How Predictive Analytics is Improving Parametric Cost Estimation

Anthony A. DeMarco, President
Predictive Cost Analytics

- What is it?
- Why now?
- What are the benefits?
- What’s next?
PRICE Systems, L.L.C.

- We improve our customers overall **cost management** to help them increase revenue and save money. By empowering our clients with **proven cost models and predictive cost analytics**, they become better estimators - improving bid success ratios, and achieving tremendous savings in analyzing alternatives. They become confident in their costs, schedules, and risk estimates.

- Founded as RCA business in 1975, taken private in 1998

- Headquarters: Mt. Laurel, NJ with additional offices in **DC, OH, VA, UK, France, Germany**

- Partner companies: China, S.Korea, Japan, Australia, Italy, Germany, and elsewhere

- Products: TruePlanning® software, PRICE Models, benchmark databases, integrated processes, and implementation services

- Education: PRICE University, instructor-led training on best estimating practices and product implementation

- 350+ customers & 12,000+ project professionals trained worldwide
Who We Serve
Federal Agencies, Large Corporations and their Supply Chains

**U.S. Defense, Space, Security**
- Army
- Navy
- Air Force
- DHS
- CIA
- NASA
- FBI

**International**
- ESA
- Canada DND
- UK MOD
- France DND
- Germany BWB
- Spain DND
- Italy MOD, ASI
- S. Korea MOD
- Japan MOD
- China MOD, Space

*Our objective is to speed and lower the cost of predictive cost analytics for everyone!*
- **Parametric Estimating**
  - A cost estimating methodology using statistical relationships between historical costs and other program variables such as system physical or performance characteristics, contractor output measures, or manpower loading. The parametric cost estimation method is one of the four cost estimation methods recommended by the Office of Cost Assessment and Program Evaluation (CAPE).

- **Predictive Analytics**
  - The use of data, statistical algorithms and machine-learning techniques to identify the likelihood of future outcomes based on historical data. Predictive models use known results to develop (or train) a model that can be used to predict values for different or new data (SAS).
The Freiman Curve (circa 1965)

- UNDERESTIMATES LEAD TO DISASTER
  - insufficient resources
  - panicked decisions
  - unrealistic expectations

- OVERESTIMATES LEAD TO DISASTER
  - under-utilized resources
  - excess capacity
  - un-competitive pricing

REALISTIC ESTIMATES MINIMIZE FINAL COST
History of Parametric Estimating

2004 Anthony A DeMarco, International Society of Parametric Analysts

Operations Research applied to Military Affairs

<table>
<thead>
<tr>
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<th>PRICE Systems Business Unit</th>
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Operations Research and Statistics applied to Industrial Affairs

PRICE Systems Europe Expansion

PRICE Systems Asia Expansion

Statistical Data Analysis & Calibration methods

...software

Parametric Estimating Models & Software

1930
- Great Depression

1940
- World War II

1950

1960
- Severe DoD Project Cost Overruns

1970
- RAND Created
- PMI Created
- OSD CAIG Formed
- ISPA Founded

1980
- PC Project Mgmt EVM Tools, SEER Launch
- Parametric Estimating Initiative

1990
- Korean ISPA Chapter
- ICEAA = SCEA+
- ISPA

2000
- Berlin Wall Breached
- War on Terrorism
- Defense Transformation

2010
- ICEAA Chapter

2020

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The Analytics Big Bang

Predictive analytics reaches critical mass as Big Data and new technology collide

Key Innovations

- Monte Carlo simulations
- Computational models for neural networks
- Linear programming
- Non-linear programming
- Computer-based heuristic problem solving
- Real-time analytics
- Prescriptive analytics

Mid-size Businesses & Tech Startups

Government Agencies

Corporations & Research Institutions

New Users

Dawn of Computer Age

1940s: Turing and Good conduct groundbreaking work with “weights of evidence” to decode German messages in WWII

1944: Kershner Predator automates targeting of anti-aircraft weapons against enemy planes

1950s–1960s

Commercialization of Analytics

1950: ENIAC computer generates first models to forecast weather

1954: First university degree program in Operations Research (Case Institute of Technology)

1956: Analytics solves “shortest path problem,” improving air travel and logistics

1958: FICO applies predictive modeling to credit risk decisions

1960: Future SAS Institute starts as research project funded by US Department of Agriculture

