



# **Organisational Readiness and Competencies for the Building Information Modelling Implementation Process: Opportunities for DHPW to Transition to Digital Engineering**

## **Research Report – Executive Summary**

*The report executive summary was prepared by the research team at Griffith University:*

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## Background

The building industry has been gradually transitioning towards digital asset management practices, which are often complicated by a lack of consistent models for gathering and maintaining up-to-date asset information across the industry. Governments in Australia recognise the importance of Building Information Modelling (BIM) and Digital Engineering (DE) in the delivery and management of assets as it offers many benefits throughout the asset lifecycle and has the potential to drive efficiency, value for money, productivity, innovation and safety. In particular, the Queensland Government recognised the opportunities and benefits of BIM when it launched the State Infrastructure Plan in 2016 (DILGP, 2016). Later the Digital Enablement for Queensland Infrastructure (DSDMIP, 2018) outlined a set of principles for the implementation of BIM across the state's infrastructure projects, stating that:

- These principles apply to the design, delivery, and asset management of all new major construction projects with an estimated capital cost of \$50 million or more from 1 July 2019
- Agencies are encouraged to progressively implement the principles on existing assets and projects with a value estimated to be less than \$50 million
- Beyond 2023, the application of these principles will be progressively expanded to all built assets
- Relevant Queensland Government agencies will be required to develop a BIM implementation plan and report progress annually.

The research is a sub-project of the SBEnrc project #2.72 titled "Leveraging an Integrated Information Lifecycle Management Framework - Building and Infrastructure Sectors". The purpose of this research project is to identify the current maturity level of the Queensland Department of Housing and Public Works (DHPW) in relation to BIM, identify the requirements of DHPW for the adoption of BIM-based processes and develop strategic recommendations for BIM implementation. The recommendations align with industry best practices across Australia and the principles for BIM implementation as outlined by the Queensland Government as well as the departments individual needs.

## **Data collection**

The data collection involved conducting a questionnaire survey and followed by semi-structured interviews with DHPW representatives.

Conducting a questionnaire survey with DHPW staff allowed the identification of individual needs of DHPW as an organisation as well as possible barriers or challenges in relation to BIM adoption. The survey also allowed the attitudes and perceptions of DHPW staff surrounding BIM adoption to be gauged.

Following the questionnaire survey responses, interviews were conducted. The purpose of the follow-up interviews was to gain more in-depth information about current BIM maturity and the current practices in DHPW as well as to identify the areas of focus for the next steps in DHPW's BIM implementation process. The interview participants were from the policy and strategy, asset strategy and technical services areas of the department.

## Research findings and recommendations

The research found that most employees within DHPW are aware of the potentials and the benefits of BIM, however there is little previous experience with BIM-based processes or knowledge surrounding the BIM principles and standards. BIM implementation has the potential to bring considerable benefits and improvements to information management processes within the organisation, which will have flow on effects and provide considerable benefits for DHPW infrastructure assets over their entire lifecycle. The potential for BIM is vast and the added benefits that come with added technologies and increasingly streamlined processes are endless. It is therefore vital that DHPW determine to what degree they can realistically implement BIM and what processes and principles of BIM are going to have tangible benefits for the department and its assets.

The implementation of BIM in the organisation cannot be fully realised in one step and will require progressive implementation stages and changes to workflows and processes. The following recommendations are designed to assist DHPW in taking the first steps towards the transition to a BIM way of working. The recommendations are based on the research findings about the organisation's current practices and level of maturity in terms of BIM, as well as the fundamental BIM principles presented in the review of academic literature and the existing standards and industry best practices.

- **Leadership**
  - Formation of leadership team responsible for BIM implementation strategy and strategic direction regarding BIM
  - BIM champions – team members from different organisation departments or disciplines who take a leading role in promoting and coordinating BIM in their areas and working closely with the leadership team to ensure BIM is working for and providing benefits to their teams
  - Leadership team and BIM champions would be responsible for working together to update policies and procedures as well as workflows to accommodate BIM-based practices
- **Building of BIM knowledge**
  - Targeted BIM education and awareness activities should be conducted throughout the organisation
  - Promotion of relevant BIM standards, guidelines, and frameworks such as ISO 19650 (ISO, 2018), VDAS (VSG, 2019), QLD Governments BIM Principles (DSDMIP, 2018) and Guidelines (QGEA, 2020)
- **Development of information requirements documentation**
  - Establishment of information requirements and information exchange protocols for BIM projects
  - Development of information requirements templates, which establish the process for developing information requirements documentation
- **Establishment of asset classification system**
  - Adoption of a structured and standardised asset classification system
  - Adoption of Uniclass 2015 asset classification system is recommended as this has been adopted in other national frameworks and represents industry best practice.

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