Project Risk Management

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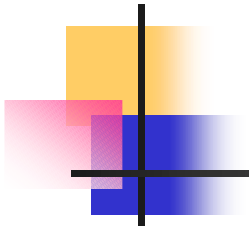
Note: this chapter on project risks is taken from one of the PM modules taught by the Author.

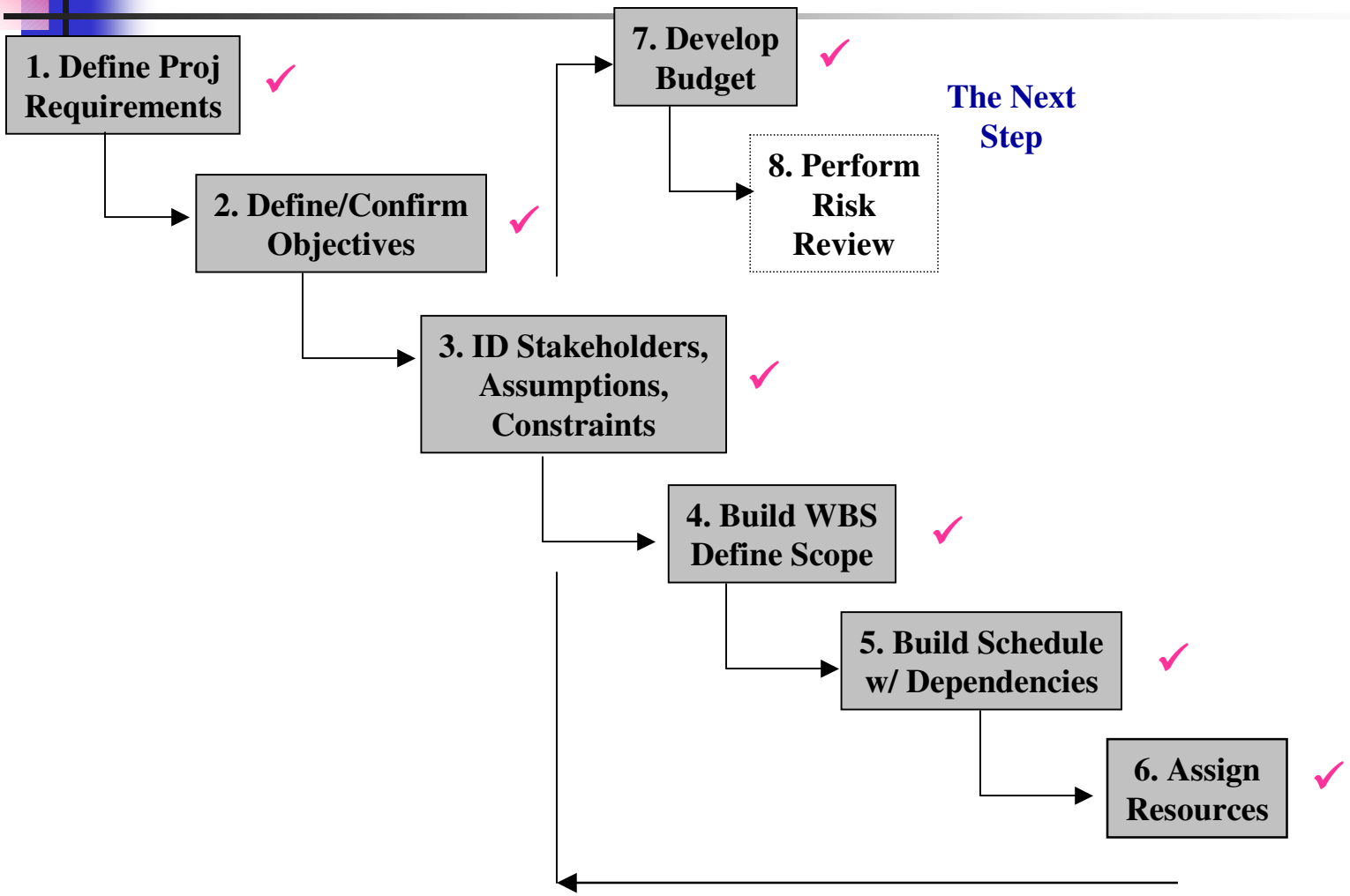
windward
CONSULTING GROUP

Objectives



- Why anticipating risks is important;
- How to identify and prioritize risks;
- When to perform a risk review;
- How to develop a risk mitigation strategy;
- How to incorporate risks into project planning and control.

Let's take stock of where we are in the project planning process…



What do we Mean by "Risk"

- A risk is a possible future event that may affect your project either positively or negatively.

  A negative risk is a threat.
  A positive risk is an opportunity.

- Risk Management is the process of identifying, quantifying, responding to, and controlling risks.

Note: A single risk event can cause multiple effects. For example, late shipment of a key piece of equipment can lead to schedule delays, penalty payments, cost overruns, etc.

Source: Project Management Institute

Why Use Risk Management?

