

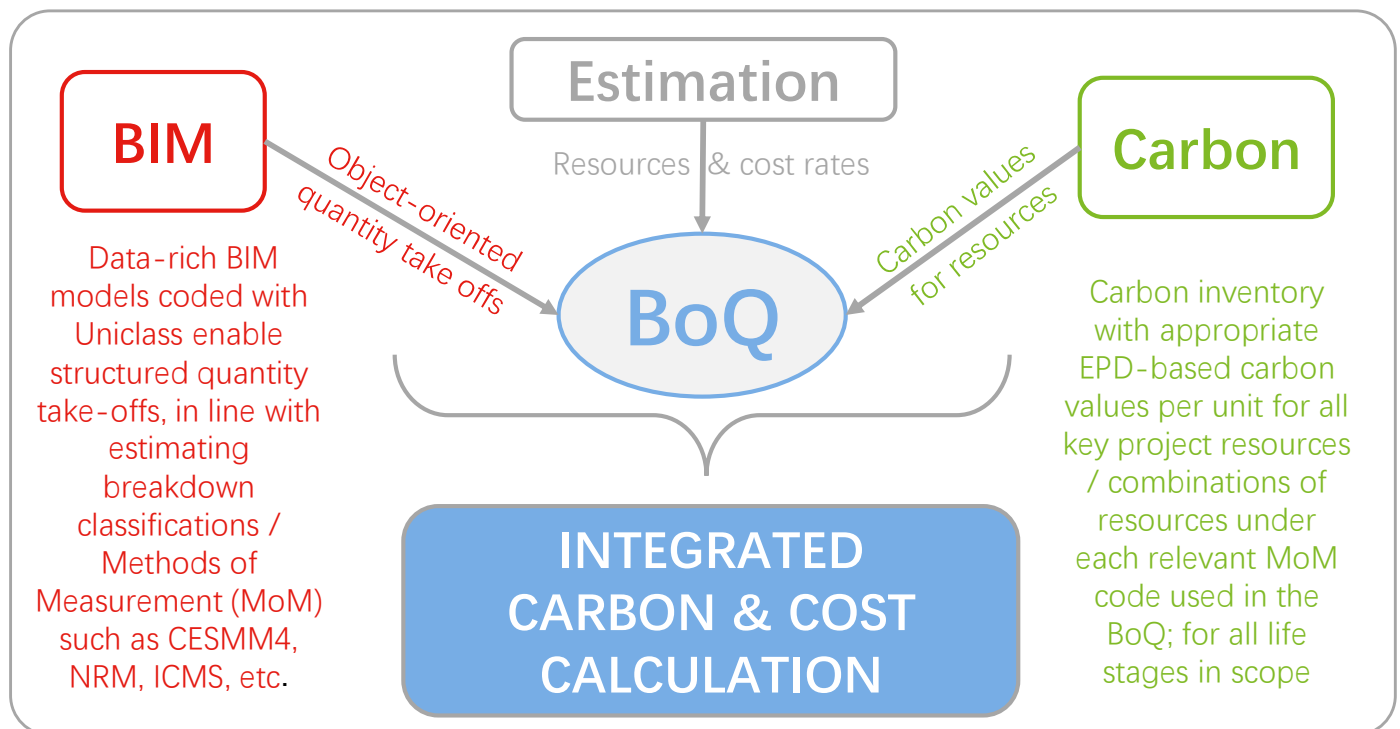
5D+ BIM-based integrated carbon & cost estimation for construction projects

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Summary

Streamlining and automating the embodied carbon quantification for built projects and linking it to monetary costs can be integral to monitoring and improving environmental as well as financial performance.

5D+ is a collaborative workflow built around systematically organising and linking the necessary information from various project work streams: design, engineering, construction, BIM, commercial, environment, etc. to enable firm yet flexible relationships between them. The information is rigorously structured and then combined to compile the project's **Bill of Quantities (BoQ) that sits at the heart of this process**, capturing all resources required and forming the basis for estimating costs as well as carbon impacts.



Standardised cost breakdown classifications/MoM such as **CESMM4** applied consistently across all inputs: BIM-derived quantity take-offs including any additional attributes from drawings & technical specifications, cost elements and carbon values, serve as the common language. Therefore, **all individual data sources remain independent yet robustly connected to each other, without the need for additional carbon tools.**

5D+ has been implemented by **SCSJV** on a high-speed railway infrastructure project in the UK, supported by senior leadership. Coordination across all disciplines involved, led by the carbon manager, was required to retain consistency and evolve the integrated carbon & cost model throughout design and delivery.

Key points

- **coherence & continuity** in both carbon & cost calculations
- **software-agnostic:** 5D+ can work with any adequate BIM and estimating software
- **continual progress tracking**
- **universal application potential** on any construction project using existing processes with minimum additional resources, as long as **standardised and complete classifications are used from the outset**

