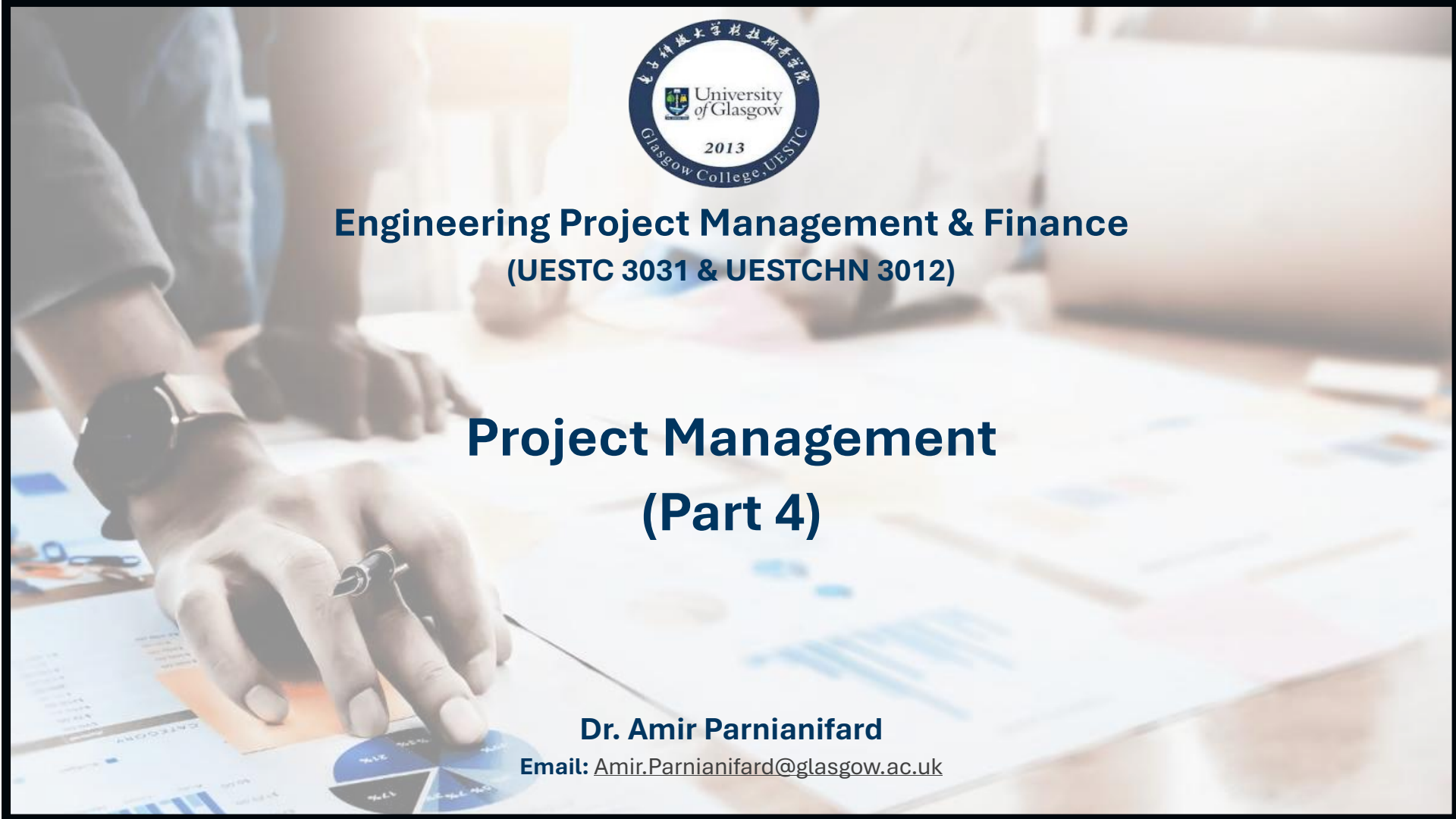

Engineering Project Management & Finance

(UESTC 3031 & UESTCHN 3012)

Project Management
(Part 4)

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Outline

- **Part 1:** Introduction, The Role of the Project Manager
- **Part 2:** Project Scope Management, Project Schedule Management
- **Part 3:** Project Cost Management, Project Resource Management
- **Part 4:** Project Communications Management, Project Risk Management

PROJECT COMMUNICATIONS MANAGEMENT

Session Overview

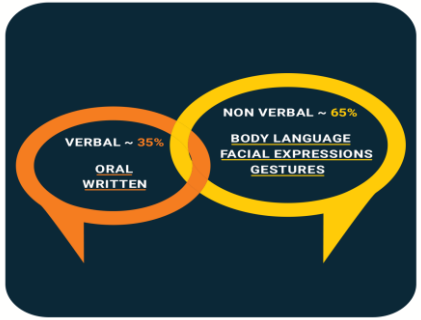
- Communications Management Processes
  - Plan Communications Management
  - Manage Communications
  - Monitor Communications

Project Communications Management

Project Communications Management includes the processes necessary to ensure that the information needs of the project and its stakeholders are met through development of documentation and implementation of activities designed to achieve effective information exchange.

Plan Communications Management → **Manage Communications** → **Monitor Communications**

Communications Management



- Project managers spend most of their time communicating with team members and other project stakeholders, both internal (at all organizational levels) and external to the organization.
- Number of potential communication channels = $n(n-1)/2$
- Communication activities have many dimensions, including but not limited to:
  - Internal
  - External
  - Formal
  - Informal
  - Hierarchical focus (upward, downward, horizontal)
  - Official
  - Unofficial
  - Written and oral

Plan Communications Management

Plan Communications Management → **Manage Communications** → **Monitor Communications**

- The process of developing an appropriate approach and plan for project communication activities based on the information needs of each stakeholder or group, available organizational assets, and the needs of the project.

- The key benefit of this process is a documented approach to effectively and efficiently engage stakeholders by presenting relevant information in a timely manner.

