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Introduction
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Introduction

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In these austere times, all members of society must pull together to maximise use of valuable resources, whether that is financial capital or physical materials. In particular, civil engineers and other construction professionals must constantly strive to look to new ways to minimise our demands on these valuable resources.

The UK construction sector is a major part of the UK economy, representing 7% of gross domestic product or £110 billion per annum (UK Government, 2011). Society is now beginning to recognise the key role that civil engineers have to play in driving the economy forward, and is becoming increasingly reliant on the profession to deliver the right infrastructure in the right way.

In short, we are now expected to deliver more for less – which is the subject of this special issue of *Civil Engineering*.

The common theme running through all the papers is that people matter. Only by bringing people together, sharing knowledge and identifying the best approach can inefficiencies be pushed out of the construction process.

Starting with design, Ralph Evins and colleagues postulate that multi-objective optimisation can help civil engineers achieve higher performance for lower costs (Evins *et al*., 2012). They urge us to move from trial and error and instead look to identifying the optimum solution set against a series of defined project objectives.

David Meggitt, Christie Sarri and Lilly Evans then suggest that radical change is also necessary in the way we manage construction projects, and that this can be achieved through the adoption of value networks and analysis to drive increased performance (Meggitt *et al*., 2012).

Our third paper considers ways of improving the efficiency of publicly funded construction contracts by making details of construction contracts public. Charles Kenny provides evidence that more transparency drives down costs and encourages sharing of best practice (Kenny, 2012).

'Less is more,' according to Jonathan Holland, who encourages us to go beyond incremental improvements by starting with a vision of the future then working backwards to achieve the best possible outcome (Holland, 2012). We should focus on doing more of what is important, less of what is not.

Amir Sadreddini then sets out the current position of the UK construction industry and argues now is the time to adopt 'Lean' management techniques (Sadreddini, 2012). He provides an overview of Lean techniques and how they can be applied to construction projects.

Certainly the UK Highways Agency agrees with him. Chloe Chen and colleagues report how the agency has introduced Lean into its supply chain and, through four case studies, highlight a range of techniques used to deliver greater value to taxpayers (Chen *et al*., 2012). Savings to date are over £50 million.

Edwin Barker, Alistair Hunter and Ramesh Sinhal then provide further detail on the agency's drive for savings on pavement assets, from expenditure analyses through to implementation of 'quick-win' efficiency measures – such as targeted maintenance and ultra-thin surfacing (Barker *et al*., 2012).

Collaborative planning is another technique to be considered. Tim Ryall and colleagues report how it reduced waste and inefficiency on a complex project to replace Borough viaduct in London (Ryall *et al*., 2012). Complete buy-in from all involved resulted in substantial programme and cost savings.

Hoe Yeow and co-workers explain how knowledge gleaned from the client led to innovative construction techniques being adopted on the Canary Wharf Crossrail station box in London's docklands (Yeow *et al*., 2012). These led to cost savings of 40% and a programme reduction of 12 months.

Finally, Ken Ford, Malcolm Dineley and Andreas Zilles highlight the importance of an integrated project team to bring the right skills to bear at the right time (Ford *et al*., 2012). Extensive re-use of existing defences on the Gainsborough flood alleviation scheme resulted in cost savings of £10 million.

We are grateful to all the authors, referees, assessors and organisations who have made this special issue possible and hope that it becomes an invaluable reference both for the civil engineering profession and for the wider construction industry.

References

Barker E, Hunter A and Sinhal R (2012) Paying less for pavements. *Proceedings of the Institution of Civil Engineers – Civil Engineering* **165(5)**: 40–44.

Chen C, Housley S, Sprague P and Goodlad P (2012) Introducing Lean into the UK Highways Agency's supply chain. *Proceedings of the Institution of Civil Engineers – Civil Engineering* **165(5)**: 34–39.

Evins R, Joyce SC, Pointer P *et al.* (2012) Multi-objective design optimisation: getting more for less. *Proceedings of the Institution of Civil Engineers – Civil Engineering* **165(5)**: 5–10.

Ford K, Dineley M and Zilles A (2012) Gainsborough flood defence scheme: improving project delivery by reusing existing assets. *Proceedings of the Institution of Civil Engineers – Civil Engineering* **165(5)**: 58–64.

Holland J (2012) Less is more. *Proceedings of the Institution of Civil Engineers – Civil Engineering* **165(5)**: 23–27.

Kenny C (2012) Publishing construction contracts to improve efficiency and governance. *Proceedings of the Institution of Civil Engineers – Civil Engineering* **165(5)**: 18–22.

Meggitt D, Sarri C and Evans L (2012) Using value networks to boost construction performance. *Proceedings of the Institution of Civil Engineers – Civil Engineering* **165(5)**: 11–17.

Ryall T, Fitzpatrick S, Parsloe R and Morris J (2012) Collaborative planning on the Borough viaduct project, London. *Proceedings of the Institution of Civil Engineers – Civil Engineering* **165(5)**: 45–49.

Sadreddini A (2012) Time for the UK construction industry to become Lean. *Proceedings of the Institution of Civil Engineers – Civil Engineering* **165(5)**: 28–33.

UK Government (2011) UK Government Construction Strategy, May 2011.

Yeow H, Nicholson D, Bryant C and Westbury M (2012) Achieving more for less at Canary Wharf Crossrail station, London. *Proceedings of the Institution of Civil Engineers – Civil Engineering* **165(5)**: 50–57.