PROJECT PLANNING & CONTROL

Lesson 5: Risk & Contingency Management

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Chapter Description

- Aims
  - The aim of this chapter to expose students to understanding the risk and contingency management into a project planning

- Expected Outcomes

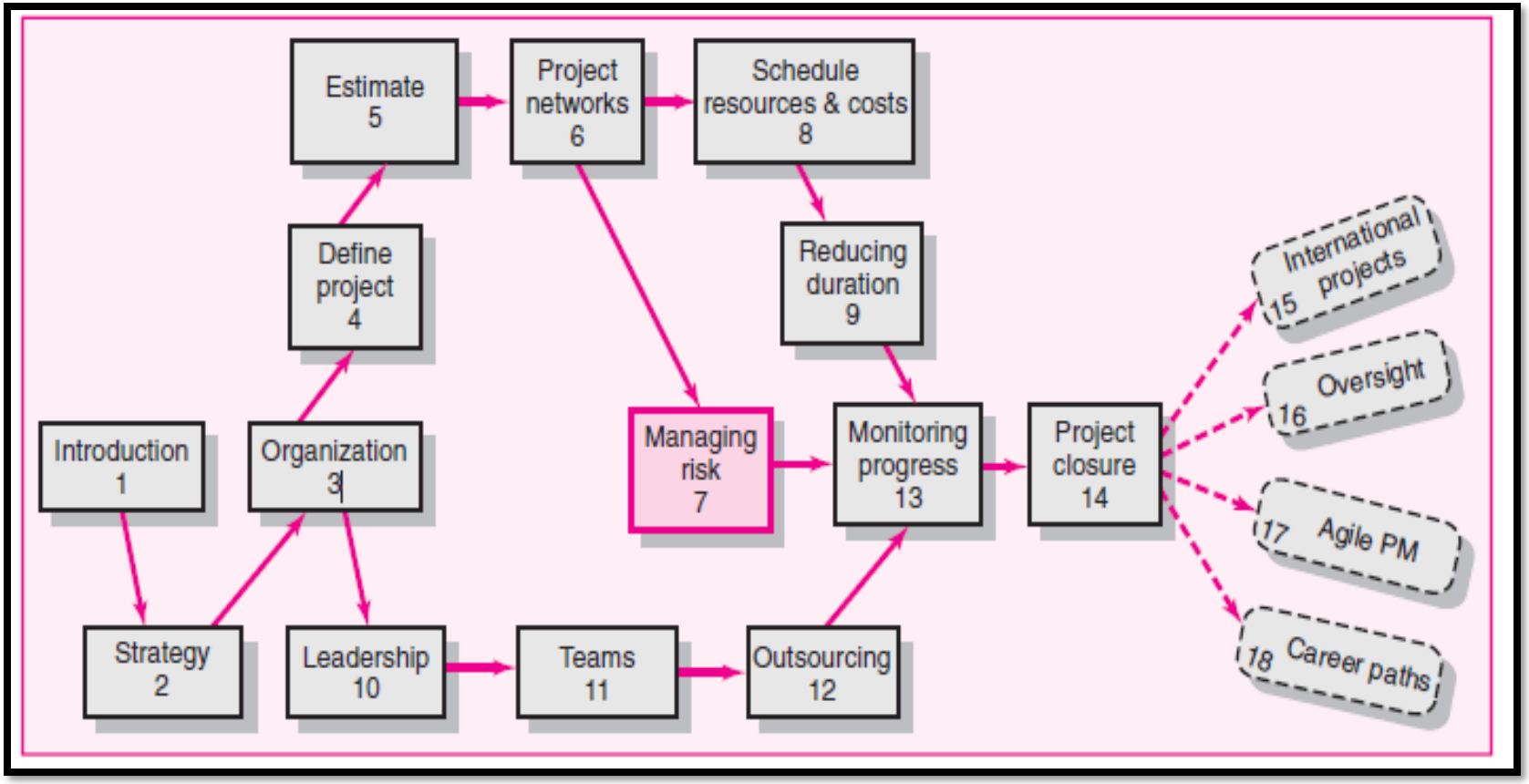
  At the conclusion of this chapter, the students should be able to:
  - Understand the risk management phases and plan
  - Demonstrate strategic for Risk Management into a project
  - Demonstrate SMART principles to a project

- References
  - Erik W. Larson & Clifford F. (2014). Project Management: The Managerial Process (6th Ed.). McGraw-Hill Education, New York.

