

# CLASS DESCRIPTION

Is your job consumed with "fighting fires" and handling emergencies? Do you feel like your project success is often outside of your control? By definition, projects have never been done before, and will not be done again. As a result of the unique nature of projects, there are innumerable factors that could go wrong. Schedules slip, costs go up, defects and mistakes are introduced, and as we learn throughout the project, the requirements to be delivered change. Project Risk Management will teach you unique skills that will help you take back control of your project and career by shifting your mindset and day to day actions from reactive to proactive and significantly increase your chances for project success.





## CLASS MECHANICS

- Originally this was planned to be an in-person class, but now is an Online/Zoom class.
- Combination of:
  - Lecture.
  - Hands on assignments.
  - Videos.
  - Readings.
- We will take a break approximately every 50 mins, with a 30 minutes break for lunch 12:00-12:30pm Mt. Time.
- There will also be several quiet times for readings, etc.
- Any questions?
- Roster check.





## LEARNING OBJECTIVES TODAY



The Triple Constraint





## PRE-WORK

- Readings/Cases.
- Videos.
- Risk Register.





## LEARNING OBJECTIVES TODAY

Risk as "An uncertain event or condition that, if it occurs, has an effect on at least one project objective."



Category	Example
Scope	In building software, requirements often change as we better understand customer needs.
Schedule	Unforeseen time off from key employees may cause a schedule to slip.
Cost	Supplier costs may change over time.
Quality	As a result of human error, defects can be introduced to a project.





# LEARNING OBJECTIVES TODAY

Create	Create an appropriate risk management plan for a project.
Anticipate	Anticipate threats and opportunities to a project
Articulate	Articulate the impact and priority of risks throughout the life cycle of a project.
Develop	Develop risk response plans.
Manage	Manage stakeholder expectations by having a "no surprise" mentality.







## WHAT IS RISK?

"An uncertain event or condition that, if it occurs, has a positive or negative effect on a project's objectives" - PMI

## **COMPONENTS OF RISK**

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## RISK TOLERANCE











#### HAZARD

## SAFEGUARD

## CAUSE OF RISK

Risk increases with hazards and decreases with safeguards.



## OCCURRENCE

- Risk has a probability < 1.0</p>
- Issue has a probability = 1.0





## **RISK MANAGEMENT**



Risk management is the act or practice of dealing with risks





## CASE AND READING









#### 2012 PMI PROJECT OF THE YEAR AWARD FINALIST

# BEHIND



**BY KEITH JACKSON II** 







ONE OF THE WORLD'S BIGGEST MANUFACTURERS OVERHAULS ITS SYSTEMS AND PROCESSES—WITH FEW IN THE OUTSIDE WORLD EVER NOTICING.



# How did P&G initiate the project?

How did P&G identify Risk?

How did P&G Plan for Risk?

How did P&G Analyze, Control, and Monitor Risk?

## DISCUSSION

How did P&G initiate the project?

How did P&G identify Risk?

How did P&G Plan for Risk?

TOMATION .

How did P&G Analyze, Control, and Monitor Risk?

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## PLAN RISK MANAGEMENT









## Contingency Reserve and other funding



#### Schedule Risk Tasks

### TIME AND RESOURCES







#### **Executive Sponsor**

#### Project Manager

**Business Owner** 

Others?



#### Executive Sponsor

• https://www.pmi.org/learning/library/successfailure-sponsors-top-management-8471

#### Video // Stakeholders and Project Sponsors

# RACI

- The *RACI* matrix is a responsibility assignment chart that maps out every task, milestone or key decision involved in completing a project and assigns individuals to roles.
- What does *RACI* stand for?
  - Responsible;
  - Accountable;
  - Consulted; and
  - Informed.