Risk management, in project planning, is very misunderstood. Project Risk Management will help you:

- Reduce crisis management
- Minimize project surprises
- Anticipate problems thereby making you proactive rather than reactive
- Increase likelihood of project success
- Enhance your company's competitive position
- Become a better manager

Components of Risk

Risk Event = Probability x Impact

- A risk *event* may or may not happen
- *Probability* is the chance the event may occur
- *Impact* is the effect on the project of that event, if it occurs

The Publisher's Clearing House Risk Event

Risk Event = Probability X Impact

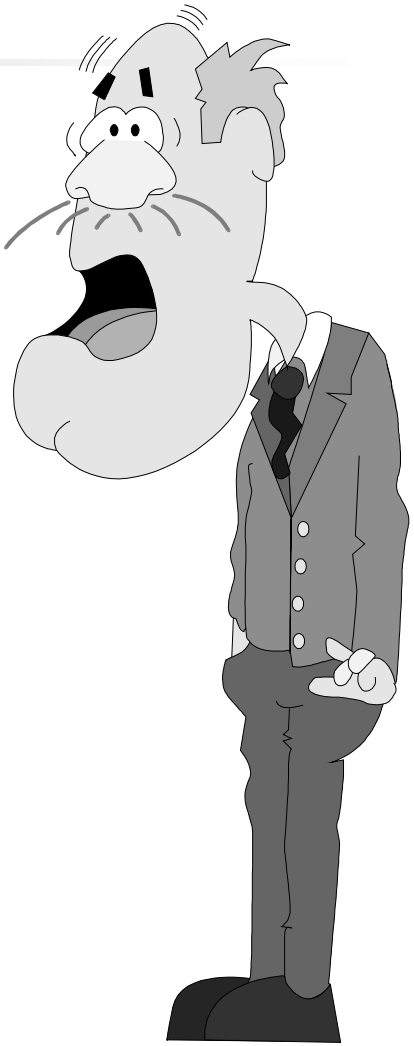
- The Impact is $10,000,000.00.
- The Probability is 1/240,000,000.
- The Risk Event is worth less than 5¢*

(*Risk Strategy: Save your 42¢ stamp and be 37¢ ahead.)

Goals of Risk Management

The goals of project risk management are to:

- Make known all risks and develop strategies to exploit the opportunities and reduce the threats
- Make known all pure, or insurable, risks and transfer that risk to third parties or prepare to accept the consequences
- Make known all risks that were previously unknown risks



Corporate & Individual Risk Tolerance

Risk events are—

- Interdependent
  - One risk event usually triggers more risk events
  - Preventing a risk event may prevent the domino effect
  - A large number of risk events will give the perception of an increasingly chaotic environment
- Situational
  - There is no academic answer or a professional manual to solve risk events; each is unique
  - Effective risk management must rely on use of risk management techniques and tools

Corporate & Individual Risk Tolerance

- Magnitude dependent
  - With a greater payoff, a risk event with low probability appears to be more acceptable*
  - With a high impact, the risk event seems more severe even at the same probability.
- Time oriented
  - Risks can only happen in the future
  - A probable event, long in the future, is always more uncertain than a short range risk
  - Risk management improves when a manager can change actions today to improve future results

*Consider the Publisher's Clearing House example

Corporate & Individual Risk Tolerance

- Value driven
  - Personal values of the management team affect corporate risk taking
  - Similarly, corporate risk aversion or risk acceptance affects individual decisions (You can't steal second while your foot's still on first!)
  - Risk taking and risk aversion are unique choices among individuals

Key Roles in Risk Management

Project Manager—

- Provides Team direction on risk processes and use of tools
- Leads the risk management reviews
- Keeps sponsor and key stakeholders informed of major risks

Project Team—

- Participate in project risk reviews
- Reports status on project risks
- Assist in implementing strategies when risk occur

Four Major Processes Comprise Six Steps

Risk identification	1. Identify risks
	2. Analyze risks
Risk quantification	3. Prioritize risks
Risk response development	4. Develop a risk response
	5. Execute risk strategy
Risk response control	6. Evaluate and document results

