SUBJECT

RISK ANALYSIS

SESSION 2 Formulating decision problems

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Identifying Risks in Your Project

All projects have risks. It is the job of the Project Manager to identify these risks as part of the Risk Management Planning Process. Risk Identification determines which risks might affect the project and documents their characteristics. Participants in risk identification activities can include the following, where appropriate: project manager, project team members, risk management team (if assigned), subject matter experts from outside the project team, customers, end users, other project managers, stakeholders, and risk management experts. While these personnel are often key participants for risk identification, all project personnel should be encouraged to identify risks. I worked on a project where we used several of these techniques. I will point those out to you in the following sections.

Risk identification is an integrative process. The frequency of iteration and who participates in each cycle will vary from case to case. The project team should be involved in the process so that they can develop and maintain a sense of ownership of, and responsibility for, the risks and associated risk response actions. Stakeholders outside the project team may provide additional objective information. Especially important is the risk tolerance of the Stakeholders. This is invaluable information in Risk Planning.

The Risk Identification process usually leads to the Qualitative Risk Analysis process. Alternatively, it can lead directly to the Quantitative Risk Analysis process when conducted by an experienced risk manager. On some occasions, simply the identification of a risk may suggest its response, and these should be recorded for further analysis and implementation in the Risk Response Planning process.

Documentation Reviews
A structured review may be performed of project documentation, including plans, assumptions, prior project files, and other information. The quality of the plans, as well as consistency between those plans and with the project requirements and assumptions, can be indicators of risk in the project.

Information Gathering Techniques
I worked on a project where we spent three days planning the project. We engaged several experts in our technology to help us with the Information

Gathering Techniques. This helped the project a lot since we (the project team) were not experts at the time of the project. They were very helpful in the brainstorming and Delphi techniques. During each following phase of the project, the Risk list should be looked at to see if any further risks have been identified.

Examples of information gathering techniques used in identifying risk can include:

- **Brainstorming.** The goal of brainstorming is to obtain a comprehensive list of project risks. Our project team performed the brainstorming with a multidisciplinary set of experts not on the team. Ideas about project risk are generated under the leadership of a facilitator. Categories of risk such as a risk breakdown structure can be used as a framework. (see earlier post) Risks are then identified and categorized by type of risk and their definitions are sharpened.
- **Delphi technique.** The Delphi technique is a way to reach a consensus of experts. We used Project risk experts as well as Technology experts to participate in this technique anonymously. A facilitator uses a questionnaire to solicit ideas about the important project risks. The responses are summarized and are then sent back to the experts for further comment. Consensus may be reached in a few rounds of this process. The Delphi technique helps reduce bias in the data and keeps any one person from having undue influence on the outcome.
- **Interviewing.** We also interviewed experienced project participants, stakeholders and subject matter experts to identify risks. Interviews are one of the main sources of risk identification data gathering.
- **Root cause identification.** This is an inquiry into the essential causes of a project's risks. It sharpens the definition of the risk and allows grouping risks by causes. Effective risk responses can be developed if the root cause of the risk is addressed.
- **Strengths, weaknesses, opportunities, and threats (SWOT) analysis.** This technique ensures examination of the project from each of the SWOT perspectives, to increase the breadth of considered. Our project team used this technique to more fully examine the risks that had been identified.
- **Checklist Analysis.** Risk identification checklists can be developed based on historical information and knowledge that has been accumulated from previous similar projects and from other sources of information. This means you have to record project information at the end of the project to build the historical database. The lowest level of the risk breakdown structure can also be used as a risk checklist. While a checklist can be quick and simple, it is impossible to build an exhaustive one. Care should be taken to explore items that do not appear on the checklist. The

checklist should be reviewed during project closure to improve it for use on future projects.

