

Risk Management: Achieving Results Through People, Processes and Performance

By Ronald L Meier, PhD, Rodger B. Singley, PhD, and Michael R. Williams, PhD

The 2009 Quality Management Division conference theme is “Results Through People, Processes, and Performance.” Exactly what does this statement mean? Let’s start by defining “Results.” From an organizational perspective, business *results* measure an organization’s customer satisfaction, product and service performance, financial and marketplace performance, human resource performance, and operational performance. World-class organizations anticipate when and where the next product or service innovations will occur. So in preparing for the future, these world-class organizations maximize their existing resources, people, and processes in order to realize performance improvements.

The Quality Management Division’s Risk Management Technical Committee has identified a common misconception among managerial professionals: “The sole purpose of risk management is the avoidance/reduction of negative outcomes.” This article discusses how risk management not only can help an organization avoid negative outcomes but also can have positive impacts on people, processes, and overall organizational performance. For example, a company is concerned that misuse of a product exposes them to significant product liability risk. They need to modify both the product and its owner instruction manual. The modifications they implement not only reduce liability exposure but also increase ease of use and customer satisfaction. This scenario illustrates the benefits of looking beyond risk reduction to further improve product performance and competitiveness during risk management activities.

The Concept of Risk

The primary objective of project risk management is to increase the probability and impact of positive events while decreasing the probability and impact of negative events (Project Management Institute, 2008). This can be achieved only through data and information to support informed decision making. At the project level, risk management focuses on the continuous identification and assessment of risk. This is best achieved through a bottom-up approach where the work teams that may identify the risk develop the preventative and corrective action plans appropriate for the project’s activities.

Project risk management follows an iterative assessment process. Assessment starts with the identification, estimation and evaluation of the risks confronting a project. Then management creates a plan for monitoring and controlling the means to eliminate or reduce the likelihood or severity of the risks. The process should be performed continually over the life of the project—from initiation to closeout.

Consistent with the extensive literature in risk management, the QMD’s technical committee defines risk as “any deviation from the expected outcome” (Reida, 2001). This is an important distinction, as project management has traditionally defined risk in terms of *uncertainty* and *loss*. While uncertainty still holds true, there is a growing acceptance that risk also encompasses opportunity as well as loss.

We therefore need to define the potential opportunity along with the potential for failure. There are several types of opportunities that can be leveraged in projects:

1. Business opportunities, such as new product development, customer involvement, and focused attention on high profit margin projects,
2. Operational opportunities, such as value-added or lean, and
3. Systemic opportunities, which bring about long-term savings.

The failure is the negative side of risk associated with the “loss” of the opportunity.

Examples of the Upside or Opportunities Associated with Risk

Following are three examples of how risk management approaches and processes can create positive outcomes or opportunities for people, processes, and overall organizational performance.

Example #1

A manufacturing company is in the process of estimating the costs for purchasing an Enterprise Resource Planning (ERP) system. The total cost of the system (hardware, software and implementation) is \$6 million. Approximately \$1 million of the total cost is for computers, servers and the necessary hardware infrastructure to accommodate the ERP system. The \$1 million is today’s cost to purchase the required hardware. Technology purchases of this type are often characterized by the risk of prices decreasing after purchase. Based upon the project schedule, the computers, servers and hardware will not be required to be onsite for eight months. The computers, servers and other hardware components have a 45-day lead-time; therefore they need to be ordered in approximately six months. Historical data show that the cost of computers and hardware tends to go down over time. If the price of the computers drops 15% over the six months, then the new price for the computers will be \$850,000. This is a net savings of \$150,000, and as such, is considered a positive outcome. Remember, our definition of risk was “any deviation from the expected outcome.” The risk did not change; however, by waiting six months to order the computers, servers, and hardware, the organization realized \$150,000 in savings.