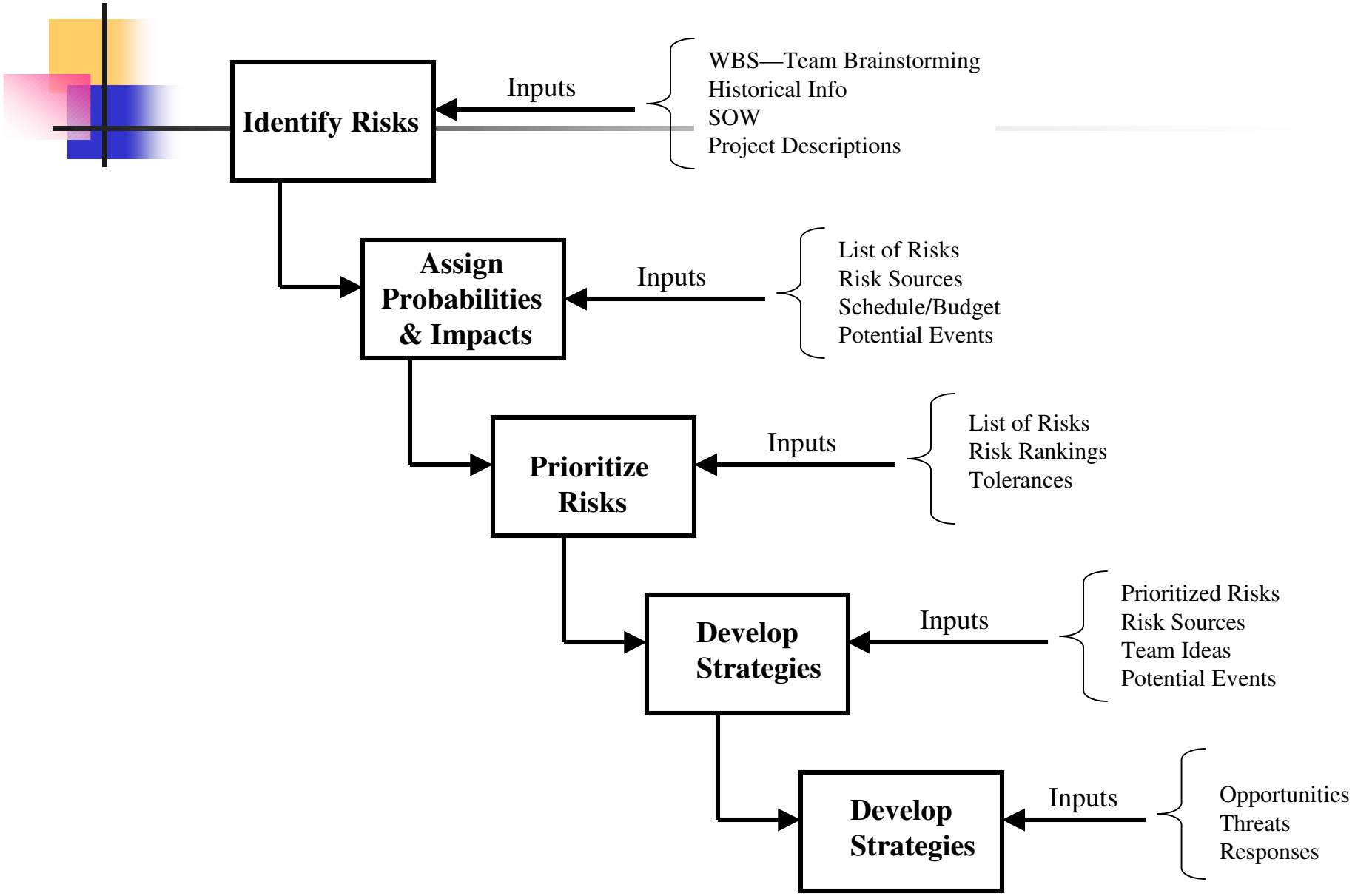
Risk Identification

Steps to Risk Identification:

- Use team brainstorming and the WBS to “trigger” ideas.
- Risks events should include internal and external risks.
- Risks should be specific.
- The project team should have a mutual understanding of the risk events.

Important note: Risk reviews are a team activity

Risks—A Practical Process



Risks Assessment Tool

No.	Risks	P	I	Strategies	
1					Owner
2					
3					

Risk Sample Events

(developed by team consensus)

No	Risks	P	I	Strategies	Owner
1	Supplier may be late with delivery of key equipment & hardware.	M	H	▪ Order key items early ▪ Assess liquidated damages if late ▪ Monitor progress with supplier ▪ Require supplier status reports	CD
2	There may be a shortage of qualified people to assist with system turnover to operations.	M	L	▪ Work with testing group to ensure resources are identified and committed early ▪ Obtain outside resources as needed ▪ Utilize personnel temporarily from other company facilities	WF

Note: P, I denote Probability and Impacts. H=High, M= Medium, L= Low

Identify Risks

Risk identification

- The comprehensive identification of potential risk events using a structured and consistent approach
- The reduction of ambiguity and the description of the risk event under study

Inputs

- Risk Management Plan
- Organizational Processes
- Project Scope Statement(s)
- Enterprise Environmental Factors
- PM Plan

Identify Risks

Risk identification

- The comprehensive identification of potential risk events using a structured and consistent approach
- The reduction of ambiguity and the description of the risk event under study

A few tools:

- Documentation
- Brainstorming
- Delphi Technique
- Interviewing
- Root Cause Identification
- SWOT Analysis
- Checklists
- Diagram Techniques

Identify Risks

Risk identification

- The comprehensive identification of potential risk events using a structured and consistent approach
- The reduction of ambiguity and the description of the risk event under study

Outputs:

- Risk Register

(example will follow later)

Risk Identification

It may be useful for the team to put risks into categories. For example, internal and external (to the organization).

Internal

Legal	
Technical	
Procurement	
Organization	
Resources	

External

Suppliers	
Regulatory	
Customer	
Community	
Publicity	

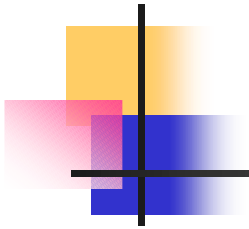
Risk Identification: BE SPECIFIC

To be useful, the identified risks must be as specific as possible. The following sentence may help you be more effective in formulating your risk statements:

"_____" may occur during _____

and cause an impact to _____"

Sources of Risks



A partial list:

- Scope changes
- Regulatory interpretations
- Changes in requirements
- Errors/omissions
- Poorly defined roles & responsibilities
- Poor estimating
- Lack of qualified resources
- Supplier problems
- Unrealistic deadlines
- Constant organizational changes
- Misunderstandings (communications)