- **Assumptions Analysis.** Every project is conceived and developed based on a set of hypotheses, scenarios, or assumptions. Assumptions analysis is a tool that explores the validity of assumptions as they apply to the project. It identifies risks to the project from inaccuracy, inconsistency, or incompleteness of assumptions.
- **Diagramming Techniques.** Risk diagramming techniques may include:
    - **Cause-and-effect diagrams.** These are also known as Ishikawa or fishbone diagrams, and are useful for identifying causes of risks. We used these frequently in projects.
    - **System or process flow charts.** These show how various elements of system interrelate, and the mechanism of causation. Seeing the flow sometimes triggers someone to identify a risk that may have slipped through the cracks.
    - **Influence diagrams.** These are graphical representations of situations showing causal influences, time ordering of events, and other relationships among variables and outcomes.

You can never spend too much time in identifying risks. After the list is made, qualitative and quantitative analysis is done to figure out which risks you spend time and/or money on. Murphy's law is always a good one!

Risk Management Plan

What Goes Into a Risk Management Plan?

Whenever I managed a project, I paid a lot of attention to the Risk Management Planning. PMI is working on a Standard for Risk Management which can tell you just how important it is to make or break a successful project. It is a subject worthy of an entire standard.

The things the Risk Management Plan includes are:

1. **Risk Management Planning –** this is deciding how to approach, plan and execute the risk management activities for a project.
2. **Risk Identification –** this determines which risks may affect the project and documenting their characteristics. Some risks are not important enough to do further work on them. This all depends on the risk tolerance of the Stakeholders. For example, if you were buying a car and identified the risks as having a major repair or replacing a tire, you may consider the risk of replacing a tire not to be of significant consequence to stop you from

buying the car. If, however, you thing the risk of losing the engine block to be high, you would probably pass on the car.

3. **Qualitative Risk Analysis –** this is the process of prioritizing risks for subsequent further analysis or action by accessing and combining their probability of occurrence and impact. In the car analogy, replacing the tire may have a high probability but a low impact. In this case, you may cease to analysis it further but perhaps put a budget contingency in for the possible replacement.
4. **Quantitative Risk Analysis –** this is where you numerically analyze the effect on the overall project objectives of the identified risks.
5. **Risk Response Planning –** for a subset of the identified risks, you develop options and actions to enhance opportunities, and to reduce threat to project objectives. Note: not all risks are bad. You may have a risk of getting increased resources.
6. **Risk Monitoring and Control –** this is where you track identified risks, monitor residual risks (that may come from an action to reduce the primary risk), identify new risks, execute risk response plans and evaluate their effectiveness during the project life cycle.

These processes interact with each other and with the processes of the other knowledge areas. Each process can involve effort from one or more groups of team members based on the needs of the project. Processes in practice may overlap and interact in details not presented in this post. I will write a separate post talking about process interactions

A **Risk Management Plan** is a document that a project manager prepares to foresee risks, estimate impacts, and define responses to issues. It also contains a risk assessment matrix.

A risk is "an uncertain event or condition that, if it occurs, has a positive or negative effect on a project's objectives."[1] Risk is inherent with any project, and project managersshould assess risks continually and develop plans to address them. The risk management plan contains an analysis of likely risks with both high and low impact, as well as mitigation strategies to help the project avoid being derailed should common problems arise. Risk management plans should be periodically reviewed by the project team to avoid having the analysis become stale and not reflective of actual potential project risks.

Most critically, risk management plans include a risk strategy. Broadly, there are four potential strategies, with numerous variations. Projects may choose to:

- **A**void risk — Change plans to circumvent the problem;

- **C**ontrol/Mitigate risk; — **R**educes impact or likelihood (or both) through intermediate steps;
- **A**ccept risk — Take the chance of negative impact (or *auto-insurance*), eventually *budget* the cost (e.g. via a contingency budget line);
- **T**ransfer risk — Outsource risk (or a portion of the risk - **S***hare risk*) to third party/ies that can manage the outcome. This is done e.g. financially through insurance contracts or hedging transactions, or operationally through outsourcing an activity.

(Mnemonic: **SARA** for **S**hare **A**void **R**educe **A**ccept, or A-CAT for "Avoid, Control, Accept, or Transfer")
Risk management plans often include matrices.

