

## Integrated Risk Management in Public Procurement Montreal Canada May 14 & 15

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## Course Objectives

- Why is Integrated Risk Management Important?
- Integrated Risk Management Process

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## Definitions

- Risk
  - 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

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## 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.
- Risk management is about making decisions that contribute to the achievement of an organization's objectives by applying it both at the individual activity level and in functional areas. It assists with decisions such as the reconciliation of science-based evidence and other factors; costs with benefits and expectations in investing limited public resources; and the governance and control structures needed to support due diligence, responsible risk-taking, innovation and accountability.

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## Integrated Risk Management

- **Integrated risk management is a continuous, proactive and systematic process to understand, manage and communicate risk from an organization-wide perspective. It is about making strategic decisions that contribute to the achievement of an organization's overall corporate objectives.**

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## Integrated Risk Management

- Integrated risk management requires an ongoing assessment of potential risks for an organization at every level and then aggregating the results at the corporate level to facilitate priority setting and improved decision-making. Integrated risk management should become embedded in the organization's corporate strategy and shape the organization's risk management culture. The identification, assessment and management of risk across an organization helps reveal the importance of the whole, the sum of the risks and the interdependence of the parts.

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## Goals of Integrated Risk Management

- **support the government's governance responsibilities** by ensuring that significant risk areas associated with policies, plans, programs and operations are identified and assessed, and that appropriate measures are in place to address unfavorable impacts and to benefit from opportunities;
- **improve results** through more informed decision-making, by ensuring that values, competencies, tools and a supportive environment form the foundation for innovation and responsible risk-taking, and by encouraging learning from experience while respecting parliamentary controls;
- **strengthen accountability** by demonstrating that levels of risk associated with policies, plans, programs and operations are explicitly understood, and that investment in risk management measures and stakeholder interests are optimally balanced; and
- **enhance stewardship** by strengthening public service capacity to safeguard people, government property and interests.

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## Premises

- Prevention of problems is preferred to reaction to problems (Lean)
- Procurement has existing tools & solutions to prevent problems (procurement cycle)
- Lack of support from management
- Current falling market provides a opportunity for destruction of existing processes.

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## Example of Scope of Problem

- 15% of EU Information System projects (all sectors) considered truly success (1998-2005)\*
- Failure=exceed budget, incorrect quality, late
- Cost of problems 142 billion Euros

\*McManus, Wood-Harper;

[www.bcs.org/server.php?show=conwebdoc.19584](http://www.bcs.org/server.php?show=conwebdoc.19584)

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## Why is Integrated Risk Management Important for Procurement?

- Current External Environmental factors
- Procurement as a profession

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## Objectives

- Using existing best management practices  
We will examine how Procurement can add value to their agency in a falling market
  - Discuss the "Falling Market"
  - Discuss strategies to add value

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## SWOT Analysis

- Strengths
- Weakness
- Opportunities
- Threats

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## Opportunities

- Falling Market

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## What is a Falling Market?

- External Economics
- Internal Economics

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## External Economics

- Need to adapt to uncertainty in the market place (Risk)

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## Uncertainty in the Marketplace- Reduction in Number of Suppliers

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

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## 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)
- Linked economies
  - Current Financial Crisis

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## 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

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## 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)

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## 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

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## 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

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## Internal Economics

- Realignment of priorities from disposal goods to services and sustainable goods
- New types of projects that don't fit traditional Government Procurement process
  - Partnerships
    - Contracted Services for Traditional Government Services
      - Education
      - Fire
      - Jail
  - Transfer of Risk
    - Toll roads

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## Demand for Increased Services at Reduced Costs Economic Paradox of Government Services

- Monopoly
  - Absence of market forces to provide alternative choices (services and prices)
- Current demand for services is rapidly increasing
- Current prices for services is declining
  - Pressure to reduce taxes

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## Conundrum For Government Services in a Falling Market

- Normal Market Response -Supply and Demand Equilibrium
  - Increase supply to meet demand
    - More services= more costs
  - Raise price to until demand falls to existing supply level
    - Unwilling to restrict access to services
- Risk Aversion
  - Public Safety
    - Social Security and 401K

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### Proposed Solution: Increasing the Supply and Quality of Services with Less Funding

- Identify Government Core Responsibilities
- Improve Results
- Strengthen accountability
- Enhance stewardship
- Increasing the efficiency of all service providers (in the governmental supply chain (departmental providers, internal support))

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### Opportunities for Procurement

- The Bottom Line is important-
  - Cost Savings
    - Identify all monies saved or avoided is money not taxed.
  - Cost benefit analysis of government services provided
    - Internal competition for finite human and financial resources.