Video link // https://www.cio.com/article/2395825/project-management-how-to-design-a-successful-raci-project-plan.html





# RACI

Seattle Construction	Galligher	Chad	Pacific	R4	<b>Construction PM</b>	Program Manager	Product Manager
Manages day to day construction efforts	С	С	С	С	A/R	I	Ι
Documents the architectural design	С	С	I	I	A	I	С
Construction Architect	С	R	С	С	A	I	
Comcast Internet		R			С	Ι	A
Fabrication				R	С	Ι	A
Demolition				R	A	Ι	
Construction		С		R	А	Ι	A
Finishing Touches				R	С	I	A





## RACI ENTRIES

#### **Complete the RACI portion of your Risk Register.**

20 Minutes.

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SOALE		+/- IMPACT ON PROJECT OBJECTIVES							
SCALE	TIME	COST	QUALITY						
Very High	>6 months	>\$5M	Very significant impact on overall functionality						
High	3-6 months	\$1M-\$5M	Significant impact on overall functionality						
Medium	1-3 months	\$501K-\$1M	Some impact in key functional areas						
Low	1-4 weeks	\$100K-\$500K	Minor impact on overall functionality						
Very Low	1 week	<\$100K	Minor impact on secondary functions						
Nil	No change	No change	No change in functionality						

				Threats				Opportunities					
	Very High 0.90	0.05	0.09	0.18	0.36	0.72	0.72	0.36	0.18	0.09	0.05	Very High 0.90	
λ	High 0.70	0.04	0.07	0.14	0.28	0.56	0.56	0.28	0.14	0.07	0.04	High 0.70 P	
obabili	Medium 0.50	0.03	0.05	0.10	0.20	0.40	0.40	0.20	0.10	0.05	0.03	Medium 0.50	
Pr	Low 0.30	0.02	0.03	0.06	0.12	0.24	0.24	0.12	0.06	0.03	0.02	Low 0.30	
	Very Low 0.10	0.01	0.01	0.02	0.04	0.08	0.08	0.04	0.02	0.01	0.01	Very Low 0.10	
		Very Low 0.05	Low 0.10	Moderate 0.20	High 0.40	Very High 0.80	Very High 0.80	High 0.40	Moderate 0.20	Low 0.10	Very Low 0.05	-	
			Ne	gative Imp	act			Pos	sitive Impa	ict			

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#### **RISK STRATEGY**

General approach to managing risk, which may include:

- Methodology your approach, tools, and data sources used.
- Risk tasks included in schedule.
- Roles and Responsibilities (RACI)
- Risk categories through a Risk Breakdown Structure



# OUR PROJECT

- House Remodel
- \$200,000 budget through a bank
- General Contractor rather than do-it-yourself
- 6 month project



How much time and resources will you spend on risk management?



#### Who will make decisions?



What's your strategy?

How do you measure impact? What's your escalation path? DEVELOP A RISK MANAGEMENT PLAN

**20 Minutes** 



## DISCUSSION



How much time and resources will you spend on risk management?



Who will make decisions?

۲۲ ۲۶ What's your strategy?

How do you measure impact? What's your escalation path? DEVELOP A RISK MANAGEMENT PLAN



#### Everyone can be involved in risk identification

#### Start identifying early in the project.

#### **Tools and Techniques**

## **IDENTIFY RISKS**



<b>RBS LEVEL 0</b>	RBS LEVEL 1	RBS LEVEL 2
		1.1 Scope definition
		1.2 Requirements definition
		1.3 Estimates, assumptions, and constraints
	<b>1. TECHNICAL RISK</b>	1.4 Technical processes
		1.5 Technology
		1.6 Technical interfaces
		Etc.
		2.1 Project management
		2.2 Program/portfolio management
		2.3 Operations management
	2. MANAGEMENT RISK	2.4 Organization
		2.5 Resourcing
		2.6 Communication
. ALL SOURCES OF		Etc.
PROJECT RISK		3.1 Contractual terms and conditions
		3.2 Internal procurement
		3.3 Suppliers and vendors
	RBS LEVEL 1         1. TECHNICAL RISK         2. MANAGEMENT RISK         3. COMMERCIAL RISK         4. EXTERNAL RISK	3.4 Subcontracts
		3.5 Client/customer stability
		3.6 Partnerships and joint ventures
		Etc.
		4.1 Legislation
		4.2 Exchange rates
		4.3 Site/facilities
	4. EXTERNAL RISK	4.4 Environmental/weather
ALL SOURCES OF PROJECT RISK		4.5 Competition
		4.6 Regulatory
		Etc.

