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## **Welcome to Primera Events Management Company Risk Management**

Everything in business involves some level of risk. No matter the activity, there is an element of risk that must be analyzed and weighed against the potential rewards.

The best organizations are those who can identify the right risks to take on, and the ones to avoid. Dealing with too little risk often means that the organization is being too conservative and is limiting their potential for growth – too much risk, however, and the company is likely to crash and burn at some point along the way.

As projects are a regular part of business, it only stands to reason that they incur a certain level of risk as well. Managing project risk deals with the activities involved in identifying potential risks, assessing and analyzing them, finally monitoring them throughout the life of a project. Every project will have a unique set of risks based on the specific details of the work being done. It is often up to the project manager to outline these risks ahead of time and include them as part of the overall plan of the project.

Dealing with the risk inside of a project isn't much different from dealing with any other business risks that you encounter. While it probably isn't possible to foresee all potential risks that could come down the line, planning for as many of them as you can will give the project the greatest chance at success.

- **Identify Risks:** Before a project even gets started, it is important that any potential risks are identified and a strategy for managing such risks developed. One of the best ways to do this is by learning from past experience – either your own experiences or those of the organization as a whole. (Chapter 3)
- **Analyze & Evaluate Risks:** With a list in place that highlights which risks you will be taking on during the project, you can start looking closely at each of them and deciding what kind of threat they actually are. Is the risk something that would do long-term damage to the organization if it came to pass? (Chapter 4)
- **Treat Risks:** No one likes to have to deal with risk, but it is an unavoidable part of doing business. The goal is to make the level of risk acceptable to the organization and to take steps that minimize the element of risk as much as possible. (Chapter 5)
- **Monitor & Review Risks:** Initial risk management plans will never be perfect. Risk analysis results and management plans should be updated periodically. (Chapter 6)

## 2. Threats and Opportunities



A risk is a future event caused by external or internal vulnerabilities that may or may not happen, but if it does occur it will have an **effect on project scope, schedule, budget, or quality**. It may have one or more causes and, if it occurs, it may have one or more impacts.

All project activities carry some element of risk, which are uncertainties about them that could affect the project for better or worse. It is important to understand the difference between business risks and project risks. Business risks are more general and relate to the organization, whereas project risks relate specifically to the project objectives.

Risks include both **threats and opportunities** that project managers must assess. Opportunities do have uncertainty associated with them, but they

should be grasped, and action should be taken to ensure that they are realized.

Risks include 1. threats (negative impacts) and 2. opportunities (positive impacts).

Threats have potentially negative impacts that the project management team should strive to mitigate. Organizations and stakeholders are willing to accept varying degrees of risk. This is called **risk tolerance**. Risks that are threats to the project may be accepted if they are in balance with the rewards that may be gained from taking them. All organizations have a 'risk tolerance' that is affected by their legal status and their culture. For instance, a pension fund is likely to be more risk-averse than a small start-up company. In all cases, attitudes to risk are driven by perception, tolerances, and other biases, which should be made explicit wherever possible.

To be successful, the organization should be committed to addressing risk management proactively and consistently throughout the project. A conscious choice must be made at all levels to actively identify and pursue effective risk management during the life of the project. Communication about risk and its handling should be open and honest.

Identifying risks

## **Identification Methods**

Risks can be identified directly by experts with relevant experience of similar projects or business areas. These should be identified by the project manager and invited to consider all aspects of the project and suggest possible risks based on their previous experience and areas of expertise, and there are several techniques that can also be used to identify project risk.

### **Documentation Reviews**

These are structured reviews of all project documentation up to this point in time including plans, assumptions, previous project files, contracts, and other information. The quality of the plans, as well as consistency between those plans and the project requirements and assumptions, can be indicators of risk in the project.