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### Opportunities for Procurement

- Process Efficiencies
  - Open to new ideas on how to do business
    - Reduction in barriers to implement change
    - Increased directives for working across departments to achieve maximum process efficiencies due to fewer human and financial resources available.

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### Strengths

- Existing Body of Knowledge
- Innovative solutions

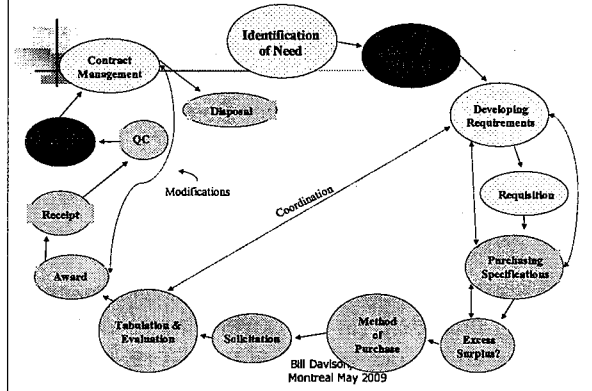
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## Strengths-Body of Knowledge

- Procurement Process
- Decision Points
  - Make Choices based on risk analysis
    - Avoid
    - Assume
    - Transfer
    - Share

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## Purchasing Cycle



## Strengths: 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

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## Internal Team Competencies

- Prequalification of end user for large projects
  - Team Members Specific Project Expertise
    - Ability to define and measure project goals
    - Ability to identify risks
  - Team Member Communication Skills
    - Problem Solving
    - Team skills
      - Listening
      - Communication

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## Internal Team Competencies

- Organizational Support
  - Support from Top Management
  - Support of goals
  - Financial
  - Human Resources
- Technical
- Internal process-procurement

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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 and poor quality
  - 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.

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## Pricing

- Needs Requirements
  - Spend Analysis
  - Requirement contracts
- Best Value
- Cooperative Purchasing
- Total Cost of Ownership
  - Life Cycle Costing

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## Performance

- Contracting for Performance
- Incentives
- Design Build

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## Vendor Selection

- Qualification Based Selection
  - Construction
  - Professional Services
- Request for Proposal
  - Subjective evaluation of relative strengths
  - Negotiations
  - Best and Final Offers

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## Inspection and Monitoring

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

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## Contracts

- Clauses for:
  - Change orders
  - Delays
  - Termination

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## Payment

- Risk of Performance, Financing tool
  - Advance
  - Final
  - Progress
- Other suggestions?

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## Weakness

- Public Procurement process
- Procurement has the tools but there is Lack of Management Support for innovative Procurement solutions

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## Weakness- Public Procurement Process

- Fishbowl
- Need to know solution prior to beginning procurement
- Lowest Responsive Responsible bidder

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## Weakness-Support From Top Management

- Low risk tolerance for new processes or innovative solutions
- Other suggestions?

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## Threats

- Vendor community
  - Change
    - Innovative solutions-not sure how to prepare a proposal
  - Complex award process
- Upper management
  - Procurement lacks credibility, not seen as a profession

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## Threats To Formula for Success

- Difficult to achieve in Public environment
  - Competition
  - Fair specifications
    - Difficulty knowing exact solution
  - Fair equitable award process
    - Lack of process for negotiation
  - Lack of cooperation and trust
    - End user
    - Procurement
    - Contractor

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## Strategies for Procurement

- Establish Credibility for Procurement, Our advice is sound.
- Demonstrate value of innovative solutions
- Demonstrate proposed solutions and processes are based on research and best practices

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## Establishing Credibility

- Profession
- Value of Research and Best Practices

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## Strategies: Demonstrate proposed solutions and processes are based on research and best practices