## RISK BREAKDOWN STRUCTURE

 Project Management Institute (2017). A Guide to the Project Management Body of Knowledge: PMBOK Guide. 6<sup>th</sup>Edition. PA: PMI. Table 11-4, page 406



# POTENTIAL NEGATIVE RISK CONDITIONS

Knowledge Area	Risk Conditions
Integration	Inadequate planning; poor resource allocation; poor integration management; lack of post-project review
Scope	Poor definition of scope or work packages; incomplete definition
Time	Errors in estimating time or resource availability; errors in deter- mining the critical path; poor allocation and management of float; early release of competitive products
Cost	Estimating errors; inadequate productivity, cost, change, or contingency
Quality	Poor attitude toward quality; substandard design/materials/work- manship; inadequate quality assurance program
Human Resources	Poor conflict management; poor project organization and definition of responsibilities; absence of leadership
Communications	Carelessness in planning or communicating; lack of consultation with key stakeholders
Risk	Ignoring risk; unclear analysis of risk; poor insurance management
Procurement	Unenforceable conditions or contract clauses; adversarial relations





## FAIL FAST, FAIL SMALL

- Walking Skeleton, MVP, Thin Thread
- Waterfall vs Agile

Knowledge





# DISCUSSION

- Do you believe the Agile 'Hype'?
  - Individuals and interactions over processes and tools;
  - Working software over comprehensive documentation;
  - Customer collaboration over contract negotiation; and.
  - Responding to change over following a plan.
- Does Agile work for everything?









## **Brainstorming:** Identify and categorize risks as a team.

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<b>~</b> —	
<b>~</b> -	

**Documentation Reviews:** Review project documentation.



**SWOT**: Identify project strengths, weaknesses, opportunities, and threats



**Assumptions Analysis**: analyze project assumptions to see if they lead to risks

## TOOLS AND TECHNIQUES



## **OUTPUT – RISK REGISTER**







Date			Impact	Impact		Risk			Review	Date
Identifie	Description/Cause	Impact 🗸	Value 🔻	Score 🔻	Probability -	Score 🔽	Owner 🗸	Mitigation Plan	Date 💌	Closed
		stop the project					General			
8-Nov	Permit is not approved	altogether	Very High	0.9	0.3	0.27	Contractor	Alter scope	weekly	
	General Contractor does	Misunderstanding								
	not know how to	of scope, schedule,						Weekly meeting and		
15-Nov	communicate!	budget, and quality	Very High	0.9	0.9	0.81	Homeowner	everything in writing.	weekly	
	Permit approval timeline is	Could delay the					General	Send in permit		
8-Nov	ambiguous?	timeline	Medium	0.5	0.3	0.15	Contractor	requests sooner.	bi-weekly	1-Dec

# RISK REGISTER EXAMPLE





- **Top Ten Risk Item Tracking** is a qualitative risk analysis tool that helps to identify risks and maintain an awareness of risks throughout the life of a project
- Establish a periodic review of the top ten project risk items
- List the current ranking, previous ranking, number of times the risk appears on the list over a period of time, and a summary of progress made in resolving the risk item

RISK EVENT	Rank	RANK	NUMBER OF MONTHS	<b>RISK RESOLUTION</b>
	This Month	Last Month	IN TOP TEN	Progress
Inadequate planning	1	2 WORSENI	4 NG	Working on revising the entire project management plan
Poor definition	2	3	3	Holding meetings with project customer and sponsor to clarify scope
Absence of leadership	3	1 IMPROVIN	2 G	After previous project manager quit, assigned a new one to lead the project
Poor cost estimates	4	4 CONSIS	3 STENT	Revising cost estimates
Poor time estimates	5	5	3	Revising schedule estimates

