Exploring the Behavioral Pattern of Stakeholders in Construction Projects Which Used Best-Value Selection

Presented by:

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Problem Statement

- Owner early decision about procurement method

**Alternative Procurement method**
- Deviate from traditional approach
- Improve project outcomes
- Price+ non-price criteria

**Traditional Procurement method**
- Transparency
- Prevent corruption
- Adversarial Relationship
Best Value Procurement
Problem Statement

- Owner early decision about procurement method
- Impacts of the best-value on the project performance
  - Abdelrahman et al. (2008);
    - Reduction in cost growth from 5.7 to 2.5%
    - Reduction in claims and litigation by 86%
Problem Statement

- Owner early decision about procurement method
- Impacts of the best-value on the project performance
- Increased use of various best-value procurement methods in public sector construction
  - NCHRP (2006);
    - 66% of the 44 highway agencies have some type of experience BV,
    - The General Services Administration Public Building Services procures 100% of its new buildings and renovations through BV.
Problem Statement

- Owner early decision about procurement method
- Impacts of the best-value on the project performance
- Increased use of various best-value procurement methods in public sector construction

Need to study Best-Value
Background

- Evaluating its performance measurement
- Evaluating the adv. and dis adv. of best value concept
- Exploring in the weighting of price and non-price evaluation criteria
- Identifying various parameters, evaluation criteria, and rating systems
- Identifying critical success factors
- Identifying Implementation challenges
- CII and the Charles Pankow Foundation study
Objective: Provide objective data and *empirical evidence* to support how the performance is impacted by owner’s role, system integration, team behaviors, and various project delivery methods.”
Background

- Develop survey questionnaire
  - Literature review
  - Industry advisory board
Background

- Develop survey questionnaire
- Pilot test (internal / external)
Background

- Develop survey questionnaire
- Pilot test (internal / external)
- Data collection
Background

- Develop survey questionnaire
- Pilot test (internal / external)
- Data collection
- Verify survey response data (331 database entries → 204 verified cases)
- Data analysis

- Designing successful delivery strategy requires to select appropriate team selection method.
- Best Value selection had a statistically significant impact on project success.
Evaluate its performance measurement
Evaluate the adv. and disadv. of best value concept
Explore in the weighting of price and non-price evaluation criteria
Identify various parameters, evaluation criteria, and rating systems
Critical success factors
Implementation challenges
Team-building impacts on project performance (CII & CPF)
Various Quantitative study were conducted to illustrate best-value benefits, the importance of team building on project performance, and also mention appropriate evaluation criteria.

This study aims to explore project stakeholders’ experience, team interactions, and behavioral patterns during best-value project execution.
Research Questions

• **Main Question:**
  - How does best-value procurement influence stakeholder behavior in the design and construction industry?

• **Sub-Questions:**
  - What challenges have owners/designers builders/contractors faced through the best-value process?
  - What steps can be taken to improve best-value implementation in construction industry?
  - What did the stakeholders learn from being involved in a project procured using best-value?
Methodology

204 projects
From Database

204 Projects

Public: 127 (62%)
Private: 77 (38%)

Completed between: 2008 - 2013

Facility Types

Facility Sizes

Educational 56 (27%)
Office 41 (20%)
Health Care 32 (16%)
Lodging 27 (13%)
Commercial 20 (10%)
Sports & Recreation 11 (5%)
Manufacturing 11 (5%)
Correctional 4 (2%)
Transportation 2 (1%)
Methodology

204 projects

Selecting 15 projects
- Lodging: 3 projects
- Medical: 3 projects
- Educational: 4 projects
- Office: 5 projects

Conduct interviews
- Develop (two) Interview Protocol
- 35 Phone Interview (~ 30-40 min.)
- Total 1038 min. interviews (~18 hours)
  - Owner + Design-builder + Project manager + Construction manager

Data analysis
- Transcribed audios (~45 hours)
- Using MAXQDA for content analysis
- Combine codes and develop themes
Findings

- Innovation
- Best Practices
- Partnering
- Challenges
- Problem Solving
- Best Value
  - Early Involvement
Themes

- Innovation
- Best Practices
- Partnering
- Challenges
- Problem Solving
- Best Value
  - Early Involvement
Themes - Innovation

- Leadership, top management, and pre-qualify team member play critical role in creating innovation atmosphere.

- Early involvement facilitate adoption of innovative ideas.