Content of LESSON 5
RISK & CONTINGENCY MANAGEMENT

- 5.1 Identifying Risk Areas
- 5.2 Strategies for Risk Management
- 5.3 Sizing Risks
- 5.4 Generating Contingency Plans

Managing Risk



Why Project is Risky?

David Hillson (2009) find common factors why project inherently risks:

- Uniqueness
- Complexity
- Assumptions & Constraints
- People
- Stakeholders
- Change

What is Risk?

- A dictionary definition of risk is:

"the possibility of loss or injury"

Project Risk	• involves understanding potential problems that might occur on the project and how they might impede project success
Risk Management	• is like a form of insurance; it is an investment

The Importance of Project Risk Management

- Project risk management is

"the art and science of identifying, assigning, and responding to risk throughout the life of a project and in the best interests of meeting project objectives"

- The goal of project risk management is to minimize potential risks while maximizing potential opportunities.
- Risk management is often overlooked on projects, but it can help improve project success by helping select good projects, determining project scope, and developing realistic estimates.

Risk Factors

- There are various risk factors that have to be considered in a risk management program.
- The top ten risk factors by Boehm is an extensive list covering various possible sources of risk. It is obtained by empirical study of the commonly occurring risk in many large software projects

Top 10 risk factors

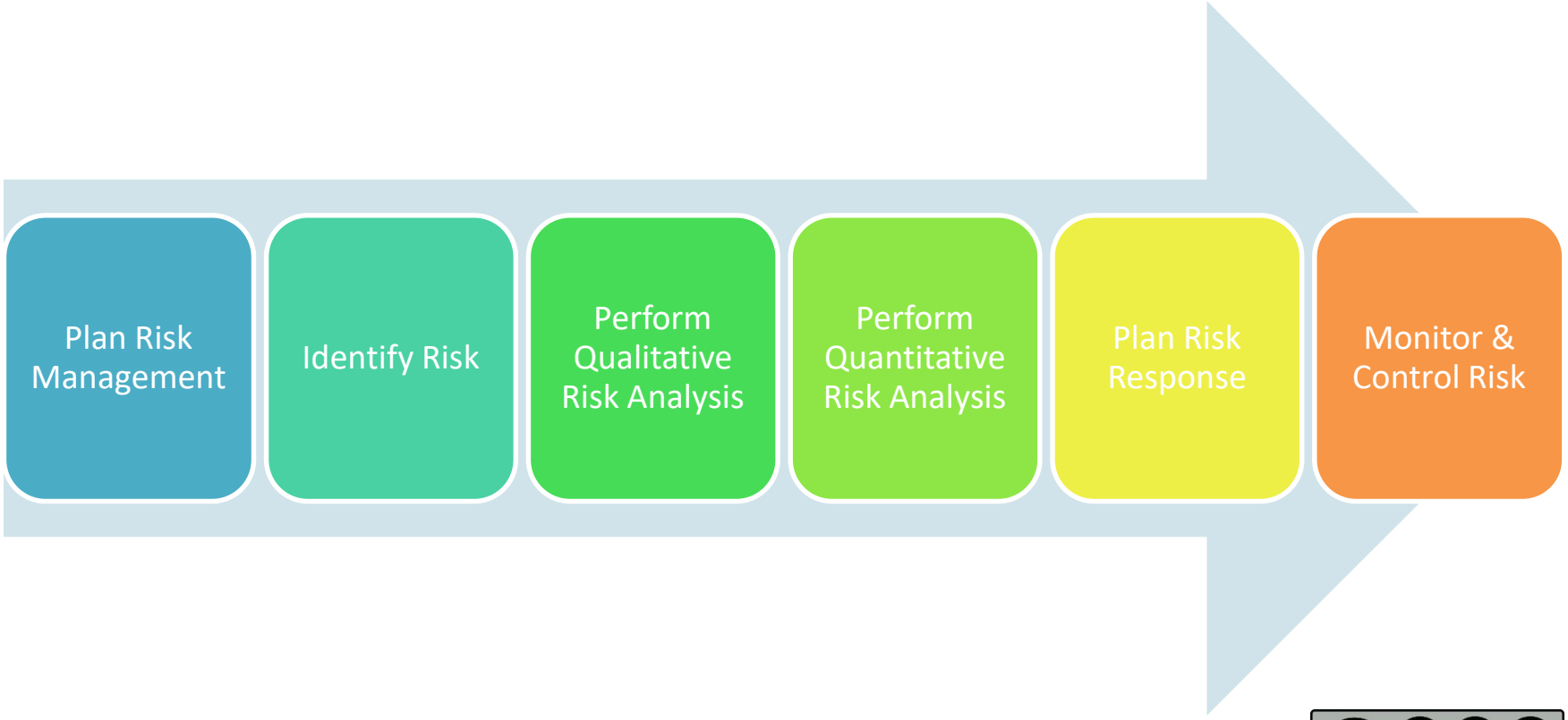
Risk Item	Risk Management Technique
1. Personnel shortfall	Staffing with top talent, job matching, team building, key personnel agreements, cross training
2. Unrealistic schedules and budgets	Detailed milestone cost and schedule estimation, design to cost, incremental development, software reuse, requirements scrubbing
3. Developing the wrong functions and properties	Organizational analysis, mission analysis, operations-concept formulation, user surveys and user participation, prototyping, early users' manuals
4. Developing the wrong user interface	Prototyping, scenarios, task analysis, user participation
5. Gold-plating (e.g. implementing "neat features" not asked for by customer)	Requirements scrubbing, prototyping, cost-benefit analysis, designing to cost