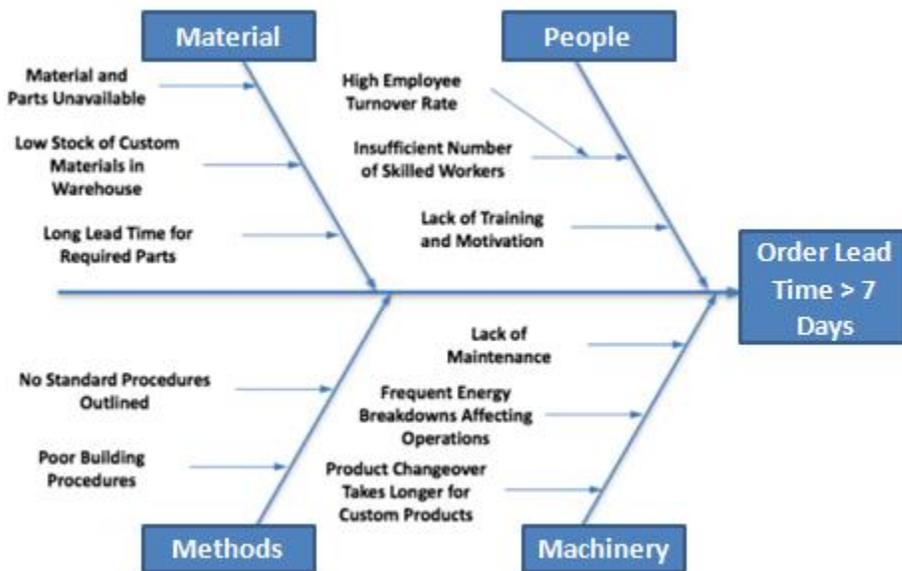
### **Assumptions Analysis**

Every identified project risk is based on a set of hypotheses, scenarios, or assumptions. Assumptions analysis explores the validity of assumptions as they apply to the project. It identifies risks to the project from the inaccuracy, inconsistency or incompleteness of assumptions.

### **Fishbone Diagrams**

Risk diagramming techniques include cause and effect diagrams, also known as Ishikawa diagrams or fishbone diagrams, and are useful for identifying causes of risks. Flow charts can also be used to show how various elements of a system interrelate, and the mechanism of causation, as can influence diagrams, which show causal influences, time ordering of events, and other relationships among variables and outcomes.

For example, the following fishbone diagram shows which factors lead to the risk of delayed orders:



### SWOT Analysis

This technique is intended to specify the objectives of the business venture or project and identify the internal and external factors that are favorable and unfavorable to achieving those objectives. Strengths and weakness are frequently internally-related, while opportunities and threats commonly focus on the external environment of the company or project. The name is an acronym for the four parameters the technique examines:



Identified risks should be documented in the **risk register** (see next chapter) that consists of the list of all the identified risks, their root causes, categories, and responses. This information may be used to update the risk breakdown structure.

Because of risk is an ongoing activity, the risk register will be updated continuously throughout the life of the project and it is a key tool to aid in the management of risks within a project. The risk register ultimately contains the outcomes of the other risk management processes as they are conducted, resulting in an increase in the level and type of information contained in the risk register over time.

## **Risk Register**

Project risks should be documented in the **risk register**, a list of all of the identified risks, their root causes, categories, and responses. Because the assessment of risk is an ongoing activity, the risk register will be updated continuously throughout the life of the project.

All project team members should be encouraged to identify risks and this is an iterative process because new risks may become known as the project progresses. The process of identification should involve the project team so they can develop and maintain a sense of ownership and responsibility for the risks and associated risk response actions.

Here you can see how individual entries in a risk register could look like. Note that mechanisms to control the risks are a vital part of this register.

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Risk scenario	Likelihood	Consequence	Risk rating	Risk controls	Treated risk rating
Worker struck by moving plant or machinery	Possible	Major	High	<ul style="list-style-type: none"> <li>• Vehicle movement alarms for all vehicles</li> <li>• Daily work safety plans for movement deconfliction</li> <li>• Driver training program</li> <li>• Trained first aiders on site</li> </ul>	Medium
Worker trips on STF hazards in the workplace	Possible	Moderate	Medium	<ul style="list-style-type: none"> <li>• Housekeeping practices for construction materials, waste and debris</li> <li>• Safety footwear for all workers</li> <li>• Trained first aiders on site</li> </ul>	Low
Worker exposed to ultraviolet radiation	Likely	Moderate	High	<ul style="list-style-type: none"> <li>• Weather assessment during summer months</li> <li>• Wide-brim hats, eye protection and sunscreen for workers</li> </ul>	Low

The risk plan defines the level of risk that is considered tolerable for the project, how all this will be managed, who will be responsible for them, what time and cost are needed for each, and how risk will be communicated.

## Risk Breakdown Structure

A Risk Breakdown Structure (RBS) is an organized way of **categorizing the risks** of a project. It is, in fact, much simpler than the unwieldy name suggests. It's nothing more than a table with risk categories broken down into increasingly specific subject matter.

Instead of going through a big spreadsheet with hundreds of verbose entries about risks, RBS provides a pictorial representation of related items through tree structure as an excellent way of getting the whole picture in a single place for effective communication, management and governance.