Inputs:

1. Project charter
2. Project management plan
3. Project documents
4. Enterprise Environmental Factors
5. Organizational Process Assets

Tools & Techniques:

1. Expert judgment
2. Communication requirements analysis
3. Communication technology
4. Communication models
5. Communication methods
6. Interpersonal and team skills
7. Data representation
8. Meetings

Outputs

1. Communications management plan
2. Project management plan updates
3. Project documents updates

Communication Technology

Factors that can affect the choice of communication technology (e.g., conversations, meetings, written documents, databases, social media, and websites) include:

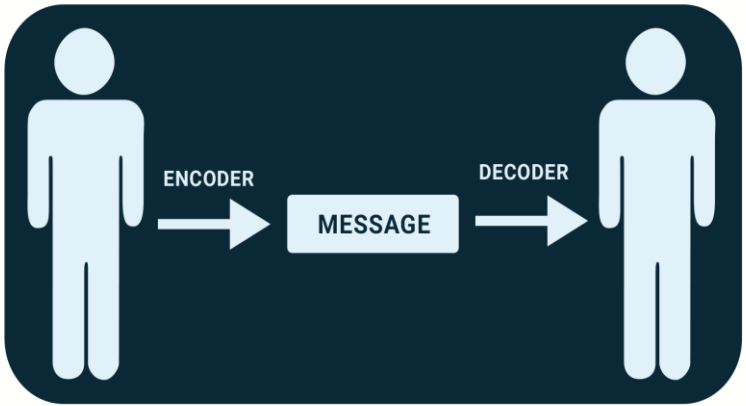
- Urgency of the need for information
- Availability and reliability of technology
- Ease of Use
- Project environment
- Sensitivity and confidentiality of the information

Communication Models

Sample Basic sender / receiver communication model

This model consists of two parties, defined as the sender and receiver, and concerned with ensuring that the message is delivered, rather than understood

- Encode
- Transmit message
- Decode

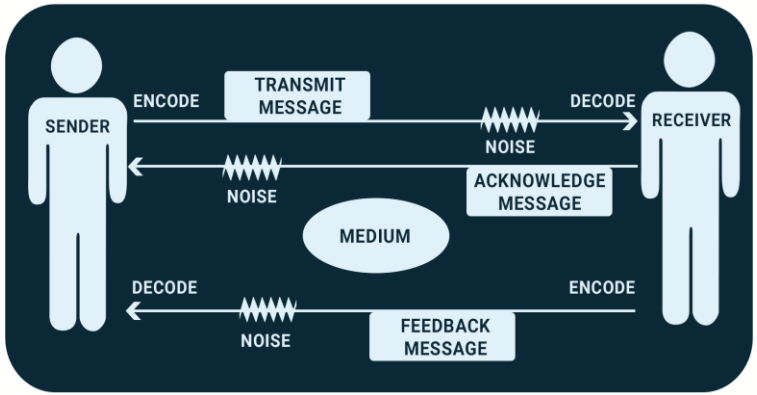


Communication Models

Interactive communication model

A process consisting of two parties (sender and receiver) but recognizes the need to ensure that the message has been understood. In addition to basic model, the additional steps are:

- Acknowledge
- Feedback/Response



Communication Methods

Interactive communication

e.g., meetings, phone calls, instant messaging, some forms of social media, and videoconferencing.

Push communication

e.g., letters, memos, reports, emails, faxes, voice mails, blogs, and press releases.

Pull communication

e.g., web portals, intranet sites, e-learning, lessons learned databases, or knowledge repositories.

Plan Communications Management - Outputs

Communications Management Plan

- Stakeholder communication requirements
- Language, format, content, detail level
- Reason for communication of that information (the value)
- Timeframe, frequency, any acknowledge/response expected
- Responsibilities
- Authorization for confidential information
- Recipient details and requirements
- Technologies used
- Resources allocated – people, time, budget
- Control procedure
- Any legal, technical, policy constraints
- Guidelines and templates

Inputs:

1. Project charter
2. Project management plan
3. Project documents
4. Enterprise Environmental Factors
5. Organizational Process Assets

Tools & Techniques:

1. Expert judgment
2. Communication requirements analysis
3. Communication technology
4. Communication models
5. Communication methods
6. Interpersonal and team skills
7. Data representation
8. Meetings

Outputs

1. **Communications management plan**
2. Project management plan updates
3. Project documents updates

Manage Communications

Plan Communications Management → Manage Communications → Monitor Communications

- The process of ensuring timely and appropriate collection, creation, distribution, storage, retrieval, management, monitoring and the ultimate disposition of project information.

- The key benefit of this process is that it enables an efficient and effective information flow between the project team and the stakeholders.

Inputs:

1. Project management plan
2. Project documents
3. Work performance reports
4. Enterprise Environmental Factors
5. Organizational Process Assets

Tools & Techniques:

1. Communication technology
2. Communication methods
3. Communication skills
4. Project management information system
5. Project reporting
6. Interpersonal and team skills
7. Meetings

Outputs

1. Project communications
2. Project management plan updates
3. Project documents updates
4. Organizational process assets updates

Techniques and considerations for effective communications management

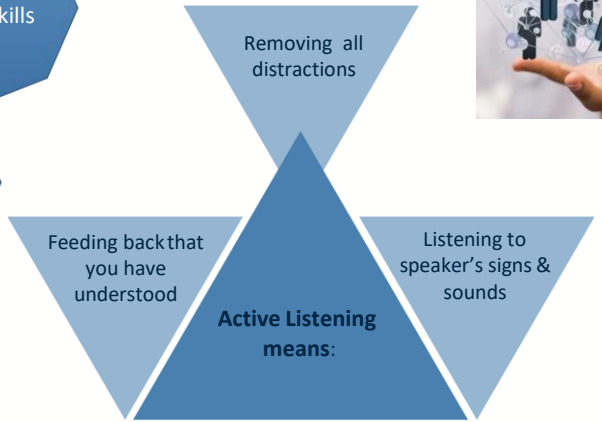
Sender-receiver models	Incorporating feedback loops to provide opportunities for interaction/participation and remove barriers to effective communication.
Choice of media	When to communicate in writing versus orally, when to prepare an informal memo versus a formal report, and when to use push/pull options and the choice of appropriate technology
Writing style	Appropriate use of active versus passive voice, sentence structure, and word choice.
Meeting management	Preparing an agenda, inviting essential participants, and dealing with conflicts in the meeting.
Presentations	Awareness of the impact of body language and design of visual aids
Active Listening	Listening actively (acknowledging, clarifying, and confirming understanding) and removal of barriers that adversely affect comprehension

Manage Communications – Tools and Techniques

Communications Skills

Interpersonal and team skills

- Active listening
- Conflict management
- Cultural awareness
- Meeting management
- Networking
- Political awareness



Inputs:

1. Project management plan
2. Project documents
3. Work performance reports
4. Enterprise Environmental Factors
5. Organizational Process Assets

Tools & Techniques:

1. Communication technology
2. Communication methods
3. **Communication skills**
4. Project management information system
5. Project reporting
6. **Interpersonal and team skills**
7. Meetings

Outputs

1. Project communications
2. Project management plan updates
3. Project documents updates
4. Organizational process assets updates

Monitor Communications

Plan Communications Management → Manage Communications → Monitor Communications

- The process of ensuring the information needs of the project and its stakeholders are met.

