

Effective Risk Management for Project Managers: A 21st Century Approach

Nghi M. Nguyen, PMP, NDV Project Management Services Inc.

Introduction

The business environment we are and will be operating within is far more competitive than what we have experienced in the past. In addition, industry's switch from labor-intensive to technology-driven systems has made traditional project management approach, which mostly favored cost and schedule impacts on projects, inadequate for day-to-day decision-making processes of project managers. Because of this high competitiveness and state-of-the-art technology advances caused by changing market conditions, companies need to adopt and implement new and effective project management techniques that will allow them to survive and profit in tomorrow's project driven environment as well as fulfill potential business globalization strategy requirements in the coming years.

The management of any project is a difficult and challenging task due to the many variables determining its final outcome. Although classic project management techniques addressing Scope, Cost, and Schedule requirements are proven approaches to managing effectively a project, projects are often running into trouble even when well-planned and sound-controlled methods are employed. The common reason is that threats to the project are not clearly identified and actions to control these threats are not properly implemented. Consequently, project managers must be consciously aware of potential threats to the success of their projects and take early, effective, and offensive actions against these threats.

Implementing an effective risk management approach will provide project managers with a needed management technique that will increase the probability of success for their projects by addressing these problems, resulting in clear benefit to them and their customers. A formal risk management function, coupled with other accepted project management related methods, which provides special project management attention to specific project risks is an essential element of a complete and effective project management approach. It identifies a concern threatening the success of a project, takes action to avoid the concern, and implements a plan to minimize the impact of such a concern should it materialize.

The purpose of this paper is to describe an effective risk management approach applied to projects of any type to mitigate the uncertainty level associated with the plan-

ning and control processes of a project. It examines and discusses the following key areas of risk management:

- Evolution of risk management in project management operations
- Risk management as an essential element of a complete and effective project management approach
- Risk management planning, control, and reporting processes
- Application and acceptance of standard risk management approach for projects of the 21st century.

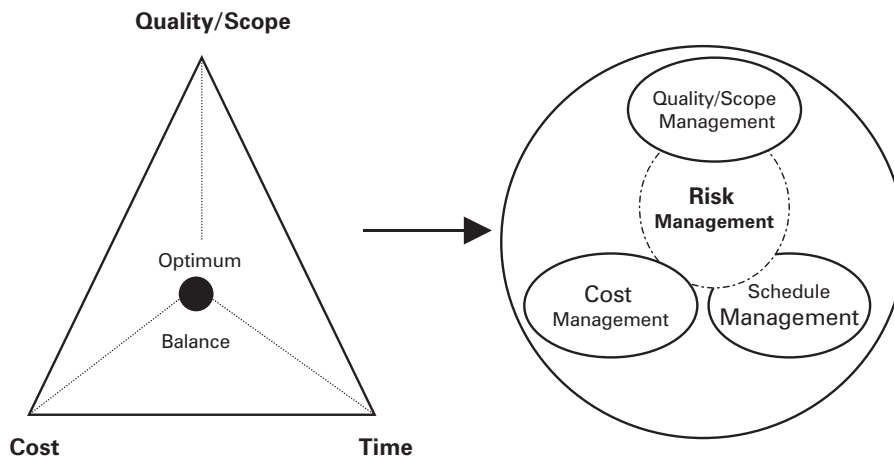
Evolution of Risk Management in Project Management Operations

In the evolution of project management; the traditional schedule, cost and technical aspects of a project have been considered as the main objectives of project managers. How well a project is managed largely depends on the effective implementation of a program in which the relationship between the schedule, cost and technical parameters is optimized ..ie.. the desired project's functional requirement is attained at the lowest practicable cost and in the shortest practicable time. Uncertainties, which could result in negative impacts on the project's future work, were reflected only through assumption experienced on the work already performed or other past project's records.

