

# There is No Such Thing as a Bad Estimate!

**PmCentersUSA**

 Project Management Institute  
Registered Education Provider  
CHAPTER MEMBER

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**There is No Such Thing as a Bad Estimate!**

for

  
The Society of Cost Estimating and Analysis

**Washington Metro Chapter**  
March 31, 2010

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# There is No Such Thing as a Bad Estimate!

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## Presenter

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**Joe Lukas, PMP, PE, CCE**  
PMCentersUSA Vice President

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## Presentation Topics

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- **Topic 1:** Barriers to accurate estimate preparation
- **Topic 2:** Reasons why maintaining a dependable estimate over the project life is hard
- **Topic 3:** Suggestions for preparing more accurate estimates and managing project team & client expectations

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## Estimate Defined

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- 'Approximate calculation'
- Synonyms:
  - Approximation
  - Educated guess
  - Guesstimate

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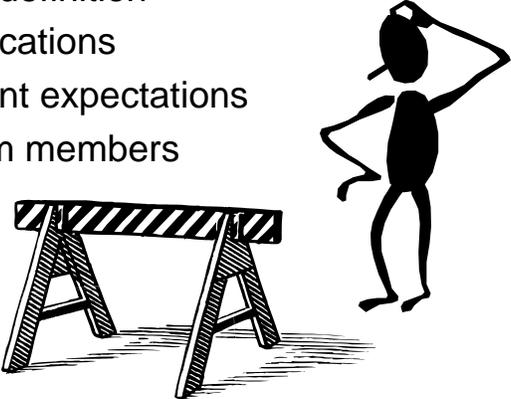
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## Topic 1

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### Barriers to Accurate Estimates

- #1: Lack of scope definition
- #2: Poor communications
- #3: Unrealistic client expectations
- #4: Optimistic team members



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## #1: Lack of Scope Definition

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```
graph LR; Scope((Scope)) --> Schedule((Schedule)); Scope --> Cost((Cost)); Schedule <--> Staffing((Staffing)); Cost <--> Staffing; Schedule --> Quality((Quality)); Staffing --> Quality; Staffing --> Communications((Communications)); Staffing --> Procurement((Procurement)); Staffing --> Risk((Risk)); Cost --> Risk; Quality --> ProjectPlan((Project Plan));
```

*Most project failures are caused by poor scope definition!*

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## #1: Path to Good Estimates

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```
graph TD; CR([Client Requirements]) --> MD([Major Deliverables]); MD --> WBS([WBS Project Scope]); WBS --> CE([Cost Estimate]); WBS --> PS([Project Schedule]); WBS --> SP([Staffing Plan]); CE <--> PS; PS <--> SP;
```

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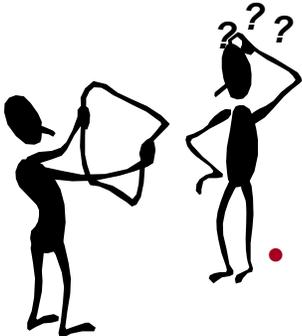
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## #2: Poor Communications

- Estimators are assumed to be mind readers!



- You can't estimate what you don't know!

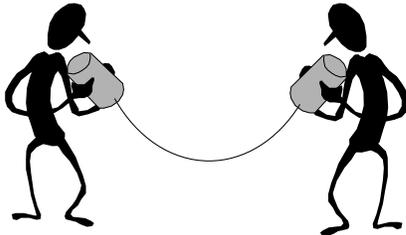
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## #2: Poor Communications

- Communication barriers:
  - Knowledge of the audience
  - Right 'amount' of information
  - Language skills
  - Physical problems
  - Misinterpretation
  - Distortion



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## #3: Unrealistic Client Expectations

- Customers expect the same accuracy whether the scope is 0% or 100% defined!

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## #3: Estimate Accuracy

Typical client expectation - the same level of accuracy no matter how many project details are known!

Amount of Project Definition	Estimate Accuracy Range
Order of Magnitude	+100% to -100%
Conceptual	+50% to -50%
Budget or Preliminary	+35% to -35%
Detailed or Definitive	+15% to -15%
Control or Check	+5% to -5%

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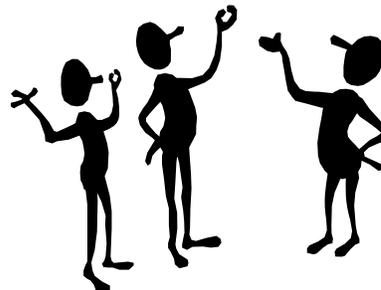
## #3: Dealing with Client Expectations

- Use imprecise terms until scope defined:
  - “Based on limited information...”
  - “My best guess at this time...”
- Don’t commit to a number early in the project!
- Use estimate ranges
- Educate clients on estimate accuracy



## #4: Optimistic Team Members

- Estimators need to be careful in using inputs from project team members – don’t ‘blindly’ accept them!