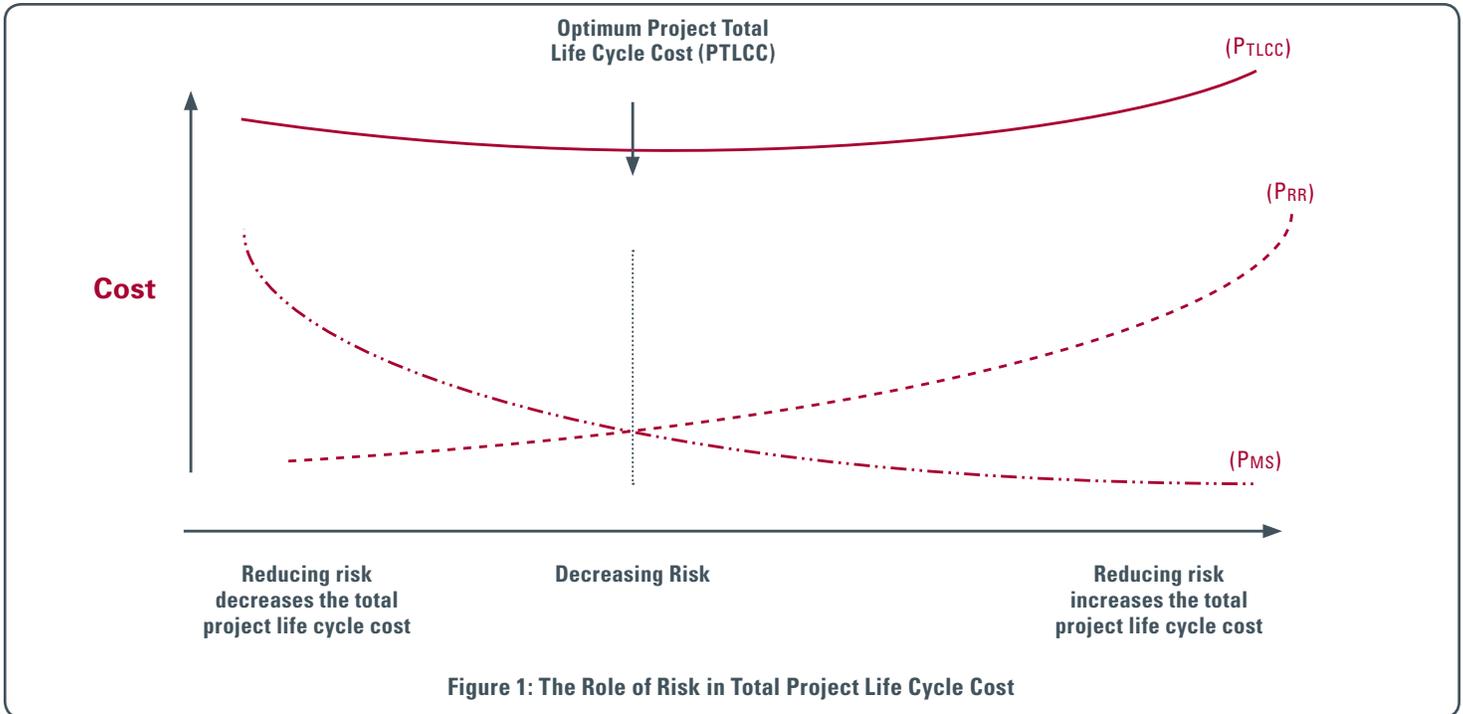


Figure 1: The Role of Risk in Total Project Life Cycle Cost

Example #2

A software development project is scheduled to take 180 days. The client would prefer earlier delivery and would get more value from earlier delivery. The client has worked closely with the project team to identify user requirements and establish a detailed project schedule. The client agrees with the project team and concurs with the 180-day development period. Several project team members have identified a new software unit-testing module that may allow delivery in 150 days, but the project team has no prior experience with the unit-testing module. The downside is this lack of experience and the learning curve that might be required. If the testing tool doesn't work out, delivery might take 210 days, rather than 180. The upside, or positive outcome, is the possibility of delivering the software 30 days early.

Example #3

A medium-sized new product development prototype will require about six months. The project team may be able to complete the work sooner using a new and untested rapid-prototyping process. This will allow the team to deliver the first iteration in three months, with monthly updates after that. There is a risk, however, that the new rapid-prototyping process will not work effectively. Also, the customer may reject utilizing a developmental prototype, and this would cause a delay in the project. Again, the opportunity or potential upside is the possibility of delivering the new product prototype up to three months earlier than scheduled.