For example, a risk breakdown structure for a software project might have the following categories:

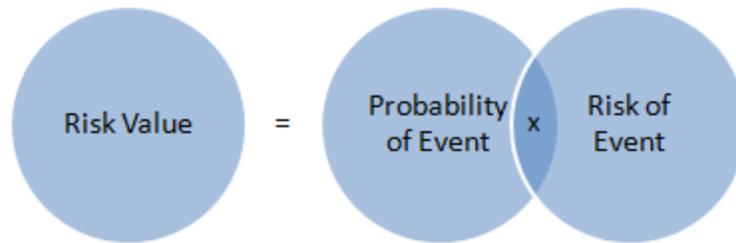
Level 1	Level 2	Level 3
All Project Risks	Business Risk	<ul style="list-style-type: none"> <li>• Competitors</li> <li>• Suppliers</li> <li>• Cash flow</li> </ul>
	Technical Risk	<ul style="list-style-type: none"> <li>• Hardware</li> <li>• Software</li> <li>• Network</li> </ul>
	Organizational Risk	<ul style="list-style-type: none"> <li>• Executive Support</li> <li>• User Support</li> <li>• Team Support</li> </ul>
	Project Management Risk	<ul style="list-style-type: none"> <li>• Estimates</li> <li>• Communication</li> <li>• Resources</li> </ul>

Organizations have common list of risk categories or even template with sample risks for each category and type of project. This can be used as a starting point for risk identification. By using the RBS, you can also identify risk dependencies, understand the risk exposure to a project, and determine the root cause of risks. That's why RBS is such a useful tool for project managers.

Analyzing risk.

## Risk Estimation

Once you've identified the threats you're facing, you need to calculate both the likelihood of these threats being realized and their possible impact. One way of doing so is to make your best estimate of the **probability of the event** occurring, and then multiplying it by the amount it will cost you to set things right (**risk of the event**). This gives you the **risk value**:



As a simple example, imagine that you've identified a risk that your rent may increase substantially:

You think that there's an 80 percent chance of this happening within the next year because your landlord has recently increased rents for other businesses. If this happens, it will cost your business an extra \$500,000 over the next year. So the risk value of the rent increase is:

$$0.80 \text{ (Probability of Event)} \times \$500,000 \text{ (Cost of Event)} = \$400,000 \text{ (Risk Value)}$$

You can also use a **Risk Matrix** (next page) to assess risk. This will help you to identify which risks you need to focus on.

## Risk Matrix

The Risk Matrix – also called “Probability-Impact Matrix” (**PIM**) – is one of the most important tools for risk evaluation and provides a useful framework that helps you decide which risks need your attention.

The Risk Matrix is based on the principle that a risk has two primary dimensions:

- **Probability (Likelihood)** – A risk is an event that “may” occur. The probability of it occurring can range anywhere from just above 0 percent to just below 100 percent. (Note: It can't be exactly 100 percent, because then it would be a certainty, not a risk. And it can't be exactly 0 percent, or it wouldn't be a risk.)
- **Impact** – A risk, by its very nature, always has a negative impact. However, the size of the impact varies in terms of cost and impact on health, human life, or some other critical factor.

The chart allows you to rate potential risks on these two dimensions. The probability that a risk will occur is represented on one axis of the chart – and the impact of the risk on the other.

		Impact				
		Very Low	Low	Medium	High	Very High
Likelihood	Very High	Yellow	Yellow	Red	Red	Red
	High	Green	Yellow	Yellow	Red	Red
	Medium	Green	Yellow	Yellow	Red	Red
	Low	Green	Green	Yellow	Yellow	Red
	Very Low	Green	Green	Green	Green	Yellow

The corners of the chart have these characteristics:

- **Low impact/low probability** – Risks in the bottom left corner are low level, and you can often ignore them.
- **Low impact/high probability** – Risks in the top left corner are of moderate importance – if these things happen, you can cope with them and move on. However, you should try to reduce the likelihood that they'll occur.
- **High impact/low probability** – Risks in the bottom right corner are of high importance if they do occur, but they're very unlikely to happen. For these, however, you should do what you can to reduce the impact they'll have if they do occur, and you should have plans in place just in case they do.
- **High impact/high probability** – Risks towards the top right corner are of critical importance. These are your top priorities and are risks that you must pay close attention to.

