Risk Management Objectives for Project Success

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ABSTRACT: Project Risk Management is a structured approach that focuses on the systematic identification, evaluation and control of project risks. Integrating Project Risk Management into day-to-day project activities, project management can gain significant insights to increase the chance of project success and raise risk awareness amongst project staff. This paper provides an overview of the principles and elements of Project Risk Management, and discusses the benefits of applying Project Risk Management.

1. Introduction

On time, on budget and meeting users requirements have traditionally been the very objectives for project success. However, the complexity of today's project environment often makes it more difficult than ever to ensure projects meeting their objectives. Project performance statistics show that nearly 50 percent of infrastructure projects cannot meet schedule or are over budget, 25 percent fails completely, and only 25 percent actually succeed [1]. A recent research reveals that cost overruns of 50-100% are common for major infrastructure projects[2]. For instance, the cost overrun for the Channel Tunnel project is estimated at more than 100% of the original budget; for the Great Belt Link between Germany and Denmark an overrun of 55% had been incurred three years before the planned completion of the project.

Projects can fail in various ways. Without a comprehensive, systematic approach, it is not possible for a project management team to realize the dominating factors that lead to the failure of a particular project and apply resources effectively and timely. Once a problem reveals itself, it is often too late for the project team to react and mitigate the consequence. Thus, a tool that aids the project team to proactively identify and mitigate the risks to projects would be valuable to management in controlling the risks of project failure. Project Risk Management is such a tool that has been gaining recognition of its potential to improve the odds of project success.

2. Project Risk Management

Project Risk Management is not a measure of the risks posed to the worker, the public, or the environment.

Every project requires a deliverable, a delivery date, a budget, a set of acceptable criteria, and a nominated person to receive it; Project Risk Management is a measure of the risks in a project's ability to meet these requirements. It is a management technique that focuses on the identification and control of the probabilistic occurrence that can have a potential to cause harm to a project[3].

Project Risk Management is not only about adjusting the project plan to maximize the probability of meeting the project goal. Project Risk Management is a structured approach that can guide a project team in identifying the risk levels of threats, the severity of potential failures and the uncertainties. To apply Project Risk Management effectively and, it should be embedded in nearly every facet of the planning and implementation of a project.

This Risk Management Standard is the result of work by a team drawn from the major risk management organisations in the UK -The Institute of RiskManagement (IRM), The Association of Insurance and Risk Managers (AIRMIC) and ALARM The National Forum for Risk Management in the Public Sector. In addition, the team sought the views and opinions of a wide range of other professional bodies with interests in risk management, during an extensive period of consultation. Risk management is a rapidly developing discipline and there are many and varied views and descriptions of what risk management involves, how it should be conducted and what it is for. Some form of standard is needed to ensure that there is an agreed:

- terminology related to the words used
- process by which risk management can be carried out
- · organization structure for risk management
- Objective for risk management

Importantly, the standard recognizes that risk has both an upside and a downside. Risk management is not just something for corporations or public organizations, buffer any activity whether short or long term. The benefits and opportunities should be viewed not just in the context of the activity itself but in relation to the many and varied stakeholders who can be affected. There are many ways of achieving the objectives of risk management and it would be impossible to try to set them allout in a single document. Therefore it was never intended to produce a prescriptive m standard which would have led to a box ticking approach

nor to establish certifiable process. By meeting the various component parts of this standard, albeit in different ways, organizations will be in a position to report that they are in compliance. The standard represents best practice against which organizations can measure themselves[4].

3. A Holistic Vision of Software Risk Management

The complex process of software acquisition encompasses most, if not all, aspects associated with software risk management. Thus, it seems natural to focus on the entire life cycle of the software acquisition process in developing a holistic vision of risk management. Indeed, risk management of software engineering cannot be restricted to any subset or a single phase of the life cycle of software development[5].

The following objectives of the overall methodological framework for software risk management apply to software-intensive systems.

1. Improve the process of software acquisition in organizations.

2. Improve software risk management methodology, technology, and practice in the acquisition process.

3. Improve the access to, acquisition, repository, use, and integration of information and data for software acquisition in industry and government[6].

4. In general, institutionalize risk management and decision support within the software acquisition community and make it an integral part of the community's practice.

4. Software Risk Management Methodologies

Although the Risk Paradigm is not considered a "methodology" per se, it is discussed under the methodological dimension. The Risk Paradigm transcends all risk analysis activities discussed earlier; for this reason, it constitutes the foundation of each stage in the spiral form depicted Similar reasoning applies to the Risk Taxonomy [Carr 93] and to the RiskClinic. The taxonomy provides a framework for organizing and studying the breadth of software development issues and hence provides a structure for surfacing and organizing software development risks. Since several of the methodologies discussed here make use of the Risk Taxonomy, it is presented along with the risk management paradigm as "Basic Constructs to Risk Management." The Risk Clinic is a workshop that constitutes an important part of CRM and TRM[7].

5. Deployment of the SEI Risk Management Program

One of the major problems facing software engineering today is the lack of accessible data about development practices and the use of software products. Currently, risk management data are buried within projects and not available to the wider community. Consequently, software engineers are forced to resort to non-empirical arguments in deriving or evaluating many software engineering methods and tools[8].

The Software Engineering Risk Repository (SERR) is the response of the SEI to this urgent need for an informative database [9]. The SERR is planned to be a national on-line service where widely dispersed information on the development and transfer of software technology will be collected or made available through a variety of sources, including already existing online data-bases, data-gathering instruments such as interviews, questionnaires, reports, and case studies, and printed materials that can be scanned on-line. Technology transfer is a social process which is dependent on the creation of shared meaning and interpretation. Often this is only achievable through sharing trial-and-error experiences with other groups undergoing similar learning and discovery processes [10]. This sharing of experience is an important basis for the construction and dissemination of most software engineering methods, tools, and approaches. The ultimate goal of SERR is to provide a mechanism where the transfer, reception, and evaluation of advanced software engineering process technologies can be communicated, interpreted, and negotiated. The effectiveness of such a mechanism depends on the extent to which relevant and accessible information is made available. In this section, highlights from SEI field work are shared with the reader.

6. Conclusion

This paper presents a brief summary of the methodologies developed by the SEI for the management of risk associated with the acquisition, development, and use of software. Although software continues to grow in importance as a critical system component and, more importantly, as an overall system integrator, major sources of risk the user, the customer, and the contractor communities. The methodologies presented in this paper shed some light on the professional community's effort to assess and ultimately control these inherent risks. Clearly, as systems become increasingly more complex, individual knowledge, judgment, and expertise will not suffice and systemic methodologies for risk management such as those presented in this paper become imperative. This observation, which is based on SEI experience in the deployment of software risk methodologies, is further amplified by the fact that software risk is among the least measured or managed in a system today.

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