

Chapter 8

Risk Response Planning

8

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Risk Response Planning

The objective of the Plan Risk Response process is to determine the set of actions which will most enhance the chances of project success while complying with the applicable organizational and project constraints.

In risk response planning, a response strategy is identified, an owner is assigned, and funding is allocated if necessary for each risk. Risk response planning involves finding ways to make the threat smaller or eliminate it entirely, as well as finding ways to make positive risks more likely or greater in impact.

Risk responses should be appropriate to the level and priority of each risk while remaining cost-effective and realistic within the context of the project. The chosen responses are reviewed over the life of the project for appropriateness as more information about the project becomes known.

Responses may include:

- Doing something to eliminate a threat before it happens
- Doing something to ensure that an opportunity is realized
- Decreasing the probability and/or impact of a threat
- Increasing the probability and/or impact of an opportunity

These risk responses may have effects on the project objectives and can generate additional risks. These additional risks, which arise directly as a result of implementing a risk response, are known as secondary risks. The secondary risks must be analyzed and planned for as well.

It may be impossible to completely eliminate a risk even with the best possible response. The risk that remains after a risk response is implemented is known as a residual risk.

For moderate-level risks, contingency plans may be developed. A contingency plan, or contingent response strategy, is planned in advance but only implemented when

the risk event or the risk trigger occurs. Use of a contingency plan is known as active risk acceptance.

Some risks and risk responses may also require the need for a fallback plan. Like a contingency plan, the fallback plan is planned in advance, but it is only implemented when the first planned response is not effective. That original response may have been a proactive strategy (such as avoidance, mitigation, or transference) or a contingency plan. You can think of a fallback plan as a “Plan B.”

Critical Success Factors

Critical success factors for risk response planning include:

Communication

Appropriate communication includes openly addressing organizational causes of risk.

Defined Roles and Responsibilities

Risk-related roles and responsibilities must be clearly communicated and agreed upon.

Allocated Resources

Resources including human resources, budget, and time must be available and allocated,

Risk Response Understanding

An understanding of the implications and interactions between risks and risk responses is necessary.

Comprehensive Risk Strategies Employed

Strategies should address both threats and opportunities.

Strategic and Tactical Response Planning

Responses are planned strategically, validated tactically, and integrated into the project management plan.

Response Planning Sequence

1. Identify potential responses.
2. Select the most appropriate response.
3. Tactically plan actions and provide resources.
4. Update the risk register.
5. Consider any residual risks.
 - If residual risk is not acceptable, repeat the process.
6. Update the project management plan and all associated documents.

Risk Responses

Whether responding to threats or opportunities, the strategies must be timely and the selected effort must be appropriate to the severity of the risk. Avoid spending more money preventing the risk than the impact of the risk would cost if it were to occur.

Often, multiple responses can each partially address the same risk, and one response can be used to address more than one risk, especially if it addresses a root cause of multiple risks.

Regardless of the risk response strategy pursued, it is critical that the team, stakeholders, and/or other experts are involved in selecting the most appropriate strategy.

Proactive	Reactive
BEFORE the risk has occurred:	AFTER the risk has occurred:
Determine the most appropriate response strategy	<ul style="list-style-type: none"> Implement contingency plan Implement a fallback plan <i>(if original response is not adequate)</i> Implement a workaround <i>(if there is no contingency plan)</i>
<ul style="list-style-type: none"> Mitigate Avoid Transfer Enhance Exploit Share 	

