

Will-Cost and Should-Cost Management *It's Not Business As Usual*

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Topics

- **What is Should-Cost/Will-Cost?**
- **DOD Initiatives in Should-Cost Management**
- **The Business Analysis Framework for Should-Cost Management**
- **Examples of Should-Cost Management Execution**
 - Fact Based Supplier Benchmarking
 - Technology Refresh

What is Should-Cost/Will-Cost?

- **In this context, it is a DOD management initiative to achieve cost savings**
- **Defined by Ashton Carter memo, September 14, 2010:**
 - 1 of 23 principal actions for greater efficiency and/or productivity
 - Will-Cost is forecast based on extrapolation of history
 - Business as usual
 - Basis for most budgets currently
 - Should-Cost is net of opportunity-pursuits that reduce Will-Cost
 - Identification and elimination of inefficiencies and non-productive actions
 - Additional investment opportunities excluded
- **Intention is to evolve to a culture where Should-Cost will one day replace Will-Cost as budget basis**

DOD Initiatives in Should-Cost Management

- **Defined by Carter/Hale Memo of April 2011**
- **Government PMs Accountable for Development, Tracking, and Reporting against Should-Cost**
- **10 Ingredients of Should-Cost Management include:**
 - Benchmarking
 - Supply Chain Management
 - Alternative Technology/Material

The Business Analysis Framework for Should-Cost Management

- **Need for Current and Accurate Information**
- **What Information?**
 - Cost & Schedule
 - Product Characteristics: features, reliability, capability, performance, and more
- **Framework Must be Fluid as Information Flows Continually**
- **Minimum Requirements:**
 - Data Capture
 - Data Storage
 - Data Analysis

Framework for Data Capture & Storage

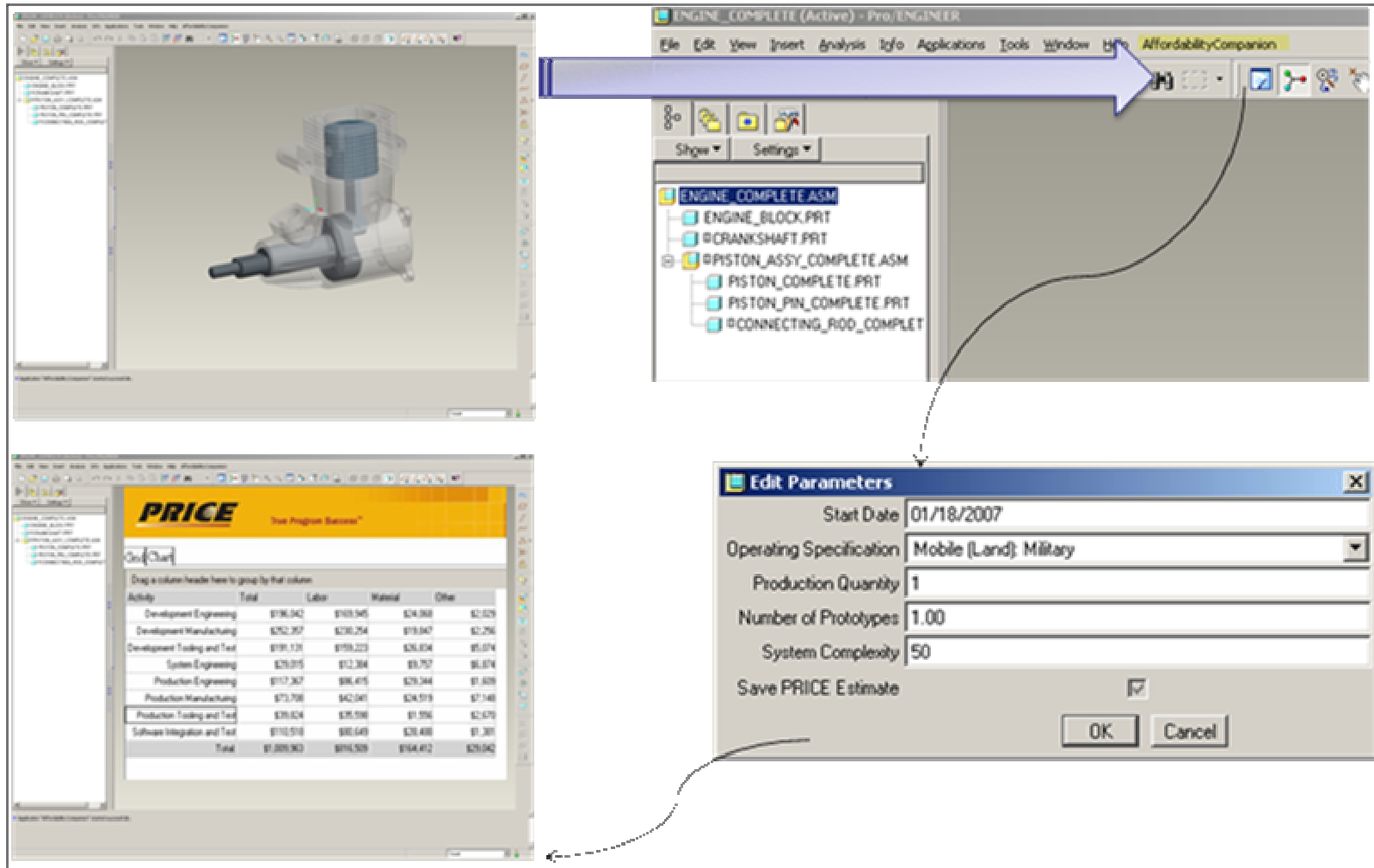
- Custom TruePlanning Catalog to Capture & Store Ship Data

