



Improving bridge design and management using an integrated BIM-based workflow

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【Background】

Recently Building Information Modeling (BIM) implementation has become a necessity in the construction industry, improving productivity, cost, and efficiency in contrast to the traditional construction methods. Currently, Infrastructure BIM is not widely utilized in Bridge engineering. However, since traditional BIM has shown many benefits across vertical projects (Buildings), a study is needed to be conducted on BIM values identification in the infrastructure industry.

【Objective】

This research aims to develop a clear understanding of the current state of BIM, as well as, provide professional practitioners with an all-inclusive insight into the value of implementing BIM during different phases of bridge projects by identifying the most impactful benefits/functions as well as address the barriers facing infrastructure BIM application, and provide examples of BIM implementation on bridge projects during design, planning, and lifecycle management phases of a project.

【Approach】

By conducting a literature review to extract information regarding the current state of BIM awareness, benefits, and barriers. Then discussed BIM implementation during the design, planning, and operation phases by designing and cost analyzing 4 bridges using BIM tools, then develop an algorithm for the planning of crane positioning on site, and finally a method of linking SHM data with BIM models.

【Publication plan】

• R2 JSCE Annual Conference

【Results】

The developed methods showed a substantial potential in determining the optimum crane location on site as well as a better visual representation of SHM database numerical data on a BIM model.