Always assess your risks…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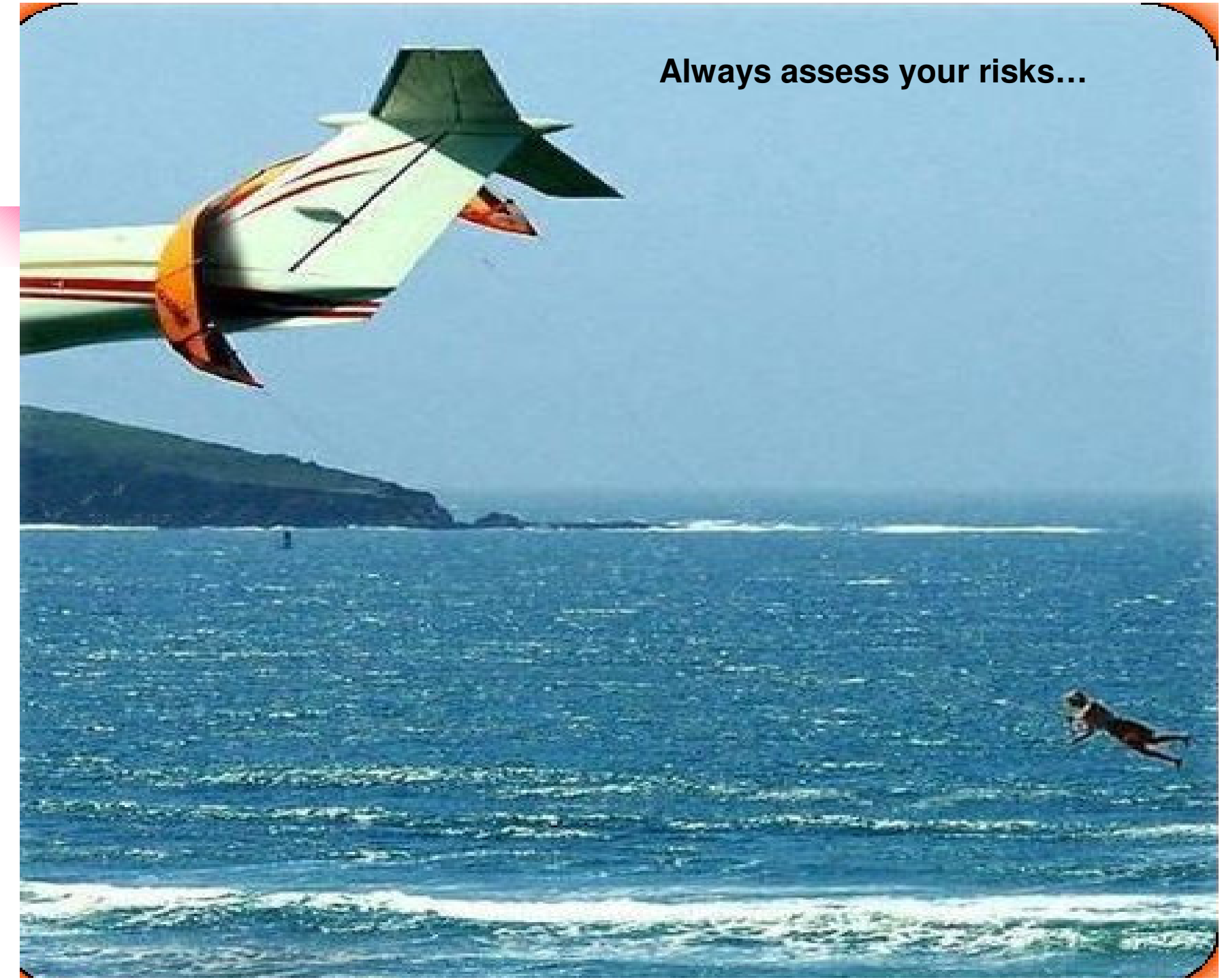
Stuff Happens….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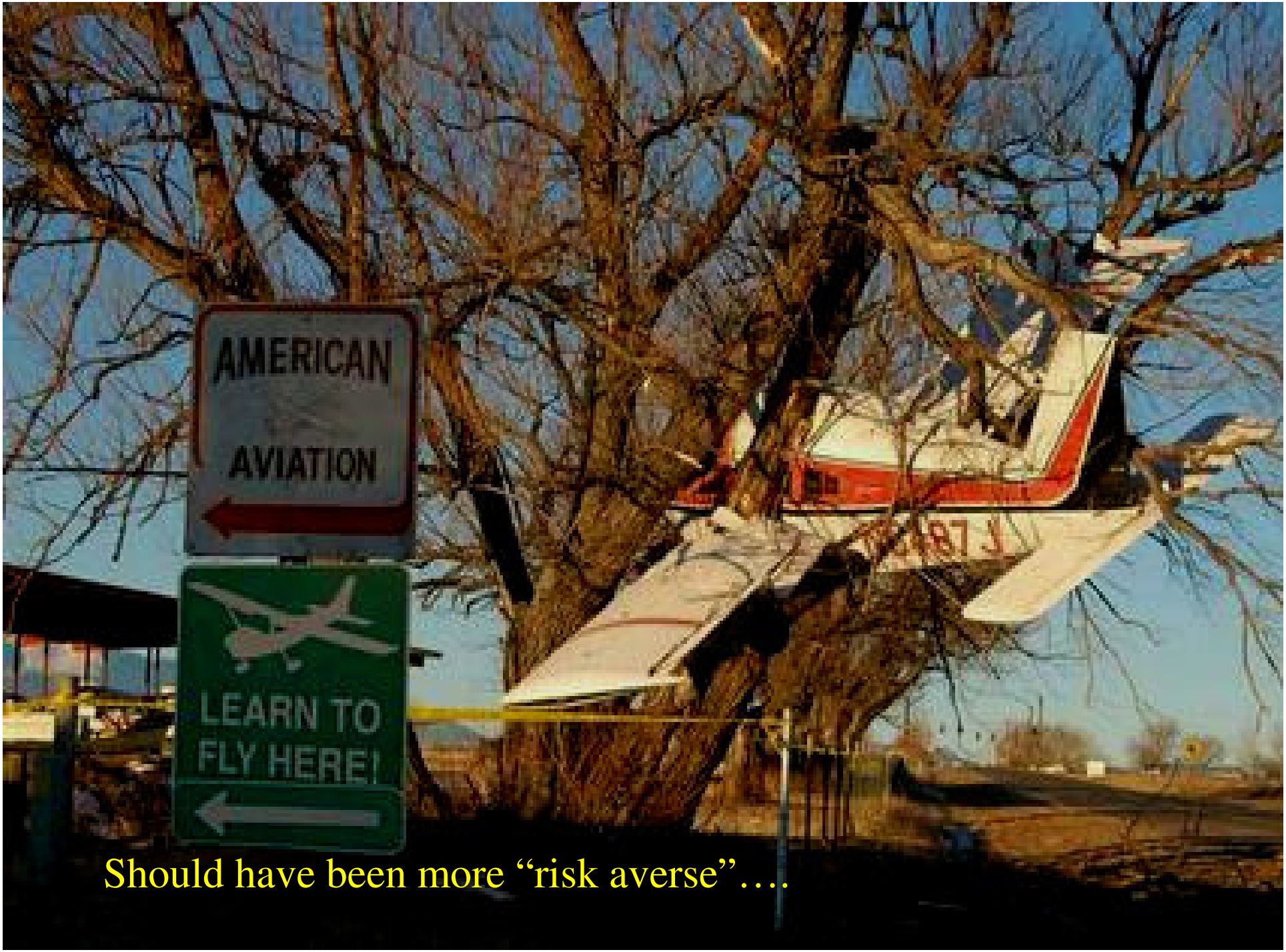


Should have been more “risk averse”….