The United States Department of Defense, as part of acquisition, uses risk management planning that may have a Risk Management Plan document for the specific project. The general intent of the RMP in this context is to define the scope of risks to be tracked and means of documenting reports. It is also desired that there would be an integrated relationship to other processes. An example of this would be explaining which developmental tests verify risks of the design type were minimized are stated as part of the Test and Evaluation Master Plan. A further example would be instructions from 5000.2D [2] that for programs that are part of a System of systems the risk management strategy shall specifically address integration and interoperability as a risk area. The RMP specific process and templates shift over time (e.g. the disappearance of 2002 documents Defense Finance and Accounting Service / System Risk Management Plan, and the SPAWAR Risk Management Proces

Document Purpose

The Risk Management Plan describes how risk management will be structured and performed on the project to ensure risk are being managed and controlled at acceptable levels. Risk in a project environment cannot be totally eliminated. The objective of a risk management process is to minimize the impact of unplanned incidents on the project by identifying and addressing potential risks before significant negative consequences occur.

The Risk Management Plan also becomes a subset of the Project Management Plan.

Definition

Definition of Risk Management: The formal process by which risks factors are systematically identified, assessed, and responded to. Risk management concentrates on identifying and controlling areas or events that have a potential of causing unwanted change. (Note that opportunities, also known as positive risk, should also be managed/exploited. This document is focused on mitigating negative risk, rather than maximizing positive risk.)

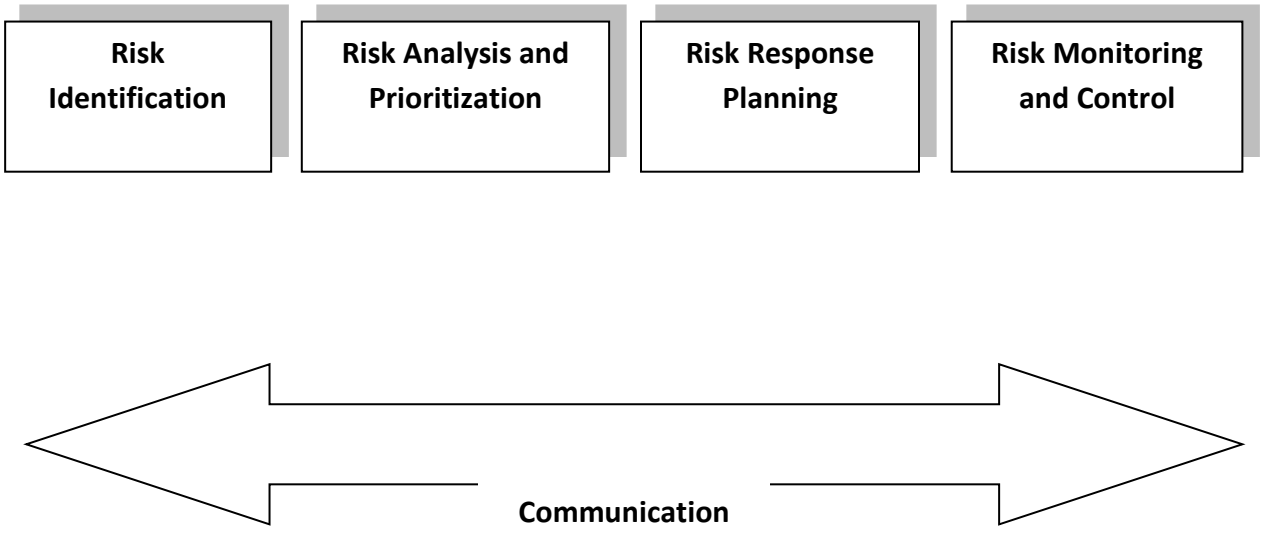
Definitions, Acronyms, and Abbreviations

Risk	A potential undesirable and unplanned event or circumstance*, anticipated in advance*, which could prevent the project from meeting one or more of its objectives.
Issue	An event or circumstance that *has occurred* with project impact that needs to be managed and resolved, with escalation if appropriate.
Task / Action Item	Work packages from the Work Breakdown Structure (WBS) or work resulting from project meetings or conversations.

