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Foundational Learning

Workflow Learning

Performance Learning

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Cost and Price Collaboration

Introduction

- This paper examines the effects of collaboration between cost and price analysts
- Collaboration defined as
  - Formal information exchange between analysts of the two groups
  - Analyst to analyst interactions
- Cost analysts develop program budget requests, lifecycle cost estimates, and support tradeoff and affordability analysis
- Price analysts support contracting actions, evaluate contractor proposals, develop government positions to negotiate a final price
- Both groups need accurate cost information and deploy various techniques and sources to obtain information
- Collaboration examined for four Army ground vehicle programs

Background

- Cost and Software Reports (CSDRs)
  - Starting in 2004 renewed emphasis on contractually requiring CSDR
  - CSDRs report actual and non-recurring costs
- Price Negotiation Memorandums (PNM) internal documents developed by price analysts
  - Analyze contractors' proposals and costs
  - Document the government position
  - Record the final negotiated price
- CSDR and PNMs report detailed labor, material, and overhead costs
  - CSDR also include costs by work breakdown structure
- This study examined the impact of exchanging this information on price and cost analysts

Methodology

- Constraints
  - Lack of historical data on programs that implemented high collaboration versus those that did not
  - Several programs in late cycles beyond Technology Maturation and Risk Reduction and Engineering and Manufacturing Development phases hence early program data not available
- Selected four Army ground vehicle programs to exchange CSDR and PNMs
- For each program identified cost analyst subject matter expert (SME) and price analyst SME
  - Each SME had at least one year on their program and several years in their discipline
  - Well versed in their programs
  - Participated in one full budget cycle and one full contract negotiation cycle
- Cost analysts provided DD 1921 Cost Performance Reports and DD 1921-1 Functional Cost Hour Reports to price analysts
- Price analysts provide PNMs to cost analysts

Methodology

- Participants asked questions and discussed data with counterparts
- Participants provided responses to questionnaire
- Questionnaire include open ended questions on other sources of data used by analysts and other practices that might foster collaboration
- CSDR close to major decision reviews e.g. MSA, MSB, CDR, etc.
- PNM available during and at close of major contracting action
- Questionnaire focused on two major areas:
  - Will negotiation and final contract price improve due to availability of CSDR
  - Will program cost estimates and unit cost analysis improve due to access to PNM
- Four programs selected
  - Stryker, eight-wheeled armored fighting vehicles
  - M88, armored recovery vehicles
  - Paladin Integrated Management (PIM), artillery vehicle delivering the self propelled howitzer
  - Heavy Tactical Vehicles (HTV), Combat Support and Combat Systems Support

Summary Results

Price Analyst Input % Improvement

Program	TMRR CSDR to EMD Contract	EMD CSDR to LRIP Contract	LRIP CSDR to FRP Contract
Stryker	5%	>5 ≤10%	>25%
M88	< 5%	>5 ≤10%	>5 ≤10%
PIM	< 5%	>5 ≤10%	>5 ≤10%
HTV	NA	NA	>0 ≤5%

- % Improvement in EMD negotiation due to TMRR CSDR
- % Improvement in LRIP due to EMD CSDR
- % Improvement in FRP due to LRIP CSDR

Summary Results

Cost Analyst Input % Improvement

Program	TMRR PNM to Inform Program Cost Estimates	EMD PNM to Inform Program Cost Estimates	LRIP PNM to Inform Program Cost Estimates	FRP PNM to Inform Program Cost Estimates
Stryker	>10 ≤15%	>10 ≤15%	>5 ≤10%	>5 ≤10%
M88	<5%	>15 ≤ 20%	>20 ≤ 25%	>20 ≤ 25%
PIM	>5 ≤10%	>15 ≤20%	>15 ≤20%	>5 ≤10%
HTV	>25%	>20 ≤25%	>15 ≤20%	>15 ≤20%

Additional Information Supporting Collaboration

- DCMA – Forward Pricing Rate Proposals (FPRP) and Agreements (FPRA)
  Hours per Vehicle Reports
- DCAA – DCAA audit reports on labor and overhead rates
  Actual Incurred Cost Reports
  Purchase Orders for selected parts
- EVM – Earned Value Management System Reports on actual costs by work breakdown structure
- IGCE – Initial Government Cost Estimates
- BOE – Basis of Estimates
- POP – Contract Period of Performance
- CDRL - A007 for Stryker program
  - 0005 Parts Receipt Report
  - Systems Technical Services Monthly Cost Reports

