

Long Term Affordability through Knowledge Based Bid & Proposal

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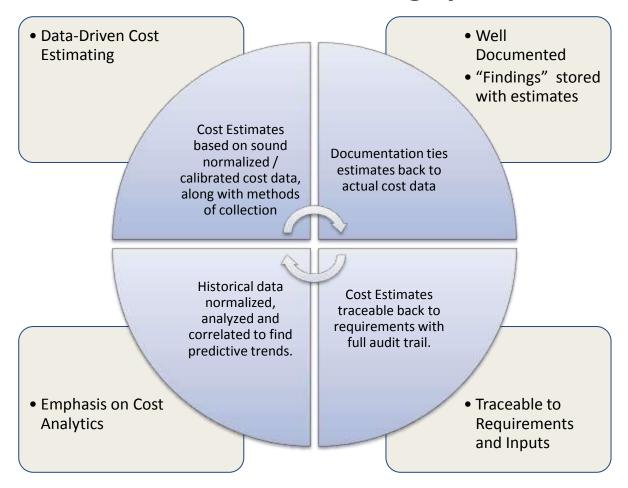
The Current Environment



- Over the last 40 years, creating realistic cost estimates based on sound data and methodologies has proved an elusive goal.
 - As far back as 1972, the US GAO stated that cost estimates for specific systems
 were "frequently revisions of previously developed estimates and that accurate
 revisions of both the original and updated cost estimates required documentation
 showing data sources, assumptions, methods, and decisions basic to the
 estimates."
 - This has led to estimates that were too optimistic, leading to costly over runs.
 - Early initiatives such as CAIV in the mid-1990's have failed to contain over optimistic estimates.
 - Of the six original CAIV programs, half experienced a Nunn-McCurdy Cost Breach and none of the programs reviewed achieved a 50% savings as was originality envisioned.
 - Recent initiatives such as the Weapons System Reform Act of 2009 has placed more emphasis earlier attention on both requirements, cost and schedule.
 - US GAO Cost Estimating and Assessment Guide provides best practices to develop sound estimates and is ongoing.

Main Features of Credible Cost Estimating Systems





Recent benchmark data highlights the need for greater investments in these areas

APMP Benchmark- Tools/Resources



Association of Proposal Management Professionals (APMP)

 100% of those surveyed reported that "Historic cost databases" are important to success and that 87% reported the same for "Parametric cost estimating tools"

	Perceived Importance to Success				
Candidate Investments for PTW/CATools and Resources	Very Important	Important	Somewhat Important		Not at All Important
Training	46%	27%	27%	0%	0%
Targeted acquisition of tools	18%	36%	36%	9%	0%
Subscriptions to information services	36%	41%	18%	5%	0%
Historical cost databases	36%	41%	23%	0%	0%
Parametric cost estimating tools	32%	32%	23%	9%	4%
Knowledge bases, CRM, etc.	18%	32%	36%	14%	0%

Source: APMP Benchmarks in Price-to-Win and Competitive Analysis Capability. Howard Nutt

APMP Benchmark- Commonly Used Tools



Association of Proposal Management Professionals (APMP)

- 40% perceive PRICE model (TruePlanning®) as important for success while...
- 80% commonly perceive "Custom Excel spreadsheets" as important for success while another report says that 88% of spreadsheets have errors according to MarketWatch!

	Perceived Importance to Success				
PTW/CA Process Element	10%	30%	50%	70%	90%
Custom Excel spreadsheets					
Knowledge management tools (e.g., SharePoint)					
INPUT (market intelligence reporting service)					
FOIA (Freedom of Information Act)					
Should-cost models, as used by customer					
PRICE model (parametric cost estimated software)					
Fedspending.org (budget tracking service)					
Customer relationship management (CRM) tools					
Eagle-Eye (market intelligence reporting service)					
E-Pipeline (market intelligence reporting service)					

http://www.marketwatch.com/story/88-of-spreadsheets-have-errors-2013-04-17?siteid=nwtpm.

Source: APMP Benchmarks in Price-to-Win and Competitive Analysis Capability. Howard Nutt

Sustaining Long Term Affordability



- Cost Estimating practitioners must have robust tools to:
 - Perform data analytics, create usable findings to drive parametric models.
 - Store results in easily searchable databases to use as estimate building blocks.
 - Fully store documentation along with estimates, key inputs fully traceable to data analyzed.
 - Closed loop, integrated with other tools across the life cycle from requirements to EVM.

Organizations that implement estimating systems with data-driven characteristics using integrated, repeatable and standardized systems produce credible estimate that win!



Everyday, a major decision depends on an estimate



Best Practices of Knowledge Based Bid and Proposal Systems



Data Driven

• Standard, historical data capture and reuse including estimates and metrics, normalization, categorization, attributes, etc.