1970s–1990s

Analytics Goes Mainstream

1973: Black-Scholes model created to predict optimal price for stock options over time

1980: First commercial tool for building model-driven Decision Support Systems is marketed

1992: FICO deploys real-time analytics to fight credit card fraud

1995: Amazon and eBay go live; race to personalize online experience is on

1997: Google applies algorithms to web searches to maximize results relevance

1998: Moneyball changes pro sports as Oakland A’s use analytics for a competitive edge

2000–Present

Analytics’ Deep Impact

- Widespread analytics use: dynamic ticket pricing, shopping and movie recommendations, traffic management and much more
- Natural language processing: unlocks analytic value of unstructured data (e.g., Facebook posts, web pages, PDFs, email, Word docs)
- Big Data arrives: 2.5 quintillion bytes of data created each day
- Server farms and low-cost, high-speed processing: made distributed computing and Big Data analytics viable for most organizations
- Growing demand for talent: 190,000 more analytics experts and 1.5 million more data literate managers needed in US alone by 2018

2013 fico.com/landing/infographic/The-Analytics-Big-Bang

Small Businesses & Analytics Experts

Analytic Innovation Accelerates

2000–2009: Production version of R language for analytic software grows from 0 to 1,000,000 users

2000–2012: Analytic software market grows from $11 billion to $35 billion

21st Century’s Sexiest Job: Data scientist job posts up 15,000%!

Buy! Buy! Buy!

2013–2012: Data scientist job posts up 15,000%!

Hyper-connectivity

2012: 1.7 billion mobile devices sold

Analytics Talent Gap

Grows as demand skyrocket

Adequate and Accessible

Analytics as tools become broadly adopted

Ubiquitous Analytics

- Cloud-based analytic exchanges: lead to Collaboration Economy between developers, businesses, researchers, scientists and entrepreneurs
- Individuals use analytics in everyday decisions: about education, careers, finances, healthcare, peer-to-peer renting and lending (“sharing economy”)
- Curing rare diseases: becomes a financial winner
- Predictive policing: preempts many crimes
- Anticipatory analytics: makes it nearly impossible to crash a car or burn dinner
- Mass marketing campaigns are dead: all customer interaction is personal
- Data licensing trumps data purchasing: in a world where data gets stale in minutes

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PRICE® has evolved to leverage the Predictive Analytics Big Bang to speed and lower the cost of Analytics.
Daniel Gilbert, PhD.

Experiment with real people, 20,000 magnets, Yellow Good things, Blue Bad things

“We all want to think about positive stuff, but realistically, there will be down times.”
Analytics Big Bang causing change!

PEOPLE

PROCESS

TOOLS

Decades of Cost Management Excellence
People Changes

Phillies hire ex-Google analyst to head baseball research & development

Matt Klentak, in his first winter at the head of a baseball operations department, wanted to learn how companies manage information. The 35-year-old Phillies general manager surveyed people in baseball, other sports, and some with zero connections to the game. How, he asked, do you implement analytics into decisions?

Those talks led him to Andy Galdi, a 30-year-old Google employee who was hired Thursday as the Phillies’ first-ever director of baseball research and development.

PRICE Job Posting

Do you have a passion for excellence? Are you interested in a challenging career with a company that is the best in its field? Do you enjoy working in a collaborative environment with really smart people who are the best at what they do?

Then you should work for PRICE Systems. PRICE Systems specializes in improving our customers’ ability to improve their speed, accuracy, and standardization of the foundation of their cost management culture. Our clients are some of the best known Aerospace and Defense organizations on the planet including many of the world’s governments. PRICE Systems employs a small group of highly talented people who live and breathe to add value to our customers. We believe that work must have a high “purpose” factor, and we’re looking for people who share in our passion to create exceptional value.

PRICE Systems wants to hire and develop distinguished scholars interested in a career in Business Intelligence, Predictive Analytics, Cost Estimation and Analysis, Data Mining, Statistical Analysis and Model building. For these positions we are looking for applicants with outstanding academic credentials in Mathematics, Analytics, Applied Mathematics, or Statistics, along with exceptional analytic skills, strong communication skills and the ability to work in a team environment.

