

Editorial

Alan O' Connor

Trinity College Dublin, Dublin, Ireland

The discipline of infrastructure asset management is a dynamic and complex field, continually adapting to address emerging challenges. The *Journal of Infrastructure Asset Management* reflects this evolution through its publication of high-quality research across a broad spectrum of topics. This issue highlights advances in sustainable investment decision-making, improvements in cost estimation accuracy, the analysis of pavement friction variability, and the transformation of the construction sector in an era of economic digitalisation. The journal remains committed to delivering state-of-the-art content of the highest technical standard, equipping stakeholders with the knowledge base required to determine optimal lifecycle management strategies within a multi-constraint environment.

Equally important, the journal underscores its alignment with global sustainability imperatives by embedding the UN Sustainable Development Goals (SDGs) into its mission. Through scholarly exploration and applied research, infrastructure asset management contributes to navigating the complexities of contemporary society. In this issue, SDGs 6, 9, 11, 13, and 16 encompassing clean water and sanitation, industry innovation and infrastructure, sustainable cities and communities, climate action, and peace, justice and strong institutions are given particular emphasis.

Specifically in this issue the paper by Adey *et al.* (2025) examines Scottish Water's ten-year transformation of its asset management practices to enable sustainable, evidence-based, and stakeholder-aligned investment decisions. It outlines the organisation's motivations for undertaking this programme and its long-term vision, while focusing on the practical steps required to embed better data, analytics, and engagement into decision-making. The authors highlight several key insights at the midway point, namely, that: there is no universal template for transformation; modelling and understanding organisational decision processes are crucial; transparency around data inputs, analytical models, and their limitations is essential to informed decisions; and ongoing engagement of both internal and external stakeholders is vital to success. In capturing these lessons, the paper contributes to a broader understanding of how utilities can navigate the complexities of transforming asset management systems to ensure transparency, accountability, and resilience in investment planning.

This issue's paper by Zani and Adey (2025) investigates the potential of weighted reference class forecasting (WRCF) as an improvement over the traditional reference class forecasting (RCF) method for project cost estimation. While RCF relies on

historical project cost data to develop uplifts, it is often limited by the availability of suitable reference projects. WRCF seeks to address this by incorporating work package-level cost deviations, but its validity had not been previously tested. Using real project data from a utility company, the study employs simulated portfolios and cross-validation to evaluate WRCF's performance. The findings show that WRCF tends to generate more conservative estimates than standard RCF and provides greater certainty, which could inadvertently lead to inflated costs and over-allocation of resources. The paper therefore highlights the importance of careful percentile selection when applying WRCF, while also calling for further validation across industries and regions. Ultimately, the study contributes empirical evidence to strengthen cost-estimation practice and informs practitioners on the cautious application of WRCF in infrastructure project planning.

The paper by Weng *et al.* (2025) considers the challenge of interpreting pavement friction measurement data by investigating the sources of unexplained variability that limit its use for condition prediction and intervention planning. Using two decades of friction data from Swiss national roads, the study constructs a comprehensive dataset to evaluate how systematic testing conditions and external factors influence variability in measurements. Advanced data-mining techniques, including explainable ensemble trees and SHapley Additive exPlanations, are applied to quantify the contribution of different factors, while a structural causal framework is used to disentangle their causal effects. The findings show that much of the unexplained variability is linked to maintenance interventions, differences in temperature, and measurement speed, with the data-mining results confirming patterns observed in controlled experiments. By clarifying the drivers of variability, the study enhances the interpretability and reliability of friction measurement data, strengthening its role in asset management and road safety decision-making.

Finally, the paper by Salykov *et al.* (2025) addresses the digital transformation of Kazakhstan's construction industry, examining how emerging technologies such as the Internet of Things, building information modelling, and automation are reshaping productivity, quality, and competitiveness. By combining qualitative and quantitative methods, including benchmarking against global leaders, the study evaluates the current state of the sector and its potential for adopting digital solutions. The findings highlight that digitalisation offers clear benefits: efficiency gains, cost reduction, and improved quality, while also identifying persistent challenges, notably data security concerns and the need for regulatory adaptation. The research situates these

developments within Kazakhstan's national digital transformation strategy (2023–2029), which provides a roadmap to strengthen digital competitiveness, where the country currently ranks 36th globally. Ultimately, the paper underscores the importance of sustained policy support, targeted investment in cybersecurity, and continued integration of digital tools to secure growth, enhance resilience, and position Kazakhstan's construction sector more competitively on the global stage.

The Editorial Board of the *Journal of Infrastructure Asset Management* is made up of highly qualified and experienced representatives from industry and academia, from the public and private sectors, infrastructure owners and/or managers to legislators, regulators, and policymakers. As a board we are always on the lookout for additional members to join our team and to contribute to raising the profile of the work of the journal. If you are interested in joining the board, please contact the journal office directly enclosing a CV with your application. If you are interested in contributing an article to the journal this can be done via the website. Articles can be submitted for general or themed issues with all

information provided via the website. The journal publishes its most recent articles Ahead of Print on its Virtual Library homepage. The Board thanks you for your interest and/or contributions to the journal and to raising its profile and to facilitating its ongoing success.

REFERENCES

- Adey BT, Parsons SA, Picken R, Anderson S and Beaumont R (2025) Transforming Scottish Water's asset management to ensure sustainable investment decisions. *Infrastructure Asset Management* **12(3)**: 132–146, [10.1680/jinam.23.00069](https://doi.org/10.1680/jinam.23.00069).
- Salykov A, Shalbolova U and Junusova A (2025) Transformation in Kazakhstan's construction industry amid digitalisation of the economy. *Infrastructure Asset Management* **12(3)**: 173–182, [10.1680/jinam.24.00037](https://doi.org/10.1680/jinam.24.00037).
- Weng Z, Galleguillos-Torres M, Adey BT, Moghtadernejad S and Du Y (2025) Exploring pavement friction variability factors using ensemble trees and causal inference. *Infrastructure Asset Management* **12(3)**: 159–172, [10.1680/jinam.24.00028](https://doi.org/10.1680/jinam.24.00028).
- Zani D and Adey BT (2025) Empirical comparison of weighted and non-weighted reference class forecasting. *Infrastructure Asset Management* **12(3)**: 147–158, [10.1680/jinam.24.00024](https://doi.org/10.1680/jinam.24.00024).