As pressures to complete more effectively and efficiently for business opportunities heighten, companies have been striving to refine and redefine their project management practices to comply with customer's contractual requirements and thus, increase their customer's satisfaction. In the 1980s came the need to integrate risk with schedule, cost and technical parameters in assessing performance management of projects as technology change is the only true constant in business, particularly in industries driven by rapid progress in the "state of the art" technology. Clients no longer accept unanticipated, surprised risks in their project's executions. Exhibit 1 illustrates the concept of risk management in project management operations.

It is only now, that project managers have learned the hard way that the successful implementation of project management requires not only other traditionally accepted

Exhibit 1. Risk Management in Project Management Operations



management approaches but also a formal, effective risk management approach that provides a basis for mitigating impacts associated with the project and its suppliers' structure. Risk management is justified on almost all projects in any type of industry, a subset of project management operations and complements schedule, cost, and technical management activities. The size and type of the project, the relationship to a company's strategic plan, the number of risks and the potential impacts of those risks to the project dictate how seriously risk management is addressed.

Risk Management as an Essential Element of a Complete and Effective Project Management Approach

Risk management is a management technique that identifies a concern that threatens the success of a project, focuses the project management attention on the concern, takes offensive action to avoid the concern, and implements plans to neutralize or minimize the impact of such a concern should it materialize and increase the probability of a project's success. It should also include a plan to maximize the results of positive events associated with the concern (beneficial risk). Risk management is a subset of project management activities, accomplished in parallel with traditionally established cost, schedule and technical management functions performed at both the project level and at the functional level. It is proactive, for example, the preparation for possible adverse events in advance rather than responding to them when they occur. This proactive approach gives project managers time to identify possible alternatives and action plans and select those that are the

most consistent with the project's objectives. Since risk has always been an integral part of a project and associated with uncertainties; risk management is a systematic approach to evaluate the uncertainty, isolate the critical ones, and formulate cost effective methods for minimizing those uncertainties and, thus, is an essential element of a complete and effective project management approach.

Risk Management Planning Control and Reporting Processes

Risk management is separated into two major areas, risk management planning and risk management control. The former includes those activities expected to be completed during the project start-up activities, which normally occur within the first three months following contract award during which time the project implementation plan is developed whereas the latter includes activities existing throughout the contract performance period. Risk management reporting identifies the project's risk status and lasts until all identified risks ceased to be threat to the project.

Risk Management Planning

Risk management planning starts with the identification of potential risks and ends with the completion of the risk management plan. This consists of eight processes:

1. *Risk Identification* is a process to identify all legitimate and manageable risks facing a project. Any potential risk that is neither a significant threat to the success of the

project nor an issue over which the project team has any meaningful level of control is eliminated from consideration. To identify project risk issues, all project leaders will be requested to provide individual lists of risk subjects relating to their respective areas of responsibility. They, then, will review their lists to ensure that each risk subject is actually a threat to the project's success and is within the control of the project team to influence. This process is implemented using the Work Breakdown Structure (WBS) as a framework of subjects to identify specific risk issues. The project manager or the risk manager (for large projects) will interview each project leader to identify potential problems for each WBS element. A composite list of risk subjects will be compiled for risk assessment.

2. *Risk Assessment* is a process to identify the probability and impact parameters for each risk issue. The probability parameter indicates the degree of likelihood that the risk will materialize and can be expressed in quantitative or relative terms. The risk impact is a measure of how the project will be affected if the risk issue materializes. Impacts are expressed in terms of cost and/or schedule and/or technical performance effects.

To assess project risk issues, the most direct manner is to estimate the probability and impact for each risk issue already identified by using engineering or management judgement and experience. Limited data gathering and basis analysis can support this "best judgement" approach to risk assessment. The project manager or the risk manager will analyze project risks and validate (using judgement) the probability and impact for each risk issue.