- Definition of Expert
  - Perceived knowledge \* cost \* distance
    - Give example –Bill and Local

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## Strategies The Future of Procurement

### Profession

- Move from Purchasing, order placer (reactive)
- To Strategic Partner, planner, contract administrator (proactive)

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## What is a Profession? Characteristics of a Profession

- Analogy to Medical Profession
  - Body of knowledge
  - Comprehensive education on body of knowledge
  - Competency in application of body of knowledge
  - Clients-Seek out professional for advice

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## Body of Knowledge

- Body of knowledge exists
  - Based on academic theory and best practices
  - Subject to rigorous review and debate
    - Publication in Journals
    - Conferences

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## Comprehensive education on body of knowledge

- Academic courses
- Testing knowledge, experience and competency

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## Competency in application of body of knowledge

- Ability to diagnose problem
- Ability to determine cause
- Ability to recommend course of treatment
- Ability to monitor treatment
- Follow up and incorporate lessons learned

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## Ability to diagnose problem

- Recognize potential contract administration problems
- Likelihood of occurrence
- Severity

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## Ability to determine cause

- Six Sigma Root Cause Analysis
- LEAN

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## Ability to recommend course of treatment Ability to monitor treatment

- A treatment plan for each patient is developed that anticipates the potential problems, identifies risks and prescribes treatment.
- A contract administration plan that should be developed for each project.

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## Treatment Plan

- Each step of the procurement process has a decision point with multiple choices
  - Pricing
    - Fixed
    - Fixed with cost escalation
- The selection of each choice should be made to meet the goals of the treatment plan. Which is to cure problem or reduce risk of occurrence.

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## Customers vs. Clients

- Customers
  - Always right
- Clients
  - Provide recommendations-advice.

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## Follow up and incorporate lessons learned

- Contribute back to body of knowledge
  - Research
  - Conferences
  - Articles
  - What we are doing today, is a characteristic of a profession. Presenting research for review and debate. The result of which will result in a contribution to the Procurement body of knowledge

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## Formulas for Success

- Simple Procurement
  - $\text{Price} = \text{Cost} + \text{Margin} / \text{Volume}$
- Complex Procurements
  - $\text{Price} = (\text{Cost} * \text{Uncertainty}) + (\text{Margin} * \text{Risk})$

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## Demonstrate the Value of Innovative Solutions

- Cost Savings
- Process Efficiencies

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## Cost Savings-Revenue Center

- Volume Discounts
  - Spend analysis
- Competitive bidding
- Life Cycle Costing
- Timing Purchases
- Market Analysis

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## Cost Savings-Transactional Savings.

- Cooperative Purchasing
- E-Procurement

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## Cost Avoidance

- Delays
- Change Orders
- Poor Performance

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## Process Efficiencies Best Practice Strategies

- Integrated Risk Management
  - Canada
- Value for Money
  - UK

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## Best Value for Money

- Assessing whether or not an organization has obtained maximum benefit from the goods and services provided/acquired
  - Takes into account
    - Quality, cost, delivery, resource use, fitness for purpose and convenience
- Economy
  - Doing more with less
- Efficiency
  - Doing same with fewer resources
- Effectiveness
  - Doing more with same resources

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## Integrated Risk Management

- **Integrated risk management is a continuous, proactive and systematic process to understand, manage and communicate risk from an organization-wide perspective. It is about making strategic decisions that contribute to the achievement of an organization's overall corporate objectives**

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## 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
    - Note similarity to characteristics of a profession.

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## 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.