Leveraging Positive Risk

Although most of the remaining discussion focuses on the traditional, negative aspects of risk, it is always beneficial to think about how the techniques of formal risk management presented here could be customized to successfully leverage positive risk.

As we probe further into project risk management processes and techniques, keep in mind that there are always trade-offs that need to be considered in terms of how much to invest in project risk management versus the expected payback over the project's life-cycle.

As illustrated in Figure 1, an optimum point of investment exists for determining resource allocations (monetary and people) to a formal project risk response and strategy selection plan. The x-axis represents decreasing risk; PTLCC represents the project total life-cycle cost; PRR is the project cost associated with investment in risk reduction activities; and PMS is the project maintenance and on-going support costs associated with successfully reducing risk. Starting at the origin, escalating expenditure in formal project risk management lessens the project risk while concurrently decreasing the total life-cycle cost of the project. However, beyond the optimal point, ongoing investment in risk reduction activities still reduces risk, but the cost of doing so quickly exceeds the benefits of further risk reduction (Meier and Williams, 1999).

Identifying the optimal project life cycle cost is a key decision factor that must be known when formulating the goals and objectives of a formal project risk management plan. The optimal point will influence the way we choose to manage project risks. Issues regarding risk avoidance, acceptance, mitigation and transference must be considered. Each project, and the needs of the organization at specific points in time, will most likely require customized project risk management solutions.

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Five Stages of Project Risk Management Maturity

An organization's competence in practicing project risk management can be separated into five stages. Organizations in the first two stages tend to approach risk management from a highly reactive perspective because they have not invested in the development of the people and processes required for a more sophisticated risk management program. Organizations in stages three and four have moved to a more proactive style of identifying and assessing risks; however, the emphasis is primarily on avoiding negative outcomes. Organizations in the final stage of maturity have the ability to reduce losses associated with risks while simultaneously maximizing positive opportunities. A comprehensive and systematic framework for developing this process can be encompassed in the five-stage model defined below (Meier *et al*, 2001).

1. **Ad-hoc Crisis Management:** Describes the organizational culture when risk identification is not seen as positive. Stage one is characterized by a lack of communication, which causes lack of coordination. Crisis management is used to address existing problems. Risks are often ignored, or tracked in ad-hoc fashion.
2. **Real-time Risk Management:** Details a shift from crisis management to project risk management. Team members become aware of risks but do not systematically address them. In stage two there is uncertainty as to how to communicate risks to middle and senior management. Risks are usually documented, tracked, and addressed as discovered.
3. **Prevention:** Shifts project risk management as solely a manager's activity to a project team activity. This is a transition from avoidance of risk drivers to identification and elimination of the risk's root cause. Stage three is characterized by project team—and sometimes stakeholder—involvement. It represents a turning point from a reactive to a more proactive approach to project risk management. Risks are methodically identified, analyzed, planned, tracked, and resolved.
4. **Quantitative Analysis:** Shifts from qualitative to quantitative risk management through the use of historical records and measures to anticipate predictable risks. This is characterized by the use of statistics and metrics to anticipate failures and predict future events. Stage four encompasses the project team's ability to learn from prior mistakes by adapting to and anticipating change. It embodies a proactive approach to project risk management. Quantified analysis is used to determine resolution cost/benefit for the project.
5. **Integrated Risk Management:** Represents a positive vision of project risk management that is used to innovate and shape the future vision and strategy of the

organization. In stage five risks are perceived as opportunities to save money and to do better than planned. Risk, like quality, becomes each stakeholder's responsibility. The realization that some things are not known is okay, and allowances are made for their existence using optimistic and pessimistic scenario planning. Risk data, information, and statistics are used to make organizational/process improvements.

Summary

This article started by examining how organizations can achieve results through people, processes, and performance. A well-conceived approach to project risk management requires having people who have progressed past the reactionary stages of project risk management and have begun to embrace more sophisticated approaches that emphasize opportunities or positive deviations from the expected norm. Such an approach requires people who are educated and trained in how to identify and assess risks within their own work environment, and who are capable of effectively deploying resources for selecting and carrying out the various project risk management strategies.

