



Long Term Affordability through Knowledge Based Bid & Proposal

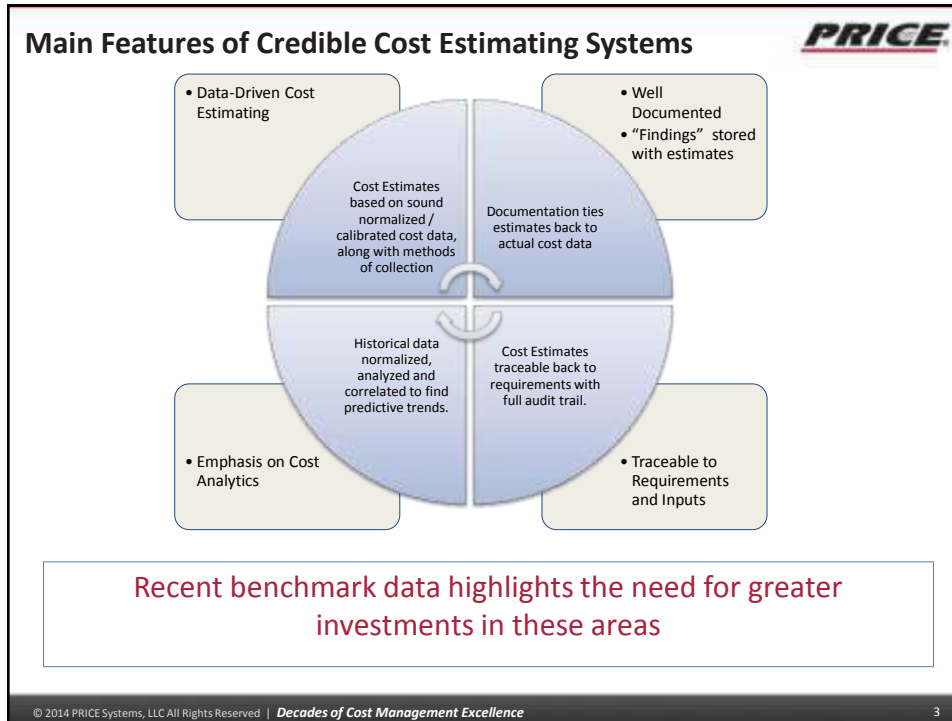
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ICEAA 2014 - Denver

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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.

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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”

Candidate Investments for PTWCA Tools and Resources	Perceived Importance to Success				
	Very Important	Important	Somewhat Important	Not Very 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.	16%	32%	36%	14%	0%

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

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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!

PTW/CA Process Element	Perceived Importance to Success				
	10%	30%	50%	70%	90%
Custom Excel spreadsheets	<div style="width: 88%; height: 15px; background-color: #4f81bd; margin: 0 auto;"></div>				
Knowledge management tools (e.g., SharePoint)	<div style="width: 70%; height: 15px; background-color: #4f81bd; margin: 0 auto;"></div>				
INPUT (market intelligence reporting service)	<div style="width: 65%; height: 15px; background-color: #4f81bd; margin: 0 auto;"></div>				
FOIA (Freedom of Information Act)	<div style="width: 60%; height: 15px; background-color: #4f81bd; margin: 0 auto;"></div>				
Should-cost models, as used by customer	<div style="width: 55%; height: 15px; background-color: #4f81bd; margin: 0 auto;"></div>				
PRICE model (parametric cost estimated software)	<div style="width: 40%; height: 15px; background-color: #4f81bd; margin: 0 auto;"></div>				
Fedspending.org (budget tracking service)	<div style="width: 35%; height: 15px; background-color: #4f81bd; margin: 0 auto;"></div>				
Customer relationship management (CRM) tools	<div style="width: 30%; height: 15px; background-color: #4f81bd; margin: 0 auto;"></div>				
Eagle-Eye (market intelligence reporting service)	<div style="width: 25%; height: 15px; background-color: #4f81bd; margin: 0 auto;"></div>				
E-Pipeline (market intelligence reporting service)	<div style="width: 20%; height: 15px; background-color: #4f81bd; margin: 0 auto;"></div>				

<http://www.marketwatch.com/story/88-of-spreadsheets-have-errors-2013-04-17?siteid=winipm>
Source: APMP Benchmarks in Price-to-Win and Competitive Analysis Capability, Howard Nutt

