

2. The \_\_\_\_\_ is an iterative document in which the results of risk analysis and risk response planning are recorded.
  - a. root cause analysis
  - b. risk register
  - c. risk management plan
  - d. cause and effect diagram
3. While all projects use \_\_\_\_\_ risk analysis, \_\_\_\_\_ risk analysis is only used when it is needed, and there is sufficient data to develop appropriate models.
  - a. quantitative, qualitative
  - b. quantitative, opportunity
  - c. opportunity, qualitative
  - d. qualitative, quantitative
4. A team endeavor to list, on individual sticky notes, all of the possible threats and opportunities that could occur to an upcoming project might be used during the \_\_\_\_\_ process.
  - a. plan risk responses
  - b. perform qualitative risk analysis
  - c. identify risks
  - d. perform quantitative risk analysis
5. Avoid risk, mitigate risk, accept risk, and \_\_\_\_\_ are all strategies for responding to negative risks, also known as threats.
  - a. enhance risk
  - b. prevent risk
  - c. transfer risk
  - d. share risk
6. An analytical technique used to determine the basic underlying source of a variance, a defect, or a risk is called \_\_\_\_\_.
  - a. qualitative risk analysis
  - b. Monte Carlo analysis
  - c. SWOT analysis
  - d. root cause analysis
7. The Risk Management Plan describes the methodology, roles and responsibilities, budgeting, timing, and risk categories for potential causes of risk. These risk categories can be structured into a hierarchical representation called a(n):
  - a. organizational breakdown structure (OBS)
  - b. risk breakdown structure (RBS)
  - c. work breakdown structure (WBS)
  - d. requirements breakdown structure (RBS)
8. Risks that have been identified and may or may not happen are referred to as “known unknowns,” and a \_\_\_\_\_ should be established to cover them if they are triggered.
  - a. contingency reserve
  - b. management reserve
  - c. funding reserve
  - d. risk buffer
9. \_\_\_\_\_ is a quantitative risk analysis modeling technique used to help determine which risks have the most powerful impact on the project. Using a tool such as a Tornado Diagram, it “examines the extent to which the uncertainty of each project element affects the objective being studied when all other uncertain elements are held at their baseline values.”
  - a. Fishbone diagram
  - b. Monte Carlo technique
  - c. Expected monetary value analysis
  - d. Sensitivity analysis
10. Expected monetary value (EMV) is commonly used within this type of analysis:
  - a. root cause
  - b. decision tree
  - c. Monte Carlo
  - d. cost/benefit

## Example Project

Create a risk register for your example project. Categorize each risk, list potential causes, and list potential responses for each cause, as shown in Exhibit 10.9.

Describe what each project success measure (from Exhibit 10.1) looks like on your example project. Identify at least three risks to each success measure, determine which are major risks, and for each major risk develop one or more contingency plans. Identify whether the contingency plan is an avoidance plan

(reducing the probability of the risk event), a mitigation plan (reducing the impact of the event), or both.

Facilitate a discussion with the sponsor and other key stakeholders of your project. Have them determine the relative importance of their priorities and document them, as shown in Exhibit 10.2.

Perform a risk review for your example project. Use at least three types of review, as shown in Exhibit 10.8. Which of these types gave you the most useful information? Why?