Risk Identification

Sample Risk Events:

- Supplier may not have system delivered to plant in time for installation during outage.

- Environmental publicity about power plants may delay start of permitting process or design activities.

- There is a shortage of qualified people to assist the plant during installation and start-up of new system(s).

- We may be able to combine procurement of systems to get a volume discount between three of our plants.

Risk Quantification

Inputs

- ❑ Stakeholder Tolerances
- ❑ Risk Sources
- ❑ Potential Risk Events
- ❑ Cost & Schedule Estimates

Risk Quantification

Outputs

- ❑ Opportunities to Pursue
- ❑ Threats to Respond to
- ❑ Opportunities to Ignore
- ❑ Threats to Accept

Tools

- ❑ Expected Monetary Value
- ❑ Decision Trees
- ❑ Expert Judgment

Source: Project Management Institute

Risk Quantification

Two Types of Risk Analysis

Qualitative

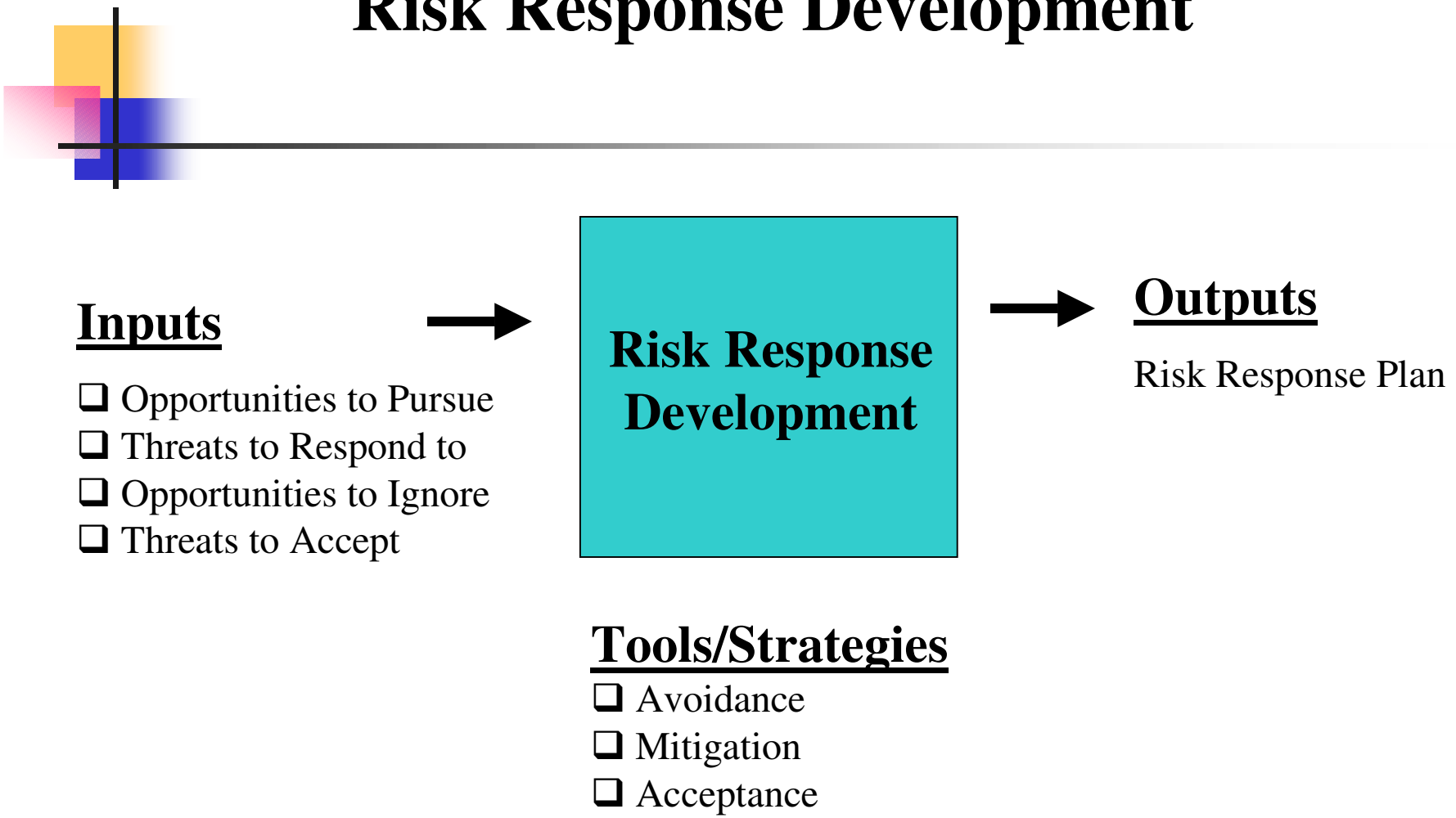
Risk	Probability	Impact
Supplier will not be able to provide key components in time for implementation.	**M**	**H**

(H= High M= Medium L= Low)

Quantitative

Risk	Prob.	Impact	Expected Monetary Result
Supplier will not be able to provide key components in time for implementation.	**60%**	**$250,000**	**$150,000**

Risk Response Development



Risk Response Strategies

- Avoidance: Eliminating a threat by eliminating the cause

- Mitigation: Reducing the risk impact by reducing the probability of the event occurring.
  - Allocate some of the risks to other functional areas
  - Develop oversight policies or processes
  - Deflect to others: Contractors, Insurance, bonding, etc.
  - Reduce risks by adjusting scope, budget, schedule, etc.

