
Guest editorial: Facilities management – a future proof management approach towards sustainability

Guest editorial

181

The Special Issue focuses on future-proof facilities management (FM) practices, emphasizing sustainability in environmental and social aspects to contribute to the development of robust FM theories. In this special issue, a diverse array of ten papers are featured, each contributing valuable insights to future-proof FM practices across various built environments. Focusing on campus facilities, four papers explore the impact of the indoor environment on education, innovative safety and security measures, green methods' influence and challenges in reactive maintenance (Brink *et al.*, 2023; Campos Fialho *et al.*, 2023; Moghayedi *et al.*, 2023; Moghayedi *et al.*, 2024). Shifting to office settings, two papers analyse occupants' perspectives for building performance enhancement and formalize contextual information requirements for occupant feedback using building information modelling (BIM) (Rasheed *et al.*, 2023; Artan *et al.*, 2023). In addition, the issue addresses maintenance strategies in commercial high-rise buildings (Arsakulasooriya *et al.*, 2023), design guidelines for Thai community hospital buildings during the COVID-19 outbreak (Prugsiganont and Waroonkun, 2023), effective e-waste management practices in India (Sheoran and Das Gupta, 2023) and factors crucial for urban space maintainability (USM) (Rathnasiri *et al.*, 2023), offering a comprehensive and forward-thinking perspective on the evolving landscape of FM.

The first paper by Brink *et al.* (2023) centred on a study conducted at the Groningen campus for higher education in Northern Netherlands, specifically investigates the indoor environment within the classroom setting. The study explores the qualitative relationship between indoor environmental quality (IEQ) and the perceived internal responses of lecturers and students, highlighting the importance of maintaining optimal IEQ conditions for quality teaching and learning.

The second paper by Moghayedi *et al.* (2023) focused on the barriers, drivers and impact of green methods and technologies (GMTs) in supportive educational buildings (SEBs) at the University of Cape Town (UCT). The findings emphasize the positive influence of GMTs on resource efficiency, circular economy practices and progress towards achieving net-zero carbon targets in SEBs. This research underscores the significance of incorporating GMTs in the planning and development of educational facilities to enhance their circular economy and net-zero carbon operations.

The third paper by Moghayedi *et al.* (2024), conducted at the UCT in South Africa, explored the implementation of community-based facilities management principles and technological innovations to comprehensively understand and address safety and security demands. This paper underscores the need for a smarter and more inclusive perspective, using technology for community participation to enhance safety and security, thus contributing to future-proofing facilities.

The fourth paper by Campos Fialho *et al.* (2023) addressed challenges in reactive maintenance (RM) services across university campuses, presenting a statistical characterization of RM processes. By adopting a digital twin approach, the study identifies



critical RM problems and scenarios, providing evidence of patterns in RM occurrences. This research offers practical insights for owners and FM staff to determine the criticality of RM services and strategically plan the digital transformation of services for more efficient and smarter provision across campus facilities.

In addition to addressing campus facilities, three papers within this special issue illuminate FM practices within office settings. [Rasheed et al. \(2023\)](#) and [Artan et al. \(2023\)](#) shared a common focus on comprehending and improving workplace environments through the analysis of occupants' perspectives. [Rasheed et al. \(2023\)](#) extensively evaluated global comments on operational factors, emphasizing the significance of scrutinizing occupants' insights for building performance monitoring. The findings, including a word cloud analysis, unveil crucial aspects of the office environment that significantly influence occupants, offering valuable insights for future projects and facility management to elevate workplace designs and operations.

Concurrently, [Artan et al. \(2023\)](#) concentrated on formalizing contextual information requirements for a structured collection of occupant feedback, using a mixed-methods approach. Outlining 107 occupant feedback types, the study proposes contextual information requirements to enhance occupant satisfaction and FM performance by integrating feedback into BIM-enabled FM. This methodology's adaptability to various building types underscores its potential for future studies and applications, demonstrating its efficacy in optimizing FM operations.

Turning attention to maintenance management deficiencies in commercial high-rise buildings in Sri Lanka, [Arsakulasooriya et al. \(2023\)](#) investigated lean maintenance applications for performance improvement. Using a case study method, the research identifies six lean maintenance wastes prevalent in selected high-rise buildings, including excessive preventive maintenance, waiting times, transportation issues, poor inventory management, inadequate information handling and underutilization of labour. The study proposes practical strategies to address these identified wastes, providing actionable insights for maintenance practitioners to elevate maintenance management practices in Sri Lankan commercial high-rise buildings.

Focusing on hospital FM practice, [Prugsiganont and Waroonkun \(2023\)](#) addressed the challenges faced by outpatient departments (OPDs) in two Thai community hospitals during the COVID-19 outbreak. Using a meticulous three-step approach, including walk-through observations, interviews with medical staff and the development of design guidelines, the research identifies critical physical environmental issues hindering the hospitals' adherence to COVID-19 prevention protocols. The study's novelty lies in its provision of comprehensive design guidelines tailored for Thai community hospital OPD buildings, aiming to mitigate the spread of respiratory diseases.