The screenshot displays the TruePlanning software interface. On the left, a catalog lists various ship types, with 'Dreadnaught' selected at index 77. On the right, the 'Input Sheet: Dreadnaught' form shows detailed data for this ship type.

Worksheet Set:	A	Value	Units	Spread	Note
1	Start Date				
2	Colloquial Name	Dreadnaught			
3	System Designation				
4	Role	Battleship			
5	Country of Origin	UK			
6	Manufacturer	HM Dockyard Portsmouth			
7	In Service Date	12/31/1906			
8	Fiscal Date	12/31/1905			
9	Source UPC in National Currency and Fiscal Date	1,783,000.00			
10	UPC in National Currency in Dec 2001 terms	138,011,224.11			
11	UPC conversion to EURO in Dec 2001 terms	138,011,224.11	Euro		
12	UPC conversion to EURO in Sept 2006 terms	157,722,764.17	Euro		
13	UPC in US Dollars in Sept 2006 terms	251,551,458.01	\$		
14	T1 in US Dollars in Sept 2006 terms	251,551,458.01	\$		
15	UPCS	19.34			
16	UPC2 Qty Produced	1			
17	Total Qty Produced	1			
18	Cost Data Reference	Jones Fighting Ships 191...			
19	LOA in meters	160.32	Meters		
20	Beam in meters	24.99	Meters		
21	Draught in meters	9.45	Meters		

