BIM IMPLEMENTATION IN QATAR
CHALLENGES & BARRIERS
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Agenda

• Introduction
• Study Motivations
• Qatar BIM Implementation
• Barriers to BIM implementation
• Recommendations
BIM

• BIM provides a three-dimensional digital Representation of buildings and their essential features.
• It is composed of intelligent building elements which include data attributes and parametric rules for each object.
• The BIM concept envisages virtual construction of a facility prior to its physical construction, in order to reduce uncertainty, improve safety, work out problems, and simulate and analyze potential impacts.
• BIM also minimizes the possibility of errors on sites by enabling conflict or 'clash detection', whereby computer models visually highlight to teams where parts of buildings may wrongly intersect.
• BIM Models can be integrated with project timelines, schedule information and cost in what is known as BIM 4D and 5D model. State the desired objective.

• A 6D model can be delivered to the owner, when a construction project is ready to be closed-out. The “As-Built” BIM model is populated with all relevant building components information such as product data and details, maintenance/operation manuals, cut sheet specifications, photographs, warranty data, web links to product online sources, manufacturer information and contacts.
Uses of BIM

BIM uses for the survey participants (Becerik-Gerber, 2010)
Reduced process uncertainty due to increase information availability provided by BIM during the project life cycle (Winch, 2010)
The MacLeamy Curve (The American Institute of Architects, 2007)
The government of Qatar announced plans to spend 205bn US dollars on various construction projects over the next five years (Reuters, 2014).

Enormous budgets and complex projects expected to meet the 2022 deadline for the World cup.

It is crucial that Qatar considers an improved and innovative techniques to ensure the delivery of such complex projects in such a short time frame.
Qatar’s adoption of BIM demonstrates its commitment to the very best technology when it comes to implementing their national vision for Qatar 2030.

Qatar to fund a 3 year project for development of a whole life cycle information flow approach enabled by BIM protocols & technologies for Qatar construction industry.
Motivation to Study

CHALLENGES & BARRIERS

Identify Barriers
Reduce Eliminate Barriers
BIM Readiness
Adoption of BIM
BIM Maturity
Adoption

CHALLENGES & BARRIERS

Performance

3D Visualization

CAD

BIM

Spreadsheets

Enhanced Project Management

Life-cycle Management

Maturity

2D Drawings, Lines, Arcs, Models, Objects, Interoperable, Collaboration, Adaptive Project Management

Paper

Electronic Files

Library Management

Common: Dictionary-Data-Processes

(Peter Cholakis, 2015)
Country Maturity

(Succar, 2013)
BIM Implementation

- An extensive literature review was carried out to identify challenges/barriers to BIM implementation in Qatar.
- Interviews and Online questionnaire to validate and measure the relative importance of the identified factors.
ANALYSIS:

**PROJECT SIZE**

- **65%** for Mega Projects
- **23%** for Large Scale Projects
- **8%** for Medium Size Projects
- **4%** for Small Size Projects
BARRIERS RANKING BY:
CLIENTS/OWNERS

- Availability of skilled professionals
- Knowledge about BIM
- Accessibility to the model by project team members
- Availability of required training for users
- ROI (Return on Investment) of using BIM not clearly defined

CHALLENGES & BARRIERS
BARRIERS RANKING BY:
CONSULTANTS/DESIGNERS

- Knowledge about BIM
- Absence of Contractual Requirement for BIM implementation
- Disruption to Current Process / Resistant to Change
- Availability of Skilled Professionals
- Availability of Industry Standards
BARRIERS RANKING BY:
CONTRACTOR/SUBCONTRACTOR

- Availability of skilled professionals: 0.7
- Absence of contractual requirement for BIM implementation: 0.69
- Disruption to current Process / resistant to Change: 0.68
- Lack of usage BIM by competitors: 0.67
- Availability of industry standards: 0.66
Availability of Skilled Professionals
Knowledge about BIM
Disruption to Current Process / Resistant to Change
Absence of Contractual Requirement for BIM implementation
ROI (Return on Investment) of using BIM not clearly defined
Comparison to other Countries:

<table>
<thead>
<tr>
<th>BIM Barriers - UK</th>
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<th>BIM Barriers - Hong-Kong</th>
<th>BIM Barriers - Malaysia</th>
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<tbody>
<tr>
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<tr>
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<td>Cost copyright &amp; training</td>
<td>Lack of Client demand</td>
<td>Use of BIM not enforced by clients</td>
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<td>Lack of government's direction</td>
<td>BIM Affects current process practice</td>
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Recommendations

- More BIM training facilities to be introduced
- Construction legislations and standards should take cognizance of BIM
- Awareness events should take place in Qatar such as practitioners and academic conferences
Recommendations

- Move from standard contractual agreements to relational contracts
- In-depth study to understand the differences of views between construction parties
- More studies should focus on removing the identified challenges/barriers to exploit the benefits of using BIM.
Thank you