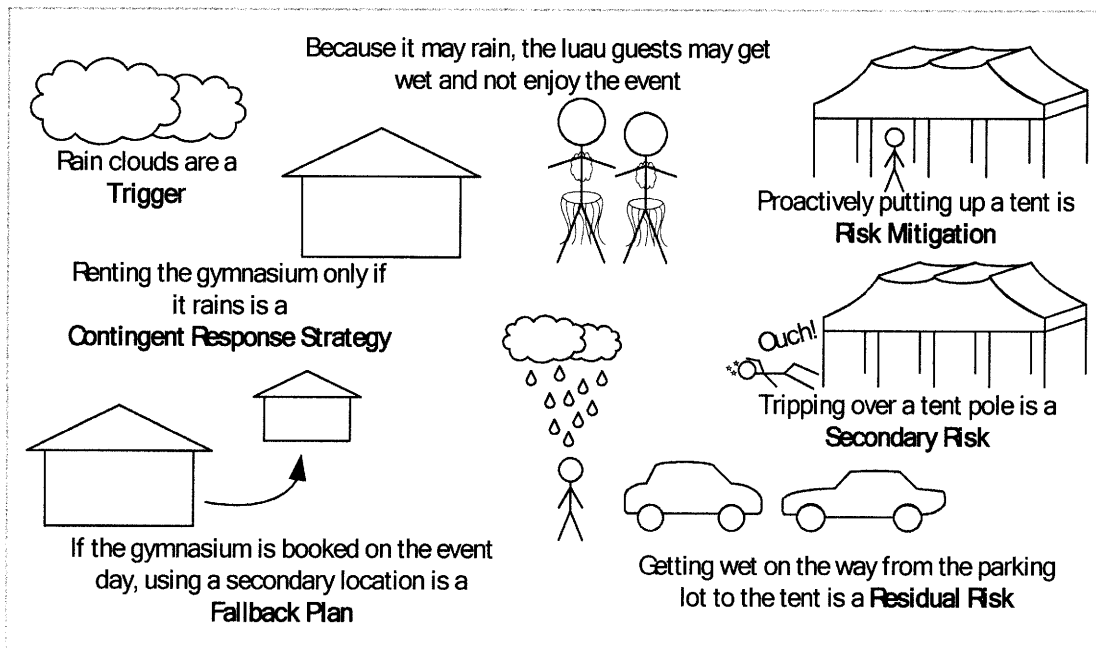


Figure 8-1: Risk Responses

Plan Risk Responses Process

After the risks are analyzed qualitatively and perhaps quantitatively, the responses to those risks are assessed.

Plan Risk Responses: Inputs, Tools and Techniques, and Outputs

Inputs	Tools and Techniques	Outputs
1. Risk management plan	1. Strategies for negative risks or threats	1. Project management plan updates
2. Risk register	2. Strategies for positive risks or opportunities	2. Project documents updates
	3. Contingent response strategies	
	4. Expert judgment	

Figure 8-2: Plan Risk Responses ITTOs

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Plan Risk Responses: Inputs

Risk Management Plan

The risk management plan, a subsidiary plan, provides details and guidance on planning risk responses, including information on the contingency budget allocation and stakeholder and organizational risk tolerances.

Risk Register

The risk register, an output of the Identify Risks process, is the basis from which the responses will be planned. This process includes using the qualitative and potentially the quantitative evaluations to determine which responses will be most appropriate given the priority of the risk.

Plan Risk Responses: Tools and Techniques

PMBOK® Guide tools and techniques for risk response planning include:

- Strategies for negative risk or threats
- Strategies for positive risks or opportunities
- Contingent response strategies

Additional tools and techniques that may be used for risk response planning, as described in the *Practice Standard for Project Risk Management*, include:

- Creativity techniques
- Scenario analysis
- Multi-criterion selection techniques
- Critical chain project management (CCPM)
- Other techniques

Strategies for Negative Risks or Threats

For project threats, there are four potential responses: avoid, transfer, mitigate, and accept.

Avoid

Risk avoidance involves changing the project management plan to eliminate the threat entirely. Some risks that arise early in the project can be avoided by clarifying requirements, obtaining information, improving communication, or acquiring expertise.

The project manager may also isolate the project objectives from the risk's impact or change the objective that is in jeopardy. For example, if the risk identified exceeds the project's budget, the budget may be increased to accommodate for that risk. That would be considered risk avoidance.

Examples of risk avoidance include extending the schedule, changing the strategy, or reducing scope. Shutting down the project entirely is the most radical avoidance strategy.

Transfer

Risk transference requires shifting some or all of the negative impact of a threat, along with ownership of the response, to a third party. Transferring the risk simply gives another party responsibility for its management. It does not eliminate the risk.

Transferring liability for risks is most effective when dealing with financial risk exposure. Risk transference nearly always involves payment of a risk premium to the party taking on the risk.

Transference tools can be quite diverse and include the use of insurance, performance bonds, warranties, guarantees, etc. Contracts may be used to transfer liability for specified risks to another party.

From an exam perspective, keep in mind that the act of transferring the risk may also serve to mitigate the risk. If a scenario involves some type of contractual relationship, assume first that the response strategy is transfer.

Mitigate

Risk mitigation is a reduction in the probability and/or impact of an adverse risk event to a range within acceptable threshold limits. Taking early action to reduce the probability and/or impact of a risk occurring on the project is often more effective than trying to repair the damage after the risk has occurred.