Risk Management Approach

The project team will implement a continuous risk management process which entails two major processes – risk assessment and risk mitigation.

Risk assessment includes activities to identify risks, analyze and prioritize. Risk mitigation includes developing risk contingency and mitigation strategies, as well as monitoring the impact of the issue, action items, strategies and residual risks.



Risk Tolerance

The company has a very low threshold for risks to:

- The client experience
- The experience of users who directly support the client
- Non-public information (NPI)
- Potential for fraud or loss related to insufficient control or security

Risk Management Tasks

Risk Management activities are documented in the Risk Management workbook. The workbook is used to identify, prioritize, analyze, and plan a risk response.

Risk Identification: The process of determining which risks may affect the project and documenting their characteristics.

- **Risk Assessment:** The Risk Assessement and Mitigation tab in the Risk Management workbook has a set of questions that need to be answered that help determine the risk level of the project. Each question has a potential rating of High, Medium, or Low in terms of potential impact.
- **Risk Register:** This is located on the project's SharePoint site where project specific risks can be entered. All risks identified through any means should be entered individually in the Risk Register on SharePoint. Like all company documentation, discretion should be used in documenting risk: all statements should be fact-based and conclusions should be reviewed by management (and if appropriate, Legal.) Risks should be stated in a standard format, to help the team stay focused on risks versus root causes and results: Cause – Risk – Effect.
    - Cause: specific situation that introduces risk
    - Risk: uncertain event that can impact the project
    - Effect: potential consequences of the risk occurring

Example: A shortage of skilled Business Analysts (cause) could result in many missed requirements (risk), leading to rework or customer dissatisfaction (effect).

Risk Analysis: The process of analyzing and prioritizing risk. The analyzing and prioritizing of risks is done in the Risk Management Workbook on the Risk Assessment-Mitigation tab and in the Risk Register. Risks are prioritized as High, Medium or Low. The prioritization of risks, determines other steps that may need to happen.

Risk Response Planning: The process of developing options and actions to enhance opportunities and to reduce threat to project objectives. Mitigating actions are documented on the Risk Assessment and Mitigation tab in the Risk Management workbook and in the Risk Register. If a risk is prioritized as High, then mitigating actions must be documented (area is unshaded). If a risk is prioritized as Medium, then mitigating actions are recommended, but not required. If a risk is prioritized as Low, then mitigating actions are not required.

- **Mitigating Actions to Consider**
  - Risk Avoidance - Actions taken to eliminate the source of risk (e.g. change vendor, lower requirements, change project team member, etc.)
  - Risk Mitigation - Actions taken to mitigate the severity and consequences of a risk (e.g. greater training, delayed deployment, etc.)
  - Risk Transfer - The transfer of risk from one group to another (e.g. purchasing insurance, etc.)
  - Risk Monitoring - The monitoring and periodic reevaluation of a risk for changes to key risk parameters
  - Risk Acceptance - Acknowledging the risk but not taking preventive measures

- **Risk-related change to Scope/Time/Cost**

  The risk response planning process may result in a decision to avoid a risk by changing the project, or to mitigate a risk by taking action to lesser the probability and/or impact in the event the risk occurs. Whenever risk response planning results in potential change to the project, that change must first be requested, analyzed and approved in accordance with the project's Change Management Plan and related processes.

Risk Monitoring and Control: The process of implementing risk response plans, tracking identified risks, monitoring residual risks, identifying new risk, and evaluating risk process effectiveness throughout the project.

- **Monitoring Risks:** Project teams should review project risks and on regular basis to determine if there are any new project risks and to determine if any actions are needed (if a risk turns to an issue).

- **Escalation:** If a overall project risk is:

    - **Low:** Project risks are low and therefore no additional review need to occur.

    - **Medium:** Project risks should be reviewed on a monthly basis by the Business Owner, Technical Owner and core project team.

    - **High:** Project risks should be reviewed on a monthly basis by the Project Sponsor and Project Steering Committee.