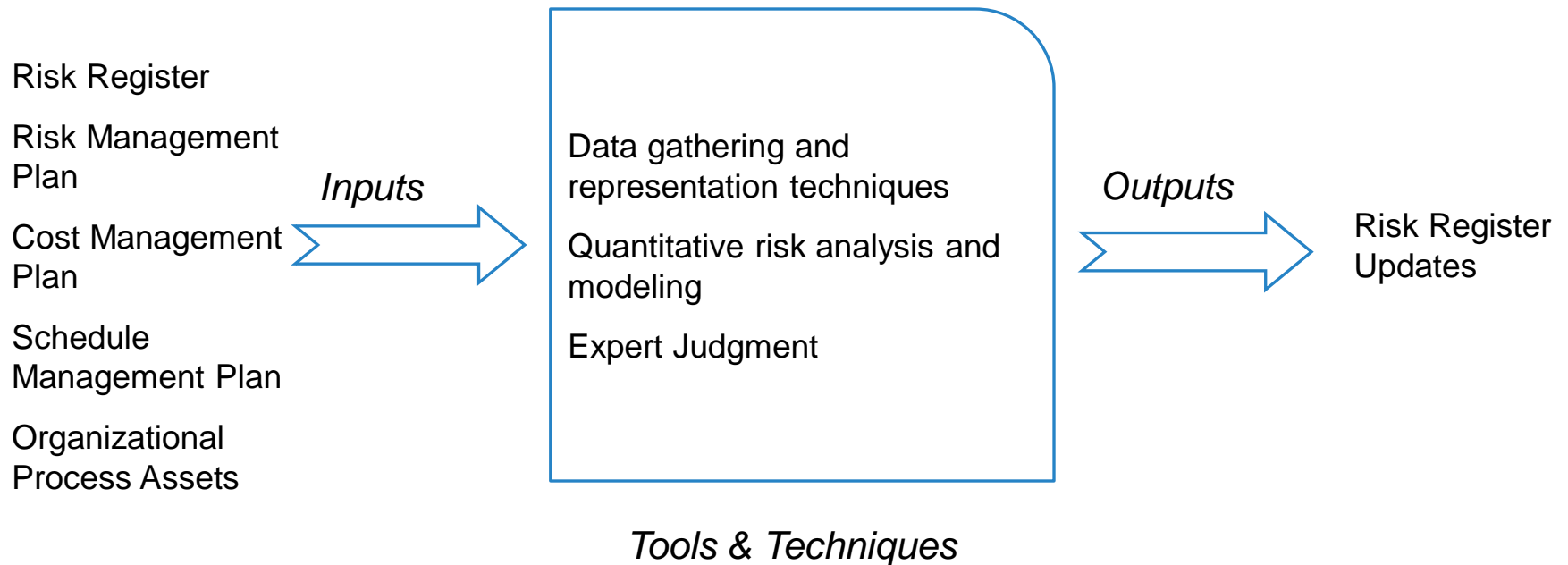
Risk Register

Risk Management Plan

Cost Management Plan

Schedule Management Plan

Organizational Process Assets

Inputs

Data gathering and representation techniques

Quantitative risk analysis and modeling

Expert Judgment

Tools & Techniques

Outputs

Risk Register Updates

| Plan Risk Management | Identify Risks | Perform Qualitative Risk Analysis | Perform Quantitative Risk Analysis | Plan Risk Responses | Monitor and Control Risks |

QUANTITATIVE RISK ANALYSIS

- Analyze numerically the probability and consequence of each risk

- Decision Tree analysis

- Expected Monetary Value Analysis (EMV)

EXPECTED MONETARY VALUE (EMV)

Simple EMV example

	Building Cost	Probability	
Optimistic Outcome	€150k	0.2	**€30k**
Likely Outcome	€225k	0.5	**€113k**
Pessimistic Outcome	€300k	0.3	**€100k**
		Expected Value	**€243k**

DECISION TREE ANALYSIS

Typical Decision Tree Analysis
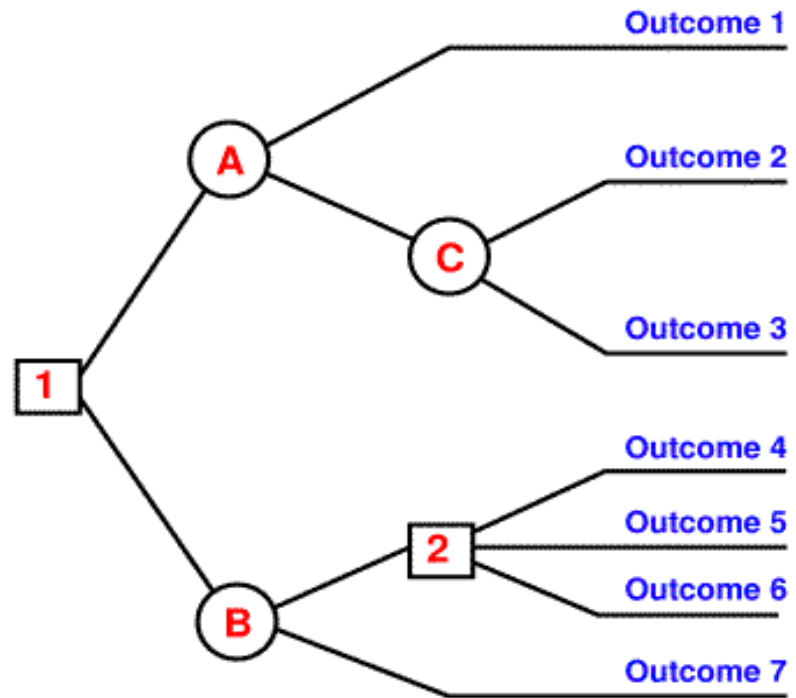
PLAN RISK RESPONSES

