

IMPROVING ON-SITE MEETING EFFICIENCY BY USING AN AUTOMATED MODEL BREAKDOWN TOOL

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1 BACKGROUND

Chachere et al. (2004) defines the term “coordination latency” as the time that elapses between a request for information or action and the compliance to that request. Coordination latency is offered as a unifying, intuitive, descriptive performance metric, intended to reach a near-zero value as a project design goal (Chachere et al., 2009). Coordination latency is especially important in the interdependent and iterative design because it involves a large number of information exchanges and exception handling requests (Cachere et al., 2004).

The introduction of BIM to the design and coordination processes in the AEC industry has transformed design meetings to integrated concurrent engineering (ICE) sessions (Coffee, 2006), in which the coordination latency has been drastically reduced, resulting in extraordinarily rapid design with a quality similar to or surpassing traditional methods at a lower cost (Smith 1998; Smith and Koenig 1998; Wall 1999, Wall 2000; Wall et al., 1999; Kunz and Fischer, 2012). However, bringing BIM to on-site meetings, such as the daily subcontractor huddle, pull planning meetings (Tommelein, 1998), and owner-architect-contractor (OAC) meetings has been very challenging.

2 CURRENT CONDITIONS

Current BIM models/processes have too much coordination latency to support real-time dynamic of the meetings and the current BIM practice does not provide adequate support to the reduction of coordination latency in the on-site meetings. Therefore, the full benefits of BIM are not fully reaped in the construction phase.

Integrating Building Information Modelling (BIM) to on-site meetings in the construction phase has been a challenge to general contractors mainly due to the inflexibility of the current practice in grouping and organizing models to facilitate rapid, on-the-spot model queries

3 RESEARCH AIM AND METHODOLOGY

We have developed the CIFE MBS automation tool which supports the automatic grouping of models according to a certain model breakdown structure (MBS), reflecting a breakdown structure of a project into an Integrated Project Model (IPM). This enables a model navigator to identify the relevant model contents on the fly in a meeting thus drastically reducing the coordination latency in resolving an issue.

The following are the expected benefits of applying the CIFE MBS automation tool and method to two case studies:

- Improvement (among the meeting participants) of:
 - Coordination
 - Communication

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- Collaboration
 - Reduction of latency.
 - Rapid understanding of the topics discussed.
 - Duration to go through each topic reduced.
 - Outcomes of the meeting sessions improved.

We took a qualitative approach to evaluate the achievement of these goals by using surveys, which were handed out after models, created using the CIFE MBS automation tool were integrated and fully used in the on-site meetings.

4 RESEARCH FINDINGS

The results of the surveys indicate that the experience was overwhelmingly perceived as positive by the project team members of each case study.

The IPMs and MBSs approaches presented in this paper introduce a novel mechanism that can be added to any BIM implementation effort providing a feedback loop from downstream project execution that shall contribute to pull innovative, more simple and effective BIM management approaches.

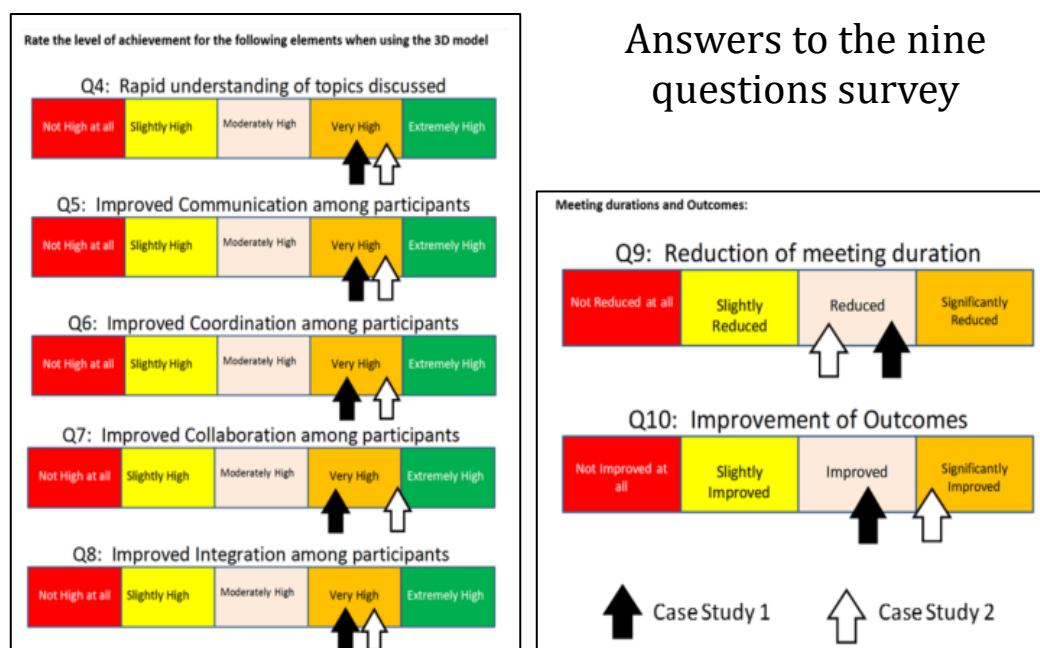


Figure 1 Survey Results