- The key benefit of this process is the optimal information flow as defined in the communications management plan and the stakeholder engagement plan. This process is performed throughout the project.

Inputs:

1. Project management plan
2. Project documents
3. Work performance reports
4. Enterprise Environmental Factors
5. Organizational Process Assets

Tools & Techniques:

1. Expert judgment
2. Project management Information system
3. Data analysis
4. Interpersonal and team skills
5. Meetings

Outputs

1. Work performance information
2. Change requests
3. Project management plan updates
4. Project documents updates

PROJECT RISK MANAGEMENT

Session Overview

- Risk Management Processes
  - Plan Risk Management
  - Identify Risks
  - Perform Qualitative Risk Analysis
  - Perform Quantitative Risk Analysis
  - Plan Risk Responses
  - Implement Risk Responses
  - Monitor Risks

Key concepts - Levels of Risk

Individual project risk: An uncertain event or condition that, if it occurs, has a positive or negative effect on one or more project objectives.

- Exploit or enhance positive risks (opportunities)
- Avoid or mitigate negative risks (threats)

Overall project risk: Effect of uncertainty on the project as a whole, arising from all sources of uncertainty including individual risks. Can be both positive or negative

Risk threshold – the degree of acceptable variation for a project objective that reflects the risk appetite of the organization and helps to define the risk exposure of the project

Project Risk Management

- Project Risk Management includes the processes of conducting risk management planning, identification, analysis, response planning, and controlling risk on a project.

Plan Risk Management

- The process of defining how to conduct risk management activities for a project.

- The key benefit of this process is that it ensures that the degree, type and visibility of risk management are appropriate to both the level of risk exposure and the importance of the project to the organization and other stakeholders.

Inputs:

1. Project charter
2. Project management plan
3. Project documents
4. Enterprise environmental factors
5. Organizational process assets

Tools & Techniques:

1. Expert Judgment
2. Data analysis
3. Meetings

Outputs

1. Risk management plan

Plan Risk Management - Outputs

Risk Management Plan - A component of the project management plan and describes how risk management activities will be structured and performed. It contains the following:

Risk strategy	Describe the general approach to managing risk on the project
Methodology	Defines the approaches, tools, and data sources that will be used
Roles and responsibilities	Defines the lead, support, and risk management team members for each activity
Funding	Identifies the funds needed to perform activities
Timing	Defines when and how often the risk management processes will be performed
Risk categories	Provide a means for grouping individual project risks. common way to structure risk categories is with a **Risk Breakdown Structure (RBS).**

Plan Risk Management - Outputs

Stakeholder risk appetite
Measurable risk thresholds of each project objective, helps determine acceptable level of project risk exposure

Definitions of risk probability and impacts
Definitions of probability and impact levels are specific to the project

Probability and impact matrix
Prioritization rules may be specified by the organization in advance of the project, and they may be tailored to the specific project

Reporting formats
Define how the outcomes of risk management process will be documented, analyzed and communicated

Tracking
Documents how risk activities will be recorded and how risk management processes will be audited

Examples

RBS LEVEL 0	RBS LEVEL 1	RBS LEVEL 2
0. ALL SOURCES OF PROJECT RISK	1. TECHNICAL RISK	1.1 Scope definition
		1.2 Requirements definition
		1.3 Estimates, assumptions, and constraints
		1.4 Technical processes
		1.5 Technology
		1.6 Technical interfaces
		Etc.
	2. MANAGEMENT RISK	2.1 Project management
		2.2 Program/portfolio management
		2.3 Operations management
		2.4 Organization
		2.5 Resourcing
		2.6 Communication
		Etc.
	3. COMMERCIAL RISK	3.1 Contractual terms and conditions
		3.2 Internal procurement
		3.3 Suppliers and vendors
		3.4 Subcontracts
		3.5 Client/customer stability
		3.6 Partnerships and joint ventures
		Etc.
	4. EXTERNAL RISK	4.1 Legislation
		4.2 Exchange rates
		4.3 Site/facilities
		4.4 Environmental/weather
		4.5 Competition
		4.6 Regulatory
		Etc.

Figure 11-4. Extract from Sample Risk Breakdown Structure (RBS)

Table 11-1. Example of Definitions for Probability and Impacts

SCALE	PROBABILITY	+/– IMPACT ON PROJECT OBJECTIVES		
		TIME	COST	QUALITY
Very High	>70%	>6 months	>$5M	Very significant impact on overall functionality
High	51-70%	3-6 months	$1M-$5M	Significant impact on overall functionality
Medium	31-50%	1-3 months	$501K-$1M	Some impact in key functional areas
Low	11-30%	1-4 weeks	$100K-$500K	Minor impact on overall functionality
Very Low	1-10%	1 week	<$100K	Minor impact on secondary functions
Nil	<1%	No change	No change	No change in functionality

Probability	Threats					Opportunities					Probability
Very High 0.90	0.05	0.09	0.18	0.36	0.72	0.72	0.36	0.18	0.09	0.05	Very High 0.90
High 0.70	0.04	0.07	0.14	0.28	0.56	0.56	0.28	0.14	0.07	0.04	High 0.70
Medium 0.50	0.03	0.05	0.10	0.20	0.40	0.40	0.20	0.10	0.05	0.03	Medium 0.50
Low 0.30	0.02	0.03	0.06	0.12	0.24	0.24	0.12	0.06	0.03	0.02	Low 0.30
Very Low 0.10	0.01	0.01	0.02	0.04	0.08	0.08	0.04	0.02	0.01	0.01	Very Low 0.10
	Very Low 0.05	Low 0.10	Moderate 0.20	High 0.40	Very High 0.80	Very High 0.80	High 0.40	Moderate 0.20	Low 0.10	Very Low 0.05	
	Negative Impact					Positive Impact					

Figure 11-5. Example Probability and Impact Matrix with Scoring Scheme

Identify Risks

- The process of identifying individual project risks as well as sources of overall project risk and documenting their characteristics.

- The key benefit of this process is the documentation of existing individual project risks and the sources of overall project risk.