"[…] I learned that… tapping people’s intelligence is far better than holding them to a contractual [sic] terms and conditions. I learned that people, when challenged, will clearly step to the plate, and, and when they do that, and they innovate, that they have a much more satisfying life and, and job, […]"
Themes- Innovation

✓ Improve project performance by innovation

“ [...] one of the things that [early involvement] enabled was a fresh and frank discussion and dialogue on how project safety was going to be... treated. And that led to some innovative methods to work on project safety, and that of course all contributed through the relationships and the, the teamwork in that particularly important area for us contributed directly to the amazing project safety success, which again, don’t [work] if you copied it, but it was ... over 2.7 million man hours of construction with zero loss time incidents. [...]”
Themes- Partnering

✓ Best value **enhances trust** among team members

“Nirvana, Full of Honesty”

✓ Importance of **long-term partnering**

“The team first was build based on prior positive experience **working together**. So ... we assembled the team based on the fact that we have collectively **worked together** and been **successful** before.”
Themes- Problem Solving

- Early involvement and selected based on the non-price criteria offer valuable alternative solutions.

- Early major decisions provide more flexibility in time which provided confidence in project team.

“[...] One example is... structural steel. Because we were involved early, and we were... having full visibility of the, the design process, we were able to have the confidence that the... basic layout of the building had been settled, and we could order structural steel, and be able to start structure early while still allowing for full time to design the interior, because we had confidence that the basic structural grid had been settled. That ultimately resulted in saving... it ultimately was 6 months overall for the project, but just the structural steel alone gained the project 2 months by being able to order earlier. [...]”
Themes- Problem Solving

✓ Allows team members to work together and **discover their strength and weaknesses**;

✓ **Hierarchy of authority becomes clearer** from the beginning in early team building;

✓ Provides an opportunity to **establish trust between parties.**

“ [...] **we worked for nine months together before we started actual construction.** In those 9 months, **we had opportunities** to... have growing pains in our relationship. [...] when we got to the construction phase, we were able to **build upon the lesson learned**, the relationships, **the problem solving** that we did early on during the design phase, and, and... **better problem solve** later when the stakes were higher at the time of construction. [...]”
Themes- Challenges

✓ Legal barriers
✓ Timing will be a challenge

“... In the sense of the process it takes us to go through a best-value process, [it] takes a lot longer than if you just use cost. So for me, when I best-value a piece of equipment, I have to look at the, that equipment, plus all options to go along with that equipment, and I look at 3 or more different vendors. So in order to evaluate all of those vendors that provide me a quote for a piece of equipment, I have to go through each one of those and evaluate it...”

✓ While the change impacted project time and cost, they could achieve long-term benefit;

“...It had a domino effect. Once we changed that piece of equipment, then it made major changes to the construction site. Best-value, for the next 50 years, [...]”
Themes- Challenges

✓ Owners note that sometimes the contactor or design-builder do not have enough incentives to reduce project cost;

“[…] Contractors or design builders… expect that because they were selected as best-value, that… there should never be any pressure on price. So that, ‘hey, you selected me because I was best-value, so now that… I need you to cover this cost, you should not complain because you already told me that you selected me ‘cause I was better than the competition.”

✓ Another challenge is related to scope development.

“…Scope definition and expectations is probably one of the more significant challenges. You know, having the, the balance between properly defining the scope, while allowing true flexibility for the design builder. It’s … an intricate challenge.”
 Themes- Best Practices

✓ The design-builder should have **enough authority to influence design decisions**;

✓ Developing an **appropriate reward system** from the beginning;

✓ Training

“ ...The challenge of keeping people from reverting back to their old traditional behaviors of, of silo and blame casting. And so there’s a, a constant need to educate and, and re-inform people of the commonality of the goals, regardless of the selection process. It’s, it’s the nature of the, of the construction process... .”

✓ Higher level of detail in the request for proposal (RFP)
Validity and Reliability

✓ Validity
  - Triangulation by interviewing multiple stakeholders in each project

✓ Reliability
  - Inter-coder agreement
  - Researchers’ reflexivity
Innovation

Partnering

Problem Solving

Challenges

Best Practices

Conclusion

- The best-value selection impacts on team behavior and relationships.
- The best-value selection can indirectly enhance the performance of a project by bringing all parties together early and by facilitating collaborative problem solving.

Limitation

- Researchers’ reflexivity lead to bias in coding process
- Selected successful projects

Contribution

- To help practitioners to understand how best-value selection helps project stakeholders to form high-performance teams based on the trust.
Future Steps

- Analyze other project types and find out the difference of best-value implementation and its impact on team behavior in each group,

- Further case studies on projects with poor performance that used best-value procurement,

- Use all these to develop grounded theory to explain high performance team,

- Implement mixed method analyses to evaluate selection criteria in each project types and provide a comprehensive guideline to establish an integrated team
Thank You For Your Time.
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