#### **EXAMPLES OF TOP 10**





## WATCH LIST

# A **watch list** is a list of risks that are low priority but are still identified as potential risks

Qualitative analysis can also identify risks that should be evaluated on a quantitative basis





Identify Risks
Brainstorming
SWOT
Assumptions Analysis
Create a Risk Register

## ANTICIPATE THREATS AND OPPORTUNITIES

#### **20 Minutes**





- Do you need to have a mitigation strategy for every risk? No, too expensive!
- Create a short list of key risks to perform qualitative risk analysis and then move to Plan Risk Responses
- Qualitative risk analysis is subjective

Date			Impact	Impact		Risk			Review	Date
Identifie	Description/Cause	Impact 👻	Value 🗸	Score 💌	<b>Probability</b>	Score 👻	Owner 🗸	Mitigation Plan	Date 🗸	Closed
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# RISK REGISTER EXAMPLE





# PROBABILITY AND IMPACT MATRIX

Probability			Threats		Opportunities					
0.90	0.05	0.09	0.18	0.36	0.72	0.72	0.36	0.18	0.09	0.05
0.70	0.04	0.07	0.14	0.28	0.56	0.56	0.28	0.14	0.07	0.04
0.50	0.03	0.05	0.10	0.20	0.40	0.40	0.20	0.10	0.05	0.03
0.30	0.02	0.03	0.06	0.12	0.24	0.24	0.12	0.06	0.03	0.02
0.10	0.01	0.01	0.02	0.04	0.08	0.08	0.04	0.02	0.01	0.01
	0.05	0.10	0.20	0.40	0.80	0.80	0.40	0.20	0.10	0.05

Project Management Institute (2008). A Guide to the Project Management Body of Knowledge: PMBOK Guide. 4<sup>th</sup>Edition. PA: PMI. Table 11-10, page 292





- Define impact and probability for each risk.
- Include in Risk Register

ARTICULATE IMPACT AND PRIORITY

#### **10 Minutes**



#### Numerical and objective

#### Purpose is to determine:

- which events warrant a response
- overall project risk
- quantified probability of meeting project objectives
- cost and schedule reserves
- realistic cost, schedule, scope targets



## QUANTITATIVE RISK ANALYSIS





#### EXPECTED MONETARY VALUE ANALYSIS (EMV)

#### **EXPERT JUDGMENT**

#### **SIMULATIONS**

# PERFORM QUANTITATIVE RISK ANALYSIS



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Remo	15% chance of a market crash, costing \$50,000 85% chance of a strong economy, gaining \$100,000.	15% chance of market crash, costing \$20,000 85% chance of a strong economy, gaining \$20,000	No Remo
0.15*(-\$50,000) + 0.85*\$100,000 - <b>\$7500 + \$85,000</b>		0.15* (-\$20,000) + 0.85*\$20,000 <b>-\$3000 + \$17,000</b>	odel
F	\$77,500 PROFESSIONAL	\$14,000	
	EDUCATION		

## EXPECTED MONETARY VALUE



## What are we going to do about our key risks?

- Eliminate threats before they happen
- Make sure opportunities happen
- Decrease the probability/impact of threats or increase the probably/impact of opportunities

## For threats that cannot be eliminated:

- Do something if the risk happens (contingency plans)
- Do something if the contingency plan is not effective (fallback plans)

# PLAN RISK RESPONSES





#### **Threats:**

**Avoid**: eliminate the cause (e.g. remove work package)

**Mitigate**: reduce the probability or impact (smaller risk)

**Transfer**: transfer responsibility (insurance, warranties, outsourcing, etc.)



## **Opportunities:**

**Exploit**: add or change the work

**Enhance**: increase the probability or impact

**Share**: allocate ownership (partnership, joint venture, etc.)

# MITIGATION STRATEGIES



Escalate	• I'm on the training team, and I'm not getting the needed screenshots for the new website in time to make my delivery date, therefore, I escalate.
Avoid	• Construction costs are variable over time, therefore I want a fixed bid.
Mitigate	• My executive sponsor isn't representing our project well in board meetings, so I'm going to provide her a one pager report prior to the next board meeting.
Transfer	• Our contact center case volume continues to grow non-linearly, therefore let's use a 3 <sup>rd</sup> party that can adjust its workforce accordingly.
Accept	• Low threats should just be accepted or when it is not possible or cost-effective to address the threat.
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## THREATS