3. *Risk Issues Selection* is a process of identifying an appropriate set of key project risks that are real threats to the project's success, controllable by the project team and, together, are a risk set that can be manageable considering project resources. This will result in the list of actual risks to be managed by the project's risk management process. This list will be modified as the project progresses since new risks will surface and some risks will disappear. Guidelines for the number of risk issues a project manager will manage are difficult to establish. The project team will have to make a commonsense evaluation of all risks on the initial risk list and select a set of risks appropriate to manage.

4. *Risk Avoidance Approach* is a process necessary to reduce the probability of occurrence for each risk selected for risk management. Each functional area defines what actions should be taken to avoid or reduce the probability of occurrence of every risk selected for risk management. The cost effectiveness of prospective risk avoidance approaches must be considered. No specific method is recommended beyond commonsense and sound engineering/management judgement for the identification of this process.

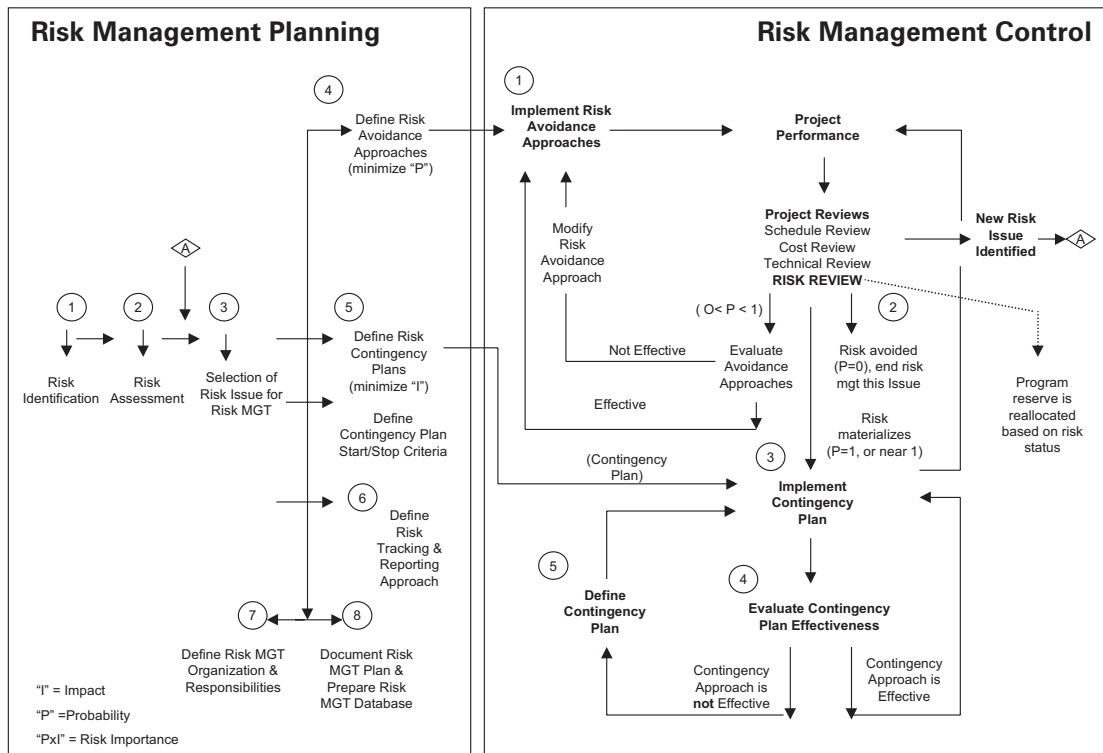
5. *Risk Contingency Plan Definitions and Start/Stop Conditions*. The risk contingency plan defines what must be done to minimize the effects of a risk that has materialized as a project problem. Additionally, the start/stop conditions for this action must be defined. Each functional area leader defines what contingency actions should be taken for each risk within their respective area of responsibility. No specific method is recommended beyond commonsense, sound engineering, and management judgement for the identification of these approaches. This has resulted in a contingency plan for each risk selected for risk management and a definition of what conditions must exist to initiate and end this risk contingency plan.