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## Topic 2

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### Issues in Managing Estimates

- #1: Inadequate contingency
- #2: Lack of estimator involvement
- #3: Scope creep and poor change management
- #4: Contractor claims
- #5: Project Plan changes



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### #1: Inadequate Contingency

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- No process used, just a 'guess'
- Can be 'dictated' by management
- **Best Practice:** Use a PERT analysis or Monte Carlo analysis to help determine how much contingency

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## #2: Lack of Estimator Involvement

- Not involved in the execution phase
- Only brought in when a 'problem is identified
- **Best Practice:** Estimator should be part of the project team during the entire project



## #3: Scope Creep

- Customers convince team to add scope after the final estimate
- Project teams will add extra items to the project to make it "work better" for the customer

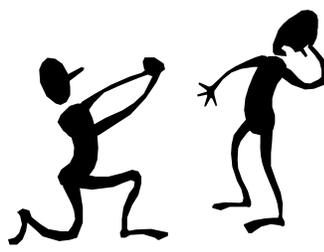
*Many times the Estimator  
isn't aware of this happening!*

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## #4: Contractor Claims

- Attempts to get extra \$'s for work performed, even when minimal or no scope changes occur



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## #5: Project Plan Changes

- Estimator not informed
- Examples
  - Project team member change
  - Customer delay
  - Unexpected site condition



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## #5: Project Plan Changes

- Track and manage changes as they occur!



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## Topic 3

### Suggestions for Preparing More Accurate Estimates:

1. Align estimate to WBS
2. Watch for unrealistic optimism
3. Get multiple opinions
4. Use risk analysis
5. Watch your estimate precision
6. Document assumptions



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# There is No Such Thing as a Bad Estimate!

## #1: Align Estimate to WBS

- Document the scope using a WBS
- List scope items excluded
- Match the WBS to the requirements document



## #2: Watch for Unrealistic Optimism

- Don't allow the customer and/or team members make you overly optimistic

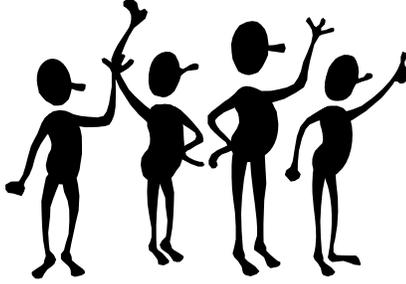


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## #2: Watch for Unrealistic Optimism

- Know the resources who will be working on the project

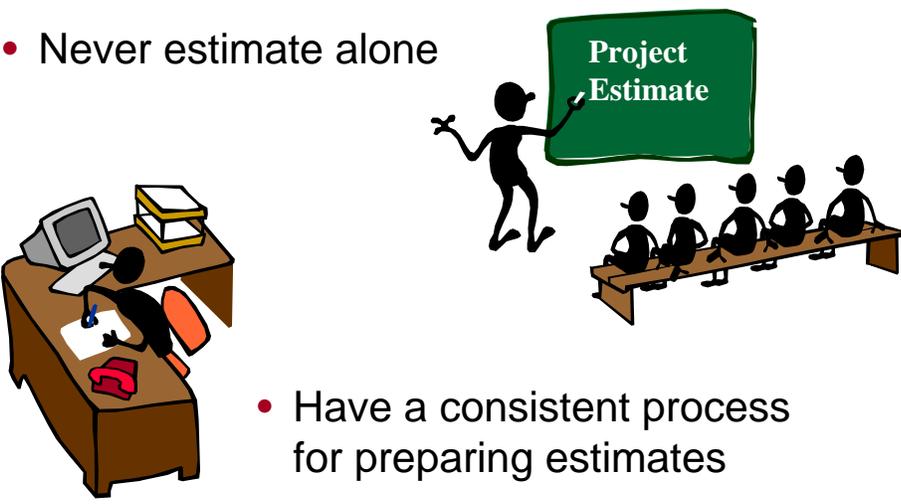


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## #3: Get Multiple Opinions

- Never estimate alone
- Have a consistent process for preparing estimates



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## #4: Use Risk Analysis

- Use **Risk Analysis**: Talk in ranges instead of specifics

Value	Frequency
\$1,800	2
\$1,900	4
\$2,000	6
\$2,100	7
\$2,200	8
\$2,300	9
\$2,400	11
\$2,500	11
\$2,600	10
\$2,700	9
\$2,800	7
\$2,900	6
\$3,000	5
\$3,100	4
\$3,200	1

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## #4: Use Risk Analysis

- Use Risk Analysis to determine contingency

Project Funding Level	Probability of Under Run
\$2.0M	0%
\$2.2M	30%
\$2.4M	40%
\$2.6M	70%
\$2.8M	85%
\$2.9M	90%
\$3.0M	95%
\$3.2M	100%

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## #5: Watch Estimate Precision

- Talk in vague terms until the scope is fully defined

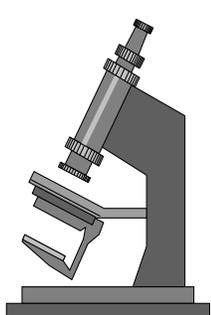


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## #5: Watch Estimate Precision

- Watch your level of precision...
  - Which of these numbers is more 'precise'?  
\$1,123,876 or \$1.1 million
  - Showing too exact a number implies a high level of precision, so round-off



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## Document Assumptions

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- Prepare a Basis of Estimate
- Include assumptions, exclusions and constraints



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## Conclusion

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- 'Bad' estimates usually do not result from a problem with the estimating process
- Typical barriers
  - Lack of scope definition
  - Poor communications
  - Unrealistic client expectations
  - Optimistic team members

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## Conclusion

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- Managing estimates can be difficult over the life of a project
- Things to watch for
  - Inadequate contingency
  - Lack of estimator involvement
  - Scope creep
  - Contractor claims
  - Project Plan changes



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## Conclusion

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- Preparing more accurate estimates
  - Align estimate to WBS
  - Watch for unrealistic optimism
  - Get multiple opinions
  - Use risk analysis
  - Watch your estimate precision
  - Document assumptions, constraints and exclusions

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## Closing Thoughts

- Estimating: The only job where you are 'wrong' 99.999% of the time!



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## Questions???

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