

Integrated Risk Management in Public Procurement



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Risk Management Course Objectives

- Identify types of risks that can occur for any contract.
- Identify risks that are likely to occur for a specific contract, by utilizing risk evaluation methodologies.
- Develop a risk management plan.
- Incorporate this risk management plan into pre-award and post award activities.



Definitions-Canada Treasury

- **Risk refers to the uncertainty that surrounds future events and outcomes. It is the expression of the likelihood and impact of an event with the potential to influence the achievement of an organization's objectives.**
- The phrase "the expression of the likelihood and impact of an event" implies that, as a minimum, some form of quantitative or qualitative analysis is required for making decisions concerning major risks or threats to the achievement of an organization's objectives. For each risk, two calculations are required: its likelihood or probability; and the extent of the impact or consequences



Risk Management

- Risk management is a systematic approach to setting the best course of action under uncertainty by identifying, assessing, understanding, acting on and communicating risk issues.



Premises

- Prevention of problems is preferred to reaction to problems (**lean**)
- Procurement has existing tools & solutions to prevent (**mitigate**) problems (**procurement cycle**)



Objectives

- Using existing best management practices We will examine how Procurement can add value to their agency
 - Discuss risk identification strategies
 - Develop risk mitigation plan



Risk Identification External Economics

- Need to adapt to uncertainty in the market place (**risk**)



Uncertainty in the Marketplace- Reduction in Number of Suppliers

- Competition and the Global Economy
 - Protectionism
 - Reduction in local suppliers
 - Fewer large suppliers, more dispersed throughout the world
 - Niche suppliers
 - Green, Contracted Services
 - Examples from Class



Uncertain Prices Changes in Prices

- Pricing-Uncertainty
 - Demand and supply chains are international subject to variety of pressures
 - China purchase of raw materials
 - Disruptions of rare materials (cellphone part from Congo)
 - Examples from Class
 - Linked economies
 - Current Financial Crisis



Delivery Risk Delays

- Reduction in “off the shelf” products
 - No longer reliant on a specific country’s economy for orders or labor.
 - Rapidly changing products and services
 - Just in Time Production
 - Less Inventory
 - Examples from Class



Increased Risk of Poor Performance and Failure

- Pressure to reduce costs to remain competitive
 - Cuts in Infrastructure (support services)
- Less experience (startups due to internet economy)
- Examples from Class



Sub-Contractors Risk of Poor Performance

- Reduction in employees
 - Increase use of sub contractors
- Less experience with specific product or service
- Less loyalty to your supplier
- Examples from Class



Risk of Insolvency and Continuity

- Financing- Availability of funds to stay in business during long projects (software, construction)
 - Need for frequent payments
- Here today gone tomorrow
- Examples from Class



Inherent Risk- Project Objectives

- Is the project large or complex?
- Is it mission critical
- Long time frame
- Is the scope well defined
- Do all of the stakeholder agree on the scope and the approach?
- Is a significant ramp up, transition or extensive capital investment required?



Other Sources of Inherent Risk

- Commercial/legal relationships (2-counties or a county and city)
- Financial market activities
- Intellectual property
- Management activities and controls
- Natural events
 - Site conditions
 - Unusually severe weather



Risk Analysis: Describe Current Project Environment using a SWOT Analysis

Identify Strengths and Weakness

- Internal Team Competency
- Organization Support
- Project organization
- Risk Tolerance
- Mission Critical
- Time frame-Long?
- Previous experience
- Technology
- External-Market –experienced vendors?
- Vendor competency-Experience, project manager



Project Overview and Establish Goals (15-20 min)

- Review the project synopsis
- Role Playing
 - Bill will be end-user and supervisor
 - Meet as a group to formulate your project goals and any questions



Goals of Procurement The 5 "Rights"

- The "Right" product or service
- The "Right" quantity
- The "Right" time
- The "Right" quality
- The "Right" Price

Use the procurement cycle to achieve these goals



Professional Services Spec

- Goal is to purchase a single system that provides Human Resource, Payroll and Financial system for midsize public agency with 35 departments and 1000 employees.
- Current financial is 15 years old and runs on a mainframe. Numerous departments involved in decision making, lack of in house computer expertise to support any software after purchase.
- Human Resources and Payroll currently have a standalone system that is five years old but is web based and they like very much.
- Large impact on agency. Large Dollar amount, Very long (24 months) implementation schedule.
- New system requires interfaces to existing tax system, highway cost accounting and imaging systems all of which run on a main frame system.
- Data from existing financial system has to be migrated to any new system.