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## Risk Identification: Understanding the Project Environment

- Patient History
- Environmental Factors (SWOT Analysis)
  - Internal
    - People
    - Funding
    - Processes
  - External
    - Marketplace

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## Ranking Risks

- Relate to Characteristics of Profession
  - Triage
    - Limited resources (HR and Financial, which symptom to treat)
    - Justification of each decision made in the procurement process

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## Developing Risk Mitigation Plan

- Treatment plan- Contract Administration plan
  - Setting Desired Results
    - Project goals
      - Quality
      - Delivery Dates
      - Cost
  - Developing Options for Dealing with each Risk

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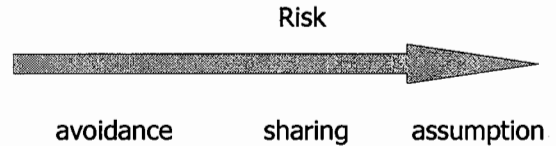
## Balancing Risk

- *Public Agency view:* avoid shifting undue risk to the supplier
- *Contractor view:* preserve profit and performance



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## The Risk Continuum



Different types of contracts =  
different levels of risk

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## Implementation of Risk Mitigation Plan

- Identifying specific risk mitigation for each problem to:
  - Avoid
  - Transfer
  - Assume
  - Share

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## Using the Body of Knowledge for Risk Mitigation

The Procurement Cycle

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## Use of Procurement Cycle

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

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## Integrated Risk Management Process

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## Project Overview

- Review the project synopsis
  - Review the Risk Mitigation Plan or Contract Administration Plan
- Role playing:  
Bill will be the end-user  
Meet as a group to formulate your questions  
Entire group will reconvene and each group will ask Bill questions  
Reconvene as a small group and fill out your risk mitigation plan  
Debrief rest of class

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## Risk Identification-Assessing the Your Risk Profile

- Internal Team Competencies
- Organizational Support
- Risk Tolerance

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## Internal Team Competencies

- Prequalification of end user for large projects
  - Team Members
  - Specific Project Expertise
    - Ability to define and measure project goals
    - Ability to identify risks
  - Team Member Communication Skills
    - Problem Solving
    - Team skills
      - Listening
      - Communication

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## Organizational Support

- Support from Top Management
  - Support of goals
  - Decision making process
    - Long chain of command
  - Financial
  - Human Resources
- Internal Support
  - IT
  - Procurement

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## Risk Tolerance

- Commitment to change
  - Cost benefit of proposed change
    - Mission Critical?
    - Threat to existing status quo?
  - Previous experience
  - Public Support
  - Ability to identify and manage risks

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## Inherent Risk Establishing the Context

- Organizational goals
- Specific project objectives
- Stakeholders

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## Establishing the Context – Organizational Environment

- Why are you purchasing this good or service?  
What are the potential risks?
  - Reduce costs
    - Pressure to cut corners
  - Consolidate services
    - Cut other services
  - Improve customer service –web based services
    - Undeveloped software and technologies
  - Legislative mandate
  - Other

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## 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?

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## Establishing the Context- Internal Environment

- Do the overall goals and strategies of the department align with Agency?
- How effective have the department strategies been in the past in achieving the agency goals?

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## Business Impact

- Will the project force changes in the business process?
- Are there multiple projects at the same time?
- Other organizational changes occurring during the project?

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## Technology

- Well proven technology or new?
- Significant custom development?
- What is the quality of the existing data and the complexity of conversion?
- Single technology or multiple?

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## Project Organization

- Roles of both contractor and agency clearly defined?
- Will staff have necessary time to manage the project?
- Does project team function as a team?

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## Experience, Training and Support

- Does the project team have experience with the proposed technology?
- Does the project team have experience with the solution?



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## 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

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## Other Sources of Inherent Risk

- OHSa related issues
- Personnel/human behavior
- Political/legal influences
- Property/Assets
- Public/Professional/Product liability
- Security measures
- Socio-Economic factors
- Technology
- Business continuity

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## Inherent Risk- SWOT Analysis of your Organization

- Strengths- Least amount of Risk
  - Quality staff
  - Available vendors
  - Good specs
  - Previous experience
  - other

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## Identifying Weakness

- Creates risk in realization of opportunities
- No previous experience
- New technology
- Lack of skills internally
- Funding
- Other

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## Identifying Threats

- Creates great risk
- Looming economic downturn
- Lobbying
- Staff turnover
- Other

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## Identifying Opportunities

- Budget cuts
- New staff

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## Exercise 1: Describe current Project Environment using a SWOT Analysis

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

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## Risk Assessment Anticipating Typical Contract Administration Problems

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

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## Measuring Likelihood of Risks