- Acceptance: The risks are deemed acceptable with appropriate contingency planning.

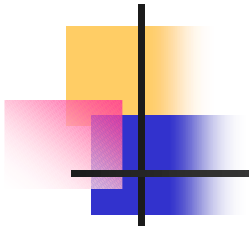
Quantitative Risk Example

Risks	P	I	EV
Supplier may not have system delivered in time for installation.	.6	$600,000	$360,000
There is a shortage of qualified people to assist during installation and start-up of new system(s).	.25	$300,000	$75,000
Support equipment may not be available when needed.	.70	$200,000	$140,000
Contingency Fund Total			$575,000

Risks Response Development– Risk Register

Risks	Prob	Impact	Strategies
1. Weak security tools & support	**M**	**H**	❑ Dedicate time to learn support tools ❑ Provide good estimates for resource requirements ❑ Perform strong budgeting process
2. Weak external communications and training	**M**	**H**	❑ Detailed communications planning ❑ Detailed training plan ❑ "Feed Your Brain" sessions ❑ Communicate clearly the phased approach and deliverables
3. Contract negotiations	**H**	**H**	❑ Early involvement of contract admin./legal ❑ Work with letter of intent in order to stay on schedule (while contracts go through final negotiations) ❑ If necessary, provide a detailed RFP/RFQ ❑ Include SLA at the RFP/RFQ level
4. Policy development	**L**	**L**	(Obtain mgmt. Sign-off and commitment; adequate review time)
5. Incorrect user requirements	**M**	**H**	❑ Utilize business partners to communicate needs and feedback ❑ IS review board approval ❑ Sample of current RLN users, field sales, GM's ❑ Sample of current users ❑ Manage user expectations through communications
6. Poor test plan	**M-H**	**H**	❑ Allow adequate time for test plan development/implementation ❑ Involve the right people ❑ ID right scenarios ❑ Assign responsibilities ❑ ID success criteria ❑ Develop checklist/procedures ❑ Create & maintain issues log

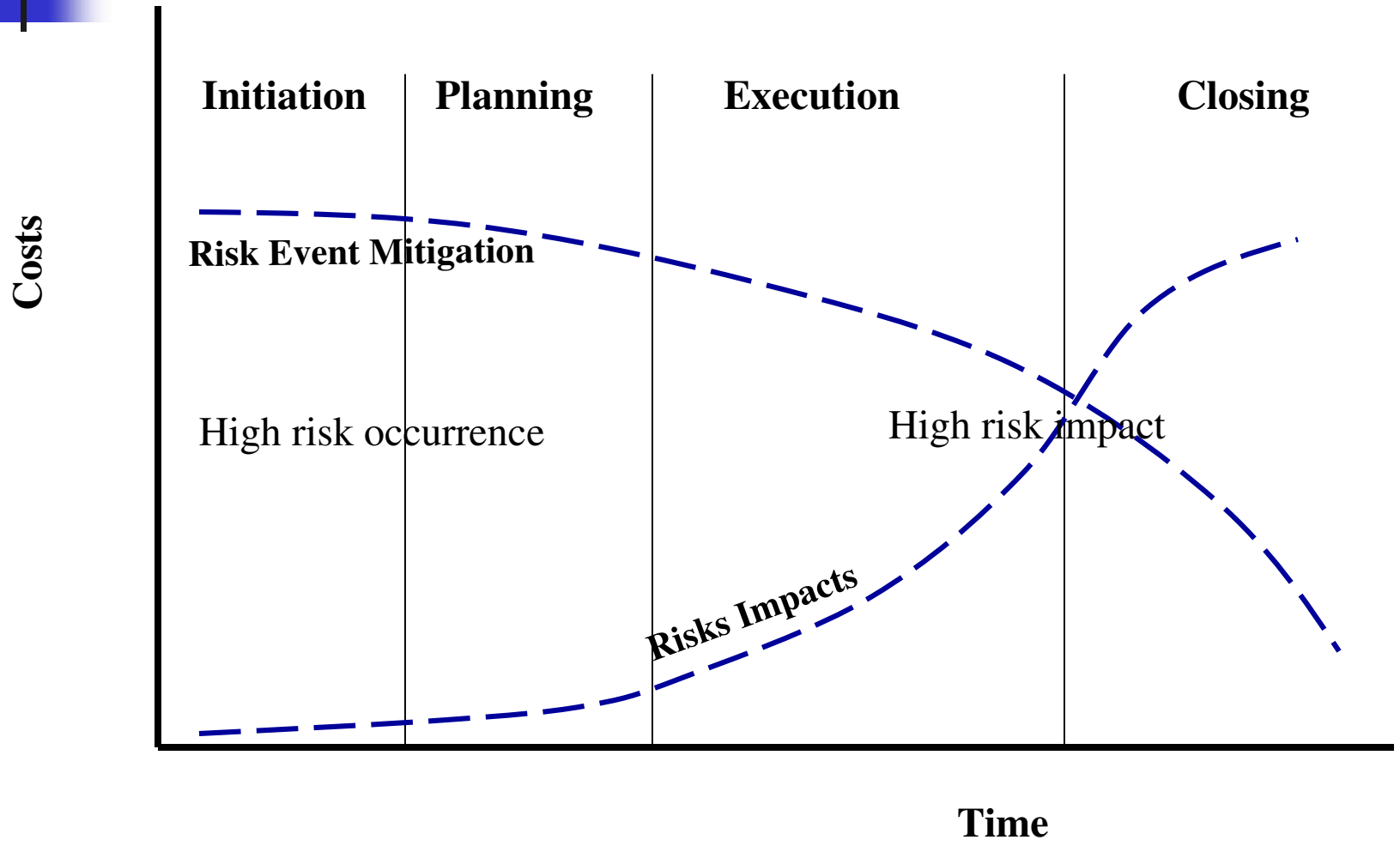
Key Point



It is important to document and communicate the risk strategy. If certain scenarios occur, it is important that the key stakeholders know what course of action will occur and why.