#### Escalate

• You just closed a deal in your department for an enterprise license to a new CRM system. You notify other departments that they can use your system with no additional cost.

Exploit

• Your e-commerce website is currently scheduled to launch December 15. You realize that you'll miss the Black Friday shopping spree, therefore you do whatever is necessary to meet the Black Friday deadline by adding resources, going into overtime, or reducing scope.

Enhance

• Your e-commerce website is currently scheduled to launch December 15. You realize that you'll miss the Black Friday shopping spree, therefore you fast-track the project to increase your chances of an early release.

Share

Ignore

• FamilySearch was not able to index the 1940 Census on its own, so brought in partners to help.

•These opportunities are minor opportunities, not cost-effective, or positive action is not possible.

#### LSCalate

**OPPORTUNITIES** 



# MONITOR & CONTROL RISK

Are risk responses effective?

Has your project risk changed?

How have individual risks changed?

Is our risk management approach appropriate?

Are policies and procedures being followed?

How are our contingency reserves?

Are we meeting business objectives?







**Performance Analysis** – Measure quality and other technical performance measures.



**Reserve Analysis**: reviewing planned vs. actual (not to be confused with change management)



**Risk Reassessments**: periodic reviews of risk register and risk management plan



**Risk Audits**: Audit the effectiveness of risk responses and risk management processes.



**Meetings**: review risks/status with the team

## TOOLS AND TECHNIQUES





#### **BURNDOWN CHART**

Scope or budget remaining versus time left.





## Create mitigation plans.



#### Add to Risk Register

#### Risk Review Date Date Impact Impact Score Probability Score Owner Identifie 🔄 Description/Cause Mitigation Plan Impact Value Date Closed stop the project General altogether Very High weekly 8-Nov Permit is not approved 0.9 0.3 0.27 Contractor Alter scope General Contractor does Misunderstanding not know how to of scope, schedule, Weekly meeting and budget, and quality Very High everything in writing. weekly 15-Nov communicate! 0.9 0.9 0.81 Homeowner Permit approval timeline is Could delay the General Send in permit timeline 8-Nov ambiguous? Medium 0.5 0.3 0.15 Contractor requests sooner. bi-weekly 1-Dec

## DEVELOP RISK RESPONSE PLANS.

#### **20 Minutes**



## APPLYING WHAT WE LEARNED







## UMATILLA CHEMICAL DEPOT FACILITY CASE

- Read <u>Umatilla Chemical Depot Facility.pdf</u>
- How did the URS team Plan for Risk?
- How did the URS team Identify Risks?
- How did the URS team Analyze Risks?
- How did the URS team Respond to Risk?
- How did the URS team Monitor and Control Risk?







## DISCUSSION UMATILLA CHEMICAL DEPOT FACILITY CASE

- How did the URS team Plan for Risk?
- How did the URS team Identify Risks?
- How did the URS team Analyze Risks?
- How did the URS team Respond to Risk?
- How did the URS team Monitor and Control Risk?





## MANAGE STAKEHOLDERS EXPECTATION



"No surprises" mentality



Develop a communication plan

Push

Pull



Get approvals at the appropriate levels





# DID WE MEET OUR OBJECTIVES?

Create	Create an appropriate risk management plan for a project.
Anticipate	Anticipate threats and opportunities to a project
Articulate	Articulate the impact and priority of risks throughout the life cycle of a project.
Develop	Develop risk response plans.
Manage	Manage stakeholder expectations by having a "no surprise" mentality.





## TAKEAWAYS?





