Agenda of Session

- Key Take Aways
- Background
- Understanding the Basics
- The Need for Schedule Risk Analysis
- Uncertainty
- Schedule Risk Analysis
- Critical Success Factors
- Cost Risk Analysis
- Review of Key Take Aways
- Summary
- Contact Information
Key Take Aways

- Understand project risk management basics
- Probability of successful implementation of deterministic project schedules is low
- Activity durations are uncertain and best represented as probability distributions
- Project planning must always include risk simulation to produce reliable results
- Address the critical success factors that impede success
  - Focus on what is important
    - Not what is easy
Background
Background

Project Scheduling and Schedule Risk Analysis
2 Day 14 PDUs

Training Outline:
As projects increase in complexity and schedules become more aggressive and complex, the ability to understand key project scheduling and scheduling and risk analysis techniques significantly improves the chances of successful project execution.

This information packed 2 day session provides an overview of proven processes, tools and techniques required to implement a proper project schedule to aid in delivering a successful project. The session also highlights the benefits of scheduling risk analysis as a powerful technique to increase the probability of project success and includes a demonstration of schedule and cost risk analysis software to review the concepts discussed. This course covers the Time Management knowledge area and the Quantitative Schedule Risk Analysis process of the Risk Management knowledge areas of the PMBOK® Guide.

Benefit to you:
Attendees will receive a comprehensive overview of proven project risk analysis knowledge, techniques, and tools in this session. The course emphasizes the development of knowledge required to successfully implement project risk analysis techniques to enhance project success. This course is also useful for users of Agile project management principles and methodologies.

What you will learn:
Attendees will learn:
- The basics of project scheduling, from simple forward pass and early date to advanced use of constraints, resources, calendar, crashing, baseline control, and earned value.
- The methods of schedule problem diagnosis and discovery scheduling abuses to avoid.
- The concept of project scheduling risk analysis from simple Monte Carlo simulation to more advanced techniques (e.g. correlation, probabilistic burnup charts).
- Can learn the issues and techniques for collecting high-level data to support decision-making.

Handouts:
Attendees will receive a handy quick reference Risk Reminder.

Practical Project Risk Analysis and Management
1 Day 7 PDUs

Training Outline:
As projects increase in complexity and schedules become more aggressive, the ability to proactively distinguish and integrate the management of key or emergent risks within a project significantly increases the chances of successful project execution and organizational success.

The ability to link these to performance parameters increases cost and schedule confidence, reducing exposure to unnecessary delays, negative financial impacts, and potential damage to an organization’s reputation.

This information packed summary session provides an overview of proven processes, tools and techniques required to implement a practical project risk management framework to aid in delivering successful projects that meet stakeholder needs. The session also includes a demonstration of schedule and cost risk analysis software to review the concepts discussed.

Benefit to you:
Attendees will learn a comprehensive overview of proven project risk management knowledge, techniques, and tools in this session. The course is aligned with the PMI® PMBOK® Guide and PMI® Practice Standard for Project Risk Management, the core concepts and knowledge learned is also complementary and of benefit to PRINCE2®, COBIT® and ITIL® and BABOK® practitioners. This session is also useful for users of Agile project management principles and methodologies.

Who should attend:
Subject-matter experts from any field who contribute to projects, PMO’s, risk managers, planning and scheduling analysts, and experienced project managers looking to enhance their scheduling and schedule risk analysis skills, tools, and techniques.

Instructor:
David T. Hulett, Ph.D.
Principal - Hulett & Associates LLC
www.projectrisk.com

Trusted Partners Providing Experience

Practical Schedule Risk Analysis

Integrated Cost-Schedule Risk Analysis

(4th ed.) processes of project risk management, industry risk management guidance documents, method to effectively communicate projects to stakeholders, requirements and basic PMP scheduling, risk management planning, employing both opportunities and challenges structure in risk identification, and essential project management guidelines for project managers. The session covers the critical role of risk analysis in project management and the role of project risk management organization and implementation of successful project risk management approaches and experience. The course provides a comprehensive overview of project risk management and the essential skills required for a successful project.

Reference and a handy quick reference Risk Reminder.

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David T. Hulett, Ph.D.
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Trusted Partners Providing Experience
Understand The Basics

- Risk is generally viewed as a state of uncertainty where some possible outcomes have an undesired effect or significant loss.
- A more appropriate definition of a project risk is an uncertain event or condition that, if it occurs, has a positive or negative effect on project objectives.
  - Opportunity
  - Threat
- It is important that the project manager be knowledgeable and fully versed on project risk management principles, concepts, and processes.
The Risk Circle of Life
The Need for Schedule Risk Analysis

- Most Project Managers assume that if the best estimates are used in their CPM schedules, the completion date is the most likely date.
  - This is not correct

- Schedule Risk Analysis
  - *Addresses head on* the fact that we do not know how long activities will take
  - Allows investigation of uncertainty in activity durations and *determine their implications to the project schedule*

Project planning must always include risk simulation to produce reliable results.
Activity Uncertainty

- Uncertainty
  - The lack of certainty
  - A state of having limited knowledge where it is impossible to exactly describe existing state or future outcome

- Risk:
  - A state of uncertainty, if it occurs, has a positive or negative effect on project objectives.