One of the biggest mistakes a project team can make is having contingency strategies and not communicate them to others. What good is a risk strategy if no one is informed?

Risks vs. Opportunity
Over the Project Life Cycle



Modified from R. Wideman, Project Risks Management

Key Lessons

✓ It is always better to avoid risks early in the planning stage rather than deal with them later during implementation.

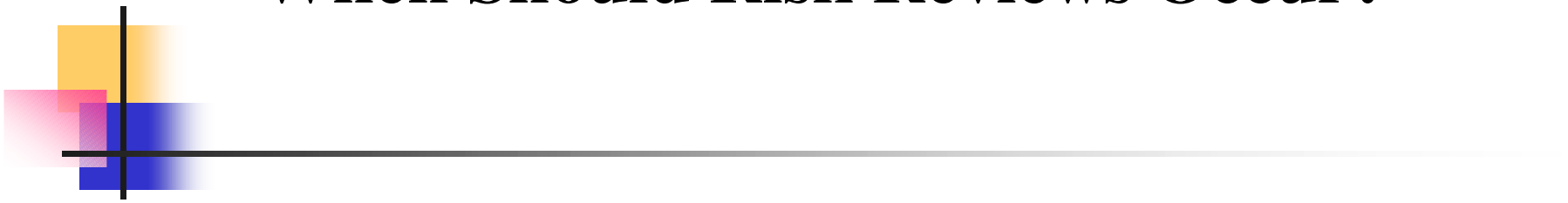
✓ In speculating on risks probability, people have a tendency to be optimistic. Similarly, it is easier to overlook obstacles than account for them.

✓ The severity and impact of a risk event may vary with time and place in the project life cycle.

✓ Regular risk reviews are necessary to anticipate problems that may occur throughout the life-cycle of any project.

Note: Projects will always have changes. Therefore, risks are an integral part of project planning.

When Should Risk Reviews Occur?



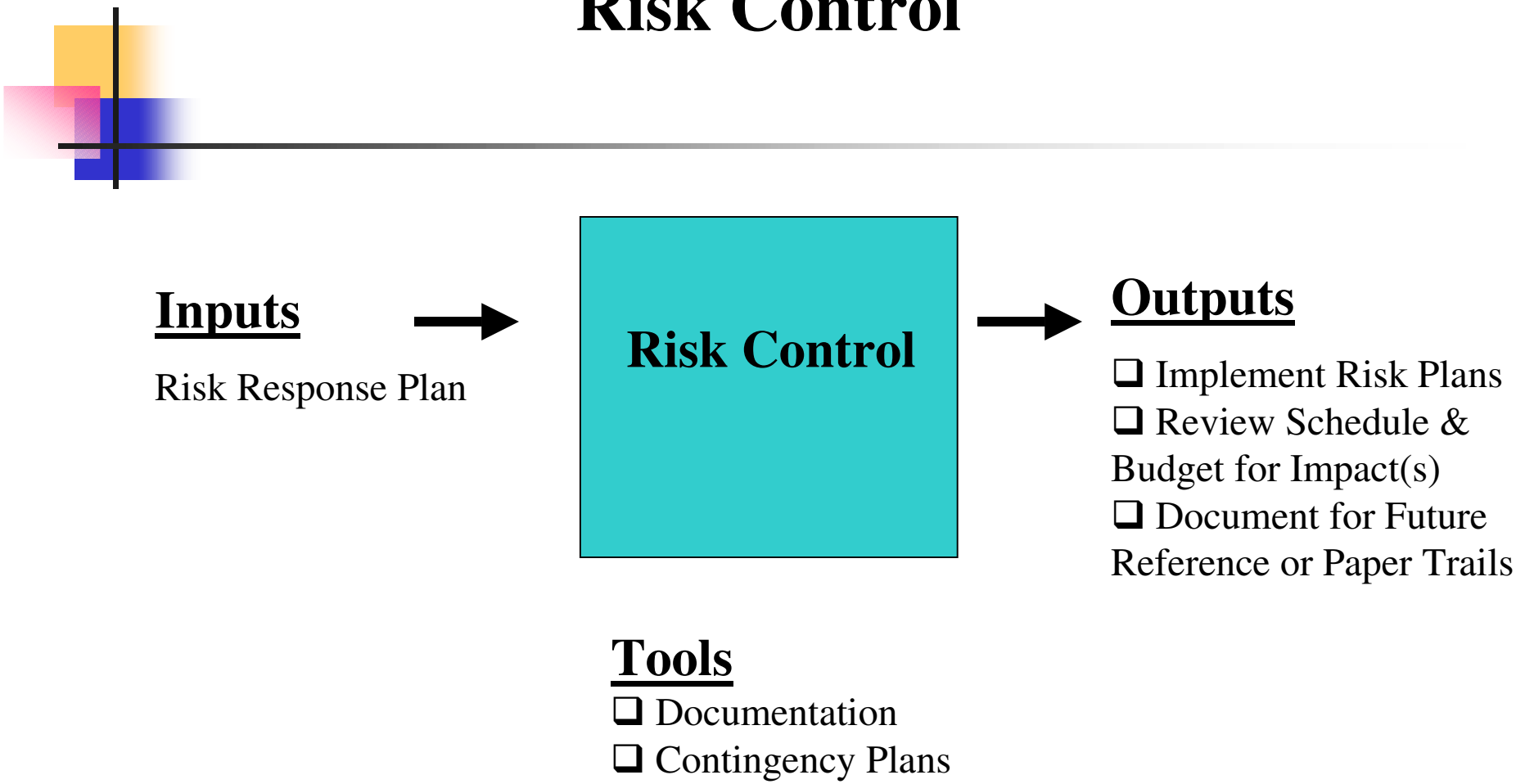
- Whenever a risk event is triggered or occurs
- Prior to a "gate" review (go/no go)
- At each stage of the project lifecycle
- Whenever significant events or situations change and a project impact can occur.