Inputs:

1. Project management plan
2. Project documents
3. Agreements
4. Procurement documentation
5. Enterprise environmental factors
6. Organizational process assets

Tools & Techniques:

1. Expert judgment
2. Data gathering
3. Data analysis
4. Interpersonal and team skills
5. Prompt lists
6. Meetings

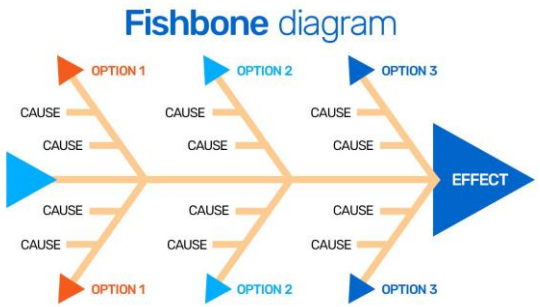
Outputs

1. Risk register
2. Risk report
3. Project documents updates

Identify Risks - Tools and Techniques

Data Gathering

- Brainstorming
- Checklists
- Interviews



Data Analysis

- Root cause analysis
- SWOT Analysis

	Helpful	Harmful
Internal (to Organization)	**Strengths** ▪ Things the organization does well that adds significant value ▪ Unique experience & knowledge ▪ Geographic advantages ▪ Reputation & ratings ▪ Unique characteristics	**Weaknesses** Areas for Improvement ▪ Financial challenges ▪ Negative reputation & ratings ▪ Geographic limitations & gaps ▪ The right people & management ▪ Employee motivation
External (Industry, Environment)	**Opportunities** for Growth ▪ Partnerships & alliances ▪ Industry trends & new markets ▪ New product development ▪ Efficiency & reducing cost ▪ Reduce bureaucracy to be nimble	**Threats** to Success ▪ Seasonality ▪ Reliance on major customers ▪ Cost forecast ▪ Environmental & tech changes ▪ Competitor strength

Inputs:

1. Project management plan
2. Project documents
3. Agreements
4. Procurement documentation
5. Enterprise environmental factors
6. Organizational process assets

Tools & Techniques:

1. Expert judgment
2. **Data gathering**
3. **Data analysis**
4. Interpersonal and team skills
5. Prompt lists
6. Meetings

Outputs

1. Risk register
2. Risk report
3. Project documents updates

Identify Risks - Tools and Techniques

Prompt Lists

- Prompt lists are predetermined list of categories.
- The lowest level of RBS is used as prompt list.
- For identifying overall project risks some common strategic frameworks such as PESTLE, VUCA may be used

PESTLE Analysis

Political	• Change in leadership • Shareholder demands
Techno logical	• Technological Development • Licensing • Consumer Preferences • Technology Maturity
Economic	• Economic situation and trends • Funding
Legal	• Regulations • Legislation
Social	• Ethical issues • Shifts in demographics • Trends • History
Environ mental	• Environmental Regulations • Ecological • Environmental issues

VUCA

Inputs:

1. Project management plan
2. Project documents
3. Agreements
4. Procurement documentation
5. Enterprise environmental factors
6. Organizational process assets

Tools & Techniques:

1. Expert judgment
2. Data gathering
3. Data analysis
4. Interpersonal and team skills
5. **Prompt lists**
6. Meetings

Outputs

1. Risk register
2. Risk report
3. Project documents updates

Identify Risks - Outputs

Risk Register:

List of identified risks – Unique identifier is given to each risk. The identified risks are described in as much detail as required to ensure unambiguous understanding.

Potential risk owners – Potential risk owner is identified and recorded in the risk register.

List of potential responses - Potential risk response is identified and recorded in the risk register.

Risk Register

			Impact					
ID	Risk Statement	Probability	Scope	Quality	Schedule	Cost	Potential Response	Potential Owner
1	Project owner on the client side is replaced.	Low			Medium		Orient new project owner.	Project Manager
2	Senior programmer is taken from the project.	Medium			High	High	Find replacement programmer.	Project Manager
3	External system A is not ready in time to implement feature B.	High	Low		Medium	Low	Discuss with stakeholders and make adjustments as agreed.	Project Manager

Inputs:
1. Project management plan
2. Project documents
3. Agreements
4. Procurement documentation
5. Enterprise environmental factors
6. Organizational process assets

Tools & Techniques:
1. Expert judgment
2. Data gathering
3. Data analysis
4. Interpersonal and team skills
5. Prompt lists
6. Meetings

Outputs
1. **Risk register**
2. Risk report
3. Project documents updates

Perform Qualitative Risk Analysis

- The process of prioritizing individual project risks for further analysis or action by assessing their probability of occurrence and impact as well as other characteristics.

- The key benefit of this process is that it focuses efforts on high-priority risks. This process is performed throughout the project.

Inputs:

1. Project management plan
2. Project documents
3. Enterprise environmental factors
4. Organizational process assets

Tools & Techniques:

1. Expert judgment
2. Data gathering
3. Data analysis
4. Interpersonal and team skills
5. Risk categorization
6. Data representation
7. Meetings

Outputs

1. Project document updates
   - Assumption log
   - Issue log
   - Risk register
   - Risk report

Perform Qualitative Risk Analysis - Tools and Techniques

Data Analysis

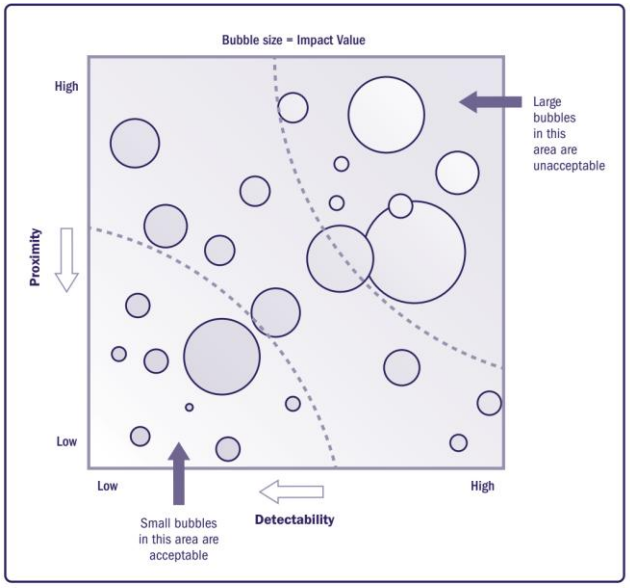


Figure 11-10. Example Bubble Chart Showing Detectability, Proximity, and Impact Value

Probability	Threats					Opportunities					Probability
Very High 0.90	0.05	0.09	0.18	0.36	0.72	0.72	0.36	0.18	0.09	0.05	Very High 0.90
High 0.70	0.04	0.07	0.14	0.28	0.56	0.56	0.28	0.14	0.07	0.04	High 0.70
Medium 0.50	0.03	0.05	0.10	0.20	0.40	0.40	0.20	0.10	0.05	0.03	Medium 0.50
Low 0.30	0.02	0.03	0.06	0.12	0.24	0.24	0.12	0.06	0.03	0.02	Low 0.30
Very Low 0.10	0.01	0.01	0.02	0.04	0.08	0.08	0.04	0.02	0.01	0.01	Very Low 0.10
	Very Low 0.05	Low 0.10	Moderate 0.20	High 0.40	Very High 0.80	Very High 0.80	High 0.40	Moderate 0.20	Low 0.10	Very Low 0.05	
	Negative Impact					Positive Impact					

