EVALUATING THE LEAN-ENABLING COMPETENCIES OF CLIENTS

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Outline

Introduction

Client Role and Impact

Survey to Assess Client Performance

Conclusion and Recommendations
INTRODUCTION

1. Problem Statement
2. Roadmap to a Successful Project
3. “Ideal Client” _ Sutter Health
Problem Statement

Central to the Project Success

LEAN THINKING in Construction Industry

MAXIMISE VALUE & MINIMIZE WASTE

CLIENT ROLE

Primary principle of Lean Thinking

Value Correlated with Client Requirements

Client needs must be set & accurately understood

Client drives Process Framework

Value Correlated with Client Requirements

Client needs must be set & accurately understood

Client drives Process Framework

Problem Statement
“While Lean Construction is becoming more and more popular with construction companies, client-side organizations are not catching up at the same pace”
Activities that clients should perform to lead a successful project

- Choosing suitable participants for the project
- Understanding the construction process to set reasonable timescales and milestones
- Well coordination and cooperation with different stakeholders
- Adopting a sound decision-making process
- Adequately understanding and defining objectives
- Commitment to the project

(Tzortzopoulos et al. 2006)
The Ideal Client _ Sutterhealth

The 5 Big Ideas

- Collaborate, Really Collaborate
- Optimize The Whole
- Projects as Networks of Commitment
- Tightly Couple Learning w/ Action
- Increase Relatedness

(Lichtig 2005)
CLIENT ROLE AND IMPACT

Causes of Overruns and Delays

Client-related Factors

Stakeholders-related Factors
Causes for Overruns and Delays

Reasons for delays and cost overruns in construction projects

CLIENTS actions and practices

STAKEHOLDERS actions and practices

(Samarghandi et al. 2005, Marzouk and El-Rasas 2014, Sutterhealth)
### Different Aspects Studied

<table>
<thead>
<tr>
<th>Key Aspects</th>
<th>Description</th>
<th>Lean Principles/Lean Tools/Related References</th>
</tr>
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</table>
| **Knowledge & Involvement** | • Level of knowledge and experience of clients  
• Level and kind of involvement in the project  
These questions will give insight on the client's wisdom, know-how, commitment and responsibility towards the project | • Lean Principle 12: “Go and see for yourself to thoroughly understand the situation” (Likert 2005).  
• In their study on owner characteristics that affect the project delivery system, Liu et al (2014) indicated that among the 14 factors that mostly appear in the literature, the top 3 are: responsibility, owner's experience with similar projects, and owner's willingness to be involved. |
| **Requirements & Transparency** | • Clarity of the scope of work as provided by the client  
• Reasonability of deadlines and requirements  
• Openness to suggestions and consistence with required standards  
These questions will give insight on how clients perceive the complexity of projects and whether they are willing to collaboratively shape their requirements | Some of the most important causes of delays related to owners in construction projects are the unrealistic durations provided by the owner as well as the insufficient time provided in order to study whether his requirements are feasible (Marzouk and El-Rasas 2014). |
| **Decision Making**        | • Responsiveness in issuing approvals and making critical decisions  
• Promoting involvement of key stakeholders in making these decisions | Lean Principle 13: “Make decisions slowly by consensus, thoroughly considering all options, implement decisions rapidly” (Likert 2005). |
| **Value**                  | • Importance of certain factors with respect to the client including: short-term incurred cost, quality of the project, end user satisfaction, sustainability and LEED, the impact of the project on society, and considering innovative approaches  
• Learning from unsuccessful decisions and continuous improvement  
These questions will give insight on what owners perceive to be valuable in a project | • Lean construction revolves around maximizing the value for the client (Kasprzak et al. 2002).  
• Integrated Project Delivery method shifts the bulk of the effort towards the design phase as opposed to being in the construction phase in traditional delivery methods, which implies additional cost to the client in earlier stages of the project (AIA 2007).  
• Lean Principle 1: “Ease your management decisions on a long-term philosophy, even at the expense of short-term financial goals” (Likert 2005).  
• Lean Principle 14: “Become a learning organization through relentless reflection and continuous improvement” (Likert 2005). |
| **Collaboration & Relationships** | • Promoting/Encouraging collaborative meetings between stakeholders, the integration of design and the consideration of alternatives through involving different stakeholders, especially contractors, in early phases of the project  
• Level of control exercised by the owner in handling and managing the relationships between stakeholders | • Sutter Health approach to Lean Project Delivery is based on the Five Big Ideas, one of which is “Collaborate, really collaborate” (Lichtig 2005). This collaboration is meant to take place between all key stakeholders and through all phases of the project including design and planning, not just execution, in order to achieve “constructible, maintainable, and affordable design” (Lichtig 2005).  
• Lean Principle 11: “Respect your extended network of partners and suppliers by challenging them and helping them improve” (Likert 2005). |
## Client-related Factors

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# Stakeholders-related Factors

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SURVEY TO ASSESS CLIENT PERFORMANCE