Essential Duties and Responsibilities of the position include:

- Perform data collection, mining, categorization, mapping, analysis, normalization, calibration, and database implementation
- Develop, present and defend cost estimating relationships and mathematical cost models using applied mathematical approaches such as probability, statistics, regression analysis, linear algebra, learning curves and data collection
- Performing special cost analysis studies
- Write formal research papers
Process Changes

CSDR Problem Statement

Current CDDR Shortcomings
Subjective Mapping
Allocation
Manual
Inconsistent
Time Consuming
No details below the functional labor categories within a WBS element
Data sampling over time typically limited to once a year

FlexFile Improvements
Standard WBS
Raw/Detailed Source Data
Automated
Consistent
Traceable, Repeatable mapping

FlexFiles: Objectives
A Win-Win Government and Industry Partnership

1. Increase Efficiency:
   - Collect data according to the contractor’s management structure
   - Removal of legacy 1921 forms
   - Reduce ad hoc-supplemental government data collection efforts
   - Much easier and less time consuming for industry – allows them to reduce back end support
   - Automation: data flows directly from contractor systems into ours

2. Improving Data Quality:
   - Eliminate Human Error/Subjectivity
   - Collect raw data, and use technology to eliminate arbitrary allocations and errors
   - Consistent application of Mil-STD-881C to both EV and CDDR data – data Alignment
   - Review and mapping pre-contract award

3. Ensure Completeness:
   - Provides much more insight and analysis flexibility
   - Higher frequency of submissions
   - Receive data over time
   - Include cost and supporting technical data
Tool Changes

“We are entering the Cognitive Era, which demands a powerful combination of tools to evolve your organization into one that thinks and learns from data.”

- IBM
**PRICE Cost Analytics**

- **Business intelligence (BI)** is the set of techniques and tools for the transformation of raw data into meaningful and useful information for business analysis purposes (Wikipedia 2015)

- **Predictive analytics** encompasses a variety of statistical techniques from modeling, machine learning, and data mining that analyze current and historical facts to make predictions about future, or otherwise unknown, events (Wikipedia 2015)

- **Predictive Cost Analytics** a field of predictive analytics specifically targeting cost and schedule estimating for products, projects, on-going operations, other cost-incurred activities

- **PRICE Cost Analytics** a refreshing implementation of predictive cost analytics encompassing a suite of proven processes, automation software, and predictive models
Predictive Analytics

Seven Reasons You need Predictive Analytics Today
Eric Siegel, PH.D., Prediction Impact, Inc.
Predictive Cost Analytics, if it exists at all, is typically a labor-intensive, Ad Hoc, un-standardized, unrepeatable process using various tools. Predictive cost models are re-created every time. Little information sharing among projects. Only analytical experts can perform the process.
PRICE Parametric Estimating is a set of proven cost models in a powerful framework are used to support estimates for various business functions.
PRICE Cost Analytics is refreshingly different. Cost and Technical Data is organized into digestible groups. TrueFindings analyzes the data to produce data-driven parameters to feed the proven PRICE Cost Models integrated by TruePlanning. Results are mapped and tailored to various WBSs and cost element structures for complete customer understanding. The speed and cost of analytics is reduced!
What have we learned from this project? How do I normalize, categorize, and calibrate my measurements?

Is this project possible? What is the rough estimate? What is the ROI? Can we win the job?

Which alternative is the most cost effective? Is our estimate accurate? Will I make a profit? How will I manage costs during this project?

Is the design cost optimized? Does the design meet cost targets?

Am I producing something that will meet operation and support budgets?

Is the prototype confirming our cost estimates? Am I improving my estimate from prototyping?

We have the answers!
TruePlanning® and the PRICE Models

Data visualization, statistical analyses, and proven predictive models in an easy-to-use integrated environment. Responsive reports and graphics to give you the answers you need.
TruePlanning® and the PRICE® Models

TruePlanning® Suite

TruePlanner®
A powerful, interactive predictive cost modeling framework empowering cost engineers to produce cost estimates faster, and with more credibility than before

TrueFindings®
Provides data storage, retrieval and analytics. Loads data from MS Excel and creates analytical findings to help cost engineers build credible, data-driven estimates

TrueMapper®
Provides dynamic Work Breakdown Structure (WBS) and Cost Element Structure (CES) mapping, for greater insight and comparison of detailed estimate analysis

PRICE Model Catalogs

- PRICE Systems (7 models)
- PRICE Hardware (5 models)
- PRICE Microcircuits (4 models)
- PRICE Software (3 models)
- PRICE IT (9 models)
- PRICE COCOMO (4 models)
- PRICE Concept Models (10 models)
- PRICE Space Missions (10 Models)
- PRICE Rotorcraft (12 Models, US Army only)
- Customer-Specific Models are also supported by the PRICE TruePlanning Framework
PRICE® TruePlanning®

What is it?