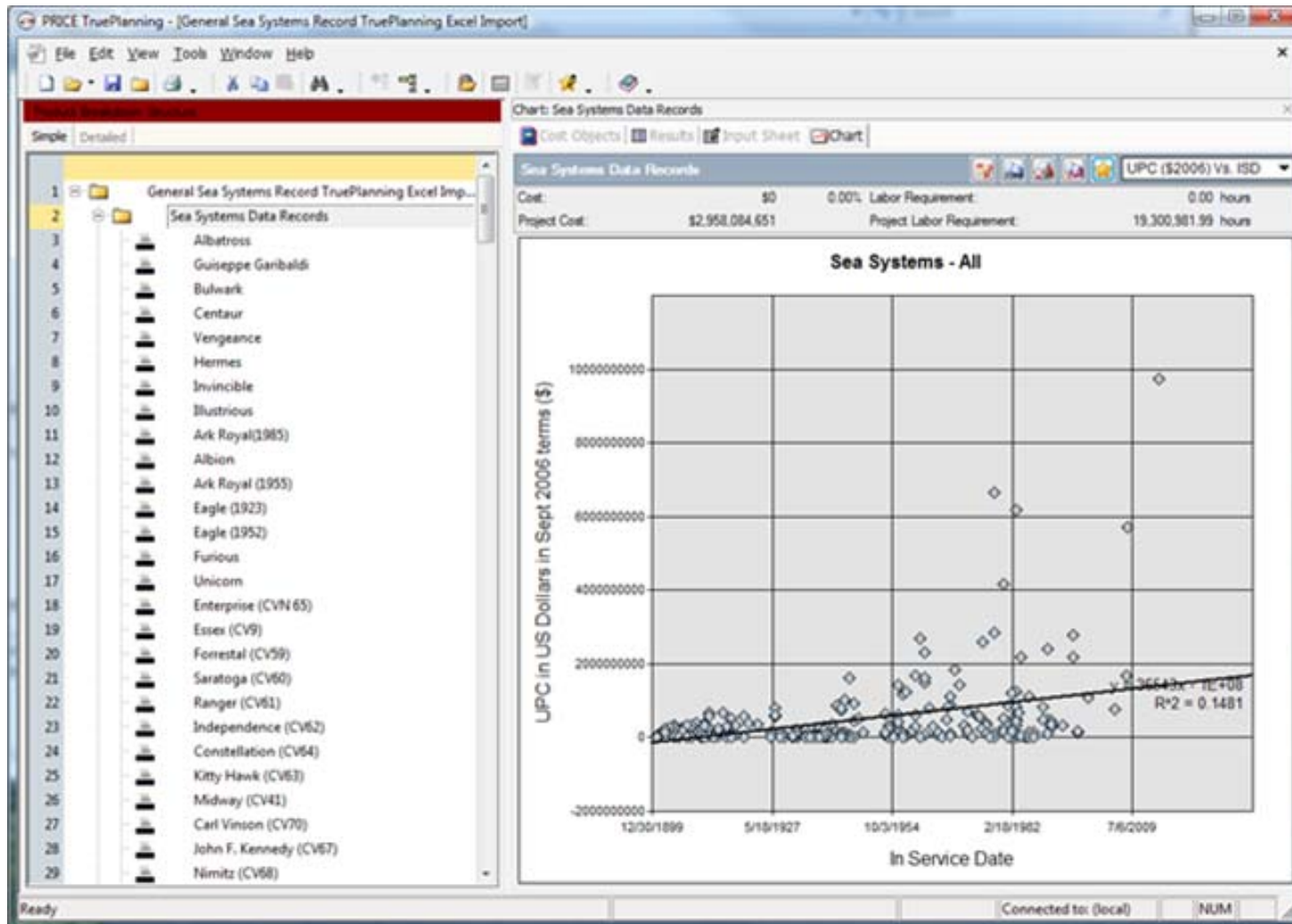
Framework for Data Capture & Storage

● Web Services Custom I/F between ProE & TruePlanning



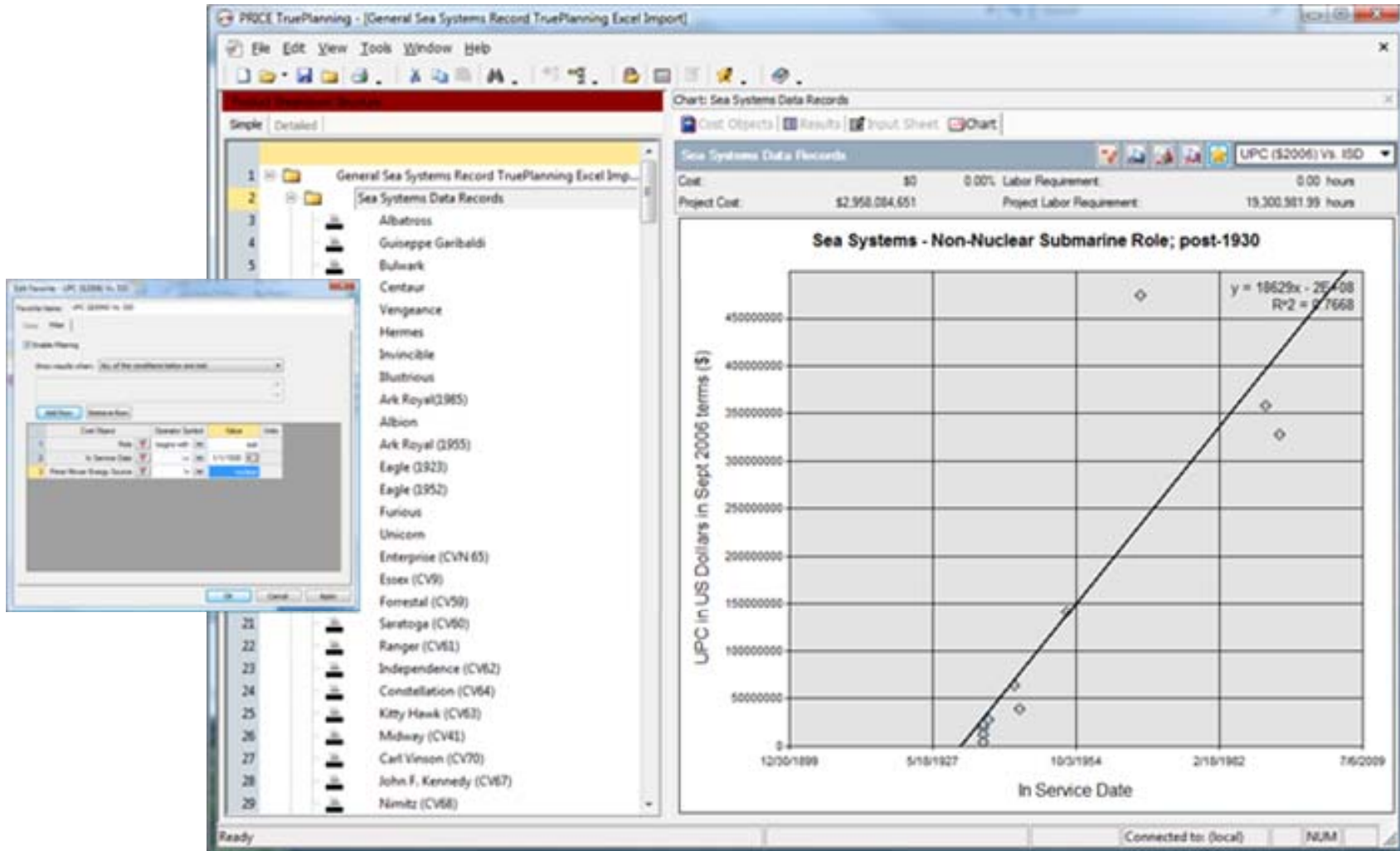
Framework for Data Analysis

TruePlanning Scatter-Plot



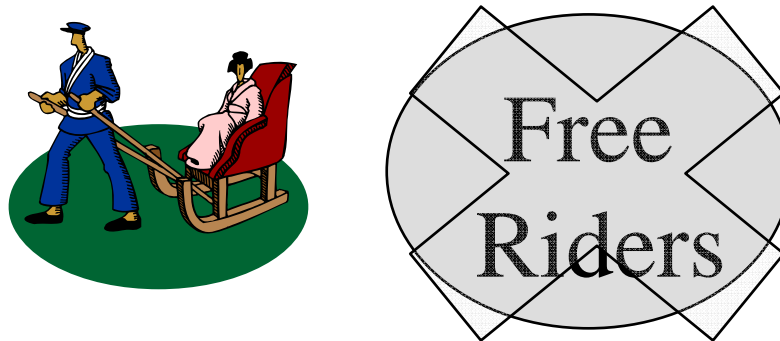
Framework for Data Analysis

- Filtering to Most Relevant Data Produces Sound BOE



Benchmarking

- **What & Why?**
 - Indexing goods and services for comparative purposes
 - Enables knowledge-based decisions for selection and negotiation
 - Measurement based, information intensive, objective, and action-generating
- **Supplier Savings Possibly the Highest Impact Should-Cost Management Action**
- **Supplier Accountability Must be Established**



Benchmarking Example – Hydraulic Pumps

- Industrial Product Manufacturer Indexing Suppliers
- Database Summary:

	Number	Examples
Records	90	Restricted to data no more than 5 years old.
Data Fields per Record	120	Model, Weight, Size, Displacement, Capacity, Flow, Pressure, Unit Cost; multiple fields for many of these; contents vary by pump type.
Pump Types	7	Air, Electric, Gear, Hand, PTO, Submersible, Synchronous
Suppliers	8	Enerpac, GKS-Perfekt, Haldex, John S. Barnes