- Value of Research (Characteristic of Profession)
  - Expert (50 miles from agency)
    - Can accept (different must be good)
    - Can reject (too far to know anything) ☺
  - Davison-Sebastian Research

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## 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

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## TYPICAL CONTRACT ADMINISTRATION PROBLEMS

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

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## TYPICAL CONTRACT ADMINISTRATION PROBLEMS (cont)

- > Poor Performance
- > High Risk of Failure
- > Limited or No Replacement Sources of Supply
- > Use of Subcontractors
- > High Cost

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## Perceived Occurrence of Contract Administration Problems for Each Contract Type

### Type

Ranking Order	Contract Type						
	Supplies and Small Purchases	Capital Outlay	Professional Services	Contracted Services	Software	Leases	Construction
1	Delays	Delays	CO	PP	Cost	Cost	CO
2	Cost	Cost	Delays	Delays	Other	Other	Delays
3	PP	CO	Cost	DoA	Delays	Delays	Cost
4	CO	PP	Conflict	Conflict	DoA	PP	Subcont
5	WP	Other	DoA	CO	CO	DoA	Conflict
6	Other	Conflict	PP	Cost	PP	CO	DoA
7	Conflict	Subcont	Subcont	F or T	Conflict	Conflict	PP
8	DoA	DoA	Other	Subcont	F or T	F or T	F or T
9	F or T	F or T	F or T	Other	WP	Subcont	WP
10	Subcont	WP	WP	WP	Subcont	WP	Other

Notes: PP = Poor performance, CO = Change order, WP = Wrong product, Other = Other sources, DoA = Definition of acceptance, F or T = Risk of failure or termination, Subcont = Subcontractor

## Contracted Services Typical Contract Admin Problems

Problem	N	1	2	3	4
Poor Performance	236	5.18a			
Delays	218	5.99ab	5.99b		
Defin of Acceptance	208		6.11bc	6.11c	
Conflict	210		6.22bc	6.22c	
Change Order	211		6.50bc	6.50c	
Cost	198		6.53bc	6.53c	
Risk of Failure	205		6.56bc	6.56c	
Sub Contractors	174		6.85bcd	6.85cd	6.85cd
Other Sources	177			6.98cd	6.98cd
Wrong Product	165				7.63d

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TABLE 6

Perceived occurrence of contract administration problems by type of contract

Contract type	Mean	Rank
Construction	6.02a	1
Contracted Services	6.15a	2
Professional Services	6.23ab	3
Software	6.39b	4
Capital Outlay	6.67c	5
Supplies, Small Purchases	6.67c	6
Leases	6.72c	7

Note: Means that do not share a common subscript are significantly different at the .05 level.

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TABLE 7

Perceived occurrence of contract administration problems over all types of contracts

Contract administration problem	Mean	Rank
Delays	5.73a	1
Cost	6.13a	2
Change Order	6.16b	3
Poor Performance	6.36b	4
Definition of Acceptance	6.66c	5
Conflict	6.67cd	6
Other Sources	6.93d	7
Subcontractors	7.08de	8
Risk of Failure	7.24f	9
Wrong Product	7.29f	10

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## Measuring Consequences

- Davison-Sebastian Research
- Delays < 10 days
- Delays > 10 days
- Cost < 10%
- Cost > 10%
- Termination

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## Consequences by Contract Problem

Contract administration problem	Mean	Rank
Delays	5.73a	1
Cost	6.13a	2
Change Order	6.16b	3
Poor Performance	6.36b	4
Definition of Acceptance	6.66c	5
Conflict	6.67cd	6
Other Sources	6.93d	7
Subcontractors	7.08de	8
Risk of Failure	7.24f	9
Wrong Product	7.29f	10

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## Consequences by Contract

Contract type	Mean	Rank
Construction	6.07a	1
Contracted Services	6.15a	2
Professional Services	6.23ab	3
Software	6.37b	4
Capital Outlay	6.67c	5
Supplies, Small Purchases	6.67c	6
Leases	6.72c	7

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## Consequences For Contracted Services