Professional Services Contract Enterprise Software System

- Multiple departments, HR, AP, Work Order, Purchasing
- Large Agency 1000 employees
- Current system 15 years old
- Lack of in house IT expertise
- HR and AP currently have standalone systems
- Expensive \$2,000,000
- Long Implementation 24 months
- Requires several custom interfaces to Highway costing.
Human Services
- Migration of existing data



5 STEPS TO DEVELOPING a CAP

1. Establish the Team
2. Determine Desired Outcomes, Required Service, Performance Standards and Acceptable Quality Level
3. Identify Risks
4. Develop Scope of Work (SOW) or Performance Work Statement (PWS)
5. Decide how to Measure and Manage Performance



CAP FORMAT

- Title of Contract, Criticality
- Contractor Name & Key Personnel
- Brief Description of Work Requirements
- Contract Administration Team & Duties
- Desired Outcomes
- Performance Standard
- Acceptable Quality Level
- Delivery Schedule/Milestones
- Reporting Requirements
- Testing, Inspection and Acceptance
- Warranty
- Personnel
- Potential Problem Areas



Describe Required Service- Be SMART

- What task must be accomplished to give us the desired result
- S-Specific
- M-Measurable
- A-Attainable
- R-Results orientated
- T-Time Based



Sample Performance Assessment Plan

- Determine Desired Outcomes, Required Service,
Link to your 5 R's for your project
- Performance Standards
 - completeness, reliability, accuracy, timeliness,
quality and or cost
- Acceptable Quality Level
 - Measurable
 - Go/No
 - Tolerances
 - Survey



Exercise 1- Determine Desired Outcomes

- Determine Desired Outcomes, Required Service, (This is all we will do) Identify the:
- The "Right" product or service
- The "Right" quantity
- The "Right" time
- The "Right" quality
- The "Right" Price



STEP 2

- Determine Desired Outcomes and Required Service Performance Standards, Establish AQL (we will not do this in exercise)
- Define at a high level the desired results- we did this.
- Decide what constitutes success (not included.
- Describe Required Services- Not included
- Establish performance Standards- Not included in this exercise.
- Establish AQL- Not Included in this



Risk Mitigation Tools

Innovative Risk Mitigation Solutions Using Each Step of the Procurement Process

- Internal Team Competencies
- Specification Development
- Pricing
- Performance
- Vendor Selection
- Inspection and Monitoring
- Contracts
- Payment



Incorporating Contract Administration into Risk Management

- Need to be proactive
- Know which problems may occur
- Use each of the decision points in the procurement process to development of a contract administration plan to eliminate or reduce (mitigate) the risks of problems.



Implementation of Risk Mitigation Plan

- Identifying specific risk mitigation for each problem to:
 - Avoid
 - Change desired outcomes to avoid
 - Change approach (specifications)
 - Transfer
 - Assume
 - Increased Insurance
 - Monitoring
 - Share



Use Integrated Risk Management as part of a project

- Creating a project charter
 - Procurement and End-user
 - Jointly assess Strengths and weakness of project and team
 - Jointly assess risks (potential contract administration problems and severity)
 - Jointly develop risk mitigation plan



Using the Body of Knowledge for Risk Mitigation

- The Procurement Cycle=Risk Mitigation Plan



Use of Procurement Cycle as Risk Mitigation tool

- Key Decision Points
 - Each Step of procurement cycle
 - Specifications
 - Pricing
 - Delivery
 - Pre Bid conference
 - Inspection
 - Monitoring
 - Payment



Integrated Risk Management Process

- Risk Identification
- Risk Assessment
- Measuring Likelihood and Consequences
- Ranking Risks
- Developing Risk Mitigation Plan
- Implementation of Risk Mitigation Plan
- Monitoring Plan
- Evaluation of Plan