Top 10 risk factors

Risk Item	Risk Management Technique
6. Continuing stream of requirements changes	High change threshold information hiding, incremental development (deferring changes to later increments)
7. Shortfalls in externally-furnished components (e.g. component reuse)	Benchmarking, inspections, reference checking, compatibility analysis
8. Shortfalls in externally performed tasks (e.g. worked performed by a contractor)	Reference checking, pre-award audits, award-fee contracts, competitive design or prototyping, team building
9. Real-time performance shortfalls	Simulation, benchmarking, modeling, prototyping, instrumentation, tuning
10. Capability shortfalls	Technical analysis, cost-benefit analysis, prototyping, reference checking

Risk Management Strategy

Based on **PMBOK (2004)** major processes including:



General Risk Mitigation Strategies for Technical, Cost, and Schedule Risks

Technical Risks	Cost Risks	Schedule Risks
Emphasize team support and avoid stand-alone project structure	Increase the frequency of project monitoring	Increase the frequency of project monitoring
Increase project manager authority	Use WBS and CPM	Use WBS and CPM
Improve problem handling and communication	Improve communication, project goals understanding, and team support	Select the most experienced project manager
Increase the frequency of project monitoring	Increase project manager authority	
Use WBS and CPM		

Contingency Plan

- A **contingency plan is an alternative plan that will be used if a possible foreseen risk** event becomes a reality.
- The contingency plan represents actions that will reduce or mitigate the negative impact of the risk event.

Contingency Plan

- The contingency plan answers the questions of
  - what,
  - where,
  - when,
  - and how much action will take place.
- The absence of a contingency plan, when a risk event occurs, can cause a manager to delay or postpone the decision to implement a remedy.
- Contingency plans increase the chance that the project can be completed on time and within budget.

Contingency Plan

Risk response matrices such as the one shown in Figure 7.8 are useful for summarizing how the project team plans to manage risks that have been identified.

FIGURE 7.8 Risk Response Matrix

Risk Event	Response	Contingency Plan	Trigger	Who Is Responsible
Interface problems	Mitigate: Test prototype	Work around until help comes	Not solved within 24 hours	Nils
System freezing	Mitigate: Test prototype	Reinstall OS	Still frozen after one hour	Emmylou
User backlash	Mitigate: Prototype demonstration	Increase staff support	Call from top management	Eddie
Equipment malfunctions	Mitigate: Select reliable vendor Transfer: Warranty	Order replacement	Equipment fails	Jim

Using Software to Assist in Project Risk Management

- Databases can keep track of risks.
- Spreadsheets can aid in tracking and quantifying risks
- More sophisticated risk management software, such as Monte Carlo simulation tools, help in analyzing project risks

Conclusion:
Results of Good Project Risk Management

- Unlike crisis management, good project risk management often goes unnoticed
- Well-run projects appear to be almost effortless, but a lot of work goes into running a project well
- Project managers should strive to make their jobs look easy to reflect the results of well-run projects

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