IDENTIFYING INFLUENTIAL FACTORS FOR CAPITAL CONSTRUCTION PROJECT PLANNING STRATEGIES

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Outline of Presentation

• Introduction and Needs
• Front End Planning
• Project Definition Rating Index
• Identifying Influential Factors
• Analysis and Results
What is Front End Planning?

“The essential process of developing sufficient strategic information with which owners can address risk and make decisions to commit resources in order to maximize the potential for a successful project.”
Why FEP is Important?

- Most important process in construction project
- FEP increases the likelihood for a successful project
- Poor scope definition during FEP process is the leading cause of capital project cost
- Alignment recognized as an important factor during successful front end planning process
• A methodology to measure the level of scope definition
  – Comprehensive review
  – Identify gaps
  – Take appropriate action
  – Reduce risk in front end planning
What is PDRI?

• An Acronym
  – Project Definition Rating Index

• An Index
  – Score along a continuum representing the level of scope definition

• A Risk Management Tool
  – Incorporates risk factors relating to new construction (Greenfield) and renovation and revamp projects
Benefits of PDRI

• Proven method to quantify the level of scope development during front end planning
• Promotes alignment between owners and design contractors
  – Highlighting poorly defined areas in scope definition package
• Provides input into the risk assessment
When to use PDRI?

Early Review
1 Feasibility

2 Concept

2i Detailed Scope

Final Review
3 Design and Construction
Identifying Influential Factors

• Project managers can concentrate their efforts on the more difficult aspects of projects.
• Consistent deficiency predictions are provided.
• The nature of the relationships between variables can be quantified.
• The time saved allows project managers to focus greater time and energy on the contingency aspects of projects.
PDRI Hierarchy

- **Section**
  - Section 1
  - Section 2
  - Section 3

- **Category**
  - A
  - B
  - ........
  - P

- **Element**
  - A1, A2, A3
  - B1, B2, ..., B8
  - ............
  - P1, P2, ..., P6
Regression Analysis Output Sample at the Category Level

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<td>Standard Error</td>
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| ANOVA |
|-----------------|-----------------|-------------------|-------------------|---------------------|
|              | df    | SS       | MS    | F       | Significance F |
| Regression    | 15    | 407802.9 | 27186.9 | 69.3 | 6.51958E-10 |
| Residual      | 13    | 5097.0   | 392.1  |      |             |
| Total         | 28    | 412899.9 |        |      |             |

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Analysis

• (A1) Reliability Philosophy
• (A2) Maintenance Philosophy, as well as one
• (P2) Engineering/Construction Plan & Approach
Analysis

• These elements can be used consistently only across an entire portfolio of projects for a specific construction industry sector.
• These powerful influential factors cannot be used to replace the PDRI process.
• The elements selected can vary from one construction industry sector to another.
Analysis

• Determining PDRI scores are a reliable leading indicator across an entire portfolio of projects
• Validating the process and commitment to using best practices
• Facilitating management succession, and forming the basis for the long-term educational value of the FEP process
• Contributing to an analysis of trends or common gaps in FEP data
Thank you!