Contract Administration Problem	Percent	Freq	Contract Delay < 10 days		Contract Delay > 10 days		Increased Contract cost < 10%		Increased Contract cost > 10%		Contract Termination	Row Totals	Row Freq
			Percent	Freq	Percent	Freq	Percent	Freq	Percent	Freq			
Wrong Product	48.8%	118	23.1%	56	7.9%	19	8.7%	21	4.1%	10	7.4%	18	242
Delays	30.8%	85	29.7%	82	18.1%	50	10.9%	30	4.7%	13	5.8%	16	276
Definition of Acceptance	18.7%	99	22.7%	58	16.4%	42	9.8%	25	5.5%	14	7.0%	18	256
Change Order	11.8%	84	17.8%	47	12.5%	33	20.8%	55	10.6%	28	6.4%	17	264
Conflict	11.3%	85	25.7%	70	17.3%	47	8.1%	22	7.2%	21	9.9%	27	272
Other Sources	10.5%	117	17.0%	41	12.4%	30	11.2%	27	7.9%	19	2.9%	7	241
Poor Performance	7.6%	77	18.1%	52	18.4%	53	10.8%	31	8.3%	24	17.2%	51	288
Risk of Failure/Termination	13.0%	89	21.9%	59	13.0%	35	8.9%	24	8.1%	22	15.2%	41	270
Subcontractors	11.5%	103	19.0%	47	11.2%	39	12.5%	31	8.1%	20	7.3%	18	248
Cost	79.2%	79	14.4%	39	12.5%	34	12.9%	62	12.2%	33	8.9%	24	271
Column Totals		936		551		372		328		204		237	

Column % = the total occurrence of each consequence / the total reported consequences (3638)

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## Ranking Risks

- Relate to Characteristics of Profession
- Triage
  - Limited resources (HR and Financial, which symptom to treat)

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## Exercise 2- Identify and Rank Risks

- Agency SWOT Analysis
- Likely problems + Likely Consequences= Severity of Problem

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## Determining the Likelihood of Occurrence

- 1= Remote
- 2= Unlikely
- 3= Likely
- 4= Highly Likely
- 5 = Near Certainty

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## Determining the Consequence of Occurrence

Level	Consequence of occurrence		
	Technical	Schedule	Cost
1	minor or none	Minimal, or no impact	Minimal or impact
2	minor performance shortfall, same approach	Additional Activities required, able to meet key dates	Cost <10%
3	moderate performance shortfall, but	minor schedule slip, may miss key date Delay <10 days	Cost <10%
4	Unacceptable, but workarounds available	Major schedule slippage, delays >10 days	Cost >10%
5	no alternatives available	Can't achieve key milestones, termination possible	Termination possible

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## Determine the Overall Risk Level

Impact	Risk Management Actions		
	Low	Medium	High
Significant	Considerable Management Required	Must Manage and monitor risk	Extensive management essential
Moderate	Risks may be worth accepting with monitoring	Must Manage and monitor risk	Management effort required
Minor	Accept Risk	Accept, but monitor	Manage and monitor risk
Likelihood	Low	Medium	High

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## Determine the Risk Level

Likelihood	Consequence	Numeric	Description
High	High	8-10	Significant risk to success of the intended outcome. Risk mitigation is unlikely or difficult and costly Create a detailed and specific plan, or cancel project
Low High	High Low	4-7	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.
Low	Low	1-3	Poses little or no risk to success of the intended outcome. Accept or ignore the risk.

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## Exercise 2

- Complete the following on your Risk Mitigation plan:
  - Consequence of Occurrence
  - Risk Level
  - Reasons
- Meet as a group for 5-10 minutes to formulate your questions.
- Ask questions
- Then spend 10 minutes
  - Identify consequences for each of the risks
  - Identify the risk levels
  - Discuss the reasons

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## Identifying Root Causes

- Six Sigma-Root Cause
- Total Quality Management

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## Root Cause Analysis Process

- Define the problem
- Collect Data
- Identify possible casual factors
- Identify root causes
- Recommend implement solutions

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### Root Cause Analysis -Define the problem

- What do you see happening
  - Contract admin problems
- What are the specific symptoms

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### Root Cause Analysis –Collect Data

- What proof do you have that the problem exists
- How long has the problem existed
- What is the consequence of the problem
  - Research

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### Root Cause Analysis –Identify Possible Casual Factors