To successfully implement a project, you must identify and focus your attention on middle and high-priority risks – otherwise, you risk spreading your efforts too thinly, and you'll waste resources on unnecessary risk management.

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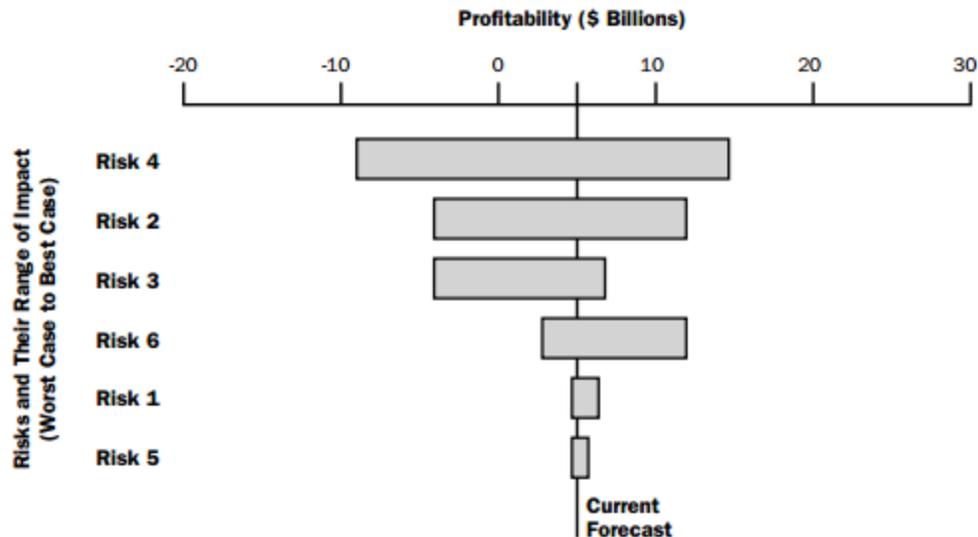
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## Sensitivity Analysis

You can use a **Sensitivity Analysis** to see which risk variables have the biggest impact on a project objective. You can develop what-if models or simulations to see the impact of a risk on either the budget or the schedule. Many times, the outcomes are graphed in a tornado diagram.

**Tornado Diagrams** got their names from their shape. These diagrams portray the project sensitivity to different risk factors. These risks are ranked vertically and represented by a horizontal bar showing plus or minus cost impacts. The risk variable with the highest impact will be listed at the top of the chart followed by other variables in descending impact order.



A tornado diagram is applicable to a wide range of project domains – Financial, Constructions, Software, Sales, Services, etc. A tornado diagram can also be used for analyzing sensitivity in other project constraint objectives (cost, time, quality, and risk).

A tornado diagram has the following characteristics:

- The longer the bar, the more sensitive the project objective is to the risk.
- The risks are presented in descending order, with the largest impact on the top and the least impact on the bottom.
- It allows the team to focus on those risks with the greatest impact on a project objective.

## Monte Carlo Analysis

While managing a project, you would have faced numerous situations where you have a list of potential risks for the project, but you have no clue of their possible impact on the project. To solve this problem, you can consider the **worst-case scenario** by summing up the maximum expected values for all the variables. Similarly, you can calculate the **best-case scenario**. You can now use the Monte Carlo analysis and run simulations to generate the **most-likely scenario** for the event. In most situations, you

will come across a bell-shaped normal distribution pattern for the possible outcomes.

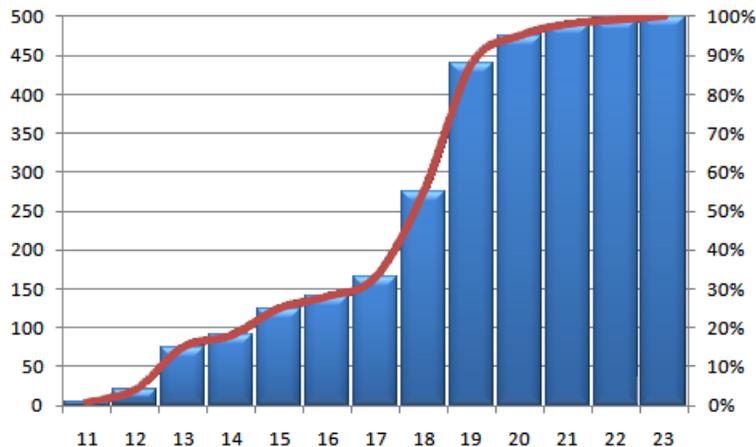
Let us try to understand this with the help of an example. Suppose you are managing a project involving creation of a webpage. The creation of the webpage comprises of three tasks: writing content, creating graphics, and integrating the multimedia elements. Based on prior experience or other expert knowledge, you determine the best case, most-likely, and worst-case estimates for each of these activities as given below:

Tasks	Best-case estimate	Most likely estimate	Worst-case estimate
Writing content	4 days	6 days	8 days
Creating graphics	5 days	7 days	9 days
Multimedia integration	2 days	4 days	6 days
Total duration	11 days	17 days	23 days

The Monte Carlo simulation randomly selects the input values for the different tasks to generate the possible outcomes. Let us assume that the simulation is run 500 times. From the above table, we can see that the project can be completed anywhere between 11 to 23 days. When the Monte Carlo simulation runs are performed, we can analyse the percentage of times each duration outcome between 11 and 23 is obtained. The following table depicts the outcome of a possible Monte Carlo simulation:

Total Project Duration	Number of times the simulation result was less than or equal to the Total Project Duration	Percentage of simulation runs where the result was less than or equal to the Total Project Duration
11	5	1%
12	20	4%
13	75	15%
14	90	18%
15	125	25%
16	140	28%
17	165	33%
18	275	55%
19	440	88%
20	475	95%
21	490	98%
22	495	99%
23	500	100%

This can be shown graphically in the following manner:



What the above table and chart suggest is, for example, that the likelihood of completing the project in 17 days or less is 33%. Similarly, the likelihood of completing the project in 19 days or less is 88%, etc. Note the importance of verifying the possibility of completing the project in 17 days, as this, according to the Most Likely estimates, was the time you would

expect the project to take. Given the above analysis, it looks much more likely that the project will end up taking anywhere between 19 – 20 days.

## 5. Treat Risks



Every risk needs to be eliminated or contained as soon as possible. It is important that responses are appropriate to the significance of the risk, cost effective in meeting the challenge, realistic within the project context, agreed upon by all parties involved, and owned by a responsible person.

### Dealing with Threats

There are four possible strategies for dealing with risks that may have **negative impacts** on the project:



#### 1. Avoid

This involves taking action to either reduce the probability of the risk and/or its impact to zero. In either case, this response enables the risk to be circumvented entirely. For example, using a certain supplier might carry the risk of them going out of business during the course of the project. This risk could be avoided by using a supplier who was bigger, better established and more financially secure.

## 2. Transfer

This involves transferring the risk to a third party so that they are responsible for its management and impact. It does not eliminate the risk it simply transfers the liability to someone else. This can be done by either taking out insurance (the insurance company is now liable) or having the work done under a fixed-price contract (the contractor is now liable). Risk transference nearly always involves payment of a risk premium to the party taking on the risk and may introduce new risks. For example, an insurance company may contest the claim or a contractor might dispute the terms and conditions of the contract if they are having problems delivering.

## 3. Mitigate

Taking early action to reduce the probability and/or impact of a risk occurring is often more effective than trying to repair the damage after it has occurred. Adopting less complex processes, conducting more tests, or choosing a more stable supplier are examples of mitigation actions.

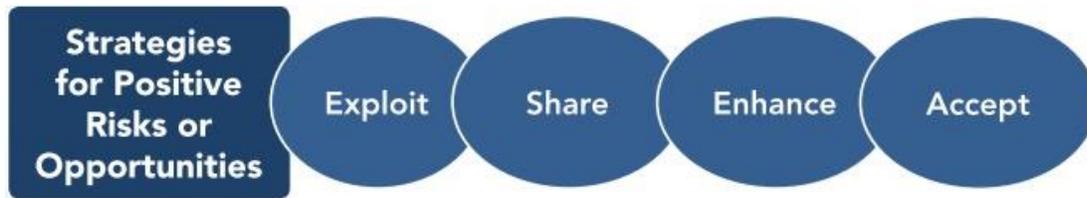
- **Preventative action** involves aiming to prevent a high-risk situation from happening. It includes health and safety training, firewall protection on corporate servers, and cross-training your team.
- **Corrective action** involves identifying the points in a process where something could go wrong, and then putting steps in place to fix the problems promptly if they occur. Detective actions include double-checking finance reports, conducting safety testing before a product is released, or installing sensors to detect product defects.

## 4. Accept

The most common acceptance strategy is to establish a contingency reserve, including amounts of time, money, or resources to handle the risks. It is usually chosen either because the risk is low in terms of impact or probability, or the cost and effort of taking a different action are out of proportion to the risk itself.

