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WEEK 6
PROCUREMENT CONTROL AND PROJECT MANAGEMENT INFORMATION SYSTEMS (PMIS)

TCM 545/645 – Project Control Systems
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Overview of this week's material

- Procurement management is one of the nine major project management knowledge areas according to PMI
  - Project Integration management, scope management, time management, cost management, quality management, human resource management, communication management, risk management, and **PROCUREMENT MANAGEMENT**
- **Procurement Management includes:**
  - The planning, budgeting, scheduling, and control of procured goods, work, or services (GWS).
    - Usually, goods are raw materials or produced items, work is contracted labor, and services is consulting

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Items of Concern for Procurement Management Include:

- *Equipment, materials, or components* designed and provided by vendors specifically for the project. Could be:
  - portions of work packages or entire work packages (e.g., design work, environmental impact study, soil analysis)
  - major portions of the project wholly ("turnkey": subcontractors fully design, build, and install equipment or components for the project end-item).
- *Off-the-shelf (OTS) equipment and components* supplied by vendors. (Products readily available and not specifically produced for the project.)
- *Bulk materials* (cement, metal tubing or framing, wire, stone, piping, etc.)
- *Consumables* (nails, bolts, rivets, fuel) or loose tools used for construction or fabrication
- *Equipment not already owned* by the contractor; e.g., includes cranes, supports, scaffolding, and equipment for machine-shops, welding, and testing.
- *Administrative equipment not already owned* by contractor; e.g., computers, project office facilities and office equipment.

Procurement Management

- Identifying GWS items to be procured
- Involves decision about which items are to be
  - Designed, built, or provided in-house; OR
  - Procured (purchased or acquired)
- Happens during the WBS process or design process when the needed materials and resources are first identified.

Procurement Management Involves:

- **Contracting** with suppliers or subcontractors, often through the formal RFP/proposal process.
  - RFP = request for proposal
- **Integrating procured GWS items** into the project life cycle and project plan (i.e., schedule, responsibility matrix, budget, quality, and risk, etc.)
- **Logistics**
  - Transport and storage of materials for the project.
    - loading, unloading, transportation, inspection, clearances and approvals, and storage of materials can be major issues.
  - Procured materials must arrive when needed according to project schedules.
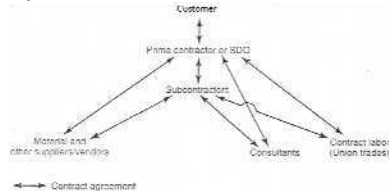

Contracting

- Every project involves "**contracting**"
  - an agreement for one party (SDO – systems development organization) to do something (project) for another (customer)
- Most people think of the project contract only between the customer and the SDO
  - in many projects the SDO is also a customer that contracts its work to many other organizations

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Contracting (cont'd)

- Sometimes SDO doesn't do any "work" but merely hires and manages the work of others.
- Project team consists of numerous organizations held together by contracts

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Contracting (cont'd)

- A PM of an SDO typically hires other contractors (subcontractors), sometimes through RFP-proposal process, in which case SDO becomes "customer"
- PM must know how to evaluate proposals
  - as well write them
- After the contract agreement, the contractual agreement must be managed, i.e.,
  - ensuring that work performed is in conformance with the contract
  - that the contract is up-to-date regarding ongoing changes in the project, customer needs, and the contractor's capability.
- This process, called **contract administration**,

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Basic Kinds of Contractual Agreements

Different contractual agreements offer different advantages to the customer and contractor, depending on the nature of the project. The basic agreements are:

- *Fixed Price Contract*—Price paid by the customer for the project is fixed regardless of the costs incurred by the contractor.
- *Cost-Plus Contract*—Price paid by the customer is based on the costs incurred in the project plus the contractor's fee.
- *Incentive Contract*—Price paid by the customer depends on the contractor's performance in comparison to the target price, schedule, or technical specification: the contractor either receives a *bonus* for exceeding the target, or must pay the customer a *penalty* for falling short of the target.

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Why Study Procurement Management in the Project Controls Class?

- Aside from the main tasks of:
  - Planning purchases and acquisitions
  - Planning contracting strategies
  - Asking for and proposals from SDOs (RFP Process)
  - And Evaluating proposals from SDOs
- Procurement management also includes **contract administration**

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Contract Administration

- According to PMI's PMBOK (3rd edition), **Contract Administration** is:
  - The process of managing the *contract* and the relationship between the *buyer* and the *seller*, reviewing and documenting how a seller is performing or has performed to establish required *corrective actions* and provide a basis for future relationship with the seller, managing contract related changes, and, when appropriate, managing the contractual relationship with the outside buyer of the project.
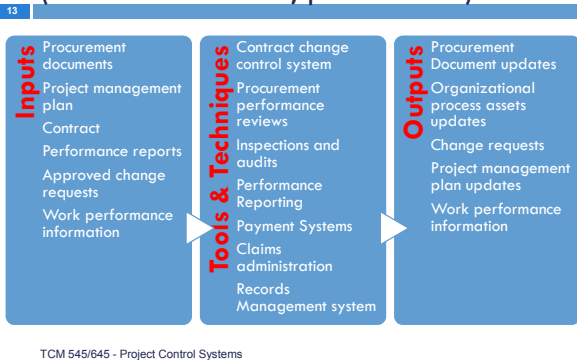
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The Project Control Emphasis of Contract Administration