Figure 11-5. Example Probability and Impact Matrix with Scoring Scheme

- A bubble chart displays three dimensions of data
- Each risk is plotted as a disk or bubble
- Three parameters are represented by x- axis, y-axis and bubble size
- Detectability and proximity plotted on the x and y axes and impact value represented by bubble size

Inputs:

1. Project management plan
2. Project documents
3. Enterprise environmental factors
4. Organizational process assets

Tools & Techniques:

1. Expert judgment
2. Data gathering
3. **Data analysis**
4. Interpersonal and team skills
5. Risk categorization
6. Data representation
7. Meetings

Outputs

1. Project document updates
   - Assumption log
   - Issue log
   - Risk register
   - Risk report

Project Management Institute, A Guide to the Project Management Body of Knowledge, (*PMBOK® Guide*) – sixth edition, Project Management Institute, Inc., 2017, Figure 11-5, Page 408, and Figure 11-10, Page 426.

Perform Quantitative Risk Analysis

- The process of numerically analyzing the combined effect of identified individual project risks and other sources of uncertainty on overall project objectives.
- The key benefit of this process is that it quantifies overall project risk exposure, and it can also provide additional quantitative risk information to support risk response planning. This process is not required for every project, but wherever it is used, it is performed throughout the project.

Inputs:

1. Project management plan
2. Project documents
3. Enterprise environmental factors
4. Organizational process assets

Tools & Techniques:

1. Expert judgment
2. Data gathering
3. Interpersonal and team skills
4. Representations of uncertainty
5. Data analysis

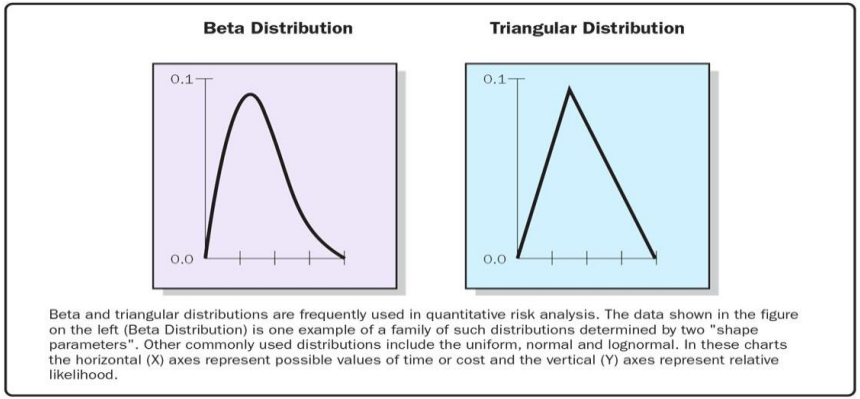
Outputs

1. Project document updates

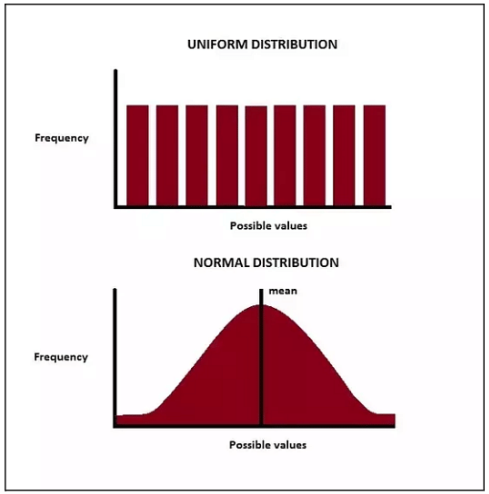
Perform Quantitative Risk Analysis - Tools and Techniques

Representations of Uncertainty

- Where the duration, cost, or resource requirement for a planned activity is uncertain, the range of possible values can be represented as probability distribution
- Most commonly used ones are Triangular, normal, lognormal, beta, uniform or discrete distributions



Beta and triangular distributions are frequently used in quantitative risk analysis. The data shown in the figure on the left (Beta Distribution) is one example of a family of such distributions determined by two "shape parameters". Other commonly used distributions include the uniform, normal and lognormal. In these charts the horizontal (X) axes represent possible values of time or cost and the vertical (Y) axes represent relative likelihood.



Inputs:

1. Project management plan
2. Project documents
3. Enterprise environmental factors
4. Organizational process assets

Tools & Techniques:

1. Expert judgment
2. Data gathering
3. Interpersonal and team skills
4. **Representations of uncertainty**
5. Data analysis

Outputs

1. Project document updates

Perform Quantitative Risk Analysis - Tools and Techniques

- **Influence diagrams** – Graphical aids to decision making under uncertainty, e.g., S- curves, tornado diagrams
- **Sensitivity analysis**
- **Simulations**
- **Decision tree analysis**

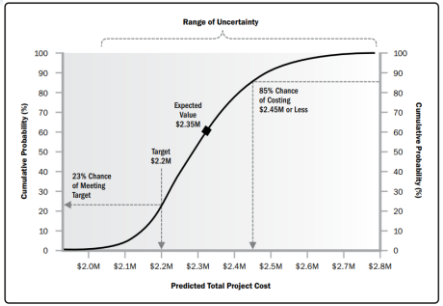
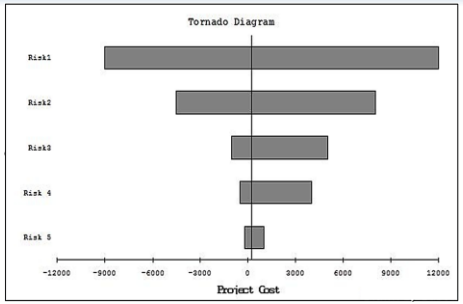
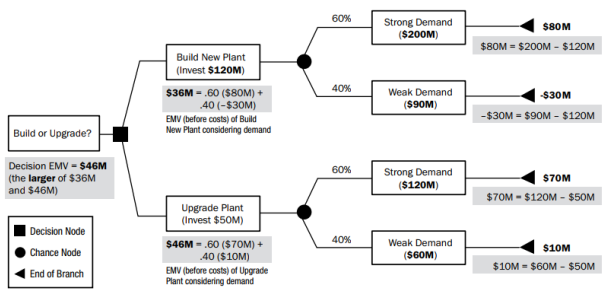


Figure 11-13. Example S-Curve from Quantitative Cost Risk Analysis



Decision Definition	Decision Node	Chance Node	Net Path Value
Decision to be Made	**Input:** Cost of Each Decision **Output:** Decision Made	**Input:** Scenario Probability, Reward if it Occurs **Output:** Expected Monetary Value (EMV)	**Computed:** Payoffs minus Costs along Path



Note 1: The decision tree shows how to make a decision between alternative capital strategies (represented as "decision nodes") when the environment contains uncertain elements (represented as "chance nodes").