## References

- A *Guide to the Project Management Body of Knowledge (PMBOK® Guide)*, 5th ed. (Newtown Square, PA: Project Management Institute, 2013).
- Alarcon, Luis F., et al. "Risk Planning and Management for the Panama Canal Expansion Program," *Journal of Construction Engineering and Management*, October 2011: 762–770.
- Kloppenborg, Timothy J., Arthur Shriberg, and Jayashree Venkatraman, *Project Leadership* (Vienna, VA: Management Concepts, Inc., 2003).
- Kloppenborg Timothy J., Debbie Tesch, and Broderick King, "21st Century Project Success Measures: Evolution, Interpretation, and Direction," Proceedings, PMI Research and Education Conference 2012 (Dublin, Ireland, July 2012).
- Kloppenborg, Timothy J. and Deborah Tesch, "Using a Project Leadership Framework to Avoid and Mitigate Information Technology Project Risks," in Dennis P. Slevin, David I. Cleland, and Jeffrey K. Pinto, eds., *Innovations: Project Management Research 2004* (Newtown Square, PA: Project Management Institute, 2004).
- Kloppenborg, Timothy J., and Joseph A. Petrick, *Managing Project Quality* (Vienna, VA: Management Concepts, Inc., 2002).
- Krane, Hans Peter, et al., "How Project Manager–Project Owners Interaction Can Work Within and Influence Project Risk Management," *Project Management Journal*, April 2012: 54–67.
- Lehtiranta, Liisa, "Relational Risk Management in Construction Projects: Modeling the Complexity," *Leadership and Management in Engineering*, April 2011: 141–154.
- Mbachu, Jasper, "Sources of Contractor's Payment Risks and Cash Flow Problems in New Zealand Construction Industry: Project Team's Perceptions of Risks and Mitigation Measures," *Construction Management and Economics* (October 2011) 29: 1027–1041.
- Merritt, Guy M. and Preston G. Smith, "Techniques for Managing Project Risk," in David I. Cleland, ed., *Field Guide to Project Management*, 2nd ed. (Hoboken, NJ: John Wiley & Sons, 2004).
- Milosevic, Dragan Z., *Project Management Toolbox: Tools and Techniques for the Practicing Project Manager* (New York: John Wiley & Sons, 2003).
- Papadopoulos, Thanos, et al., "The Criticality of Risk Factors in Customer Relationship Projects," *Project Management Journal* (February 2012): 65–76.
- Royer, Paul S., *Project Risk Management: A Proactive Approach* (Vienna, VA: Management Concepts, Inc., 2002).
- Schmidt, Roy, Kalle Lyytinen, Mark Keil, and Paul Cule, "Identifying Software Project Risks: An International Delphi Study," *Journal of Management Information Systems* 17 (4) (Spring 2001): 5–36.
- Steffey, Robert W., and Vittal S. Anantatmula, "International Projects Proposal Analysis: Risk Assessment Using Radial Maps," *Project Management Journal* (April 2011): 62–70.
- Thomas, Sam, and M. Bhasi, "A Structural Model for Software Project Risk Management," *Journal of Management* (March 2011): 71–84.
- Yeh, Chung, et al. "Risk Assessment and Action Selection in Preliminary Design," *International Journal of Innovation and Technology Management* 8 (1) (2011): 77–94.
- Zou, Patrick X. W., Guomin Zhang, and Jiayuan Wang, "Understanding the Key Risks in Construction Projects in China," *International Journal of Project Management* 25 (6) (2007): 601–614.
- [http://international.fhwa.dot.gov/riskassess/risk\\_hcm06\\_04.cfm](http://international.fhwa.dot.gov/riskassess/risk_hcm06_04.cfm), accessed August 17, 2010.
- <http://leadershipchamps.wordpress.com/2009/06/14/find-how-sensitive-is-your-project-against-variables-tornado-diagram/>, accessed August 17, 2010.

## Endnotes

1. *PMBOK® Guide* 550.
2. *PMBOK® Guide* 549.
3. *PMBOK® Guide* 564.
4. *PMBOK® Guide* 548.
5. *PMBOK® Guide* 560.
6. Ibid.
7. *PMBOK® Guide* 542.
8. *PMBOK® Guide* 564.
9. *PMBOK® Guide* 537.
10. *PMBOK® Guide* 561.
11. *PMBOK® Guide* 566.
12. *PMBOK® Guide* 560.
13. *PMBOK® Guide* 549.
14. Ibid.
15. *PMBOK® Guide* 536.
16. *PMBOK® Guide* 539.
17. *PMBOK® Guide* 540.
18. *PMBOK® Guide* 562.
19. Ibid.
20. [http://international.fhwa.dot.gov/riskassess/risk\\_hcm06\\_04.cfm](http://international.fhwa.dot.gov/riskassess/risk_hcm06_04.cfm), accessed August 2, 2013.
21. *PMBOK® Guide* 550.
22. Software Engineering Institute, Carnegie Mellon University, <http://www.sei.cmu.edu/risk/main.html>.