- Cost estimation framework providing a **modeling architecture** for integrating PRICE® Cost Models.
- Enables the modeling of anything from a single component to a System-of-Systems (SoS) faster without sacrificing credibility or defensibility.
- The “XBox” to our cost models.
Example Software Development data in Excel

- Calibrated Complexity and Productivity Drivers
- SW Code Descriptors and Hours/Costs
- Key Performance Parameters

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Perform Predictive Analytics to determine method for fine-tuning software cost drivers as a function of KPPs
TrueFindings® Visualization

- Example Software Development data: Distribution Finder
  - Spreadsheet rows become knowledgebase fields for search/filtering
  - 1st tab-function shows descriptive statistics for all or (above) selected data
TrueFindings® Visualization

- Example Software Development data: Dependency Finder
  - 2nd tab-function shows bivariate correlations coefficients
TrueFindings® Visualization

Example Software Development data: Curve Finder

- 3rd tab-function shows simple (one predictor) regression fits w/ $R^2$s
Example Software Development data: Multicurve Finder

- 4th tab-function shows multiple (two or more predictors) regression fits w/ $R^2$s
PRICE® TrueFindings®

Cost History Database with advanced searching, filtering and analysis capabilities

- **Benefits**
  - Enables studies to be performed and findings that drive estimation (defensibility through data-driven)
  - Integrated knowledge management (the link between your data & PRICE models)
  - Integrated with TruePlanning & Excel to support data-driven estimation (adoptability and defensibility)
  - Several analytical methodologies have been automated in TrueFindings to provide faster analysis (Get more done with less)
  - Very easy to get data in and out of TrueFindings.
TruePlanning® Data-driven Estimating

Unit Production Cost
$1,000

Confidence Level
90%
PRICE® TrueMapper®

- **What is it?**
  - Mapping tool from PBS to any WBS/CES reporting structures
1. Gather historic cost data in Excel, rows=items / columns=costs, measures
2. Categorize & normalize the data with TrueFindings, TruePlanning and the PRICE models
3. Analyze data with TrueFindings to create item and cost driver “findings” to support future estimates
4. Estimate costs and schedules with a new product-oriented WBS that uses PRICE’s findings and your findings as a frame-of-reference for each item and each cost driver
5. Map your estimate to the “customer-language”, alternate WBS’s. Use PRICE supplied mappings to prevalent standards
6. Inform your customer so that they can decide with data-driven confidence
7. Capture performance on ongoing and completed projects and add to historic data
8. Repeat
Typically, predictive analytics requires painstaking processes for normalizing data and creating “one-off”, multivariate models to predict outcomes. Tailoring generic predictive analytics tools to estimate costs and schedules is complicated and time consuming.

It is faster and easier to “calibrate” existing, proven models that are tested and supported by experts...

**PRICE Cost Analytics**
- Specifically designed to predict costs and schedules
- Integrated tools combine to speed the process and lower the cost to predict costs and schedules
- Proven, reusable cost models that capture the common cost drivers of like-items to be estimated
- PRICE subject matter experts know the process, and are available to help you along the way
PRICE® Models Ease Data Normalization! (ECIRP)

- How big was it?
- How much of the engineering and manufacturing was new work?
- What was the complexity item and the job?
- How familiar were the people doing the work?
- Was the technology mature?
- When did it take place?
PRICE® Models Produce Data-driven Estimates!

- How big is it?
- How much of the engineering and manufacturing is new work?
- What is the complexity item and the job?
- How familiar are the people doing the work?
- Is the technology mature?
- When will it take place?
Case Study

Defense Contractor
United States

Bid & Proposal A more efficient DCAA-Compliant estimating system
PRICE Cost Analytics in a DCAA-Compliant Estimating System

**Pre-Project Estimate**
- Project Description Dialog
  - .xls Input File
  - DCAA-Compliant Pricing System
    - Cost Proposal

**Support Systems**
- Project Database
  - Financial System
    - Labor Rates, Costs
  - WBS, OBS, CLINS
- TruePlanning Software
  - Estimation Calibration Utility
  - Analytics for Best Fit Org. Productivity
    - Calibrated Projects List
      - PRJ Org. Prd. INTEGE HRS EST
      - 1 2 3 · · 200