Hydraulic Pumps Catalog

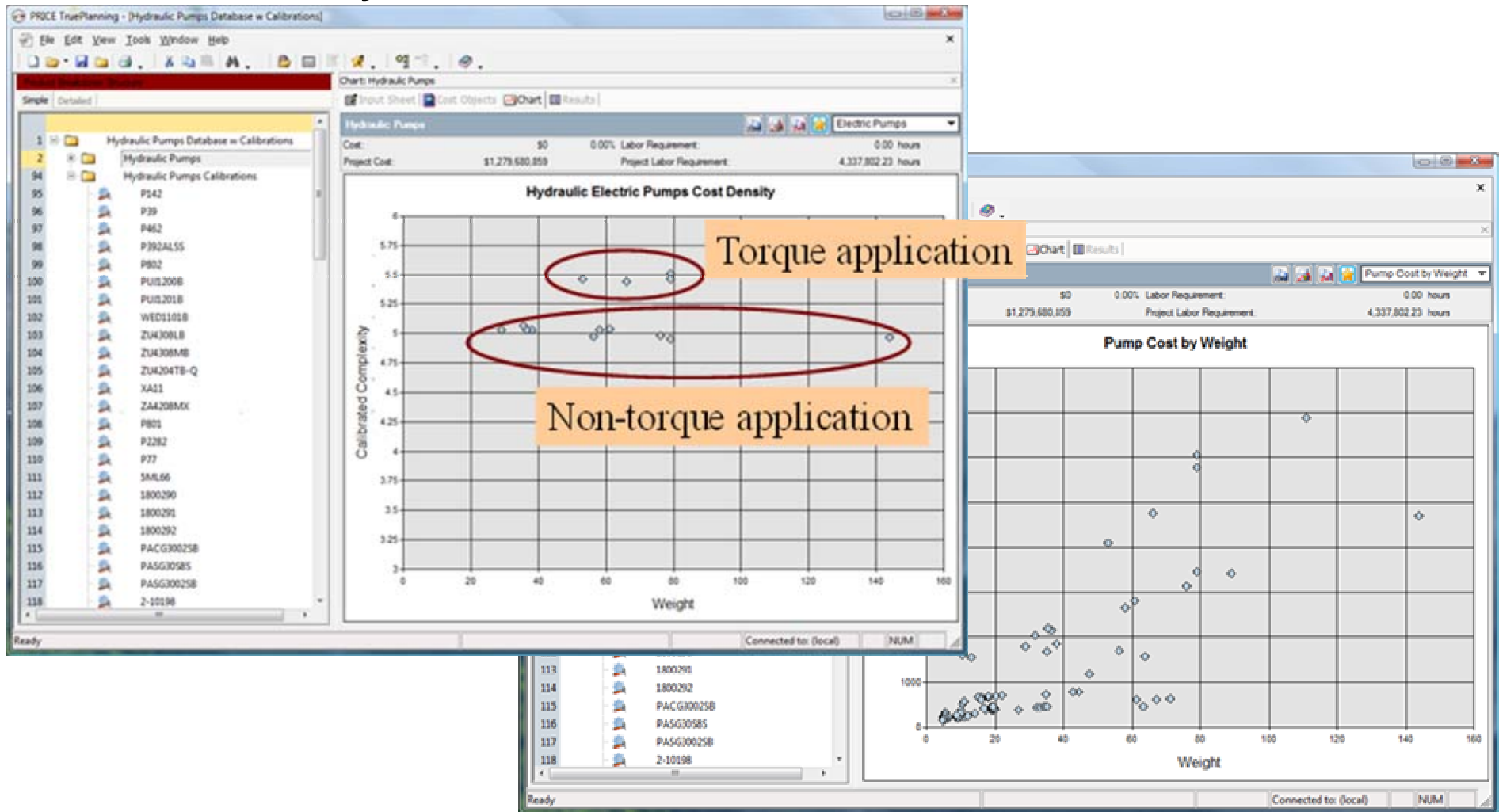
Data Capture & Storage

The screenshot displays the PRICE TruePlanning software interface. On the left, a 'Product Breakdown Structure' tree shows a hierarchy of hydraulic pumps, with 'WED1101B' selected. The main window shows a 'Detailed Estimate' for 'WED1101B' with the following data:

Item	Description	Value	Units	Spread	Notes
2	Model	WED1101B			
3	Manufacturer	Enerpac			
4	Type	Electric			
5	Weight	58.00	lbs		
6	Fluid Port NPT	0.375	in		
7	Application	Pressurize fixtures for wor...			
8	Includes				
9	Oil Displacement at 5000PSI	40.00	cu in/min		
10	Oil Displacement at 10000PSI	0.00	cu in/min		
11	Reservoir Material	High Impact Polyethylene			
12	Width	0.000	in		
13	Dimension A	0.000	in		
14	Max PSI 1st Stage	0			
15	Max PSI 2nd Stage	0			
16	Pump PSI	0			
17	Reservoir Capacity1	346.50	cu in		
18	Reservoir Capacity2	1.50	gal		
19	Oil Displacement at 100PSI	150.000	cu in/min		
20	Oil Displacement at 700PSI	150.000	cu in/min		
21	Oil Displacement at 0 to 200PSI	0.000	cu in/min		
22	Oil Displacement at 200 to 10000PSI	0.000	cu in/min		