Adopting a less complex process, conducting more tests, or choosing a more stable supplier are examples of mitigation actions. Mitigation may require prototype development to reduce the risk of scaling up from a bench-scale model of a process or product. When it is not possible to reduce the probability of a risk, a mitigation response might address the risk impact by targeting linkages that determine the severity. For example, designing redundancy into a system may reduce the impact from a failure of an original component.

Accept

This strategy exists because it is seldom possible to eliminate all threats from a project. Risk acceptance indicates that the project team has decided not to change the project management plan to deal with a risk or is unable to identify a suitable response strategy.

This strategy can be either passive or active. Passive acceptance requires no action except documentation of the strategy and leaves the project team to deal with risks as they occur.

Active acceptance involves establishing a contingency reserve, including amounts of time, money, or resources to handle the risks, and defining contingency plans and/or contingent response strategies.

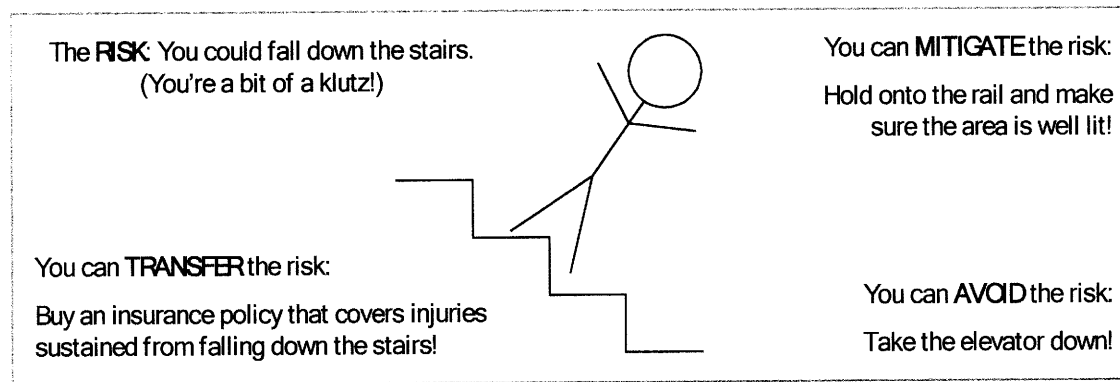


Figure 8-3: Responses to a Negative Risk/Threat

Strategies for Positive Risks or Opportunities

For project opportunities, there are four potential responses: exploit, share, enhance, and accept.

Exploit

This strategy may be selected for risks with positive impacts where the organization wishes to ensure that the opportunity is realized. This strategy seeks to eliminate the uncertainty associated with a particular upside risk by ensuring that the opportunity is definitely capitalized upon.

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

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.

Sharing can include forming risk-sharing partnerships, teams, special-purpose companies, or joint ventures, all of which can be established with the express purpose of taking advantage of the opportunity so that all parties gain from their actions.

Enhance

This strategy is used to increase the probability and/or positive impacts of an opportunity. Identifying and maximizing key drivers of positive-impact risks may increase the probability of their occurrence.

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

Accept

Accepting an opportunity is being ready and willing to take advantage of it if it comes along but not actively pursuing it.

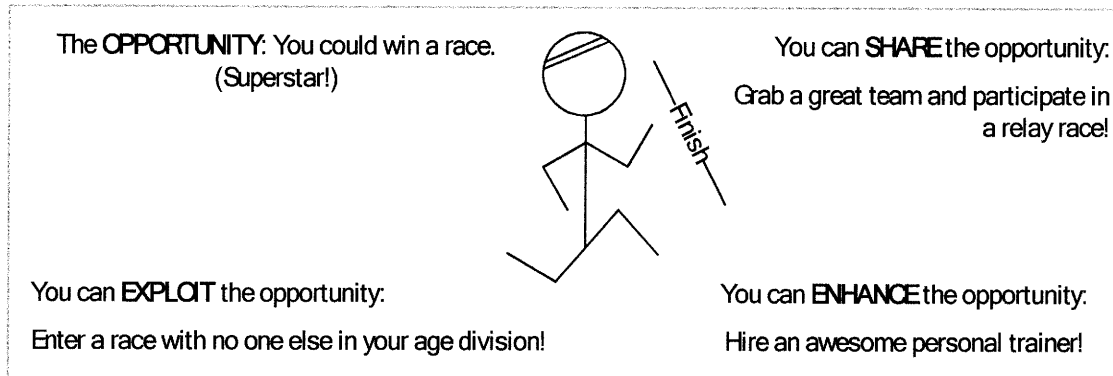


Figure 8-4: Responses to a Positive Risk/Opportunity

Exam Hint:

The risk responses for threats mirror the responses for opportunities:

- Avoidance is to threats as exploitation is to opportunities: both involve modifying the plan to eliminate the uncertainty.
- Transference is to threats as sharing is to opportunities: both involve entering into a contractual relationship with an external party.
- Mitigation is to threats as enhancement is to opportunities: both involve modifying the plan to minimize the uncertainty.
- Acceptance is used for both. However, remember that acceptance may be passive or active for threats.