6. *Risk Tracking and Reporting Approach Definition* is a process in which the status of risk issue must be monitored to decide if the identified risk avoidance approaches remain appropriate for existing risks and if risk contingency plans are being effective for risks that have materialized. The approach in which this monitoring effort is to be accomplished and risk status collected, reported, and reviewed is defined by this process. Significant risks are to be reported in the Risk Problem Analysis Report. All functional managers define how each of their respective risk issues will be tracked. The project manager (or risk manager) will define how all of the risk status reports will be assembled, disseminated and addressed during the project review meetings. Risk management tracking, partially will be accomplished via a risk management database containing pertinent data for each risk issue. A segment of this database will be periodically updated as risk reports are provided. This will result in a definition of how the status of each risk will be tracked and how risk management activities will be supported and reviewed at the project level.

7. *Risk Management Organization and Responsibilities Definition* is the process of defining the risk management organization and its associated assigning responsibilities. It is the responsibility of the project manager (or risk manager) to define the risk management organization and the associated responsibilities for each individual. This will result in a risk management organization chart and table of associated responsibilities (Responsibility Assignment Matrix for Risk Management).

8. *Risk Management and Database Preparation*. Risk management planning's major output is a documented plan which assists all project team members gain a clear and common understanding of the way risk is to be managed on the project as well as their roles in this plan, for example, their specific responsibilities. A risk management database will be prepared to collect and report all risk management data. The project manager (or risk manager) will be responsible for the contents of the risk management

Exhibit 2. Risk Management Process Flow



documented plan. This will result in a setup of the risk management database.

Risk Management Control

Risk management control starts with the implementation of any risk probability reduction or risk impact minimization activities.

1. Risk Avoidance Approach Implementation: Various risk probability reduction approaches will be suggested for actual implementation, based on the previously defined risk avoidance approach and in accordance with the project implementation plan, e.g., Abatement involved developing and then implementing actions to reduce the likelihood that a risk will occur; mitigation to reduce the consequences of a risk or acceptance to accept the consequences.

2. Risk Reports and Reviews: Risk reports are to be developed periodically during project performance based on a risk database containing information for all project's active risk issues. The risk reports must contain all pertinent data about each risk being managed. They become an agenda item for both functional-level and project-level re-

views where risk issues status will be discussed. Much of the report will be static with certain areas requiring updates by the respective, responsible project team member who will present relevant risk status reports. The project manager (risk manager) will present consolidated risk status as part of the client's progress reviews. Subcontractors will report risk status in the same manner as the functional organizations.

3. Implementation of Risk Contingency Plan: The implementation of the given risk contingency plan is reported to the project manager (risk manager) for approval by the project team member responsible for a given risk issue.

4. Risk Contingency Plan Activities Evaluation: An evaluation of the effectiveness of each risk contingency plan implemented is made on a periodic basis and reported. The individual responsible for the respective risk issue will periodically evaluate the effectiveness of any implemented risk contingency plan actions and report the degree of effectiveness in the risk report. The frequency of evaluation should match the reporting frequency. The project manager (risk manager) will periodically review these evaluation reports for consistency of implementation. In each risk report, the status of risk contingency

plan activities should summarize those activities initiated to minimize the impact of risks that have materialized.

5. Redefinition of Contingency Plans: The respective project leader will implement the process of redefining the contingency plan approach for a risk issue should this be required.

Application and Acceptance of Standard Risk Management Approach for Projects of the 21st Century

Risk management is emerging as an essential process whose purpose is to take early, effective, and offensive actions against project's threats and, thus, increase the probability of project success that allow us to survive and profit in a competitive business environment. It has become a necessity in the decision-making process of project managers in all industries. Ignoring it in any project will increase the potential for project implementation failure. The risk management approach, as described in this paper, represents the cuttingedge process for measuring project uncertainty, portraying its likely consequences, and formulating strategies and tactics to deal with it effectively. It will significantly enhance project managers' approach to meet clients' commitments and objectives and plays a key role in shaping project management direction for the 21st century.