Hydraulic Pumps Catalog

Data Analysis



Hydraulic Pumps Catalog Data Analysis

● **Characteristic of Other Product Data Analyses**

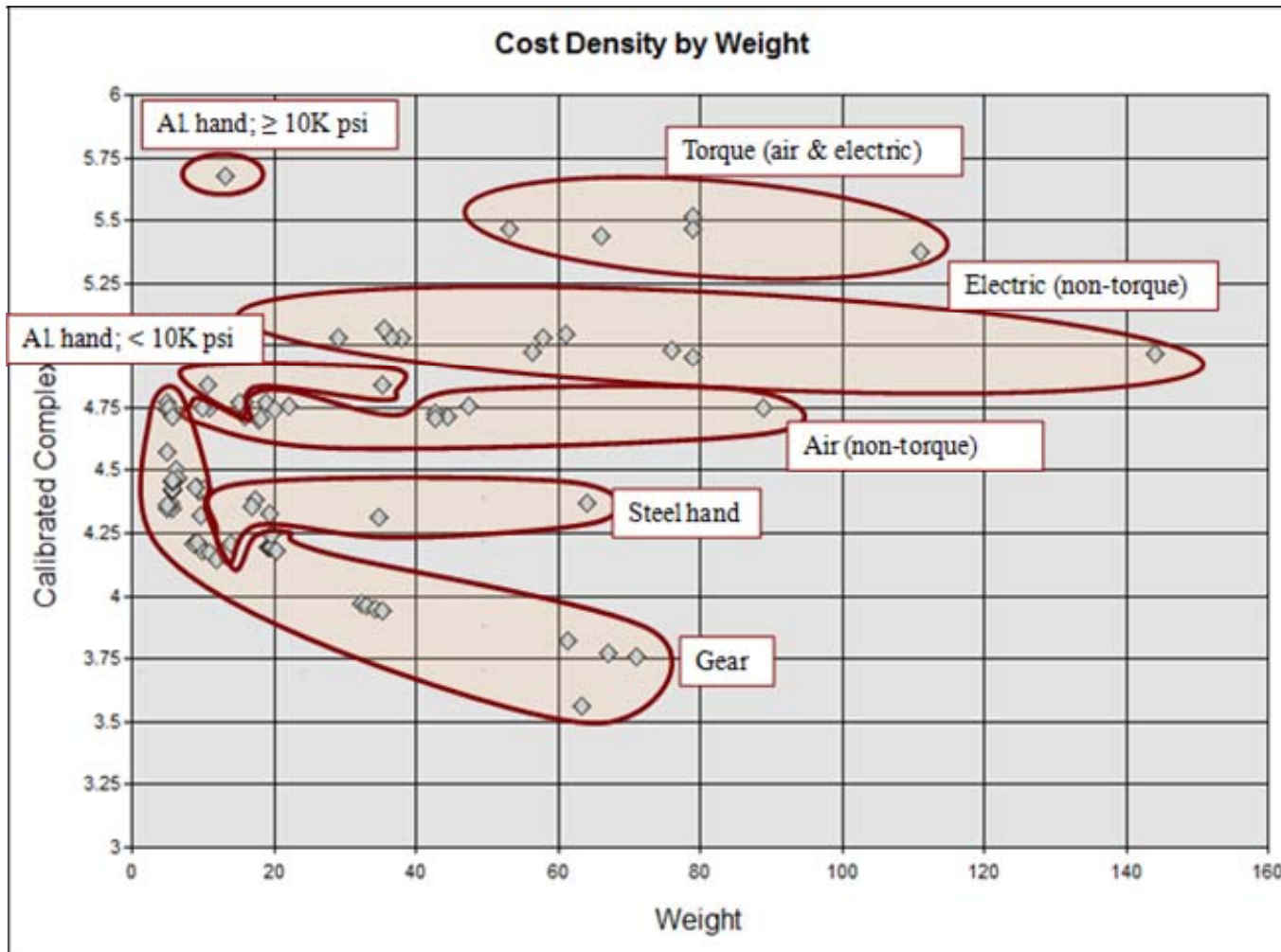
- Large volume of information that logic suggests ought to be related in some way
- Scatter-plots of all the data records show some trends
- Variance around best fit trend lines large enough to be risky
- There is a pony or two in that pile of data, but visibility requires product stratification.