Contingent Response Strategies

Some responses are designed for use only if certain events occur. For some risks, it is appropriate for the project team to make a response plan that will only be executed under certain predefined conditions if it is believed that there will be sufficient warning to implement the plan.

Events that might trigger a contingency response, such as missing intermediate milestones or gaining higher priority with a supplier, should be defined and tracked.

A contingency plan (or contingent response strategy) is an alternative plan that will be used if a possible foreseen risk event becomes a reality. A contingency plan serves to reduce or mitigate the negative impact of a risk event and answer the questions of what action will take place and how, where, when it will take place.

While contingency plans can significantly increase the chances for project success, it is critical that activation guidelines are decided and clearly documented. This includes documenting a cost estimate and identifying the source of funding. Team members must be aware of the contingency plan to minimize surprise and resistance.

If a contingency plan is not developed, the project team may implement a workaround. A workaround is a response to a negative risk that has occurred. A workaround is not planned in advance of the occurrence of the risk event.

Reserve Estimation

Contingency funds are established to cover both identified and unknown project risks. How much money will be spent and when and where it will be spent are not known until the risk event occurs.

The size and amount of a contingency reserve depends on the uncertainty of the particular project. In practice, contingencies run about 10% in projects similar to past projects and in the 20-60% range for new or poorly defined projects.

A contingency reserve is typically divided into budget and management reserve funds for control purposes.

Budget Contingency Reserves

Budget contingency reserves (typically known as “contingency”) are reserves that are identified for specific work packages or segments of a project found in the baseline budget or WBS. The reserve amount is determined by costing out the accepted contingency or recovery plan.

Distributing budget reserves is the responsibility of both the project manager and the team members responsible for implementing the specific segment of the project. If the risk does not materialize, the funds are removed from the budget reserve.

Management Reserves

Management reserve funds are needed to cover major unforeseen risks and are applied to the total project. These risks include any major scope changes that develop while the project is in progress. Management reserves are independent of budget reserves and are controlled by the owner of the project, usually the sponsor.

Activity	Estimate	Contingency	Baseline
Analysis	\$600	\$60	\$660
Design	\$400	\$40	\$440
Development	\$100	\$10	\$110
Subtotal	\$1,100	\$110	\$1,210
Management reserve	--	--	\$40
Total Project Budget			\$1,250

In this example, you can see that contingency was allocated at 10% for each of the major activities. The estimate plus the contingency adds up to the baseline. Notice how there is an additional allocation for management reserve. The baseline plus the management reserve equals the total project budget.

Time Buffers

Managers use time buffers to cushion against potential delays in the project. Like contingency funds, the amount of time kept as a buffer is dependent upon the relative uncertainty of the project. The strategy is to assign extra time at critical moments in the project.

Creativity Techniques

Creativity techniques may be used to determine potential responses. There are a number of creativity techniques used to identify risk responses that were discussed in earlier chapters of this book, including:

- Force field analysis – Evaluating the forces for and against the project
- Delphi technique – Capturing information anonymously from experts, consolidating that information, and redistributing it for further comment and/or agreement
- Root-cause analysis – Identifying the root causes of the risks
- Brainstorming – Free-form thinking to create a variety of response possibilities
- Nominal group technique – Enhancing brainstorming by adding a voting process
- Decision tree analysis – Applying probability and impact to various options to guide decision-making
- Interviews – Conducting one-on-one or group sessions to elicit information

Scenario Analysis

Scenario analysis defines several alternative scenarios and evaluates them for appropriate and cost-effective responses. If the organization has control of the scenarios, the alternatives and responses can be evaluated. If it does not, the analysis can determine effective and necessary contingency planning.

Multi-Criterion Selection Techniques

As in qualitative risk analysis, various available options are evaluated against defined, weighted criteria in order to score them.