Note 2: Here, a decision is being made whether to invest $120M US to build a new plant or to instead invest only $50M US to upgrade the existing plant. For each decision, the demand (which is uncertain, and therefore represents a "chance node") must be accounted for. For example, *strong* demand leads to $200M revenue with the new plant but only $120M US for the upgraded plant, perhaps due to capacity limitations of the upgraded plant. The end of each branch shows the net effect of the payoffs minus costs. For each decision branch, all effects are added (see shaded areas) to determine the overall Expected Monetary Value (EMV) of the decision. Remember to account for the investment costs. From the calculations in the shaded areas, the upgraded plant has a higher EMV of $46M – also the EMV of the overall decision. (This choice also represents the lowest risk, avoiding the worst case possible outcome of a loss of $30M).

Figure 11-15. Example Decision Tree

Inputs:
1. Project management plan
2. Project documents
3. Enterprise environmental factors
4. Organizational process assets

Tools & Techniques:
1. Expert judgment
2. Data gathering
3. Interpersonal and team skills
4. Representations of uncertainty
5. **Data analysis**

Outputs
1. Project document updates

Project Management Institute, A Guide to the Project Management Body of Knowledge, (*PMBOK® Guide*) – sixth edition, Project Management Institute, Inc., 2017, Figure 11-13, Page 433, Figure 11-14, Page 434, and , Figure 11-15, Page 435.

Plan Risk Responses

- The process of developing options, selecting strategies, and agreeing on actions to address overall project risk exposure, as well as to treat individual project risks.

- The key benefit of this process is that it identifies appropriate ways to address overall project risk and individual project risks. This process is performed throughout the project.

Inputs:

1. Project management plan
2. Project documents
3. Enterprise environmental factors
4. Organizational process assets

Tools & Techniques:

1. Expert judgment
2. Data gathering
3. Interpersonal and team skills
4. Strategies for threats
5. Strategies for opportunities
6. Contingent response strategies
7. Strategies for overall project risk
8. Data analysis
9. Decision making

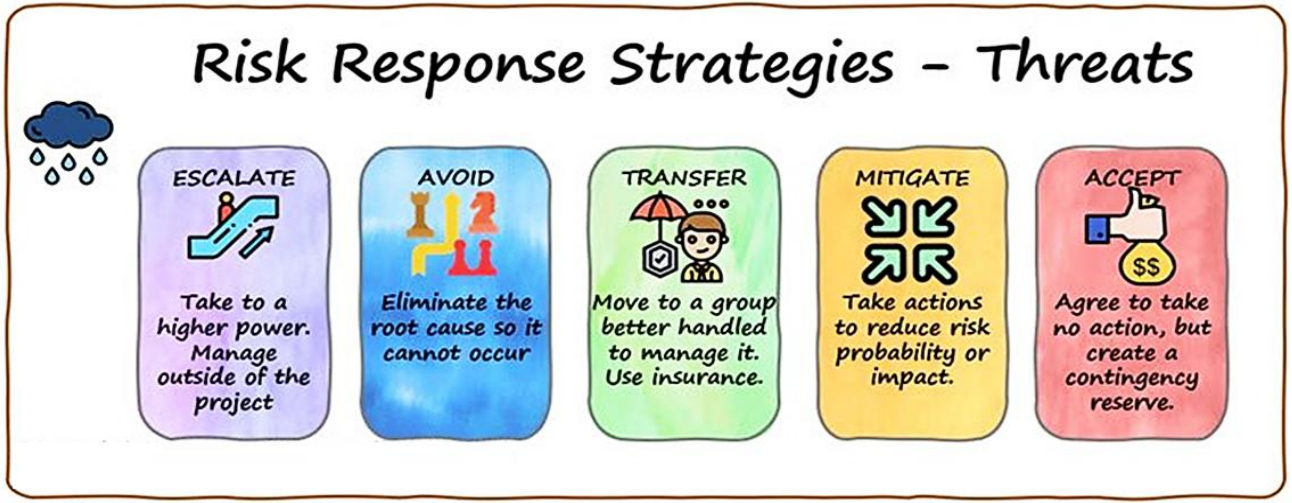
Outputs

1. Change requests
2. Project management plan updates
3. Project documents updates

Plan Risk Responses - Tools and Techniques

Strategies for Threats

- Escalate
- Avoid
- Transfer
- Mitigate
- Accept



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5. Strategies for opportunities
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8. Data analysis
9. Decision making

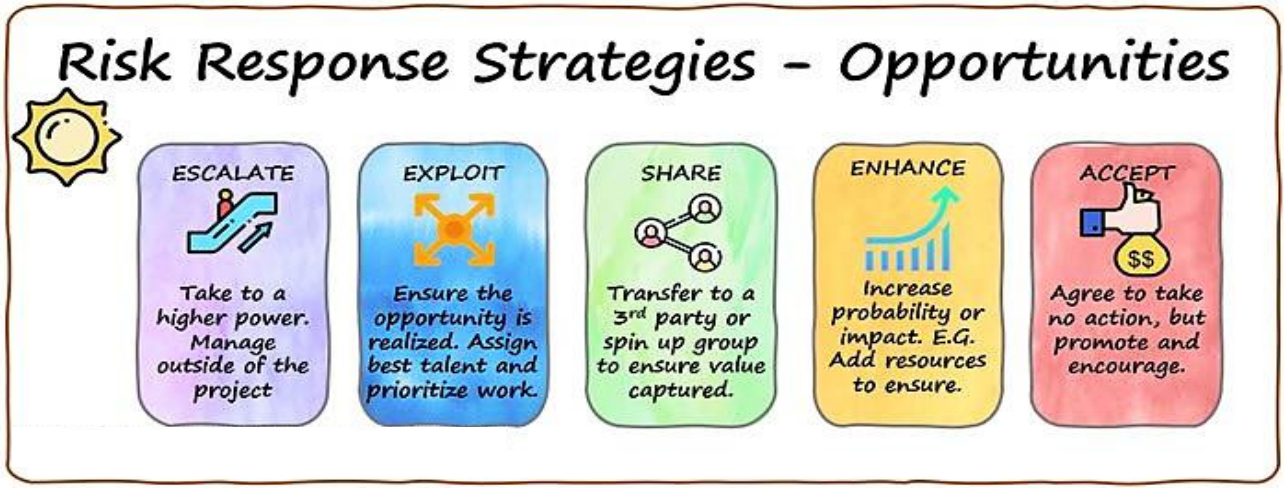
Outputs

1. Change requests
2. Project management plan updates
3. Project documents updates

Plan Risk Responses - Tools and Techniques

Strategies for Opportunities

- Escalate
- Exploit
- Share
- Enhance
- Accept



Inputs:

1. Project management plan
2. Project documents
3. Enterprise environmental factors
4. Organizational process assets

Tools & Techniques:

1. Expert judgment
2. Data gathering
3. Interpersonal and team skills
4. Strategies for threats
5. **Strategies for opportunities**
6. Contingent response strategies
7. Strategies for overall project risk
8. Data analysis
9. Decision making

Outputs

1. Change requests
2. Project management plan updates
3. Project documents updates

Implement Risk Responses

- The process of implementing agreed-upon risk response plans.

- The key benefit of this process is that it ensures that agreed-upon risk responses are executed as planned in order to address overall project risk exposure, minimize individual project threats and maximize individual project opportunities. The process is performed throughout the project.

Inputs:

1. Project management plan
2. Project documents
3. Organizational process assets

Tools & Techniques:

1. Expert judgment
2. Interpersonal and team skills
3. Project management information system

Outputs

1. Change requests
2. Project documents updates

Monitor Risks

- The process of monitoring the implementation of agreed-upon risk response plans, tracking identified risks, identifying and analyzing new risks, and evaluating risk process effectiveness throughout the project.

- The key benefit of this process is that it enables project decisions to be based on current information about overall project risk exposure and individual project risks. This process is performed throughout the project.

Inputs:

1. Project management plan
2. Project documents
3. Work performance data
4. Work performance reports

Tools & Techniques:

1. Data analysis
2. Audits
3. Meetings

Outputs

1. Work performance information
2. Change requests
3. Project management plan updates
4. Project documents updates
5. Organizational process assets updates


Q
A

1. Which of the following are the most fundamental components of the communications model?

A. Sender, Receiver, Medium and interference

B. Sender, Receiver, Feedback

C. Sender, Message, Medium and noise

D. Sender, Receiver, Message

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A. Sender, Receiver, Medium and interference

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C. Sender, Message, Medium and noise

D. Sender, Receiver, Message ✓

Explanation: The most fundamental components of the communications model are the sender, the receiver, and the message itself.

2. Which of the following is an accurate description of communications medium?

A. The email system used

B. The moderator of a SharePoint site

C. The air surrounding the sender and receiver

D. The average round trip delay of the message

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Explanation: "The medium is the technology medium and includes the mode of communication…" (PMBOK Section 10.1.2.3).

3. Pull communication is best for what?

A. Distributing information to many, in an efficient way

B. Puts version control at greater risk

C. Is most appropriate for small amounts of information

D. Is most appropriate for low numbers of communication channels

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B. Puts version control at greater risk

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D. Is most appropriate for low numbers of communication channels

Explanation: Pull communication is used for large volumes of information or large audiences.

4. Project reporting

A. Is a tool or technique within Manage Communications

B. Is an output of Manage Communications

C. Is an output of Monitor Communications

D. is a tool or technique within Monitor Communications

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A. Is a tool or technique within Manage Communications

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Explanation: Project reporting is a tool or technique within Manage Communications

5. Six team members report to a project manager. How many channels of communication are there?

A. 24

B. 21

C. 15

D. 18

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A. 24

B. 21 ✓

C. 15

D. 18

Explanation: N * (N-1)/2 = (7 * 6)/2 = 42/2 = 21 (N = 7, including the project manager).

6. You are managing a team of 6 members and once the project entered the next phase three more members are added and two of the current team members leave. How many new communication channels need to be added due to these changes.

A. 21

B. 7

C. 5

D. No changes are needed

6. You are managing a team of 6 members and once the project entered the next phase, three more members are added and two of the current team members leave. How many new communication channels need to be added due to these changes.

A. 21

B. 7

C. 5

D. No changes are needed

Explanation: You have to include in the count, so to begin with you need 21 channels – 7 members would need 7*(7-1)/2. The changes effectively add one more person to the team size, so you need 28 channels – 8 members would need 8*(8-1)/2.

You need to add 28 – 21 = 7 channels for an effective communication to happen.

7. Outputs from Manage Communications might include what?

A. Change requests

B. Expert judgment

C. Meetings

D. Project document updates, including updates to Issue log

7. Outputs from Manage Communications might include what?

A. Change requests

B. Expert judgment

C. Meetings

D. Project document updates, including updates to Issue log

Explanation: Project document updates output from Manage Communications may include updates to the Issue log

8. The process of ensuring timely and appropriate collection, creation, distribution, storage, retrieval, management, monitoring and the ultimate disposition of project information is

A. Plan Communication management

B. Manage Communications

C. Monitor Communications

D. Manage Stakeholder Engagement

8. The process of ensuring timely and appropriate collection, creation, distribution, storage, retrieval, management, monitoring and the ultimate disposition of project information is

A. Plan Communication management

B. Manage Communications

C. Monitor Communications

D. Manage Stakeholder Engagement

Explanation: Manage Communications is the process of ensuring timely and appropriate collection, creation, distribution, storage, retrieval, management, monitoring and the ultimate disposition of project information.

9. Which of the following is an accurate description of a Probability and Impact Matrix?

A. It is a tool or technique used in Perform Quantitative Risk Analysis

B. it enables one to compare risks to see which one has largest EMV impact

C. It will help you to see which risks that have the highest probability of occurrence

D. It is the best tool to use to understand the cumulative probability curve of outcomes for a complex system

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D. It is the best tool to use to understand the cumulative probability curve of outcomes for a complex system

Explanation: The Probability and Impact Matrix will allow you to see the risks that have the highest probability of occurrence and impact if they do occur. Since it is purely qualitative, it cannot reliably be counted upon to determine the expected monetary value (EMV) of a risk. It is a tool or technique within Perform Qualitative Risk Analysis.

10. Which of the following is the best description of a tornado diagram?

A. A weather risk map published by the USGS

B. A data center site selection map published by the Uptime Institute

C. A tool or technique used in perform Qualitative Risk Analysis

D. A graphic of horizontal bars, showing risk magnitude, with largest risks at top of graphic

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D. A graphic of horizontal bars, showing risk magnitude, with largest risks at top of graphic

Explanation: Choice D is correct.