● **If a Common Metric (Index) is Adopted, Strata Practically Self-Identify**

● **Common Metric for Pumps: Cost Density (Manufacturing Complexity)**

Stratified Hydraulic Pumps Picture

- Index of Pumps, Suitable for Should-Cost Management



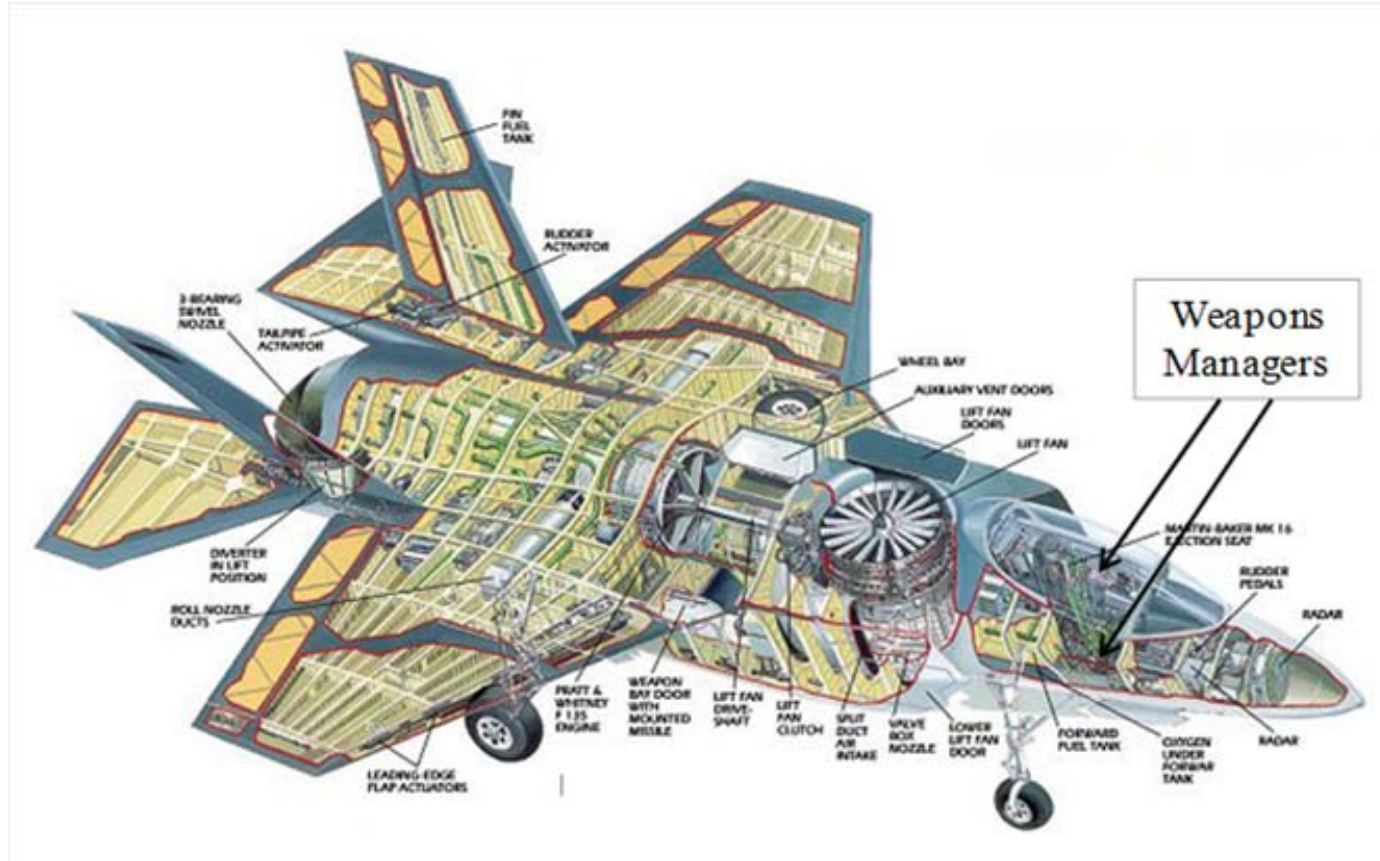
Technology Refresh

- **A DOD initiative to combat obsolescence in aging systems**
 - Plan for obsolescence rather than suffer it
 - Predominately electronics
- **Tech Refresh is a Should-Cost Management Practice**
 - See item 10 of April 2011 Carter memo
 - *Identify an alternative technology/material that can potentially reduce development or life cycle costs for a program. Ensure the prime product contract includes the development of this technology/material at the right time.*