Inputs

Risk Register

Risk Management Plan

Strategies for negative risks or threats

Strategies for positive risks or opportunities

Contingent response strategy

Expert Judgment

Tools & Techniques

Outputs

Risk Register Updates

Risk-related Contract Decisions

Project Management Plan Updates

Plan Risk Management → Identify Risks → Perform Qualitative Risk Analysis → Perform Quantitative Risk Analysis → Plan Risk Responses → Monitor and Control Risks
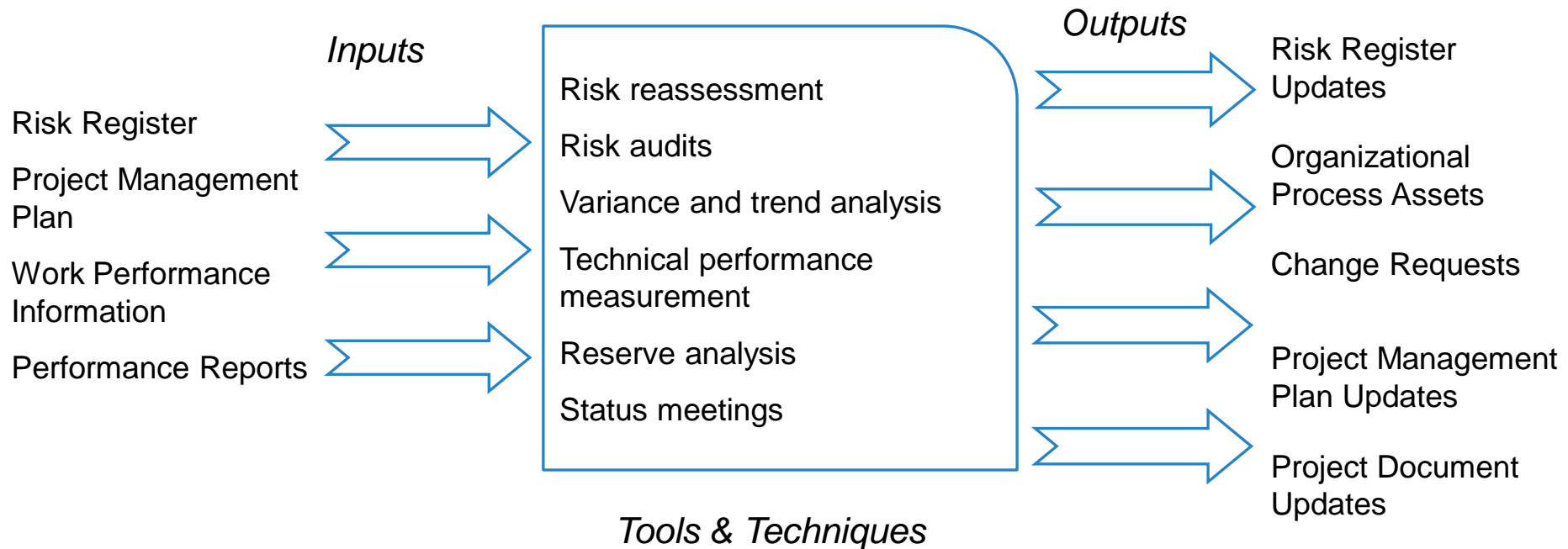
DRAWING UP STRATEGIES BASED ON RISK

Negative Risk (or Threats)
- Avoid
- Transfer
- Mitigate
- Accept

Positive Risk (or Opportunities)
- Exploit
- Share
- Enhance
- Accept

MONITOR AND CONTROL RISKS

Inputs

Outputs

Risk Register

Project Management Plan

Work Performance Information

Performance Reports

Risk reassessment

Risk audits

Variance and trend analysis

Technical performance measurement

Reserve analysis

Status meetings

Tools & Techniques

Risk Register Updates

Organizational Process Assets

Change Requests

Project Management Plan Updates

Project Document Updates

| Plan Risk Management | Identify Risks | Perform Qualitative Risk Analysis | Perform Quantitative Risk Analysis | Plan Risk Responses | Monitor and Control Risks |

Questions?

Thank you for your time

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