[Sheoran and Das Gupta \(2023\)](#) tackled the escalating issue of e-waste generation in India, reaching 2 million tonnes annually with a 30% growth rate. Because of inefficient infrastructure handling and limited collection centres, a significant 95% of e-waste ends up in the unorganized sector for disposal. Recognizing the lack of awareness and motivation among consumers, the study aims to identify global best practices and proposes preventive measures such as a deposit refund scheme and the use of radio frequency identification tags, drawing insights from successful e-waste management practices in Germany, Italy and Japan. The paper conducts a life cycle assessment and a SWOT analysis of the Indian electronic product industry, offering both preventive and curative policy interventions.

[Rathnasiri et al. \(2023\)](#) addressed the gap in scientific studies on USM amidst rapid urbanization. Using a qualitative content analysis and a comprehensive bibliometric search,

the study identifies 12 critical factors for USM, categorized into design, construction and operational stages. The findings, processed through systematic coding and visualization using NVivo 12 software, shed light on context-specific aspects such as vegetation management, interdepartmental coordination and work zone safety. These insights provide valuable considerations for incorporating maintainability into urban space planning and design, offering a nuanced understanding of factors crucial for effective urban space management.

In conclusion, the collection of ten papers in this special issue provides a comprehensive and forward-thinking approach to future-proof FM. Spanning diverse built environments such as campuses, offices, hospitals and urban spaces, these contributions address critical issues like indoor environmental quality, safety and security measures, green methods' impact and challenges in maintenance services. Technological integration, community engagement and qualitative insights from occupants are highlighted as pivotal elements in future-proof FM strategies. The papers also address immediate challenges posed by the COVID-19 pandemic, propose lean principles for optimizing maintenance and offer solutions for escalating e-waste generation. Furthermore, the issue examines factors crucial for USM, shedding light on key considerations for planning and designing maintainable urban environments. This special issue serves as a valuable resource for both academics and practitioners, fostering a holistic understanding of sustainable FM practices.

Huiying (Cynthia) Hou and Joseph H.K. Lai

*Department of Building Environment and Energy Engineering,
The Hong Kong Polytechnic University, Hung Hom, China*

Hao Wu

*Faculty of Architecture, Building and Planning,
The University of Melbourne, Parkville, Australia, and*

Sara Jane Wilkinson

School of Built Environment, University of Technology Sydney, Sydney, Australia

References

- Arsakulasooriya, K.K., Sridarran, P. and Sivanuja, T. (2023), "Applicability of lean maintenance in commercial high-rise buildings: a case study in Sri Lanka", *Facilities*, doi: [10.1108/F-10-2022-0131](https://doi.org/10.1108/F-10-2022-0131).
- Artan, D., Tekce, I., Yilmaz, N. and Ergen, E. (2023), "The contextual information requirements for collection and use of occupant feedback in BIM-enabled FM", *Facilities*, doi: [10.1108/F-03-2023-0028](https://doi.org/10.1108/F-03-2023-0028).
- Brink, H.W., Lechner, S.C., Loomans, M.G., Mobach, M.P. and Kort, H.S. (2023), "Understanding how indoor environmental classroom conditions influence academic performance in higher education", *Facilities*, doi: [10.1108/F-12-2022-0164](https://doi.org/10.1108/F-12-2022-0164).
- Campos Fialho, B., Codinhoto, R. and Minto Fabricio, M. (2023), "Statistical critical reactive maintenance characterisation for digital twin implementation in universities", *Facilities*, doi: [10.1108/F-03-2023-0029](https://doi.org/10.1108/F-03-2023-0029).
- Moghayedi, A., Michell, K., Le Jeune, K. and Massyn, M. (2024), "Assessing the influence of technological innovations and community-based facilities management on the safety and security of universities", *A Case Study of an Open Campus. Facilities*, doi: [10.1108/F-05-2023-0041](https://doi.org/10.1108/F-05-2023-0041).

- Moghayedi, A., Michell, K., Hübner, D., Le Jeune, K. and Massyn, M. (2023), "Examine the impact of green methods and technologies on the environmental sustainability of supportive education buildings, perspectives of circular economy and net-zero carbon operation", *Facilities*, doi: [10.1108/F-12-2022-0161](https://doi.org/10.1108/F-12-2022-0161).
- Prugsiganont, S. and Waroonkun, T. (2023), "Identifying measures to prevent the spread of COVID-19 in outpatient clinics", *Facilities*, doi: [10.1108/F-08-2022-0105](https://doi.org/10.1108/F-08-2022-0105).
- Rasheed, E.O., Khoshbakht, M. and Baird, G. (2023), "Do office workers' comments corroborate the ratings they give their buildings? A qualitative analysis of comments on operational factors in the workplace", *Facilities*, doi: [10.1108/F-05-2023-0047](https://doi.org/10.1108/F-05-2023-0047).
- Rathnasiri, N.E., De Silva, N. and Wijesundara, J. (2023), "Urban space maintainability factors based on life cycle approach", *Facilities*, doi: [10.1108/F-04-2023-0032](https://doi.org/10.1108/F-04-2023-0032).
- Sheoran, M. and Das Gupta, D. (2023), "International best practices for e-waste take back and policy interventions for India", *Facilities*, doi: [10.1108/F-03-2023-0027](https://doi.org/10.1108/F-03-2023-0027).