COAA Benchmarking Program Phase II

Stephen P. Mulva, Ph.D.
Associate Director, CII

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Why Benchmarking?

(Texas Hold-Em – 2 Players)

Bob Benchmarker

Winning Percentage
37.6% (Before Flop)
26.0% (After Flop)
95.5% (After Turn)

Will Chansit

Winning Percentage
?
?
?

WINNER!
Integral to the Improvement Process

Implement Best Practices

Measure Results

Compare to Competition

Identify Opportunities to Improve

Select Implementation Tools

Conduct Training

Implementation & Education

Benchmarking & Metrics

Building On 25 Years
Value of Best Practices (CII Owners)

Note: Average Budget 53 Million, submitted after 2002 (n=152)
Value of Best Practices (CII Owners)

Note: Average Planned Duration 135 weeks, submitted after 2002 (n=152)
Value of Best Practices (CII Contractors)

Note: Average Budget = 58 Million, submitted after 2002 (n=81)
Value of Best Practices (CII Contractors)

Note: Average Planned Duration=109 weeks, submitted after 2002 (n=81)
Benchmarking is a COAA Best Practice

Projects’ Use of external Benchmarking

Value of Benchmarking
COAA Benchmarking (Phases I and II)

• 3-Step Process

Online Questionnaire → COAA Benchmarking Database → Data Mining and Reporting Engine
Program Changes (2009)

• Level 1 Productivity
  – Engineering Productivity Index
  – Construction Productivity Index

• Tier 1 Questionnaire
  – Contains 20% of All Questions
  – Remaining 80% Still Available (Optional)

• CII Summer Intern Program

• Additional Industry-Specific Metrics (U/S & D/S Oil & Gas)

• NextGen Benchmarking System
Project-Level Productivity

- Engineering Productivity (1 Number)
- Construction Productivity (1 Number)
Automated Data Entry

• Benchmark **ALL** your projects (350 Projects / Year)
NextGen System (2009)

- Federated Architecture
  - XML Functionality Enables:
    - Data Transfer from Member Companies / Participants
    - Data Transfer from University ‘Benchmarking Labs’
  - Projects from Industry Associations
Phase II Features

• Customized Questionnaire Development
  – Additional Absolute Metrics ($CDN/??)
  – Indirect Costs (Detail)
  – Pipeline Projects
  – Modularization (Productivity in Fab Yard)
  – Other (Scaffolding, Project Delivery, Construction Productivity)

• Alberta-Based Benchmarking Lab
  – Full-Time Alberta-Based Support
  – Real-Time (OTJ) Training

• Alberta Report #2
Phase II System Enhancements

• Internal (Business Unit, Product Line) Benchmarks
• Automated Key Reports
• Company-Level Reports
• Executive Dashboard
• Full Data Mining Capability
  – Comparisons with CII (U.S.) Database
  – “Level 1” Productivity Metrics (All Disciplines)
Phase II Data Mining

• Web-Enabled Queries
Concrete Construction Productivity

Construction Concrete Productivity

<table>
<thead>
<tr>
<th>Category</th>
<th>Hr/CY</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Slab</td>
<td>5.96</td>
<td>44</td>
</tr>
<tr>
<td>Foundation</td>
<td>10.94</td>
<td>53</td>
</tr>
<tr>
<td>Concrete Structure</td>
<td>13.11</td>
<td>28</td>
</tr>
<tr>
<td>Total Concrete</td>
<td>10.45</td>
<td>59</td>
</tr>
</tbody>
</table>
Structural Steel Construction Productivity

Construction Steel Productivity

Hr/Ton

- Structural_Steel: N=44, Median=26.69
- Piprack: N=37, Median=26.63
- Misc._Steel: N=52, Median=54.57
- Total_Steel: N=67, Median=37.5
Piping Construction Productivity

Construction Piping Productivity

Hr/LF

Small_Bore
N=60

Large_ISBL
N=59

Large_OSBL
N=11
Electrical Construction Productivity

![Graph showing Electrical Construction Productivity](image)

- **Power Cable < 600V**: N=46, Hr/LF 0.05
- **Power Cable < 5-15KV**: N=26, Hr/LF 0.19
- **Total Wire Cable**: N=39, Hr/LF 0.06

*Building On 25 Years*
Project-Level (Engineering) Productivity

25th to 10th Percentile = 11% Improvement
Executive (Portfolio) Dashboard

- All Projects
  Number of Project: 20

Overall Project Performance

Cost Performance
- 10% 1
- 15% 1
- 10% 1
- 65% 1

Schedule Performance
- 31% 4
- 25% 4
- 13% 4

Dimension Performance
- 40% 4
- 15% 4

Practice Use Performance
- 11% 1
- 33% 1
- 11% 1

Percentiles:
- 1st Quartile
- 2nd Quartile
- 3rd Quartile
- 4th Quartile
U.S. Dept. of Commerce / NIST Study
Does Benchmarking Work?

Cost (Growth) and Schedule (Factor) Trends
Questions?

Larry Sondrol
Manager of Project Controls, Suncor
lsondrol@suncor.com
(403) 693-2050

Stephen P. Mulva, Ph.D.
Associate Director, CII
smulva@mail.utexas.edu
(512) 232-3013