**Post-Project Data Capture**
- Project Description Dialog
  - .xls Input File

**KEY**
- Process flow
- Data exchange
- BF Best Fit
Benefits

Revenue Growth – *higher bid volume and win rates based on management and customer acceptance of estimates*

- **Quality** – standardized methodology across domains
- **Efficiency** – faster cycle time to gather data and estimate costs
- **Credibility** – defendable estimates based on historical data
- **Accuracy** – improved accuracy of cost estimates
- **Compliance** – passed DCAA estimating system audits
Case Study

Major Automobile Manufacturer
*Design Tradeoffs and Strategic Sourcing*
PRICE Cost Analytics on Parts & Assemblies

New Vehicle Design Tradeoffs

Supplier Data

Categorical Cost Metrics

Shop Floor Data

Analytics

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Benefits

Faster Design Times – Speedier design tradeoffs to meet forecasted market demands

- **Quality** – standardized methodology across domains
- **Efficiency** – faster cycle time to gather data and estimate costs and determine options to be designed
- **Credibility** – defendable estimates based on historical data

Lower Costs – better negotiating position with suppliers by analytically extrapolating from historical data

- **Efficiency** – faster cycle time to gather data and estimate costs
- **Credibility** – defendable “should-costs” based on historical data
Case Study

U.S. Army AMRDEC ADD
United States

Affordability - Rotorcraft Tradeoffs
PRICE Cost Analytics for Rotorcraft Systems and Subsystems
Benefits

Faster Design Times – Speedier design tradeoffs to meet threat analyses and budget constraints

- **Quality** – standardized, thoroughly tested methodology
- **Efficiency** – familiar, comprehensive framework and user interface. Interoperability links with other systems.
- **Credibility** – defendable estimates based on historical data from OEMs

Credible Budget Requests – realistic budgets from the start, little need for exorbitant budget reserve

- **Credibility** – defendable budget estimates based on historical data from OEMs
Case Study

U.S. Army PEO STRI
United States
Budgeting for Simulation and Training Systems
PRICE Cost Analytics for Agile Software Development

Department of the Army

OASA(ALT)
- Plans, Programs, and Resources
  - Pre-Contract
  - Proposal Development

OASA(ALT)
- Principal Military Deputy Chief Integration Officer
  - Contract Monitoring

OASA(FM&C)
- DASA (Cost & Economics)
  - Acquisition Costing & Cost Review Board
  - Budgeting

PARC
- FGOST: Acquisition Center
  - Associate Director Contracting Operations (Mr. Ken Tedeschi)

PM ConSim
- Project Manager Contracting Simulation
  - Product Manager OneSAF (LTC Wilbur Richburg)

Estimates to complete Productivity Metrics

Chief Fin. Mgr.- (John Kirsch)
- Associate Chief FM Cost (Jim Golden)

RFP
- CDRL
  - SSR Form

Prime Contractor

Cost Models
- Monthly CDRL/CPR Reports
  - Historical Cost Database

Historically Informed Capability Based Estimating

Key and Notes
- Information Flow
- Oversight & Control
- Data Flow

Data Calibration & Model Validation Process

Data Validation Process

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Benefits

Cost Savings

• Program cost savings of over $90M indicated by pilot
  • Across six years – life cycle usually full operational capability +20
  • Using only a 15% reduction in growth factor – actual reduction higher
  • Pilot looked at only eight software-intensive programs

• Cost savings on program life cycle costs significantly reduced
• Cost savings can be reinvested in new technology and to reduce funding requests
• Revenue generation increases as PEO STRI lowers cost to take on more work
• Effective measurement of the productivity of contractors’ software development efforts for future pricing/cost estimates.

