IMPLEMENTATION OF INTEGRATED PROJECT DELIVERY IN LEBANON: OVERCOMING THE CHALLENGES

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Outline

- Introduction
- Research Gap
- Methodology
- Research Finding
- Analysis and Discussion
- Conclusion and Recommendation
Introduction
Integrated Project Delivery (IPD)

- Early collaboration of cross-functional teams
- Align goals and share risks and rewards
- A relational contracting approach
- Increase profit for all parties through mutual benefits,
- Increase the value in the eyes of the customer,
- Enhance communication, appropriate technology, and high performance

(AIA, 2007)
(Matthews & Howell, 2005)
Construction Industry in Lebanon and the Middle East (MENA Region)

Current Delivery Methods in the Region:

The Design-Bid-Build approach is the most common type of delivery system in the MENA region (Hamzeh et al., 2019).

Fédération Internationale des Ingénieurs-Conseils (FIDIC) is the most common type of contract Template used in the MENA region. (Rached et al. 2014)

Major Problems with current delivery approaches & contract templates:

Holding back ideas.

Limiting cooperation and innovation.

Do not spur innovation at the project level.

Limit coordination and collaboration.

Previous Studies on IPD in the MENA region

An evaluation of the cultural acceptance of the ME industry to IPD practises done by Rachad at al. (2014)

A reflection on an IPD project done in ME presented by Korb et al. (2016).

An investigation of cultivating collaboration within ME industry by adopting IPD contracts done by Hamzeh et al (2019)
Research Gap
Problem Statement

Motivation to Conduct Research:

- IPD research within the MENA construction industry is very limited.
- Traditional Project Delivery approaches are not sufficient to satisfy current market demands.

Research Objectives

- To analyze the industry’s attitudes towards IPD approach, and
- To identify the IPD implementation barriers.
Methodology
Research Process

1. Develop Survey Questions
2. Conduct Mock Interviews for Survey Screening
3. Identify Respondents & Set Interviews
4. Conduct Interview & Collect Data
5. Analyze Data
6. Present the Results & Recommendation

2 Months
Survey and Interview Questions

Qualitative Assessment Using 42-Survey Questionnaire

Rate Questions
Open-ended questions

Section 1
• General Demographic
• State of Art Project Delivery Practices in Lebanese AEC Market

Section 2
• IPD Knowledge & Awareness in the Local Market

Section 3
• Lebanese Market Attitude towards IPD
• Local Barriers to IPD Implementation
Research Findings
General Demographics

- 23 interview hrs. were recorded.
- 21 industry professionals completed the survey.
- 700+ years of experience in the Lebanese AEC industry.
- All participants have no prior experience with IPD Projects.

### Participant’s Profession Distribution
- General Contractor (G.C.) or Sub-Contractor (S.C.) 29%
- C.M./P.M. Consultant 38%
- Developer/Owner Representative (O.R.) 19%
- Architect Consultant, Engineer or Consultant 14%

### Years of Experience Distribution
- 20+ 10%
- 10 to 20 15%
- 5 to 10 15%
- 5 60%
General Demographics (Cont’d)

Type of Project Delivery Method(s) Employed

- Design-Bid-Build: 85%
- Design-Build: 45%
- Multiple Prime contractors: 20%
- Partnering: 5%
- Staged Design-Bid-Build: 20%

Contract Template(s)

- FIDIC 1987 and 1999-Modified: 38%
- Company's own template-Modified: 33%
- FIDIC 1987-Modified only: 14%
- FIDIC 1999-Modified only: 10%
- FIDIC 2005 Gold Book/ Pink Book: 5%
- FIDIC 2008: 5%

Types of Contract(s) Employed

- Fixed Unit price contract: 80%
- Fixed Lump sum contract: 60%
- Cost plus a Fee contract: 10%
- Percentage of Construction Contracts: 10%
- Guaranteed Maximum Price: 15%
Participants were asked to rate their satisfaction with the employed **Contract Templates**:

<table>
<thead>
<tr>
<th>Area</th>
<th>Very satisfied</th>
<th>Somewhat satisfied</th>
<th>Neutral</th>
<th>Somewhat dissatisfied</th>
<th>Very dissatisfied</th>
</tr>
</thead>
<tbody>
<tr>
<td>Procurement practices efficiency</td>
<td>5%</td>
<td>25%</td>
<td>15%</td>
<td>25%</td>
<td>10%</td>
</tr>
<tr>
<td>Collaboration</td>
<td>45%</td>
<td>20%</td>
<td>15%</td>
<td>25%</td>
<td>10%</td>
</tr>
<tr>
<td>Project- Value Perservation</td>
<td>20%</td>
<td>30%</td>
<td>45%</td>
<td>5%</td>
<td>10%</td>
</tr>
<tr>
<td>Modulation of Illicit Construction Practices</td>
<td>20%</td>
<td>50%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>Errors and Commissions</td>
<td>20%</td>
<td>10%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>Risk Allocation</td>
<td>20%</td>
<td>0%</td>
<td>10%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>Compensation Methods.</td>
<td>20%</td>
<td>0%</td>
<td>10%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>Misuse of contingencies</td>
<td>15%</td>
<td>0%</td>
<td>10%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>Liability and insurance</td>
<td>15%</td>
<td>0%</td>
<td>10%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>Regulation of claim conscious behaviour</td>
<td>15%</td>
<td>0%</td>
<td>10%</td>
<td>0%</td>
<td>0%</td>
</tr>
</tbody>
</table>
Participants were asked to rate their satisfaction with Project Performance based on a list of performance indicators introduced by El Asmar et al. (2015).
An Assessment of Project Delivery Practices in the Lebanese Construction Industry (Cont’d)

Collaboration Level in the Lebanese Construction Industry:

- **Trust**: 50% present at all times, 0% not present
- **Communication**: 30% present, but limited, 0% not present
- **Information Sharing**: 10% present, but limited, 0% not present
- **Confidence in other Teams**: 5% present at all times, 5% not present

### Notes
- **1**: 10% not present
- **2**: 15% not present
- **3**: 40% present, but limited
- **4**: 30% present, but limited
- **5**: 5% not present
IPD Knowledge and Awareness Level in the Lebanese Construction Industry

Participants were asked to assess their knowledge in the key IPD elements as follows:

- IPD delivery Approach:
  - Highly knowledgeable: 80%
  - Good knowledge: 0%
  - Fairly knowledgeable: 10%
  - Slightly knowledgeable: 10%
  - Never Heard it Before: 0%

- IPD Contracts Templates:
  - Highly knowledgeable: 40%
  - Good knowledge: 0%
  - Fairly knowledgeable: 20%
  - Slightly knowledgeable: 20%
  - Never Heard it Before: 20%

- Lean Construction Tools:
  - Highly knowledgeable: 65%
  - Good knowledge: 10%
  - Fairly knowledgeable: 20%
  - Slightly knowledgeable: 5%
  - Never Heard it Before: 0%

- BIM Platforms:
  - Highly knowledgeable: 30%
  - Good knowledge: 0%
  - Fairly knowledgeable: 20%
  - Slightly knowledgeable: 20%
  - Never Heard it Before: 30%
IPD Knowledge and Awareness Level in the Lebanese Construction Industry (Cont’d)

Respondent stated their Viewpoint regarding **Successful Project Criteria.**

- **Open books, open communication**: 25% Strongly Agree, 15% Agree, 25% Neutral, 15% Disagree, 0% Strongly Disagree
- **Contractual Incentives**: 60% Strongly Agree, 50% Agree, 25% Neutral, 15% Disagree, 0% Strongly Disagree
- **Aligning interests**: 60% Strongly Agree, 55% Agree, 25% Neutral, 15% Disagree, 0% Strongly Disagree
- **Early involvement**: 20% Strongly Agree, 45% Agree, 35% Neutral, 25% Disagree, 0% Strongly Disagree
Industry Attitudes towards IPD Implementation

Participants were asked to express their **willingness** to be part of a **relational contract** and to invest in **technological upgrades**:

- **To invest in BIM tools and Training**
- **To be part of a relational contract**
- **Linear (To invest in BIM tools and Training )**
- **Linear (To be part of a relational contract )**