Risk Management 101

$$\begin{aligned} &\text{Likelihood of Occurrence} \\ &+ \\ &\text{Severity of Risk} \\ &= \\ &\text{Overall Risk} \end{aligned}$$



Risk Identification and Assessment

Anticipating Typical Contract Administration Problems

- Typical Contract Administration Problems
- Handout-Summary of Davison-Sebastian-Hartley Research



Measuring Likelihood of Risks

- Value of Research (Characteristic of Profession)
 - Davison-Sebastian-Hartley Research



Contract Types

Contract Type	Examples
Commodities, Small Purchases	MRO (maintenance, repair and operating supplies) Term contracts: i.e. office supplies, one-time orders for durable goods under \$5000
Capital Outlay	Durable goods over \$5000
Professional Services	Architects, consultants
Contracted Services	Custodial services, food service
Software	Custom developed and shrink-wrap
Construction	Any type and any dollar amount – New construction or remodeling
Leases	Leased space or equipment – lease without intent to own

Mapping of Goals, Risks and Contract Problems

Goal Criteria	Risk	Contract Problem
Right Item and Right Quantity	Proposal Risk	Poor Performance; Risk of Failure; Final Acceptance
Right Price	Surety and liability risk; Contractual Risk; Price Risk	Cost; Change Order; Personality Conflict
Right Time	Schedule Risk; Contractual Risk	Wrong product; Delay; Change Order; Personality Conflict
Right Quality	Performance Risk	Final Acceptance; Poor Performance; Risk of Failure; Subcontractors
Right Source	Surety and liability risk	Cost; Subcontractors; Other Sources; Risk of Failure



TYPICAL CONTRACT ADMINISTRATION PROBLEMS

- Delivery Problems
- Wrong or Unsatisfactory Product
- Delay or Incomplete
- Dispute Over Acceptance Terms
- Change Order
- Personality Conflicts (Contractor & Agency)



TYPICAL CONTRACT ADMINISTRATION PROBLEMS (cont.)

- Poor Performance
 - Failure to start
 - Failure to complete
- What is poor performance and when does it constitute contract default?
- High Risk of Failure
- Limited or No Replacement Sources of Supply
- Use of Subcontractors
- High Cost

Perceived occurrence of contract administration problems over all types of contracts

Contract Type	1	2	3	4	5	6	7	8	9	10
Supplies and Small Purchases	Delays	Definition of Acceptance	Change Order	Personality Conflict	Other Sources	Poor Performance	Risk of Failure/Termination	Wrong Product	Cost	Subcontractors
Capital Outlay	Delays	Change Order	Other Sources	Definition of Acceptance	Personality Conflict	Cost	Poor Performance	Risk of Failure/Termination	Wrong Product	Subcontractors
Professional Services	Change Orders	Delays	Personality Conflict	Poor Performance	Definition of Acceptance	Cost	Other Sources	Subcontractors	Risk of Failure/Termination	Wrong Product
Contracted Services	Change Orders	Delays	Cost	Other Sources	Definition of Acceptance	Subcontractors	Personality Conflict	Poor Performance	Risk of Failure/Termination	Wrong Product
Software	Delays	Risk of Failure/Termination	Cost	Change Order	Personality Conflict	Poor Performance	Definition of Acceptance	Other Sources	Subcontractors	Wrong Product
Leases	Other Sources	Definition of Acceptance	Change Order	Personality Conflict	Delays	Cost	Poor Performance	Risk of Failure/Termination	Subcontractors	Wrong Product
Construction	Delays	Change Order T	Personality Conflict	Cost	Definition of Acceptance	Wrong Product	Subcontractors	Other sources	Poor Performance	Risk of Failure/Termination

Rank order of Contract Problems over All Types of Contracts



Contract administration

problem	Mean	Rank
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Delays	2.25	1
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Change order	2.24	2
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Personality conflict	1.96	T4
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Definition of acceptance	1.96	T4
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Other sources	1.90	5
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Cost	1.86	6
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Poor performance	1.83	7
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Risk of failure/terminate	1.72	8
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Subcontractors	1.71	9
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Wrong product	1.42	10
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Rank order of Contract Type by Reported Occurrence of Contract Problems