# Dealing with Opportunities

There are four possible strategies for dealing with risks that may have **positive impacts** on the project:



### **1. Exploit**

Examples of directly exploiting responses include assigning an organization's most talented resources to the project to reduce the time to completion or to provide lower cost than originally planned.

### **2. Share**

Sharing a positive risk involves allocating some or all of the ownership of the opportunity to a third party who is best able to capture the opportunity for the benefit of the project. Examples of sharing actions include forming risk-sharing: Partnerships, Teams, Special-purpose companies, or Joint ventures (JVs). These can be established with the express purpose of taking advantage of the opportunity so that all parties gain from their actions.

### **3. Enhance**

Examples of enhancing opportunities include adding more resources to an activity to finish early.

### **4. Accept**

Accepting an opportunity is all about being willed to take advantage of it if it comes along, but not actively pursuing it.

Exploiting, sharing, enhancing, and accepting can be effective strategies to deal with risk and often lead to positive impacts.

## **6. Monitor & Review Risks**



Not all risks can be eliminated – some risks are always present. Risk management is an ongoing process of identifying, treating, and then managing risks. Clear communication among your team and stakeholders is essential when it comes to ongoing monitoring of potential threats.

## Continuous Improvement

Monitoring and review should be a planned part of the risk management process and involve regular checking or surveillance. The results should be recorded and reported externally and internally, as appropriate. Also, all responsibilities for monitoring and review should be clearly defined.

The firm's monitoring and review processes should encompass all aspects of the risk management process for the purposes of:

- Ensuring that controls are effective and efficient in both design and operation.
- Obtaining further information to improve risk assessment.
- Analyzing and learning lessons from risk events, including near-misses, changes, trends, successes and failures.
- Detecting changes in the external and internal context, including changes to risk criteria and to the risks.
- Identifying emerging risks.

If an organization gradually formalizes its risk management process and develops a **risk culture**, it will become more resilient and adaptable in the face of change. This will also mean making more informed decisions based on a complete picture of the organization's operating environment and creating a stronger bottom line over the long-term.

## Communication

Effective communication and consultation are essential to ensure that those responsible for implementing risk management, and those with a vested interest, understand the basis on which decisions are made and the reasons why particular treatment options are selected.

Communicate and consult with internal and external stakeholders during any and all stages of the risk management process, particularly when plans are being first considered and when significant decisions need to be made.

Risk management is enhanced when all parties understand each other's perspectives and, where appropriate, are actively involved in decision-making. Methods of communication and consultation may include personal meetings, reports, learning packages, newsletters, and staff training.

A collaborative and consultative team approach – through co-creation – is more likely to:

- Ensure that risks are adequately identified;
- Bring together different areas of expertise when assessing or analyzing risks;
- Ensure that different, and sometimes opposing, views are appropriately considered when defining risk criteria and in evaluating risks;
- Help secure endorsement and support for a treatment plan; and
- Enhance any change management processes associated with the risk.

The critical role performed by the risk manager is to effectively communicate the risk to the management and other stakeholders. Even if the firm has the best risk management systems and policies in place, if the risk managers don't communicate these risks effectively, then there could be more harm than good.

## 7. Conclusion



Project management is a complex activity that requires a structure, procedures, and processes that are appropriate for your project. This will

enable you to manage the inevitable changes that occur throughout a project's lifespan in a professional manner to ensure success.

A risk is a future event that may or may not happen but if it does occur it will have an effect on project scope, schedule, cost, or quality. Risks include both threats and opportunities because both have uncertainty associated with them. A project manager needs to know the likelihood that a risk will occur and its potential impact on the project.

All risk management processes follow the same basic steps, although sometimes different jargon is used to describe these steps. Together these four **risk management process steps** combine to deliver a simple and effective risk management process.

The **risk register** is a list of all of the identified risks, their root causes, categories, and responses. All project team members should be encouraged to identify risks and this is an iterative process because new risks may become known as the project progresses.

Risk analysis uses the **risk matrix** to rank and prioritize risks. It should be performed as soon as possible after risks have been identified so that appropriate time and resources can be allocated to the more serious risks. Planned responses to risks should be appropriate to the significance of the risk, cost-effective in meeting it, realistic within the project context, agreed upon by all parties involved, and owned by a responsible person.

So much work is now run as projects and so few people have the necessary skills to manage them properly that there is a huge demand for good project managers and that demand is increasing all the time.

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