What is the best possible education for an industry undergoing massive digitisation?

This research uses insights in national and international contexts to understand, improve and ensure the cutting-edge development of Australian higher education in fields including: digital construction, Building Information Modelling (BIM), Digital Engineering (DE) and Artificial Intelligence (AI).

Why the study:

- Skill shortages are occurring across all levels of the construction industry. These issues are most acute in technology spaces, especially in BIM, DE, and AI related intersections.
- Australian construction education with information technologies (IT) have historically been deficient, and literature has called for significant re-conceptions of teaching methods and delivery modalities to ensure foresightful, sustainable, and critical digital construction related education.

What we did:

- A comprehensive methodology was conducted through thematic analysis of existing BIM and DE educational literature, relevant documents, policies, national and international university curriculum and enrolment data.
- Next, Interviews, and Observations were conducted with Australia construction students those who employ students in BIM positions and academics who teach digital construction at national and international hackathons. Attride-Stirling thematic analysis was employed in the data generated.

What we found:

- Australian and international universities with heavy practical BIM learning outcomes are neglecting critical issues in their curriculum. There is lack of critical education, involving the politics and economics of technology that heavily informs and structures BIM and DE application.
- When improving construction education, technical and practical digital workflows are as important as the critical and historical understanding of the context of these technologies how they impact and reinforce the status quo, especially in relation to the economy, politics society and culture.
- More needs to be done both internationally and within Australian digital construction education to meet these challenges, especially with regard to AI ethics, sustainability and industrial relations.

What this means:

- Digital construction, BIM and digital engineering are not apolitical. The research highlights practical solutions for addressing gaps in the educational landscape around information technology in construction-based education.
- Policy suggestions as well as deeper structural recommendations are made for governments, universities and professional bodies to incorporate a holistic educational approach in the delivery of digital construction subjects.

Lead researchers: Christopher Brown