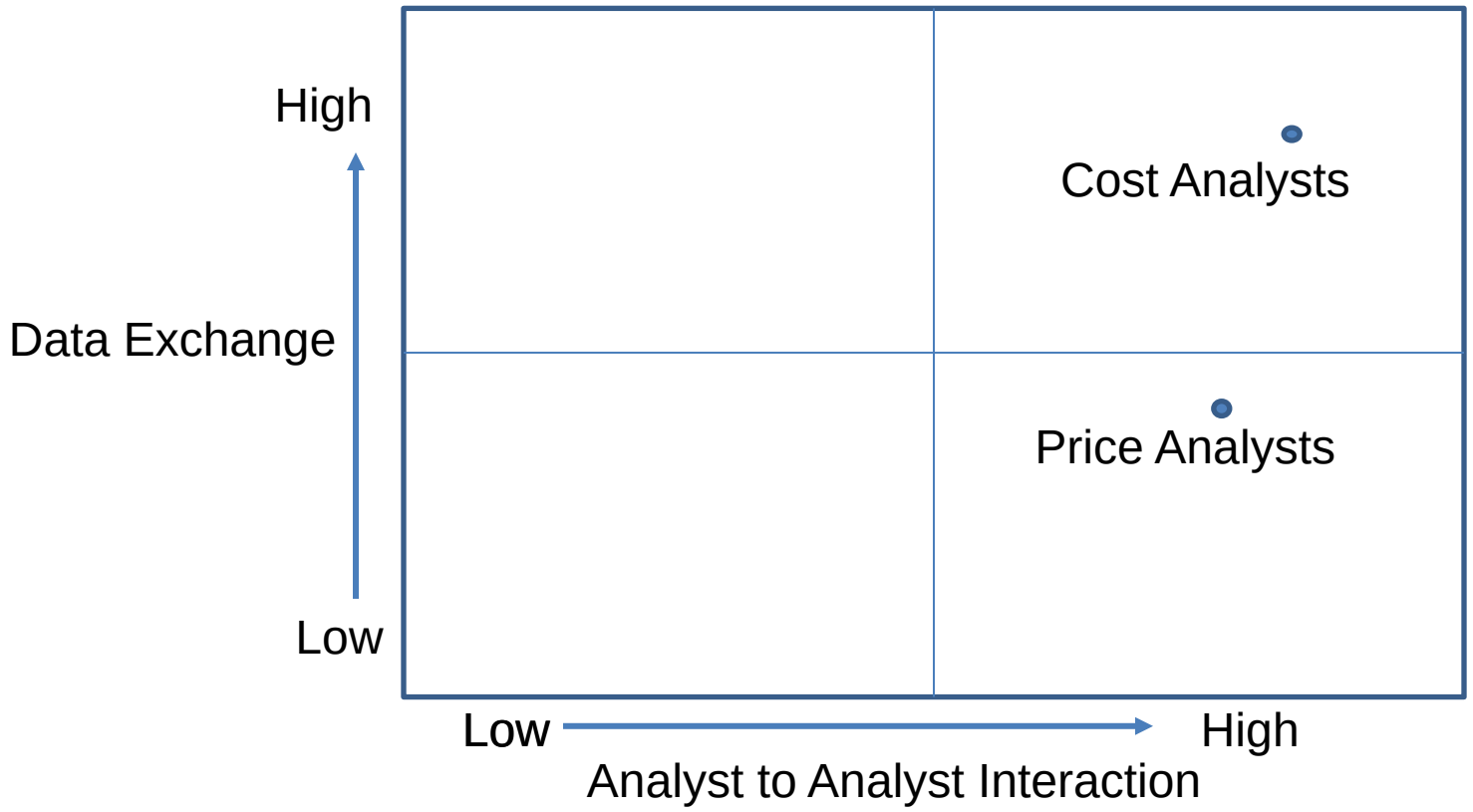
Summary Discussion of Results

- Cost Analysts showed greater benefits from PNMs
  - Early stages of programs generally experience less precise cost estimates hence PNMs based on contracts provide cost analysts increase precision and quality
  - PNM history helped track changes in costs
  - Bill Of Material (BOM) helped track specific cost drivers
  - PNM data shared across programs resulting in improved results
- Price Analysts did not experience significant benefits in early phases of the programs
  - Scope of engineering effort can vary from the Technology Maturation Risk Reduction (TMRR) phase to the Engineering and Manufacturing Development (EMD) phase
  - Bills of Material for prototypes in TMRR and EMD can be vary to the Production phase
  - However production costs from low rate production benefited the follow on production negotiations in the case of the Stryker program
- Price Analysts awareness of CSDR was a factor
- Additional reports from DCAA, DCMA, ACC, PMO, CDRLs were used extensively

Conclusions

- PNMs and CSDR are necessary but not sufficient
  - Analysts are accessing all available information to perform effectively
  - Contract CDRLs, EVM Reports, DCMA, DCAA are all being accessed
- Silos of information that need to be integrated
  - Proactive engagement by analysts based on knowledge and relationships is needed to go across silos
  - DCAA, DCMA, Contracting Commands
  - No mechanism to share best practices across teams