F-35 Weapons Manager Assembly Tech Refresh

- Up to 4 Refreshes over Production Life



- Example Data Altered from Actual Case

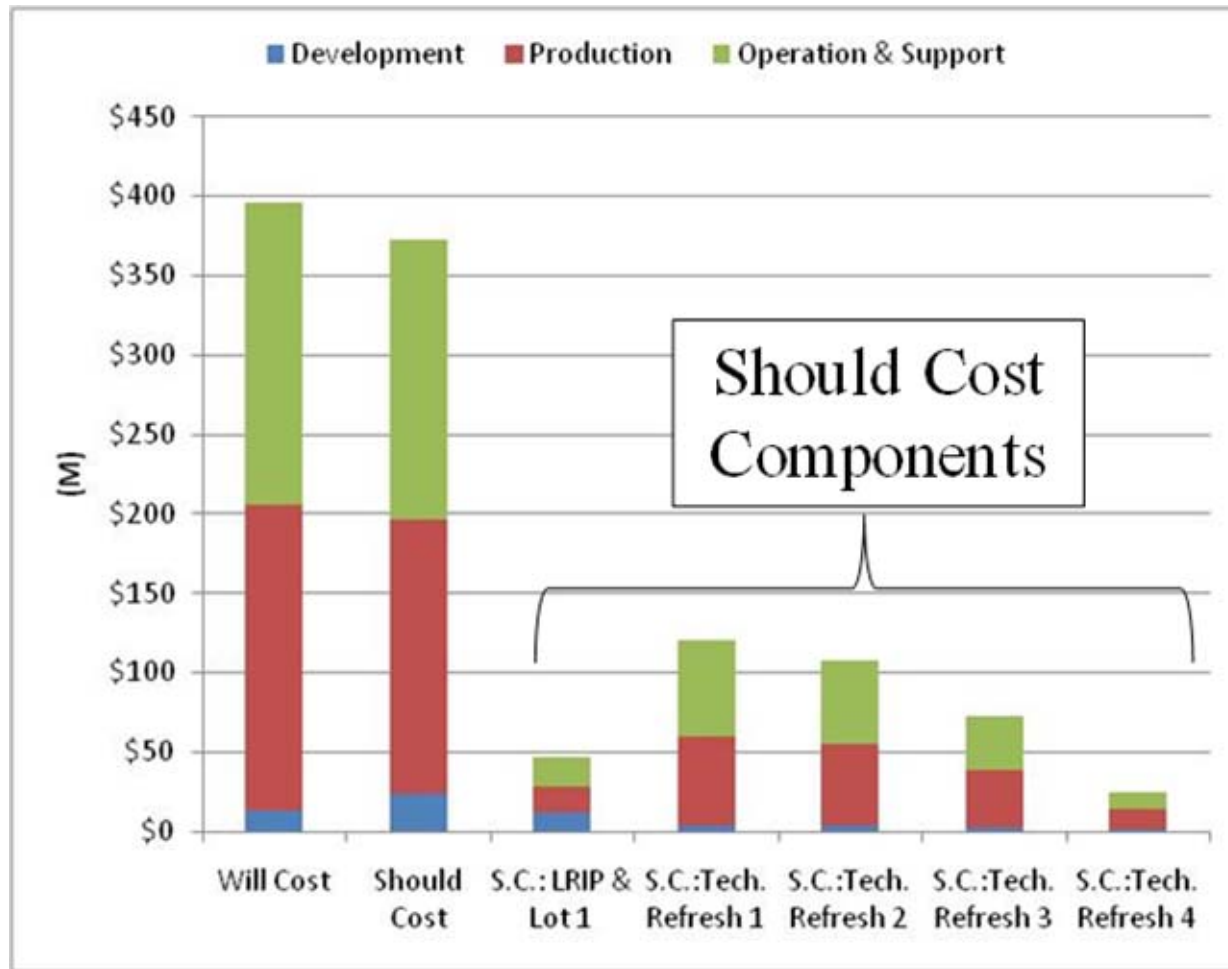
Tech Refresh Will-Cost & Should-Cost Structures

Will-Cost Model

Should-Cost Model

Activity Name	Total	Development	Production	Operation & Support
8 System Design	182,514	182,514		
9 Development Engineering	4,357,298	4,357,298		
10 Development Manufacturing	3,293,055		3,293,055	
11 Development Tooling and Test	852,145	852,145		
12 Production Engineering	608,938		608,938	
13 Production Manufacturing	116,515,498		116,515,498	
14 Production Tooling and Test	12,873,789		12,873,789	
15 Software Integration and Test	0	0		
16 System Integration and Test	0	0		
17 Operational Test and Evaluation	405,230	405,230		
18 Assembly Operation and Support	1,480,054			1,480,054
19 Development First Article Milestone	0	0		
20 Production First Article Milestone	0		0	
21 Support Equipment Procurement	0		0	
22 Support Equipment Maintenance	0			0
23 Initial Spares Procurement	1,444,063		1,444,063	
24 Replenishment Spares Procurement	26,137,399			26,137,399
25 Maintenance	5,327,262			5,327,262

Weapons Manager Tech Refresh Payoff



Should-Cost Management – Final Thought

- **Will-Cost is Domain of the Probable**
- **Should-Cost is Realm of the Possible**
- **Neither is an Absolute**
- **Journey of Discovery is the Value Proposition**
 - Government for Greater Cost Control
 - Industry for Improved Competitiveness



Zachary Jasnoff

- Solutions Architect, PRICE Systems, Rosslyn VA

- **Over 25 years parametric and detailed estimating experience**
- **Past estimating experience includes:**
 - Lockheed-Martin
 - Boeing
 - US GAO
 - JPMorgan (Risk and Resiliency)
- **Graduate of Wharton/Penn Engineering**
- **Conducted extensive consulting assignments with DARPA, DHS and DoD**
- **Presented courses in**
 - hardware estimating,
 - software estimating,
 - life cycle cost,
 - Cost Estimating Relationships,
 - Information Technology,
 - risk analysis and
 - supplier assessment
- **Developed TCO/Risk model for the banking industry**
- **Presented papers at DoDCAS, ISPA/SCEA, ISACA, DJR and PRICE Systems Symposiums**