Editorial

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It is my great pleasure to introduce this issue of *Infrastructure Asset Management*, the last of 2018.

In the first paper ‘Infrastructure information management of bridges at local authorities in the UK’ (Parlikad and Catton, 2018), the authors present their findings on the information systems landscape at local authorities across the UK. The study reveals a number of information management challenges that are frequently present at the local authority level.

The use of information management systems at the local authority level for different types of infrastructure generally become too cumbersome, are difficult to manage and have a lack of technical expertise to maintain and manage the data, analysis and their periodic reporting. In addition, there is lack of funding to provide resources to manage and update such systems.

The authors interviewed local authorities and their enquiry focused on: details about the asset stock for which the local authority is responsible for and their yearly budget; what asset information is held, in what format and on what systems; using information systems and the information itself, what causes complexity to the management; and, awareness and uptake of building information modelling (BIM) and asset management standards.

The interview findings indicate that the challenges faced by the local authorities include shortfalls of the asset information systems, shortfalls of the asset information itself and lack of resources to address them. The paper provides a number of recommendations which include moving towards BIM level 2, a risk-based approach to improve data quality and adoption of asset management best practice. Specific reference is made to encourage councils to consider the use of the reference document *Highway Infrastructure Asset Management Guidance Document* (UK Road Liaison Group, 2013). These are the guidelines that introduce asset management as a discipline.

The second paper, ‘Predicting road traffic accidents using artificial neural network models’ (García de Soto *et al.*, 2018), is a very useful piece of work as it focuses on safer roads using a methodology for establishing an accident risk-prediction model using artificial neural network models.

There were several variables used in the model that included daily traffic, heavy traffic, curve geometry, slope, speed limit, number of lanes, road evenness, surface adhesion and road type. The developed models have the potential to be used as a decision-making tool in infrastructure management to identify locations of a road network where the number of accidents is expected to be high and to be able to concentrate on the factors that may cause accidents to happen.

The authors found that the amount and quality of data available for model development posed a challenge. There is a need for road authorities to organise and collect their data in a more structured and systematic way. This will lead to a dataset with more years of observations, which will ultimately help to improve the predicting accuracy of the model, leading safer roads.

The third paper, ‘Seismic vulnerability evaluation of power substations’ equipment: a review’ (Shahsanee and Zareei, 2018) covers a very relevant topic of resilience of equipment under earthquake conditions. The availability of electricity during and after seismic events has a major impact on rescue and relief operations.

The authors, after surveying relevant studies, conclude that using brittle materials, improper mass distribution, heavy elevated masses and inadequate anchorage are some of the important factors responsible for high seismic vulnerability. The experiences from previous earthquakes also confirmed that the majority of the damage to distribution and transmission power substations resulted from failing to observe the details in designing, constructing and installing the structures and equipment.

Their findings indicate that most studies were conducted in countries such as the US, Japan and Italy, and the proposed fragility curves have often been related to the equipment used in that country. Due to the differences between the equipment used in other parts of the world, usage of these curves along with frequency approximation may not be appropriate. Therefore, there is a need for comprehensive studies in each individual country, especially experimental research on the domestic equipment to validate these curves.

Probabilistic approaches, particularly those using fragility curves, have been considered for assessment of seismic vulnerability. The authors have presented various probabilistic studies and have compared their merits and demerits.

All three papers cover different aspects of infrastructure information management in local authorities, predicting road accidents and vulnerability of power station equipment under seismic events very effectively.

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