State of Collaboration

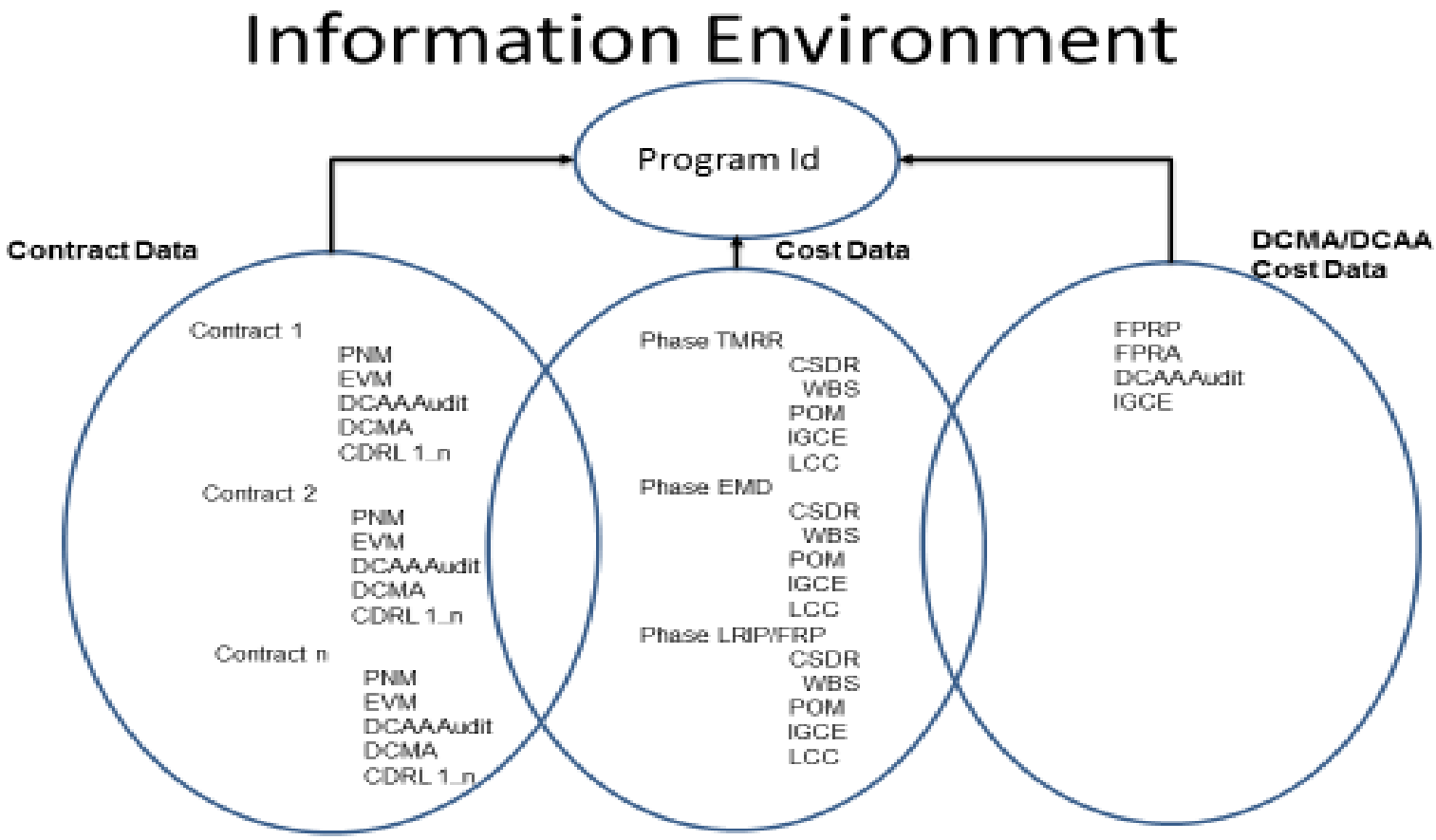


Recommendations

Business Process Improvements

- Business processes and supporting information systems for rapid collection of and access to key program cost and pricing data would have several benefits
- Such an information organization would also lend itself to comparing PNMs and Bills of Material, thus potentially automating the identification of changes and cost drivers.
- Bills of Materials comparisons could also be made across programs for tracking costs of common parts with similar form, fit, and function.
- Over time the accumulated data could support large-scale data mining to understand configuration and cost trends.

Recommendation - Information Consolidation



Recommendations

- Collaborative Environment
  - Simulated collaborative environment for price and cost analysts for all programs could be established. This environment could also include analysts from the Program Office, DCMA, and DCAA.
  - A technology environment that includes modern collaborative tools such as messaging, desktop video conferencing, and screen sharing applications to facilitate rapid communications should be considered.
- Community of Practice (COP)
  - The establishment of a Community of Practice (COP) to share best practices across the DOD enterprise where analysts could share insights, experiences, analysis, and successes should be considered.