

Life-Cycle Performance of Structures and Infrastructure Systems in Diverse Environments contains the lectures and papers presented at the Ninth International Symposium on Life-Cycle Civil Engineering (IALCCE 2025, Melbourne, Australia, 15–19 July, 2025). This book includes the full papers of 228 contributions presented at IALCCE 2025, including the Fazlur R. Khan Lecture, seven Keynote Lectures, and 220 technical papers.

The papers cover recent advances and cutting-edge research in the field of life-cycle civil engineering, including emerging concepts, new theories and innovative applications related to life-cycle design, assessment, inspection, monitoring, repair, maintenance, rehabilitation, and management of structures and infrastructure systems under uncertainty. Major topics covered include: life-cycle carbon assessment of civil infrastructure systems, life-cycle design and assessment for structures and infrastructure systems, life-cycle management of civil infrastructure, whole life costing, life-cycle risk analysis and optimization of civil infrastructure, and life-cycle digital tools for civil engineering, among others.

This open access book provides both an up-to-date overview of the field of life-cycle civil engineering and significant contributions to the process of making more rational decisions to mitigate the life-cycle risk and improve the life-cycle safety, reliability, resilience, and sustainability of structures and infrastructure systems exposed to diverse environments in a changing climate for the purpose of enhancing the welfare of society. It will serve as a valuable reference to all concerned with life-cycle of civil engineering systems, including students, researchers, practitioners, consultants, contractors, decision makers, and representatives of managing bodies and public authorities from all branches of civil engineering.



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Li
Frangopol
Editors

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Chun-Qing Li and Dan M. Frangopol
Editors