- Activity durations are uncertain and best represented as probability distributions

Common error is for PMs to take scheduling results as fact rather than estimates of future events.
Common Probability Distributions

- **Triangle**
- **Beta**
- **Uniform**
- **Normal**
Three Point Estimate

- A technique used to estimate the time required for an activity based on historical information or expert judgement.
- 3 key inputs
  - Usually determined by interviews or expert judgement
- Optimistic duration
  - Best case duration
- Likely duration
  - The most likely duration
- Pessimistic duration
  - The worst case duration
Three Point Estimates (35,45,70)
Schedule Uncertainty

- Schedule includes activities combined to form a schedule path
- What chance do I have of finishing the schedule on time?
  - Activity uncertainty plays a key role
- Many project managers rely too heavily on the Critical Path Method (CPM) to provide the most likely completion date
  - This results in schedule dates which most of the time are inaccurate and optimistic
- Schedule Risk Analysis - iterative simulations performed using the Monte Carlo technique
  - Well established and best practice method
Schedule Risk Analysis

- Method to better address the questions:
  - “Is my schedule properly structured and free of errors?”
  - “Do I understand the near critical paths?”
  - “What chance do I have of finishing the event on time?”

- Outputs
  - Quantification of the possibility of meeting the schedule date
  - Estimating the size of the schedule contingency needed to provide the desired level of certainty
  - Individual risks and uncertainties that cause the need for contingency to be mitigated by the project team
  - Identification of issues in project or schedule structure
  - Identification of near-critical paths that might not be apparent
The probability of successful implementation of deterministic project schedules is low. Project planning must always include risk simulation to produce reliable results.
Sensitivity analysis allows you to identify activities which have the potential of significantly affecting your project.
The Additive Effect – Merge Bias
Critical Success Factors

- There are several factors that lead to successful SRA implementation.
- It is important that the project manager be knowledgeable and fully versed on schedule risk analysis principles, concepts, and processes.
- Represents proven techniques.
- Presentation addresses 4 CSFs:
  - Proper project schedule
  - High quality risk data
  - Incorporation of risks in the schedule
  - Risk aware corporate culture
Develop a Proper CPM Schedule

- Project managers need to properly understand the implementation and use of proper CPM scheduling methods as a tool to plan, coordinate and schedule the execution of projects
  - Proper scheduling is difficult and not well understood by most project managers or staff
  - Commercially available schedule standards and assessment tools
    - Critical for further schedule (and cost) risk activities
- Tendency is to force a deep dive too early because scheduling tools make it easy to do so
  - A clear and agreed to overview of the project is required first!
  - Executive Project Summary may be of help
Executive Project Summary

High level
Single-page view
Swim Lanes
Milestones
Key activities
Business oriented
End date and time remaining clearly shown
Executive Project Summary
High Quality Risk Data

- Collecting risk data is a challenge
- Three types of uncertainties that must be included
  - Based on estimating error
  - Based on variability
  - Based on discrete risk events
- Motivational Bias
- Cognitive Bias
- Traditional risk registers do not have all the important risks.
  - Some of the most important risks arise during risk data interviews
Include Risk Activities in Schedule

- A common mistake by project managers is to not include the activities associated with the management of risk in their project schedules.
- Incorporate risk management activities into the project schedule and *do not leave them* in a separate risk register.
  - Increased visibility of these activities
  - More easily integrated into your project activities
  - Simple to sophisticated
- Response action plan progress and effectiveness reviewed on a regular basis and reported at project status meetings.
- Supports the allocation of resources and budget for these activities.
Risk Aware Corporate Culture

● Leadership risk behaviour must be constructive
● Leadership must foster an environment where there is a healthy perspective on risk and its management
● Management of risk has to be embedded in the management philosophy right from the top

Leadership must support the realistic and open recognition of project risks even if they indicate problems with the project.
Cost Risk Analysis

Method to better address the questions:

- "What chance do I have of finishing the event on budget?"
- "Why does it cost that much?"
- "Do I have adequate contingency to cover overruns?"
- "Can I defend and monitor the level of contingency I need?"

Best approach is to implement integrated cost-schedule risk analysis which includes the impact of schedule risk on cost risk to properly identify cost contingency reserves.
Key Take Aways

- Understand project risk management basics
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Summary

● Ensure you understand the basics of risk management
  – Increase your opportunity of success

● **SRA is a powerful technique**
  – Offers increased project schedule insight despite activity uncertainty

● Increased likelihood of schedule and cost success
  – Helps to understand where the *risk comes from*

● Integrated cost-schedule risk analysis includes the impact of schedule risk on cost risk
  – *Accurate cost contingency reserves*
Questions ?
Contact Information

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