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Impacting Organizational Performance Through Enterprise Risk Management

By Michael R. Williams, PhD, Rodger B. Singley, PhD, and Ronald L Meier, PhD

Increasing Challenges for Business Managers

Escalating uncertainties regarding the global economic environment and ever-increasing competitive pressures continue to raise the bar with respect to organizational performance. As a result, today's managers are confronted with a growing list of factors that must be effectively identified and controlled in order to assure the performance and viability of the enterprise. However, the tools available for managing these evolving challenges to performance have not changed. Most organizations continue to rely upon a patchwork of spreadsheets, non-systemic legacy solutions, and manual processes that are even further fragmented by the functional areas comprising the organization. Such a traditional approach has produced less than desirable results and is not adequate in the current competitive environment. Our forthcoming book, *Impacting Organizational Performance through Enterprise Risk Management*, advances a new approach that integrates concepts from project and quality management into an enterprise-wide framework. This approach is the PQR solution.

The PQR Solution

Based on actual applications and experience, this book develops an innovative, effective, and efficient management system capable of dealing with these evolving challenges and yielding enhanced performance for the organization. There are two keys to this more effective solution:

1. The recognition that factors impacting performance originate as discrete events at the process or work package level where they are first introduced and encountered. Consequently, managing these factors requires that they be addressed at that level rather than

at some later time and at a different level in the organization's managerial hierarchy. If you remove the fuel, there will be no fire to put out later.

2. The integration of the underlying strategies, practices, and tools from three distinct approaches: project management, quality management, and enterprise risk management. Project management provides the structure for addressing impact factors at the process and work package level. Quality management contributes an assortment of tools that have proven to be effective. Enterprise risk management contributes a perspective and methodology for addressing unknown and/or uncertain events across the entirety of an organization rather than being limited to just one functional area of the enterprise.

Merged together, these concepts from project, quality and enterprise risk management yield a more effective method for dealing with both expected and unexpected events that can impact performance—the PQR solution.

Risk (uncertainty) is ever present in all business enterprises; its forms include operational failures, fires and storms, employee injuries, regulations and legal challenges, changing customer expectations, supply chain disruptions, competitor innovations, and new players in the marketplace. Increased globalization and greater chances of operational and financial turbulence escalate the uncertainties that keep managers up at night. In the future, uncertainties in business promise to be even more challenging. For example, numerous studies involving executives in North America and Europe point to expectations that emergent and non-

traditional business risks will continue to increase in both number and severity (AIRMIC, 1999; Williams, Meier, and Humphreys, 1998).

These indicators present a compelling argument for organizations to develop and implement integrated and enterprise-wide risk management programs that allow risks to be effectively managed across a broad front. To be effective, risk management must be integrated across the business enterprise and implemented at the organizational level where the risk is first encountered or introduced into the system. But the silo perspective of the traditional organizational structure does not promote such a broad and integrated approach to identifying and managing risks. As a result, organizations struggle to successfully implement enterprise risk management programs—in spite of the many significant benefits produced through an integrated program of managing risks across the organization. Integrated, organization-wide risk management has yet to become embedded in most organizations' day-to-day activities. The impact of this impediment is underscored by the Conference Board's recent survey of executives, which found that 90% strongly favor building an enterprise risk management process into their organizations; but only 11% have actually implemented such programs, and many of these are not fully integrated across the organization (Green, 2005; More Corporate Boards, 2008).

If enterprise risk management is such a great idea, why hasn't it been effectively adopted and practiced? In addressing this question, *Impacting Organizational Performance through Enterprise Risk Management* uses the author team's 40 years of research and industry experience

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to effectively integrate concepts and tools from traditional project, quality, and risk management.

The Role of Risk Management

Risk management has evolved into a sophisticated discipline, complete with theoretical models and scientific approaches to analysis and control. The perception of risk has also shifted from its origination as an inexact and subjective concept to one that can be mathematically expressed and assessed. Risk is defined in terms of uncertainty, the relative variation in possible outcomes that exist in a given situation. Thus, risk can be expressed mathematically as the variation or dispersion of possible outcomes around the mean, measured in terms of dispersion such as standard deviation and analyzed through the use of mathematical and statistical methods. This shift toward quantitative risk analysis has been accompanied by a more scientific approach to risk management structured along a sequential four-step process:

1. Identify potential risks
2. Evaluate the potential impact of the risks
3. Select appropriate techniques for dealing with the risks
4. Implement and manage the solutions.