In other words, risks reviews should occur on a continuous basis throughout the life of a project.

Risk Plan Complete. Now What?

- The risk plan is incorporated as a part of the project plan.
- High-probability, high-impact risk events should be placed into the project schedule.
- The contingency budget should be adjusted to reflect probable high-risk costs.
- Key stakeholders should be aware of the major risks.
- The contingency plan will be implemented should a risk event occur.

Risk Control



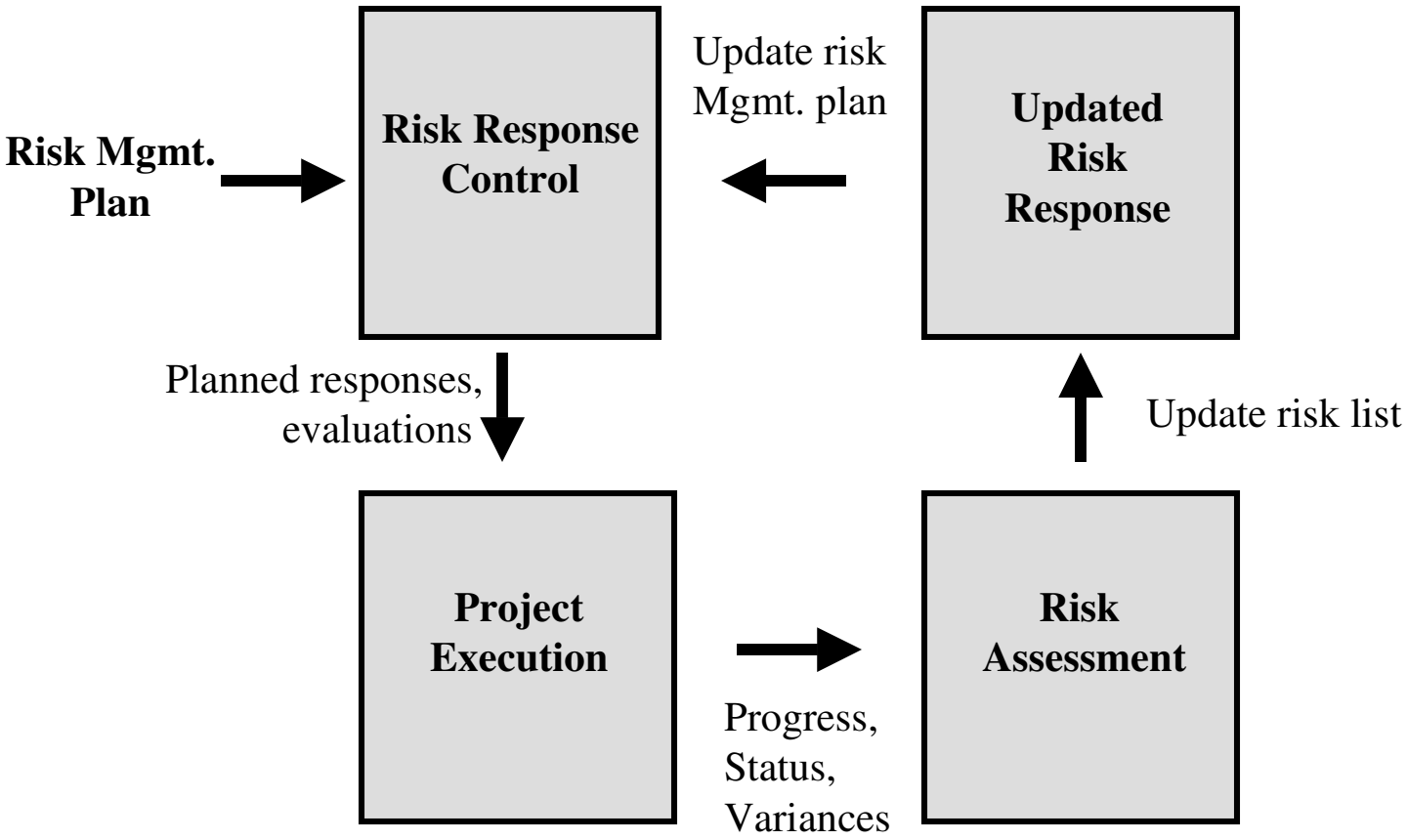
Risk Monitoring And Control

"Risk monitoring and control is the process of identifying, analyzing, and planning for newly arising risks, monitoring trigger conditions, residual risks, and the execution of risk responses….." *PMBOK®, 2004*

Key items to monitor during project lifecycle:

- Assumptions about the project
- Trends indicated change in risks
- Risk procedures/policies are being followed
- Contingencies are in line with anticipated project risks

A Risk Response Process

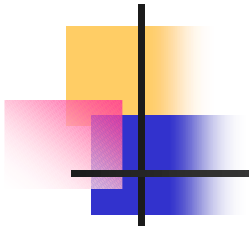


An Early Warning System

Trends in projects will start to appear about 20% through a project's lifecycle. How can we capture these trends?

- Track and monitor schedule and cost variances
- Performed earned value analysis
- Monitor key milestones
- Convene regular status meetings and reporting
- Assign responsibility for risk response
- Manage project changes (especially scope changes)
- Communicate, communicate, communicate

Summary



- Risk events are situational, interdependent, value-based (costs), and time-based. Risks reviews are not precise.

- Risk identification is a team activity.

- Although there are six steps to risk management, there are basically four processes: identification, quantification, response development, and control.

- Risks can be positive (opportunities to chase) or negative (threats to minimize or avoid). Mostly, they are negative.


Thank You!