- What sequence of events leads to the problem?
  - Decision point in the Procurement Process
- What conditions allow the problem to occur?
- What other problems surround the occurrence of the central problem

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### Root Cause Analysis –Identify the Root Causes

- Why does the casual factor exist
- What is the real reason the problem occurred
  - Six Sigma 5 whys
  - Fishbone

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## Six Sigma 5 Whys

- Write down problem-
- Ask Why the problem happens
- If the answer doesn't answer why the problem happens continue

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## Six Sigma Example

- Problem- Poor Quality
- Why (process step)- Bad Specs  
Inadequate definition of desired quality communicated to vendor
- Root Cause
  - Lack of Spec writing Skills
  - poor communication between end-user and procurement

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## Fishbone Diagram

- Procurement process
- Person
- External-within agency
  - Org Structure
  - Internal support departments
- External-Vendor-Environment

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## Root Cause Analysis –Recommend and Implement Solutions

- What can be done to prevent from happening again
  - Immediate
    - Change procurement decision
  - Long Term
    - Management
- How will solution be implemented
- Who will implement
- What are risks of implementing solutions

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### Exercise 3

- Identify Root Causes
  - Procurement Process
  - Root cause

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### Review of Root Cause exercise

- Major bones
- Spikes on each bone
- Was framework helpful in determining root cause?
- Were proposed factors relevant?

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### Identify Risk Mitigation Strategy for Each Problem

- Factors to consider
  - Overall risk factor
  - Ability to mitigate
  - Cost to mitigate
  - Experience

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### Risk Mitigation Strategies

- Avoid
  - Remove the requirement that causes the risk
- Reduce
  - Reduce the likelihood of occurrence
- Transfer
  - Specs & Pricing
- Accept
  - Insure
  - Bonds

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## Exercise 4 - Identify Risk Mitigation Strategy for Each Problem

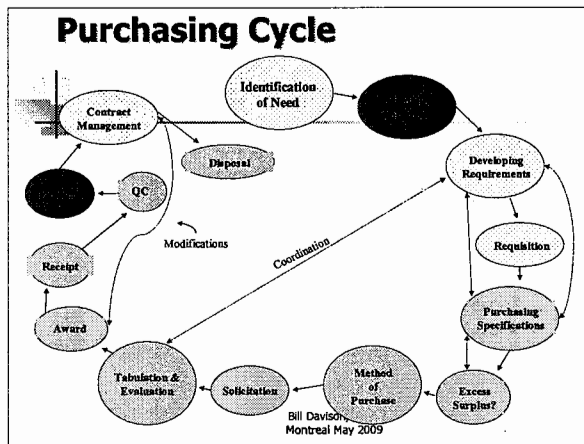
- Avoid
- Transfer
- Accept
- Share

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## Risk Mitigation Plan

- Using each decision point in the Procurement Cycle to mitigate risk

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## Use of Procurement Cycle

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

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## 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

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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.

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## Specifications

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

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## Specifications

- Design
- Performance
- Combination

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## Exercise 4

### Select Type of Specification

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## Pricing

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

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## Pricing

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

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## Price Types-Who Has the Risk?

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

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## 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

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## Price Contracts

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

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## 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

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## Cost Contracts

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

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## Exercise 5

Select Type of Pricing

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## 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

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## Performance Acceptance

- Contracting for Performance
- Incentives
- Design Build

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## Vendor Selection

- Qualification Based Selection
  - Construction
  - Professional Services
- Request for Proposal
  - Subjective evaluation of relative strengths
  - Negotiations
  - Best and Final Offers

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## 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

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## 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

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## Exercise 6

- Select type of
  - Performance-Acceptance
  - Bidders conference
  - Vendor Selection Process

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## Inspection and Monitoring

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

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## Inspection and Testing Methods

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

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## 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

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## 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

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## Monitoring Methods

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

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## Exercise 6

- Select Type of Inspection and Monitoring

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## Payment

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

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## Contracts

- Clauses for:
  - Change orders
  - Delays
  - Termination

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## Exercise 7

- Select Type of Payment and Contract Clauses

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## Project Wrap up

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

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## 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?

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## Questions?

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