DECISION SUPPORT TOOL FOR DIGITAL TWIN ADOPTION

Assessing Challenges and Drivers for Strategic Adoption

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Concept

This project won the Construction Innovation & Quality Scholarship 2024 and is funded by the Chartered Institute of Building (CIOB) in the UK. It was inspired by statistics showing that while many contractors believe emerging technologies can enhance productivity, more than half of projects fail to adopt these technologies effectively.

BLOG

CIOB
The Chartered Institute of Building

Scholarship win supports the selection of Digital Twin tools

A proposal from Amir Mahdiyar MCIOB is one of two winners of the CIOB Construction Innovation & Quality Scholarship 2024.

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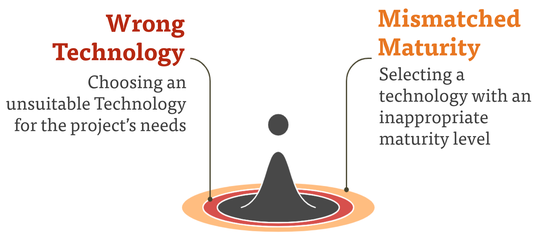
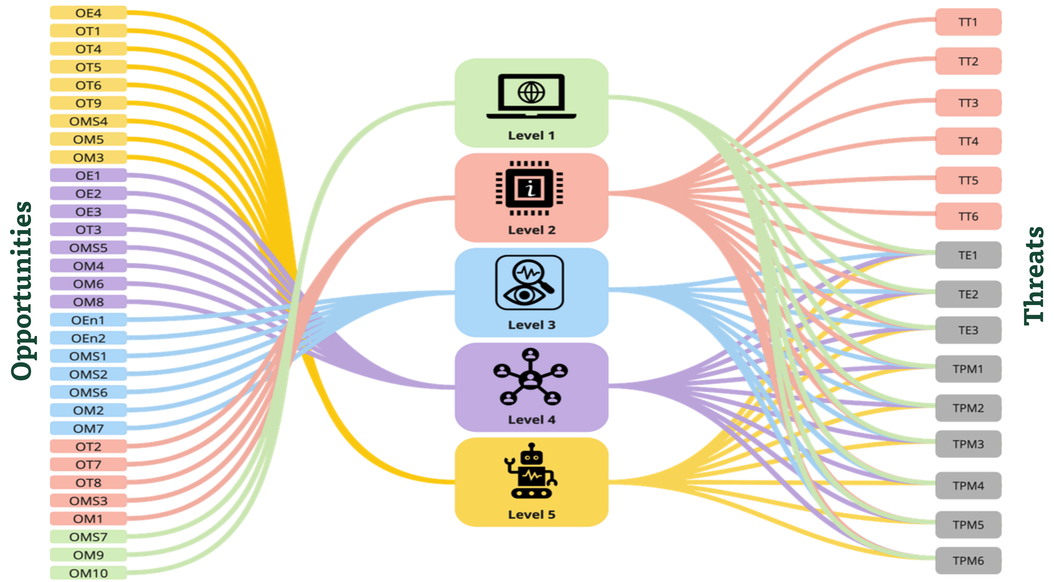
Last updated: 23rd August 2024

Issues



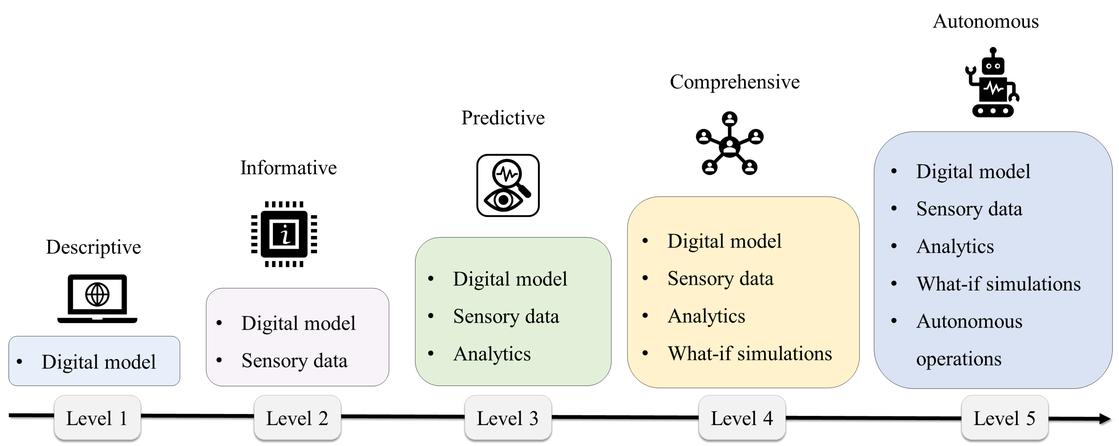
The construction industry, lagging behind sectors like manufacturing in technology adoption, faces a higher risk of failure when implementing advanced technologies like Digital Twin. Given the complexity and variety of technologies encompassed by Digital Twin, selecting the right technology and aligning its maturity level with project needs is critical.

Threats and Opportunities of DT Maturity Levels



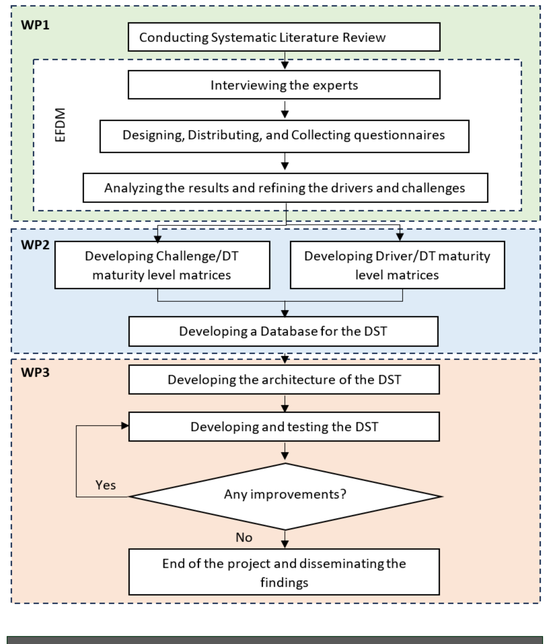
Adopted from Wang, M, Mahdiyar, A, Ashour, M., & Sabri, S. (2024)

Digital Twin Maturity Levels



Adapted from Seaton, H., Savian, C., Sepasgozar, S., & Sawhney, A. (2022). RICS; Autodesk 2021

Methodology



Practical Implications

Strategic Decision-Making: The Decision Support Tool (DST) enables stakeholders to determine the appropriate Digital Twin maturity level from the project's outset, aligning with short-, mid-, and long-term objectives. This supports policy-driven and cost-effective adoption strategies.
Industry Accessibility: Designed with a user-friendly interface, ensuring widespread accessibility for construction professionals across firms of all sizes, thereby facilitating broader industry adoption and compliance with digital transformation policies.
Scalability & Customization: The DST is adaptable to specific company requirements, making it applicable to both small and large construction firms. This flexibility promotes inclusive and scalable Digital Twin implementation, aligning with regulatory and strategic digitalization goals.

Princeton University – Urban Digital Twin Lab at University of Central Florida

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