Contract Type	Mean	Rank
Professional services	2.19	1
Contracted services	2.09	2
Supplies and small purchases	1.84	3
Capital outlay	1.80	4
Software	1.63	5
Leases	1.49	6
Construction	1.42	7

Professional Services Likelihood of Occurrence

Problem	N	1	2	3	4
Change Order	213	5.45a			
Delays	204	5.75ab	5.75ab		
Cost	196	5.76ab	5.76ab		
Conflict	197	6.25ab	6.25abc	6.25abc	
Defn of Acceptance	190		6.52bc	6.52bc	
Poor Performance	208		6.55bc	6.55bc	
Sub Contractors.	166			6.80c	
Other Sources	148			6.95c	
Risk of Failure	186			7.03c	
Wrong Product	131				8.25d



Determine the Overall Risk Level

Impact	Risk Management Actions								
Significant	Considerable Management Required	Must Manage and monitor risks	Extensive management essential						
Moderate	Risks may be worth accepting with monitoring	Must Manage and monitor risks	Management effort required						
Minor	Accept Risks	Accept, but monitor	Manage and monitor risks						
<table style="width: 100%; border: none;"> <tr> <td style="width: 33%; text-align: center;">Low</td> <td style="width: 33%; text-align: center;">Medium</td> <td style="width: 33%; text-align: center;">High</td> </tr> <tr> <td colspan="3" style="text-align: center;">Likelihood</td> </tr> </table>				Low	Medium	High	Likelihood		
Low	Medium	High							
Likelihood									



Determine the Risk Level

Likelihood	Consequence	Numeric	Description
High	High	8-10	<p>Significant risk to success of the intended outcome. Risk mitigation is unlikely or difficult and costly</p> <p>Create a detailed and specific plan, or cancel project</p>
Low High	High Low	4-7	<p>Poses moderate risk to success of the intended outcome. Create a risk mitigation plan. Risk mitigation can be achieved with additional resources and /or some level of oversight and monitoring.</p>
Low	Low	1-3	<p>Poses little or no risk to success of the intended outcome. Accept or ignore the risk.</p>



Exercise: Identify which problems are likely to occur and why.

- Review the Research
- Using research or experience:
 - Identify 3 problems likely to occur and their severity provide reasons .
 - Assign a risk level 1-10
 - Identify the 3 adverse outcomes



Risk Identification

TYPICAL CONTRACT PROBLEM	Description of Risk	Adverse Outcomes	Risk Level Likelihood	How Addressed



Risk Mitigation Strategies

Go through our example for each problem identified.