<table>
<thead>
<tr>
<th></th>
<th>Definitely won't</th>
<th>Probably won't</th>
<th>Not sure</th>
<th>Probably will</th>
<th>Definitely will</th>
</tr>
</thead>
<tbody>
<tr>
<td>To invest in BIM tools and Training</td>
<td>5%</td>
<td>15%</td>
<td>15%</td>
<td>20%</td>
<td>5%</td>
</tr>
<tr>
<td>To be part of a relational contract</td>
<td>0%</td>
<td>55%</td>
<td>35%</td>
<td>25%</td>
<td>25%</td>
</tr>
<tr>
<td>Linear (To invest in BIM tools and Training )</td>
<td>5%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>5%</td>
</tr>
<tr>
<td>Linear (To be part of a relational contract )</td>
<td>5%</td>
<td>10%</td>
<td>10%</td>
<td>10%</td>
<td>10%</td>
</tr>
</tbody>
</table>
Discussion and Analysis
Lebanese Market Attitudes towards IPD Adoption

In relation to the respondent’s satisfaction with **Contract Performance**

- Hardly: 24%
- Maybe: 76%
- Certainly: 0%

**IPD Market Adoption**

- N 100%
- D 57%
- S 75%
- N 75%
- D 25%
- S 25%

In relation to the respondent’s satisfaction with **Project Performance**

- Hardly: 9.5%
- Maybe: 63.6%
- Certainly: 100%

**Participating in IPD Projects**

- N 33%
- D 20%
- S 27.3%
- SS 100%

**Percentage Distribution**

- 100%
- 57%
- 75%
- 75%
- 25%
- 25%
Lebanese Market Attitudes towards IPD Adoption

- All of the interviewed participants foresee the need for a change, yet not all agree that IPD would be the preferred approach in Lebanon.

- Reasons:
  1. Lack of Knowledge regarding IPD agreement forms and Lean construction.
  2. Lack of Financial incentives with the current market.
  3. Lag in contractual updates.
  4. Bidding process that compromises quality.
  5. Lack of Trust due to Fraudulent practices.
### Barriers to IPD Implementation in Lebanon

The main IPD barriers in this study were classified based on the Four Implementation barriers identified by Kent & Gerber et al. (2010)

#### Legal Barriers

<table>
<thead>
<tr>
<th></th>
<th>Description</th>
</tr>
</thead>
</table>
| 1 | **Public sector**
   | Syndicate mandates that the A/E and G.C. to be from different entities -for projects > 50,000m³ |
| 2 | **FIDIC**
   | Family of contracts is mandated for projects funded by International Organizations such as World Bank |

#### Cultural Barriers

<table>
<thead>
<tr>
<th></th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td><strong>Governed by Political affairs.</strong></td>
</tr>
<tr>
<td>2</td>
<td><strong>Self-preservation mentality &amp; illicit practices</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Local optimization practices</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Risk Evasive Owner</strong></td>
</tr>
</tbody>
</table>

As one of the interviewee stated: “If I want to be part of a team that shares risks then why am I paying them!”.
Barriers to IPD Implementation in Lebanon (Cont’d)

**Technological Barriers**
- Limited experience & knowledge regarding BIM platforms and Lean Tools
- Unwillingness to invest resources and assets in adopting a new delivery system. (FIDIC gap)
- Absence of capable contractors and financial incentives associated with the technological upgrade.

**Financial Barriers**
- Absence of a competitive market.
- Absence of a financially capable owner.
- Absence of case-studies (or evidence regarding return on investment) for IPD projects in the MENA region.
Conclusion & Recommendations
Key Findings

The participants reflect a general attitude of "save my skin".

IPD is still considered a "risky business" in the Lebanese context.

A cultural change is imperative to the implementation of successful IPD projects in Lebanon. "Hard yet achievable with a mind shift transition that required cultural changes and group efforts."

There is wide gap between the Lebanese construction market current practices and the mind-shift ideals of IPD agreements, therefore the transition process will require time.

Participants are not confident with IPD contracts when it comes to liability, insurance and risk/revenue sharing.

Lack of confidence and trust among the teams on a construction project resulted in a culture that is skeptical to the applicability of IPD-terms.

Lack of Knowledge concerning IPD agreement forms and Lean construction was a major deterrent to its acceptance in the area.
Key Findings

Recommendations:

• **Breaking the Ice**: Some IPD concepts/philosophy should be adopted and practiced within the current delivery approach. (e.g. Lean tools)

• **IPD Marketing**: Consultants and experts should advocate IPD approach on project management level. (workshops/case-studies)

• **Providing market incentives and attractions to long-term developers with high financial capabilities.**

Future Research Opportunities:

• Addressing a wider range of Participants.

• Comparing IPD contracts to current contracts and finding opportunities for improvements.

• Studying different approaches to Introduce IPD to the Lebanese Market.
Thank you!

Questions?