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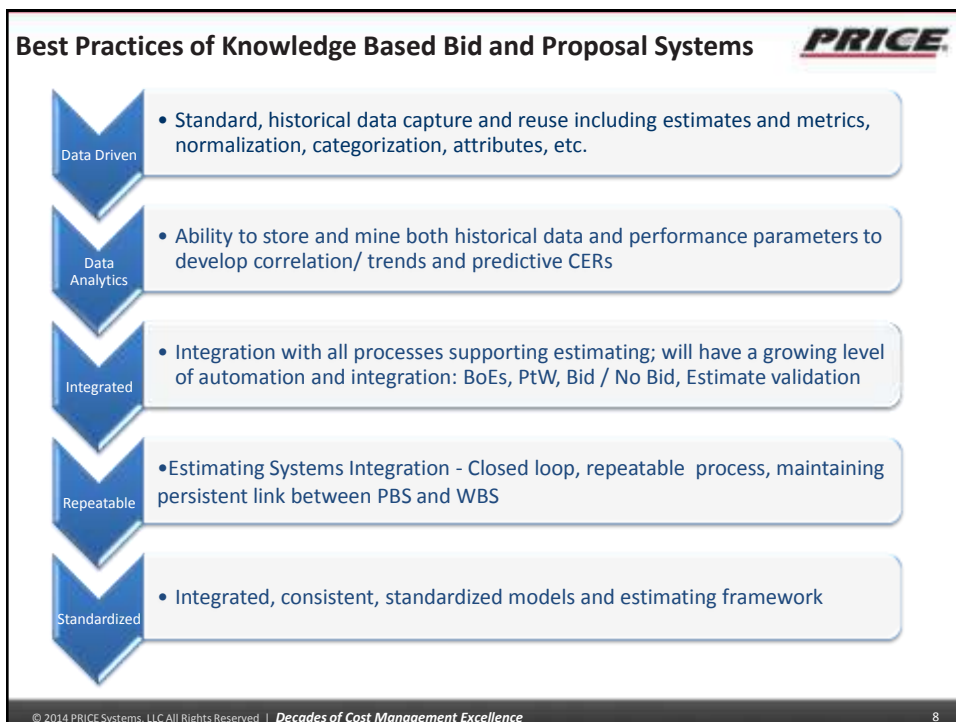
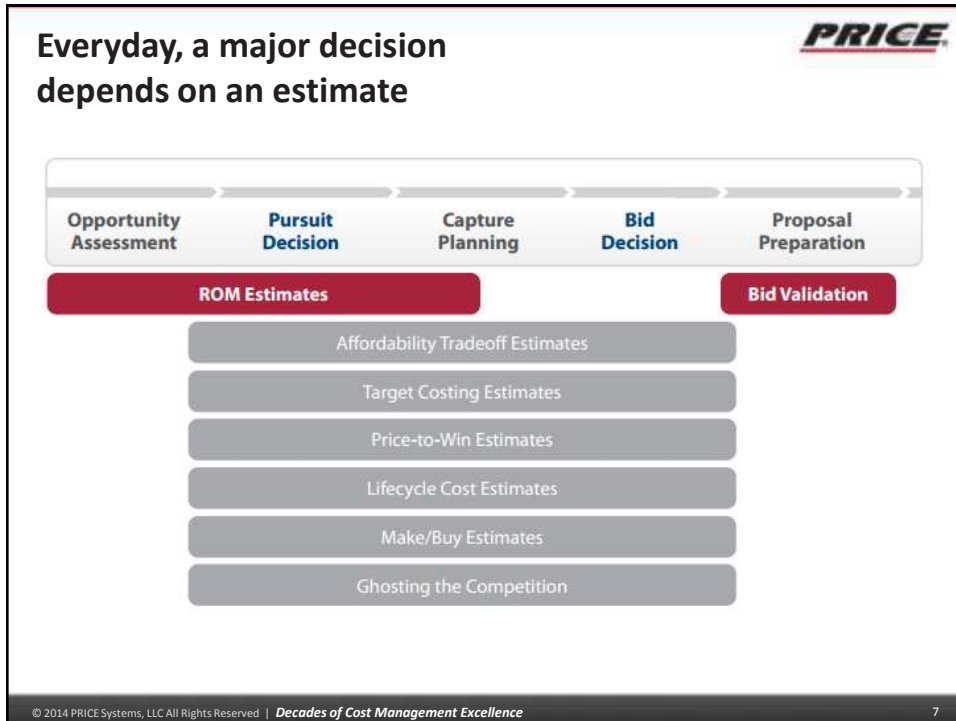
Sustaining Long Term Affordability



- **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!

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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"