- At the heart of Contract Administration is **Procurement Control** – the process of:
  - Monitoring quality, schedule, and cost of all procured items
  - Visiting and inspecting the facilities of subcontractors and suppliers
  - Tracking subcontractors' and suppliers' progress and expenses,
  - Preparing contingency for all major procured material, equipment, components, and services

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PMI's Control Procurements Process (PMBOK 5th edition, process12.3)

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Inputs
- Procurement documents
- Project management plan
- Contract
- Performance reports
- Approved change requests
- Work performance information

Tools & Techniques
- Contract change control system
- Procurement performance reviews
- Inspections and audits
- Performance Reporting
- Payment Systems
- Claims administration
- Records Management system

Outputs
- Procurement Document updates
- Organizational process assets updates
- Change requests
- Project management plan updates
- Work performance information

The 7 **Tools and Techniques** of Procurement Control

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- ☐ **Contract Change Control System**
  - ◘ Describes the processes needed to make contract changes
  - ◘ Since the contract is a legal document, a formal process to authorize or deny changes must be established
- ☐ **Procurement Performance Reviews**
  - ◘ Examine the ability of the "seller" to meet various requirements:
    - ■ Scope, quality, budget, and schedule requirements
  - ◘ May take the form of quality audits, inspections, or examination of the work product itself
  - ◘ Reviews should be based upon the SOW from the original contract plus any contract changes to date

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The 7 **Tools and Techniques** of Procurement Control (cont'd)

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- ☐ **Inspections and Audits**
  - ◘ Similar to quality assurance process where buyer or 3rd party will physically inspect the work of the seller
- ☐ **Performance Reporting**
  - ◘ A large part of project management, this process involves providing managers and stakeholders with updates about the progress of vendors in meeting project objectives
- ☐ **Payment systems**
  - ◘ As part of this process, vendors submit invoices for payment
  - ◘ Contract administration must include processes for reviewing and approving payment of invoices

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The 7 **Tools and Techniques** of Procurement Control (cont'd)

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- ☐ **Claims administration**
  - ◘ Involves documenting, monitoring, and managing contested changes to the contract
  - ◘ Claims (also known as disputes or appeals) may eventually be resolved through negotiation, mediation, arbitration, or the courts
- ☐ **Records Management System**
  - ◘ Maintaining an organized system for contract documentation is important
  - ◘ Focus should be placed on indexing documents for easy filing and retrieval (related to last topic below – IT)

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Project Management Information Systems (PMIS)

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- ☐ PMIS is a framework, or system, that assists in the collecting, organizing, storing, processing, and disseminating of project related information
  - ◘ Can be paper-based or electronic
- ☐ The availability of computerized PMIS solutions has skyrocketed over the last 5 years, as such
  - ◘ There are many options in terms of capability, flexibility, and price
    - ■ **This is what are term projects are hopefully focusing on**

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PMIS Feature **Possibilities**

- ☐ **Scheduling and network planning**
  - ◘ Can be CPM, PERT, CCPM or even calendar based organization of project tasks
  - ◘ Project network calculations are performed automatically
- ☐ **Resource Management**
  - ◘ Most options perform resource loading, leveling, and allocation, BUT performance of systems varies greatly
- ☐ **Budgeting**
  - ◘ Solutions generally assists with generating budgets and cost reports, but some lack integration with scheduling and resource components

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PMIS Feature **Possibilities** (continued)

- ☐ **Managing multiple projects and project portfolios**
  - ◘ Many systems allow data to be "pooled" from different projects
  - ◘ An important feature that will allow the organization to have a "dashboard" report of individual projects as well as the companies entire portfolio of projects
- ☐ **Cost Control and Performance analysis**
  - ◘ A critical function of project management is CONTROL, therefore systems should allow for some functionality that allows comparison between actual and planned performance
- ☐ **Knowledge management**
  - ◘ The ability to quickly search and find needed information and/or documentation

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PMIS Feature **Possibilities** (continued)

- ☐ **Reporting, graphic, and communication**
  - ◘ Reporting functions vary greatly between PMIS systems
  - ◘ Some features to consider/review include ability to:
    - ▪ Generate tabular reports, graphs, and charts
    - ▪ Integration with email system
    - ▪ Ability to generate automatic warning flags
- ☐ **Interface, flexibility, and ease of use**
  - ◘ Often the most reviewed concept of PMIS systems
  - ◘ How will it work with existing PAYROLL systems? Will it work with our AR/AP system?
  - ◘ What level of training is required to use this option?

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Web-enabled Project Management

- ☐ Web-enabled project management systems allow various stakeholders, and remote project team members to easily access project information
- ☐ Many concerns exist with the establishment of Web-enabled PM systems including:
  - ◘ Security (many areas including intranets, VPNs, password control, read/write access, etc.)
  - ◘ Different access levels for different users
  - ◘ Archiving of project data
  - ◘ Version control
  - ◘ Etc.

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Summary of PMIS

- ☐ In the end, the PMIS must align with the processes of the company using it
  - ◘ There is no one single right answer for what system will work best
- ☐ The PMIS is a tool to help manage projects
  - ◘ Don't focus on managing the tools, focus on managing the project

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