Middle East Status Quo
Survey Methodology
Results and Discussions
**Middle East Status-Quo**

**Construction Upsurge**
117 major ongoing construction projects
Total cost of 1 trillion US dollars

**Technical and Cultural Barriers**
- Inertia and Corruption
- No team orientation
- Uncertainty avoidance
- Traditional Project Delivery Methods
- Only 20% of AECs use BIM, “Just an advanced Autocad tool”

Survey Methodology

**Sampling**
- Online structured cross-sectional survey
- Purposive non-probability critical sampling
- Snowball sampling

**Questions**
- Demographic and general questions
- Client performance
  - Client-related factors
  - Stakeholder-related factors
- 26 Closed questions (Likert scale)
- 2 Open-ended questions

**Firms**
- AEs and GCs operating in ME
- Firms with large volume of work

**Respondents**
- Sent out 250
  - Received 47
  - Response Rate 19%
- Expert Engineers and Architects
  - 31%: 10-15yrs
  - 41%: 15-20yrs
  - 28%: > 20yrs

**Projects**
- Medium to Large scale projects
  - 32%: 4-50M US
  - 55%: 50-500M US
  - 13%: > 500M US
- In all construction sectors
  - Commercial
  - Institutional
  - Residential
  - Heavy civil
  - Infrastructure
  - Industrial
Results and Discussion
Respondents, their Firms and Selected Projects (1/2)

Firms Surveyed

- 32.0% AE firm
- 68.0% General Contractor

Firms Structure

- 9% Department Based
- 19% Project Based
- 72% Hybrid

Project Delivery Methods

- 53% DBB
- 26% DB
- 8% IPD
- 7% PM at risk
- 5% Other
Results and Discussion
Respondents, their Firms and Selected Projects (2/2)

Respondents Knowledge of Lean and IPD
Results and Discussion

Knowledge and Involvement of Owners

Summary of the three owner metrics

- Client Knowledge
- Scope of Work
- Client Involvement

Scope of Work Required from AEC Firms as Specified by Client was Clear

- AE Design Firms
- General Contractors

Client was Informed & Knowledgeable about Similar Projects

The Client/Client Rep. was Actively Involved in his Project in all Phases
Results and Discussion
Client Requirements and Transparency

The Clients Attitude and Behavior as Seen by AEC Firms

- Open to suggestions
- Consistent with his standards
- Reasonable regarding requirements
- Transparent regarding his intentions
- Reasonable regarding deadlines

The pie charts illustrate the distribution of responses regarding client behavior as seen by AEC firms.
Among the respondents who said the client was well informed, 62% indicated that he was responsive in taking decisions.
### Results and Discussion

**Owner’s Values**

<table>
<thead>
<tr>
<th>Factors</th>
<th>Mean Rate (/5)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quality of the project</td>
<td>4.26</td>
</tr>
<tr>
<td>End user satisfaction</td>
<td>4.09</td>
</tr>
<tr>
<td>Short-term incurred costs</td>
<td>4.02</td>
</tr>
<tr>
<td>Building long-term relationships with stakeholders based on mutual trust</td>
<td>3.36</td>
</tr>
<tr>
<td>Considering innovative approaches</td>
<td>3.30</td>
</tr>
<tr>
<td>Learning from design/construction errors as well as from unsuccessful decisions for continuous improvement</td>
<td>3.28</td>
</tr>
<tr>
<td>Impact of the project on society</td>
<td>3.15</td>
</tr>
<tr>
<td>Sustainability and LEED design</td>
<td>3.02</td>
</tr>
</tbody>
</table>
Results and Discussion
Collaboration and Relationships (1/2)

The Clients Promotion of Collaboration
Results and Discussion
Collaboration and Relationships (2/2)

Client and Stakeholders Relationships
CONCLUSION
AND
RECOMMENDATIONS
Conclusion

Although Clients play a central role in the project success, current literature does not widely discuss the issue of clients. Emphasis is rather placed on the implementation of lean principles and tools within design companies or contracting firms.

Survey Conclusions

Owners in the ME were regarded positively by AECs
They are knowledgeable, well informed and actively involved in their projects

Owners persist in taking unilateral decisions
Do not involve stakeholders nor enforce a team decision making process

Some owner practices are in line with lean principles
They value quality and end user satisfaction

Most owner ways are not aligned with lean principles
Focus on short-term financial goals
Do not value innovation, set-based design nor continuous learning
Do not enforce collaboration measures
Recommendations

In general, owners are:

- unaware of lean construction
- do not have a deep understanding of its underlying principles nor its benefits

Adopting Lean construction involves radical changes

Owners and AECs should be trained about Lean concepts, tools and language

- AECs have more opportunities to be exposed to lean
- AECs play a crucial role in educating owners
Future Research

We hope

The assessment of the client lean-enabling competencies we presented will provide the basis for future research into this critical area
References

• Bertelsen, S., and Sydney, Australia, 73-79.
References _ Cont’d

THANKYOU

Any questions?

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