Our book reviews each phase in the process to enhance the reader’s understanding. This is the first step in developing a functioning application of enterprise risk management based on the integration of the risk management process with the tenets of project management and quality management. With the goal of providing a prescriptive guide for business managers, the book explains and illustrates the key risk management processes and tools in order to facilitate the use of these applications in day-to-day operations.

The Role of Project Management

Experience has shown that the concept of enterprise risk management works great in theory but can break down in its application. At its core, enterprise risk management is a framework that cuts across an organization’s silos to identify

and manage potential risks. A good framework must detail how the risk identification, assessment, measurement, and management processes will be undertaken and must specify who has the responsibility for each. In practice, however, the process is most often managed from the top down, with responsibility assigned to senior management (e.g., Risk Manager, Chief Risk Officer, and Chief Financial Officer) and it can be viewed as a threat by other functional areas of the organization. As a result, the *integration* required for effectively coordinating risk management across the organization breaks down in practice.

Examination of the decision-making and risk perspectives commonly found across the different levels of organizational management (Fig. 1) provides insight into the challenges of managing enterprise risk from the top down. Responsibilities of upper level executives require them to focus on strategic issues. It is rare to find them engaged in the tactical decisions and activities undertaken in the day-to-day business of the organization. As a result, they lack the experience to meaningfully employ effective risk