11. Which of the following is the best description of Monte Carlo Analysis?

A. A risk analysis tool developed in Monaco

B. A math model developed in Italy in 1778

C. An example of Quantitative risk analysis and modeling techniques, in which a math model is used to simulate all or a portion of a project

D.A tool or technique used in Perform Qualitative Risk Analysis is which a graphic model is used obtain a cumulative distribution curve of potential outcomes for a complex system

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D. A tool or technique used in Perform Qualitative Risk Analysis is which a graphic model is used obtain a cumulative distribution curve of potential outcomes for a complex system

Explanation: Monte Carlo Analysis involves running a math model through with varying inputs to learn the range of outputs of a complex system. It can be used to simulate all or a part of a project.

12. The software development project requires an expensive Direct-Attached Storage Device for testing. This device is sensitive to vibration and the tenant one floor above runs a punch press from time to time that can create enough vibration to cause issues with the storage device. Which of the following is an example of risk mitigation?

A. Speak with the punch press operator, and ask him to please notify you when he is about to operate the punch press, so that you can shut down the DASD ahead of time

B. Mount the storage device in a special rack with elastic mounts to achieve some level of vibration isolation

C. Purchase a service contract for the storage device so that it will be replaced at no charge if it is damaged

D. Cross your fingers and hope you don't run into trouble

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C. Purchase a service contract for the storage device so that it will be replaced at no charge if it is damaged

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Explanation: The risk of damage is reduced but not eliminated, so this is an example of risk mitigation. If we assume option A is fully effective, then it is risk avoidance, rather than risk mitigation. In option B it is clear that it is not fully effective: "some level of vibration isolation", so it is the best answer.

13. Risks can be found where?

A. From focusing on cost estimates with wide ranges

B. From focusing on task durations with wide ranges

C. From identifying positive side-effects of a project that might not be immediately apparent

D. All of the above

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A. From focusing on cost estimates with wide ranges

B. From focusing on task durations with wide ranges

C. From identifying positive side-effects of a project that might not be immediately apparent

D. All of the above

Explanation: Risks are suggested in cost or duration estimates with wide ranges. Positive risks might be found if careful thought is given to positive side-effects of a project.

14. Task G has a range of estimated durations and costs. There is 80 percent likelihood the cost will be 2000 Swiss Francs. 15 percent the cost will be 3500 Swiss Francs. And 5 percent chance the cost will come in at 8200 Swiss Francs. What is the EMV of the cost for Task G?

A. 4567 US Dollars

B. 2535 US Dollars

C. 4567 Swiss Francs

D. 2535 Swiss Francs

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A. 4567 US Dollars

B. 2535 US Dollars

C. 4567 Swiss Francs

D. 2535 Swiss Francs ✓

Explanation: 0.8*2000 + 0.15*3500 + 0.05*8200 = 2535. The currency is Swiss Francs

15. SWOT is which of the following?

A. Silver Whisker Optimization Technique

B. A tool or technique used in identifying risks

C. A structured way of ranking risks

D. A graphic view of relative probabilities

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A. Silver Whisker Optimization Technique

B. A tool or technique used in identifying risks

C. A structured way of ranking risks

D. A graphic view of relative probabilities

Explanation: SWOT (Strengths, Weaknesses, Opportunities and Threats) is a technique under data analysis, used within Identify Risks.

16. As a project manager of an EPC company, you have identified all risks initially and arranged them according to the category. What should you do next ?

A. Plan Risk responses

B. Monitor the identified risks

C. Send RBS for experts' opinion

D. Find the probabilities and impacts of each risk

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D. Find the probabilities and impacts of each risk

Explanation: You have completed risk break down structure for the list of identified risks. After this you should perform qualitative risk analysis (find out probability and impact of each risk). After that if required, you may perform quantitative risk analysis (assigning numerical values) and then planning risk responses for prioritized risks.

17 You are the project manager for a big project of Smart Building Systems to implement smart technologies for buildings, including automated lighting, HVAC control, security systems, and energy management. The project may fail if the response plans for the risks are not identified and documented properly. You know that one of the identified risk is a challenge for your project and are trying to identify the root causes along with your team members to mitigate the risk. Which tool / technique do you use for this process ?

A. Plan Risk responses

B. Data gathering

C. Data analysis

D. Expert judgment

17. You are the project manager for a big project of Smart Building Systems to implement smart technologies for buildings, including automated lighting, HVAC control, security systems, and energy management. The project may fail if the response plans for the risks are not identified and documented properly. You know that one of the identified risk is a challenge for your project and are trying to identify the root causes along with your team members to mitigate the risk. Which tool / technique do you use for this process ?

A. Plan Risk responses

B. Data gathering

C. Data analysis

D. Expert judgment

Explanation: You are identifying root cause for an identified risk. You are using root cause analysis which is part of data analysis.

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I am here to support your understanding and academic journey.
Best wishes for a successful semester!

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Research Areas

- Engineering Optimization
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- Robotics
- Wireless Sensor Networks
- Antenna Design
- Uncertainty Quantification

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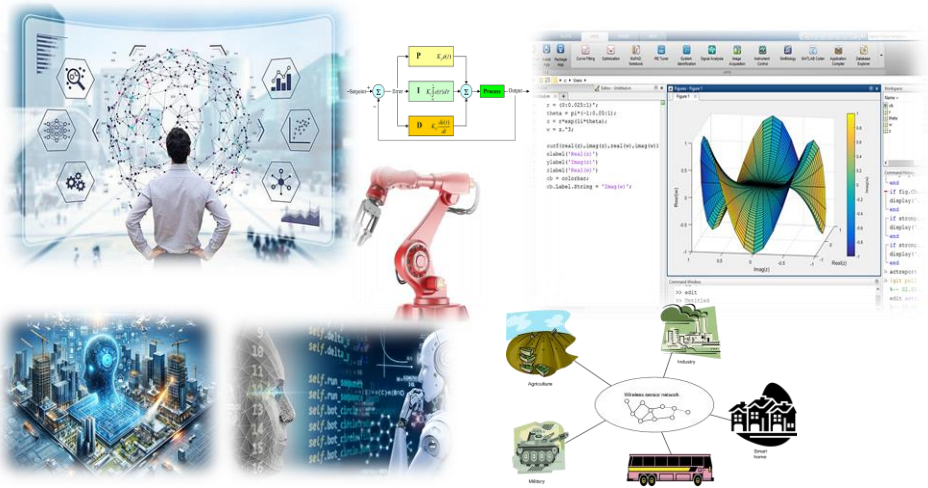

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