Data Analytics Ability to store and mine both historical data and performance parameters to develop correlation/ trends and predictive CERs

Integrated

• Integration with all processes supporting estimating; will have a growing level of automation and integration: BoEs, PtW, Bid / No Bid, Estimate validation

Repeatable

•Estimating Systems Integration - Closed loop, repeatable process, maintaining persistent link between PBS and WBS

Standardized

Integrated, consistent, standardized models and estimating framework

Data Driven / Data Analytics



Data Collection	Normalization	Data Analytics	Develop Findings
Identify actual cost and technical data from completed programs	Normalize data for economics and consistent parameters	Identify Correlations Analyze "outliers" Develop CERS	Prepare auditable findings Traceable back to source data and full analytics performed

Estimating Systems that win must have proficiency in Data Driven Analysis linked to Auditable "Findings"

Integrated / Repeatable Results



loto	aratad
	PIAIPU
11100	grated

Estimating system supports all business functions, able to send/receive data from a wide range of tools.

Repeatable

Both creators and consumers of estimates can share all input parameters and get the same results.

Fully auditable.

Cross-Walk

Easy to link
the Product
Breakdown
Structure
(PBS) to WBS
in a logical
and persistent
manner.

Confidence Levels

Able to quickly perform sensitivity/risk analysis at any level and provide decision makers associated confidence levels

Estimating Systems That Win are based on Integrated and Repeatable Results

Standardized Framework

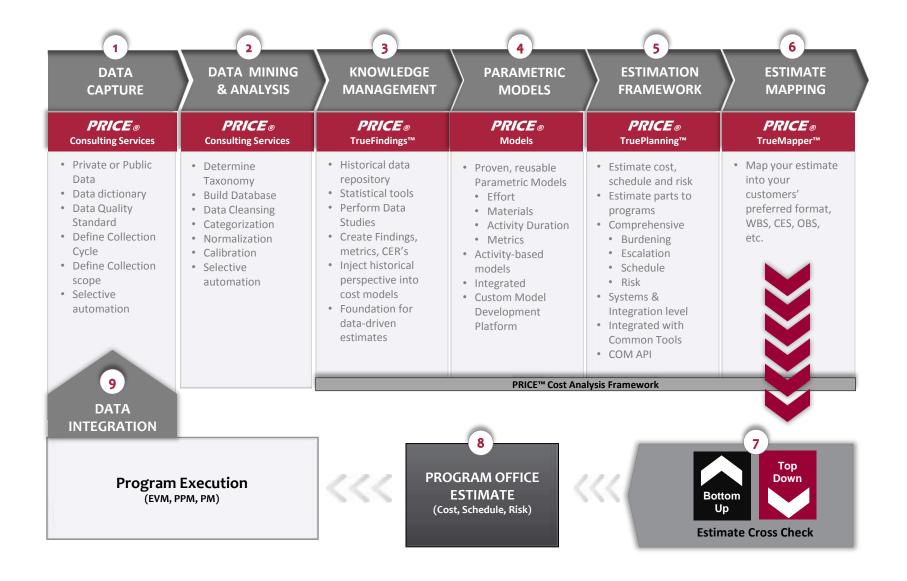


Comprehensive	Standardized	Consistent
Can address opportunities ranging across the lifecycle.	Common "estimating language" well understood by Subject Matter Experts.	Results are repeatable and well documented.

Estimating Systems That Win are based on Closed Loop , Standardized Framework

Knowledge Based Estimation Systems Integration





Bid Verification: Comparison of Parametric & Bottoms Up Methods



Parametric Estimates

- Top down
- Less detail
- Based on performance metrics
- Less labor intensive
- Quicker
- Ease of trade-offs analyses
- Parametric database
- Not always accepted
- "Black Magic" aura dispelled with data-driven
- Generally more disciplined
 - Standard methodology
 - Independent
 - Done by trained analysts
 - Captures totality of past programs

Detailed Build-Up Estimates*

- Bottoms up
- More detail
- Based on time and material
- Labor intensive
- Time consuming
- Trade offs need details
- Performance standards
- Accepted method
- Generally understood
- More susceptible to distortions
 - Optimism/Pessimism
 - Special interest/buy-in
 - Done by managers/engineers
 - Missing
 - - "I forgots"
 - Unknowns

Source: Joe Hamaker
*AKA "labor-material build up", "grass roots", "bottoms up"
"engineering estimates"

Conclusion



- Consistent use of Knowledge Based Bid Verification/Validation methodologies avoids over optimism
 - Unbiased metrics from measured benchmarks
 - Provides consistent and credible link to Price-to-Win
- Persistent link between "as built" Product Breakdown Structure (PBS) and "reporting" Work Breakdown Structure (WBS)
 - Reveals missing or inconsistent estimates
 - Reconciles Data-Driven estimates with grassroots estimates
 - Mitigates Risk
- Unifies "Top Down" Parametric Estimating with "Bottom Up" Grassroots estimating.
 - Creates "buy-in" across the organization
 - Minimizes errors and omissions