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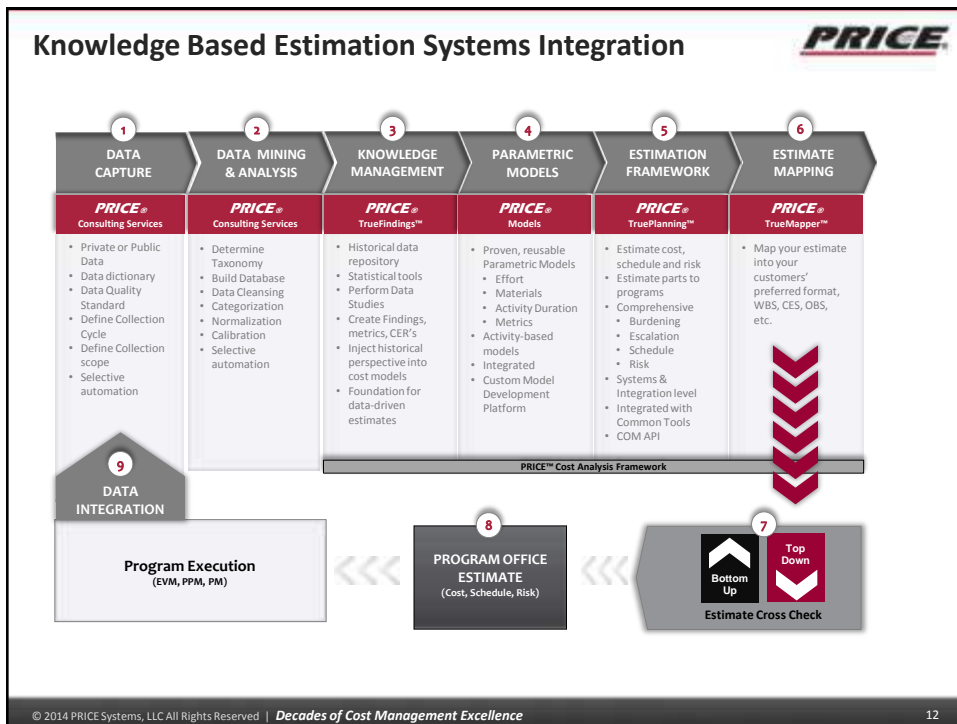
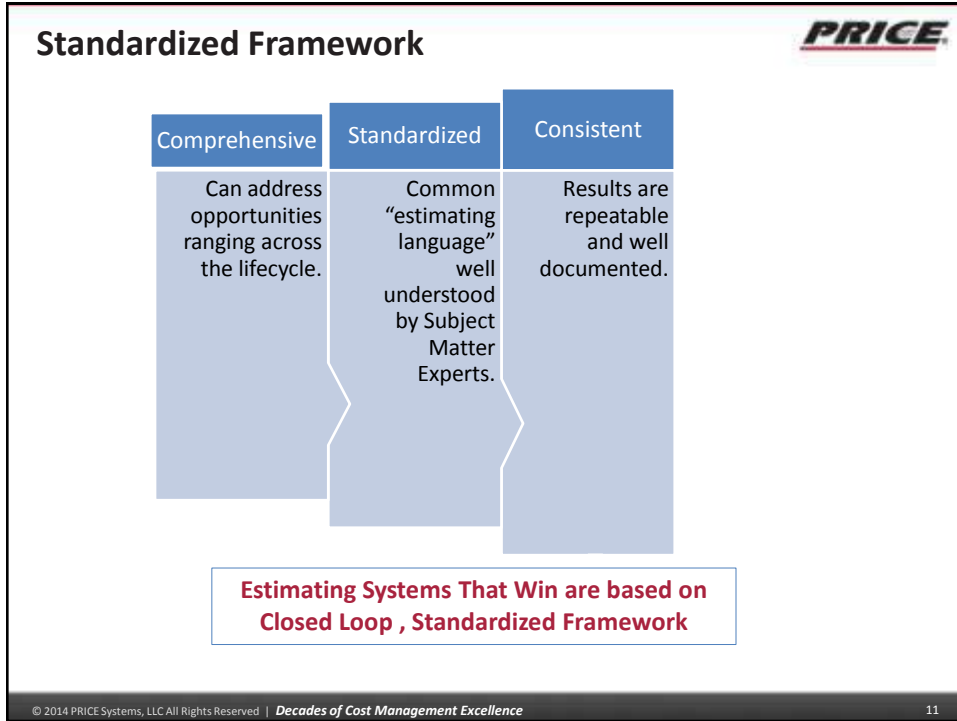
Integrated / Repeatable Results

Integrated	Repeatable	Cross-Walk	Confidence Levels
Estimating system supports all business functions, able to send/receive data from a wide range of tools.	Both creators and consumers of estimates can share all input parameters and get the same results. Fully auditable.	Easy to link the Product Breakdown Structure (PBS) to WBS in a logical and persistent manner.	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

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BA-5 - Long Term Affordability through Knowledge Based Bid & Proposal



Bid Verification: Comparison of Parametric & Bottoms Up Methods



Parametric Estimates	Detailed Build-Up Estimates*
<ul style="list-style-type: none"> ▪ 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 <ul style="list-style-type: none"> – <i>Standard methodology</i> – <i>Independent</i> – <i>Done by trained analysts</i> – <i>Captures totality of past programs</i> 	<ul style="list-style-type: none"> ▪ 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 <ul style="list-style-type: none"> – <i>Optimism/Pessimism</i> – <i>Special interest/buy-in</i> – <i>Done by managers/engineers</i> – <i>Missing</i> <ul style="list-style-type: none"> • - “I forgot” • - <i>Unknowns</i>


Source: Joe Hamaker

*AKA “labor-material build up”, “grass roots”, “bottoms up” “engineering estimates”

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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

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