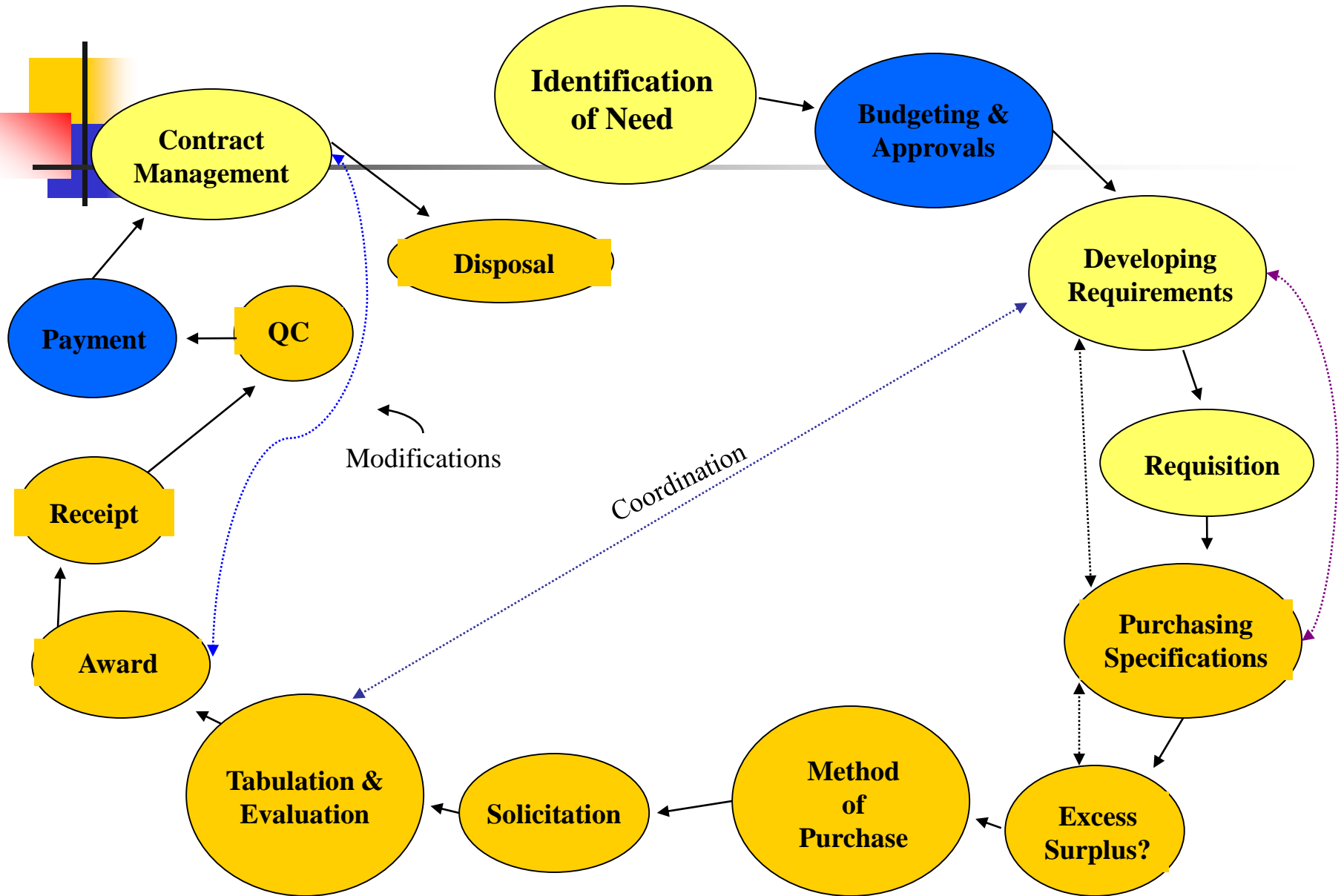
- Avoid
 - Remove the requirement that causes the risk
- Reduce
 - Reduce the likelihood of occurrence
 - Use procurement tools (pricing, inspection, monitoring etc.)
- Transfer
 - Specs & Pricing
- Accept
 - Insure
 - Bonds



Risk Mitigation Plan

- Using each decision point in the Procurement Cycle to mitigate previously identified risks

Purchasing Cycle





Use of Procurement Cycle

- Key Decision Points
 - Each Step of procurement cycle
 - Specifications
 - Pricing
 - Delivery
 - Pre Bid conference
 - Inspection
 - Monitoring
 - Payment



Innovative Risk Mitigation Solutions Using Each Step of the Procurement Process

- Internal Team Competencies
- Specification Development
- Pricing
- Performance
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Specification Development- External- Early Supplier Involvement

- Pre procurement conversations (Request for Information (RFI))
 - Improve joint understanding of intended outcomes
 - Reduce risk of SOW uncertainty
 - Understand cost drivers
 - Budget Constraints
 - External costs (labor, supply inputs)
 - Reduce risk of cost overruns
 - Understand normal lead times and quality
 - Compare to intended outcomes
 - Reduces risk for late delivery and poor performance.



Specifications

- Considerations
 - Risk of Performance- Who Has?
 - Expertise in developing accurate specifications
 - Level of Inspection
 - Human Resources



Specifications

- Design
- Performance
- Combination



Pricing

- Factors to consider
- Risk for Performance, Change in Costs, Type of Spec (Accurately identify quality),
- Length of performance



Pricing

- Needs Requirements
 - Spend Analysis
- Best Value
- Total Cost of Ownership
 - Life Cycle Costing



Price Types-Who Has the Risk?

