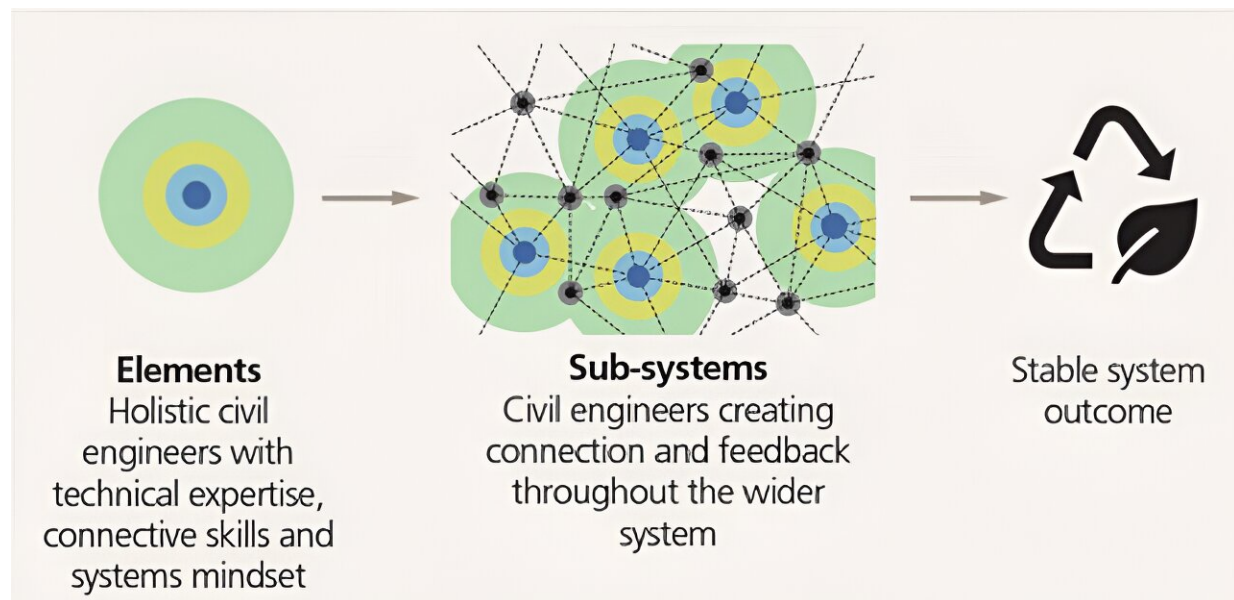


# Educating civil engineers for the twenty-first century: The 'new-model engineer'

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The required paradigm: Civil engineers generating myriad sources of feedback as part of a stable system. Credit: *Proceedings of the Institution of Civil Engineers - Civil Engineering* (2023). DOI: 10.1680/jcien.23.00108

Nick Francis, a Senior University Teacher at the Department of Civil and Structural Engineering, has co-authored, with Esther Norton, a new research article on educating civil engineers in the twenty-first century and proposed a new teaching model to empower future engineers to meet human needs in the context of climate and biodiversity crises.

The paper is [published](#) in the journal *Proceedings of the Institution of Civil Engineers—Civil Engineering*.

The "new-model engineer" will break free from the "bounded rationality" that characterizes the traditional siloed approach to education. Instead, they will develop a holistic understanding of civil engineering as part of a wider socio-environmental system. This change will be enabled by rebalancing teaching across the three domains of learning, valuing skills and behaviors as well as pure technical knowledge.

"New-model" engineers will have knowledge of engineering fundamentals, outstanding connective skills and holistic systems thinking that will empower them to be a responsible part of a more stable socio-ecological system. The approach represents a sea change in civil engineering education, which the authors believe represents the most exciting opportunity for the profession in two centuries.

**More information:** Nick Francis et al, Educating civil engineers for the twenty-first century: the 'new-model engineer', *Proceedings of the Institution of Civil Engineers—Civil Engineering* (2023). [DOI: 10.1680/jcien.23.00108](#)

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