Editorial

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In this general issue of *Municipal Engineering*, we explore efficiency in a range of topic areas and also consider an evaluation of the case for a tram system in Bristol, as well as water quality in rivers with extreme variations of flow.

Efficiency is doing things right; effectiveness is doing the right things. (Peter F. Drucker)

The larger question might therefore be; are we doing the right things to achieve the outcomes we are seeking? These questions are always pertinent; however, at a time of budget reductions and financial constraint they are all the more relevant and often come into sharp focus. In the context of our complex and ever-evolving societies, both the outcomes we are seeking and the right things to achieve those outcomes will also change in time. Understanding and evidencing the issues is always a first step and then seeking evidence of what interventions work are also vital. I hope that some of the information and evidence in this issue of *Municipal Engineer* and the also perhaps some of wider principles will be of some interest to readers.

The first paper by Trigunarsyah *et al.* (2016) considers the most efficient method for procurement. The paper explores the relative merits of the design–bid–build procurement process compared to the design and build approach in the context of highway projects in Indonesia. It is apparent the projects in that jurisdiction are strongly influenced by the staff of the governing administration, who are in turn influenced by the established legislative framework. This appears to be a key consideration when choosing procurement methods and the paper insightfully indicates that training in the use of alternative models of procurement are likely to be a key step forward for the jurisdiction. While not the only factor, in practice it is also worth mentioning the right procurement method should also be influenced by the degree to which the project can be clearly defined at an early stage, with design and build often suited to projects that are less able to be clearly specified at an early stage.

The paper by Duarte *et al.* (2016) presents a trial of a system that generates electrical energy from vehicle movements via an electromagnetic system. It foresees great potential in re-using

the substantial energy generated by transport and links this to the wider challenges of reducing carbon emissions.

The paper by Pollock Fraser *et al.* (2016) considers the case for a tram network in Bristol. It argues that the city has already made significant efforts to use sustainable modes and that trams could provide further momentum and overall benefits for the area. I think this paper is important as it attempts to look at a problem and consider the evidence for a possible solution – there is always merit in that activity.

Baker's (2016) paper offers a method by which those managing a sewer system can optimise the use of their inspection and maintenance resources. In that regard, it may provide a way in which sewer systems could be maintained to an enhanced standard or at least an optimum standard despite reduced resources. That in turn should qualify as both an efficient and an effective solution.

The paper by Ejaz *et al.* (2016) considers how to determine the maximum safe sewage discharge into the Soan River, which is one of the most polluted rivers in Pakistan. The problem is complicated by the river's widely varying flow from between 8 and 3500 m³/s.

The paper by Bediroglu *et al.* (2016) sets out the case for combining cloud computing and geographical information systems to create spatial cloud computing in the context of Turkey. It highlights the key problem of file compatibility and suggests methods that can be used to overcome that issue. It predicts that this technology will provide for faster and more efficient management, problem solving and project delivery, while also assisting authorities in communicating with the public. In providing for increased, easy and speedy access to information and evidence, I believe it is true that rational use of this approach could lead Turkey to greater efficiency and effectiveness and this same conclusion must be universally true.

Collectively, these papers illustrate the principle of problem identification and efficient solutions to resolve them, particularly the paper on spatial cloud computing (Bediroglu *et al.*, 2016). The starting point to identify a problem has to be data collection and so easy and speedy data access seems to bring

universal benefits, including helping to understand and identify the right problems in the first place. The concept of knowledge transfer that is at the heart of the *Municipal Engineering* Panel and the Institution of Civil Engineers is, I hope, therefore well represented by this general if wide-ranging issue.

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