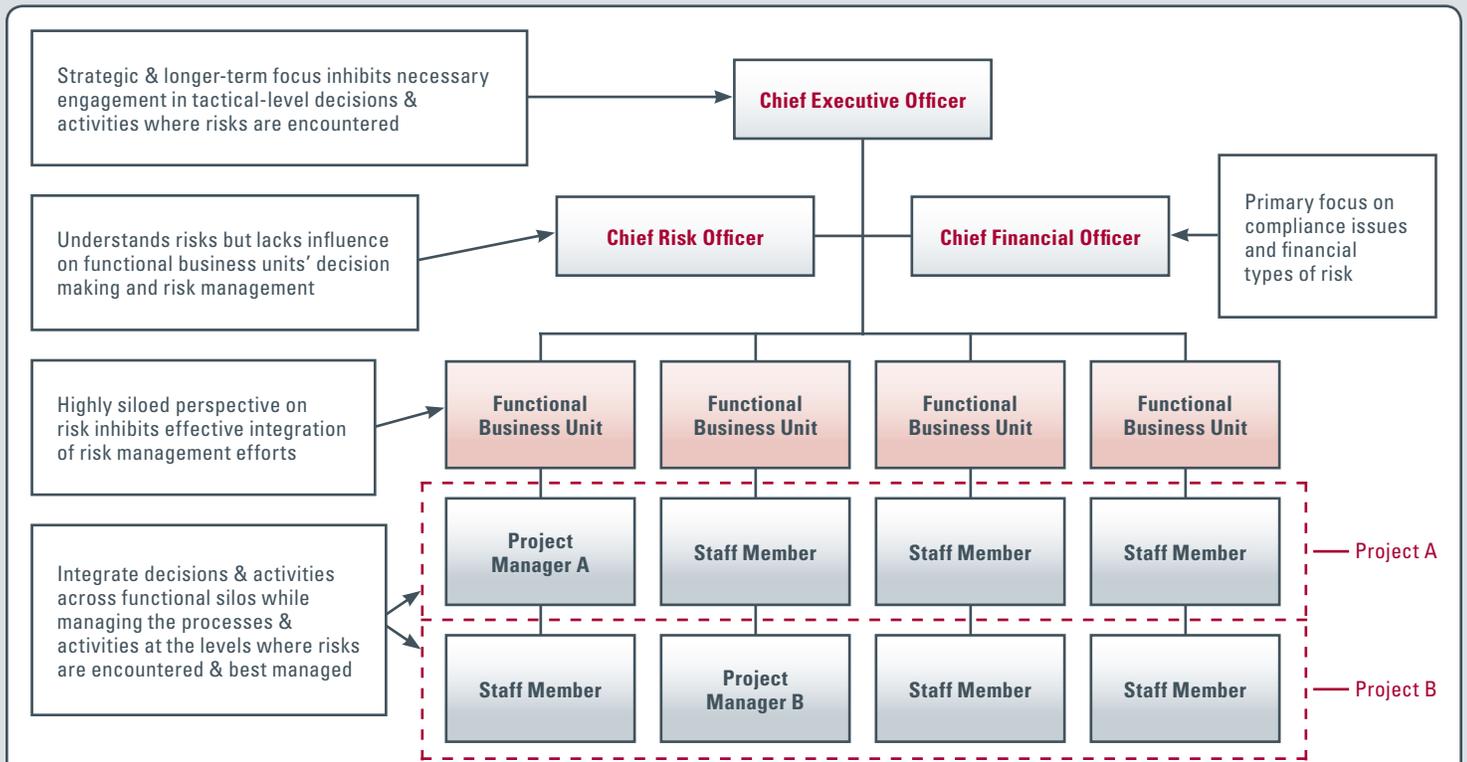


Figure 1: Differing Perspectives on Risk Across the Organization

analysis and management. Although CFOs are often found as the lead drivers of risk management in an organization, their primary focus is on compliance issues and financial risks, at the expense of a more integrated approach to enterprise risk. The role of Chief Risk Officer developed as an executive-level position to champion enterprise-wide risk management. Having no formal ties to any functional area of the organization might enable this position to approach risk management in a more holistic manner across the organization's functional areas. However, the lack of formal ties also suggests that the position lacks familiarity and understanding of the risks inherent in different functions and therefore cannot effectively influence the integration of risk management efforts across the functional areas. Managing risk at the functional business unit level presents an opposite challenge because the resulting silo perspectives on risk inhibit the effective integration of risk management efforts.

Our book's PQR solution addresses the lack of success in effectively applying enterprise risk by integrating risk management concepts into the structured practice of project management. It is at the project level—where tactical decisions are made and work is actually performed—that risks are encountered. It follows that the project level is the logical place to identify and manage risks. Expertise and familiarity with potential outcomes is present at this level. In addition, project teams consist of members drawn from multiple functional areas, which better enables risk management decisions to be integrated and coordinated across functional lines in ways that bypass the silo perspective.

The Role of Quality Management Tools

Defined as variation between possible outcomes and expected outcomes, the contemporary perspective of risk lends itself to analysis and management using proven tools and techniques from the quality management discipline. As the third leg of the three-part solution developed and explained in this book, specific quality tools are linked to each step of the

structured risk management process. For example, the book presents affinity analysis and concept mapping as quality tools that can enhance risk identification. Quality tools such as Pareto charts, decision/fault tree analysis, correlation analysis and scatter diagrams, root-cause analysis, and control charts are demonstrated as effective techniques in the risk analysis stage of enterprise risk management. Decision matrix diagrams, value-added analysis, prioritization matrices, flow charts, contingency diagrams, and process decision program charts are among the selected quality tools illustrated as managerial aids for successfully dealing with risks across the enterprise.

Benefits for the Reader

There is little debate concerning the significant benefits flowing from an organization's successful implementation of a risk management program that is integrated—even coordinated—across the organization. Ideally, decision makers would evaluate a proposed project's impact on the overall organization and would orchestrate coordinated strategies and trade-offs based on proper risk-return analyses. Nevertheless, in reality, it has proven difficult to integrate a risk management perspective throughout an organization such that it becomes the preferred and natural way to approach problems and decisions and to initiate processes and activities. To date, the benefits of enterprise risk management have proven somewhat elusive.

Our book describes and explains a proven solution to the lack of success in adopting enterprise-wide risk management: augmenting risk management concepts and theories with proven quality management tools and techniques, while integrating the enhanced risk management process with the project management perspective for collaborative decision making at the process or work package level. Traditional risk management in business has been associated primarily with finance and insurance and has been practiced at the upper levels of the organization. But enterprise risk management is a much broader concept—one that is more effectively practiced at the project level, where exposures and risks are initially

introduced into the hierarchical value stream of projects. This project level perspective is the foundation for successful application of enterprise risk management using the accepted tenets and techniques of risk and quality management. Understanding how these concepts and processes work together enhances managers' decision-making capabilities and enables them to positively impact both project and organizational success.

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