Criterion	Weight	Response A		Response B	
		Rating	Points	Rating	Points
Accessibility	3	4	12	7	21
Price	7	8	56	5	35
Implementation	4	10	40	6	24
Ease	6	5	30	10	60
Score			138		140

Critical Chain Project Management (CCPM)

As discussed in Chapter 7, CCPM is a method of planning and managing projects that focuses on the resources that are required to complete project activities. Resources are levelly loaded, but there is flexibility in the start times and resources so they can be switched between activities as needed in order to meet the project schedule objectives.

Buffers are used to monitor and manage schedule performance. Buffers in CCPM, particularly the project buffer at the end, are equivalent to schedule reserves.

CCPM is often seen as a way to compress the schedule because of the underlying assumption that all estimates are padded and can be reduced. The assumption is that most durations are overestimated, when in reality, most duration estimates are underestimated.

Other Techniques

Many of the techniques discussed in earlier chapters can also be used to plan risk responses, including:

- Checklists – Risk checklists developed by the organization may provide insight into the types of responses that were applied on previous projects.
- Decision trees and expected monetary value analyses – The evaluation of the most appropriate response can include an evaluation of the probability of success and/or the probability of various costs, allowing for more effective risk response decision-making.

- Force field analysis – An evaluation of the forces for and the forces against the project and/or the risk responses can be used to evaluate the appropriateness of those responses.
- Industry knowledge base – This is utilized as a basis of industry-specific information pertaining to risk responses.
- Interviews – Working with key stakeholders, team members, risk experts, and organizational subject matter experts can provide insight helpful for selecting the appropriate responses.
- Post-project reviews, lessons learned, and historical information – Responses implemented on previous projects and the efficacy of those responses are captured in various organizational process assets.
- Prompt lists – Prompt lists allow for the categorization of risks and can stimulate creativity surrounding response identification.
- Quantitative risk analysis – Data gleaned from the quantitative analysis allows for responses to be evaluated based on cost and/or schedule impact.
- Root-cause analysis – Identifying root causes of risks enables more efficient targeting of risk responses.

Plan Risk Responses: Outputs

The outputs of the Plan Risk Responses process include project document updates and project management plan updates.

Project Document Updates

Once the appropriate responses are chosen and agreed upon, they are included in the risk register. The risk register should be written to a level of detail that corresponds with the priority ranking and the planned response. The high and moderate risks are often addressed in detail. Risks judged to be low priority are included in a watchlist for periodic monitoring.

The risk register is updated to include:

Residual Risks

Residual risks are risks that remain after risk response planning and risks that have been accepted, for which contingency plans and fallback plans can be created. Residual risks should be properly documented and reviewed throughout the project to see if their ranking changes.

Contingency Plans

These plans describe the specific actions that will be taken if a threat occurs. Contingency plans are documented in advanced and are considered a form of active risk acceptance.

Risk Response Owners

A key concept in risk response planning is that the project manager does not have to do everything and neither does the team. Each risk must be assigned to an owner who may help develop the risk response and who will carry out the risk response. The risk response owner can be a stakeholder or a team member.

Secondary Risks

An analysis of the new risks created by the implementation of the selected risk response strategies should be included in risk response planning. Frequently, what is done to respond to one risk will cause other risks to occur.

For example, a risk of fire can be allocated to an insurance company, potentially causing the risk of cash flow problems. Cash flow should then be analyzed and added to the risk management process if appropriate.

Project Management Plan Updates

On the PMI-RMP exam, it is common for the questions ask, “What do you do next?” or “What is the first thing you do?” If you get a question that states something to the effect of “You have planned your risk responses, so what is the next thing you do?” the correct answer is to update your project management plan, baselines, and/or subsidiary plans. The act of getting approval on the project risk responses is assumed to be part of this process. If you have finished the process of planning your risk responses, this implies that they are approved.

A good way to remember the need to update your plans is that a response is work, work is scope, and if I am adding scope to my project, I need to be sure that my project management plan and baselines reflect that work.

A number of subsidiary plans are also updated with the information from the Plan Risk Responses process. The following items may be updated to reflect changes in process and practice driven by the risk responses.

- Schedule management plan - May include changes in tolerance related to resource loading and leveling
- Cost management plan - May include changes in tolerance related to cost accounting, tracking, reports, and consumption of contingency reserves
- Quality management plan - May include changes related to requirements, quality assurance, or quality control
- Procurement management plan - May be updated to include changes in strategy, such as alterations in the make-or-buy decision or contract type(s)
- Human resource management plan – May be updated to reflect changes in project organizational structure and resource applications and may include changes in tolerance or behavior related to staff allocation and resource loading
- Scope, schedule, and cost performance baselines – May be updated to reflect omitted work or new work that has been approved and generated by the risk responses.