

COLORADO STATE UNIVERSITY

PILOTING A STANDARDIZED WORKFLOW: INDUSTRY INSIGHTS ON IMPROVING PRECONSTRUCTION ESTIMATING FOR DIGITAL TWINS

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model Enhanced Collaboration among Design & Preconstruction teams

Integration within the

Streamlined Data

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Estimating member works on the authored model using the **IEWF principles** 3,4 &5

Feedback collected from 3 teams: Designers, **Estimators and Observers**





Significant Reduction in Estimating Labor by up to



Scalable for Formalized Estimating standards & QTO



Software Agnostic – High Potential in Industry adoption



Workflows BECK Tech (2025). Digital Twins in construction: From concept to Reality. https://www.beck-technology.com/blog/digital-twins-in-construction-from-concept-toreality

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CONCLUSIONS

1. The workflow framework enhances the quality of the BIM Model promoting its ability to function as a 'SINGLE SOURCE OF TRUTH' (SSOT) and a Digital Twin for

2. Through digital linking within the model, the IEWF reflects automated change management in the model which increases efficiency in preconstruction processes.

- 3. Improves cross– disciplinary collaboration
- 4. Establishes a potential for widespread adoption of the framework because of its software – agnostic approach.

Fig 4 : Characteristics of the BIM Model created with the IEWF, functioning as a Digital Twin

PROPOSED FUTURE RESEARCH & FUTURE POTENTIAL

Testing the workflow on larger scale implementations Selecting industry participants through a structured

Discipline specific training on the framework Data Collection through Pre- and Post Surveys and

Dissemination of findings through presentations Development of standardized training programs for industry members and workforce development through Adoption of the framework in various disciplines of

KEY REFERENCES

Pilgrim, B. & Valdes-Vasquez, R. (2024). A Framework for Model-Based Estimating in Pilgrim, B.& Valdes-Vasquez, R. (2025). A Pilot for Standardizing Design and Contractor Training to Improve the Adoption of the Integrated Framework for Cost Estimating

Pilgrim, B. (2020). The Five Essentials for 5D. Constructor Magazine