Qualitative Benefits

• Compliance – valid software cost estimate IAW policy
• Quality – standardized methodology across domains
• Efficiency – faster cycle time to gather data and estimate
• Credibility – defendable estimates based on historical data
• Accuracy – improved accuracy and funding requests
• Improved contractor software data collection process
Case Study

Thales Group
International – HQ France

Bid & Proposal
Data-driven Bid Validation
PRICE Cost Analytics for Bid Validation

Top Down approach

- Parametric estimation
- Cost Consolidation Quotation Data Base
- WBS
- Financial Data
- Cost Library
- Cost models
- Historical Data
- Project Cost Baseline
- Forecast workload
- Price & Cash Sheet

Bottom-Up approach

Reliable Forecast for Efficient & Accurate Decisions
Cost Estimate Toolset

**ORIENTATION ORGANISATION**
- Architecture Context
- WBS

**ESTIMATING**
- ESTIMATE METHODS & MODELS
- COST DRIVERS
- COST DATABASES
- Number and complexity of requirements
- Number and complexity of interfaces
- Volume of data
- Number of functions
- Number of classes and objects
- Number of database tables

**COSTING**
- COST MASTER SCHEDULE
- SPENDING PROFILE

**FINANCIAL ENGINEERING**
- CHP, Financial risks
- CASH IN/ CASH OUT
- SELLING PRICE

- Top/Down Parametric Approach
- **Mapping**
- Cost Consolidation

- Bottom-up Estimates

**TruePlanning® by PRICE® Systems**

**THALES**
## Main Use Cases

<table>
<thead>
<tr>
<th>Top Down Approach</th>
<th>Bottom-Up Approach</th>
</tr>
</thead>
<tbody>
<tr>
<td>Target Cost definition, ROM, quick estimates</td>
<td>✔️</td>
</tr>
<tr>
<td>Firm Fixed Price</td>
<td></td>
</tr>
<tr>
<td>Cost Challenging &amp; Optimization</td>
<td>✔️ Together ✔️</td>
</tr>
<tr>
<td>External Benchmark</td>
<td>✔️</td>
</tr>
<tr>
<td>Complex solution or organization, low maturity</td>
<td>✔️</td>
</tr>
<tr>
<td>Business as usual / Product lines</td>
<td></td>
</tr>
<tr>
<td>Easy comparison of various scenarios</td>
<td>✔️</td>
</tr>
<tr>
<td>Detailed risk analysis</td>
<td></td>
</tr>
<tr>
<td>Commitments</td>
<td></td>
</tr>
</tbody>
</table>

**Complementary Approaches to Improve Estimates Challenging and Confidence**
Benefits

- **Improved Win Rate** - Consistent use of Bid Verification/Validation methodologies avoids over optimism
  - Unbiased metrics from measured benchmarks
  - Provides consistent and credible link to Price-to-Win

- **Accuracy** - 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

- **Team Unity** - Unifies “Top Down” Parametric Estimating with “Bottom Up” Grassroots estimating
  - Creates “buy-in” across the organization
  - Minimizes errors and omissions
Case Study

Civilian and Defense Contractor
United States

*Affordability* – Engine design tradeoffs
Affordability Design Tradeoffs

Mission-Operational Context

Missions, Scenarios, & Capabilities Needed

Architecture (WBS – Tech Baseline)

Value Framework (KPP- MOE)

Cost Analysis
Risk Analysis
Performance Analysis
Schedule Analysis

Trade-Off Analysis

Modify Baseline

Analyze Issues

Iterative Cycle

Completed

Best Value

Yes

No

Mission-Operational Context

Missions, Scenarios, & Capabilities Needed
PRICE Cost Analytics on Engine Parts & Assemblies

- Supplier Data
- Shop Floor Data
- Strategic Sourcing
- New Vehicle Design Tradeoffs
- Analytics
- Categorical Cost Metrics
Benefits

Cost versus Performance

Tuttle & Bobinis (2013)
“Specifying Affordability”
Benefits

- **Winning Bids**
  - More accurate target costing by including cost as a real time design parameter estimated for each trade-off

- **Credibility**
  - Defendable estimates based on historical data

- **Speed**
  - Reduced cycle time for each full trade-study
PRICE Cost Analytics

- **What is it?**
  - Leveraging our 40 years of parametric estimating experience with the predictive analytics big bang

- **Why now?**
  - To speed and lower the cost of predictive cost analytics to expand its reach

- **What are the benefits?**

- **What’s next?**
What’s next?

PRICE Cost Analytics for Everyone

- More and improved Models
  - Model improvements
  - New models
  - Analytical findings

- More automation of tasks
  - Automatic analytics
  - Seamless tool integration
  - Seamless data integration

- More widespread use
  - Modeling simplification and automation with Business Process Management (BPM)

Our objective is to speed and lower the cost of predictive cost analytics for everyone!
Questions?

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