- Two major contract price types:
 - Fixed-price
 - Cost-reimbursement



Fixed-price Contracts

- Contractor is responsible for managing all costs
- Contractor agrees to complete performance of the work before being paid
- Total amount of payment agreed upon cannot be exceeded
- Payment is for end result of the contract effort



Price Contracts

- Firm, fixed
- Fixed, economic adjustment
- Fixed, re-determination
- Fixed, incentive



Cost-reimbursement Contracts

- Contractor reimbursed for all allowable and allocable costs incurred during performance
- Contractor commits to making best effort to complete all work
- Total amount paid to contractor is not fixed at outset
 - initial ceiling price modifiable w/ circumstances
- Incremental payment for contractor's effort



Cost Contracts

- Cost-plus incentive fee
- Cost reimbursement
- Cost sharing
- Time and materials
- Cost-plus fixed fee

Exercise

Identify a Risk Mitigation Strategy for each previously identified problem

- Pre-award Activities
- Select Specification approach
 - Design
 - Performance
 - Combination
- Vendor Knowledge Skills and Abilities (KSA) for evaluation
- Select Type of Pricing
 - Fixed Firm
 - Fixed economical adjustment
 - Incentive



Bidders' Conferences

- Pre-solicitation conference
 - Fact finding
 - Not mandatory
- Pre-bid or pre-offer conference
 - Answer questions
 - Mandatory or non-mandatory
 - Answers all whether present or not
- Amendment or addenda



Performance and Acceptance

- Contracting for Performance
- Incentives
- Design Build



Vendor Selection

- Qualification Based Selection
 - Construction
 - Professional Services
- Request for Proposal
 - Establish KSA and a weight for each KSA that mitigates previously identified problem
 - Subjective evaluation of relative strengths



Post-Award Activities

- Debriefing of vendors
 - to detail reasons for non-acceptance of bid or proposal
- Post-award Start-up Conferences
 - to discuss contract performance expectations with the contract administration team
- Finalize the CAP



Post-award Conference

- Post-award Conference Objectives:
 - verify contractor understanding of technical requirements of contract
 - clarify rights and responsibilities of both parties
 - determine the need for a follow-up meeting



Inspection and Monitoring

- Level of effort to match delivery and quality risk
 - By exception
 - Scheduled
 - Direct



Inspection and Testing Methods

- Exception
- After Delivery
- In-Process
- Sampling
 - Attribute
 - Variable
- First Article
- Final



Approaches to Contract Monitoring

- Measuring Output

- Outputs measure **volume**
- quantitative data

- Measuring Outcomes

- Outcomes measure the **quality** or effectiveness of the services delivered
- qualitative data



Outcome Monitoring

- Is the analysis of results of a service
 - based on user-provided data on service quality
- Should include criteria for measuring outcome in the monitoring procedures
 - in the contractor evaluation section of the original Scope of Work



Monitoring Methods

- Monitoring by Exception
- Follow-up Monitoring
- Random Monitoring
- Scheduled Monitoring
- Direct Monitoring

Exercise

Creating the Performance Assessment Plan (PAP)



- Each team will select a contract monitoring method for their project and report back as to how this monitoring plan fits in their contract goals and CAP
- From your earlier exercise list the tasks you are going to monitor. Update if needed. Are you measure outputs or outcomes or both?
- When will the tasks be inspected?
- Standards of performance (from earlier exercise) Update if needed.
- How will evaluation and assessment be done? Which monitoring method?
- Which Inspection plan?



Payment

- Risk of Performance, Financing tool
 - Advance
 - Final
 - Milestone



Exercise

- Select Type of Payment and Contract Clauses
 - Type of payment
 - Are payments tied to deliverables and results?
 - What is needed in order to approve a payment?



Contracts

- Clauses for:
 - Change orders
 - Delays
 - Termination



Project Wrap up

- Debriefing
 - Internal Team
 - Vendor
- Lessons Learned (TQM)



Project Risk Analysis

- Contract Development
 - Were the goals adequate?
 - Are there any changes that could be made in the contract?
 - Additional contract clauses?
 - Different language?
- Contract Administration
 - Did the contract administration team require additional training?
 - Did any unanticipated problems occur?
 - What could be done differently or better?



Questions?

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