TOWARDS 3D AS-BUILT – WHAT SAY THE PROFESSIONALS?

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OUTLINE

- Introduction
- Survey Preparation
- The Respondents
- Results and Discussions
- Conclusion
INTRODUCTION

BIM in post-construction

Why – slow?

Perceptions – experts & non-experts?

BIM in post-construction

Awareness of professionals?

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INTRODUCTION

SURVEY

Experts

Potential Experts

SURVEY

Survey Preparation

○ Research questions:

1) How much awareness do related professionals have of 3D as-built design and development?

2) What are the limitations of current approach in developing 3D as-built that can be overcome?
Drafting and designing the questionnaire:

1) Background of respondents
2) The awareness of respondents
3) Recent methods in developing 3D as-built

Pilot study – specialist and non-specialist

Potential respondents:

<table>
<thead>
<tr>
<th>Applications</th>
<th>Areas</th>
<th>Related Professionals</th>
</tr>
</thead>
</table>
| Engineering  | AEC / FM /     | • Surveyors  
              | Forensic       | • Civil engineers|
|              |                | • M&E engineers  
              |                | • Architects    |
|              |                | • Facility / project managers  
              |                | • Geospatial intelligence |
| Cultural     | AEC / FM       |                                                           |
| heritage     |                |                                                           |
| Mobile       | AEC            |                                                           |
| mapping      |                |                                                           |
| (indoor and  |                |                                                           |
| outdoor)     |                |                                                           |
THE RESPONDENTS

18 companies:
1. Surveyors companies – 6 (3 UK & 3 M)
2. AEC / Architects firms – 5 (3 UK & 2 M)
3. Estates / Facility Management companies – 3 (2 UK & 1 M)
4. Historic Environment Advisers – 2 (UK)
5. Professional institutions / associations – 2 (UK)

Response rate – 78%

<table>
<thead>
<tr>
<th>Companies / Firms</th>
<th>Positions</th>
<th>Gender</th>
</tr>
</thead>
<tbody>
<tr>
<td>5 Surveyor companies</td>
<td>5 surveyors</td>
<td>All male</td>
</tr>
<tr>
<td>5 AEC / Architect Firms</td>
<td>4 architects</td>
<td>3 male</td>
</tr>
<tr>
<td></td>
<td>1 M&amp;E engineer</td>
<td>2 female</td>
</tr>
<tr>
<td></td>
<td>1 civil engineer</td>
<td></td>
</tr>
<tr>
<td>3 Estates / FM companies</td>
<td>4 managers</td>
<td>4 male</td>
</tr>
<tr>
<td></td>
<td>1 architect</td>
<td>2 female</td>
</tr>
<tr>
<td></td>
<td>1 civil engineer</td>
<td></td>
</tr>
<tr>
<td>1 Historic Environment</td>
<td>1 geospatial intelligence</td>
<td>Both male</td>
</tr>
<tr>
<td>Adviser company</td>
<td>1 project manager</td>
<td></td>
</tr>
</tbody>
</table>
THE RESPONDENTS

Position of Respondents

- Architects, Civil Engineers: 37%
- Surveyors: 26%
- Project / Facility Managers: 26%
- M&E Engineer: 5%
- Geospatial Intelligence: 5%

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THE RESPONDENTS

Respondents Organizational Background

- Surveyors: 36%
- AEC: 36%
- Estates / FM: 21%
- Historic Environment Adviser: 7%

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**RESULTS & DISCUSSIONS**

**Disadvantages of existing, traditional method**

- Lack of visualization: 29%
- Laborious: 17%
- Lack of features: 18%
- Poor accessibility: 12%
- Poor data capture: 12%
- Lack of standardization: 12%

**3D as-built using laser scanner limitations**

- Cost: 42%
- Collaborative limitation: 37%
- Software limitations: 5%
- Security of data captured: 16%
RESULTS & DISCUSSIONS

<table>
<thead>
<tr>
<th>Offered</th>
<th>Required</th>
</tr>
</thead>
<tbody>
<tr>
<td>High in cost</td>
<td>Low-cost</td>
</tr>
<tr>
<td>Manual process</td>
<td>Automatic</td>
</tr>
<tr>
<td>Individual file format</td>
<td>Laser scanner file format (ASCII)</td>
</tr>
<tr>
<td>High density with complete data required</td>
<td>Can handle missing data</td>
</tr>
<tr>
<td>Library dependant</td>
<td>No library needed</td>
</tr>
<tr>
<td>High processing time</td>
<td>Real-time</td>
</tr>
<tr>
<td>Requires CAD knowledge</td>
<td>No CAD background needed</td>
</tr>
<tr>
<td>No semantic information</td>
<td>Semantic features included</td>
</tr>
</tbody>
</table>

CONCLUSION

- Survey – 19 industry professionals
- Disadvantages of existing, traditional approach
- Limitations on current process
- BIM – promising, but long journey towards post-construction
Thank you
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