

INNOVATIVE METHODOLOGY FOR MULTI-CRITERIA LOCATION SELECTION IN CONSTRUCTION INVESTMENTS: A STRATEGIC APPROACH

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Abstract

In the fiercely competitive construction industry, the strategic selection of optimal investment locations is a critical determinant of project prosperity and yield maximisation. This research explores pioneering methodologies explicitly tailored to meet the nuanced requirements of stakeholders within the construction domain for multi-criteria location selection. The investigation delves into integrating cutting-edge decision-making frameworks, synthesising economic, environmental, social, and regulatory considerations to pinpoint the most conducive investment locales.

This study introduces an innovative methodology that fosters precision, efficacy, and strategic acumen in investment site selection within the construction sector. It leverages contemporary techniques such as multi-criteria optimisation and data-centric modelling.

Central to the presented approach is the deployment of sophisticated data-driven modelling techniques, including but not limited to the Delphi method, Eckenrode rating approach, ARAS

(Additive Ratio Assessment) methodology, Hellwig rating method (Wroclaw Taxonomy), and the CoCoSo method. The Delphi technique cultivates expert consensus through iterative structured communication rounds, facilitating a holistic understanding of diverse criteria. Meanwhile, the Eckenrode rating method enables methodical evaluation by assigning weighted scores to different factors commensurate with their significance. Furthermore, the ARAS methodology employs additive ratio assessment to systematically rank and prioritise potential investment sites, ensuring a comprehensive and data-rich decision-making trajectory.

Stakeholders are encouraged to apply pragmatic risk appraisal and mitigation strategies during collaborative evaluation and selection. Integrating risk assessment criteria into the multi-criteria decision-making framework enables a structured dissection of potential risks associated with each investment site, including environmental ramifications, regulatory ambiguities, and market vicissitudes. Transparent discussions are fostered through collaborative workshops and expert panels, aiding in the collective identification and appraisal of risks. Leveraging historical data and predictive analytics bolsters risk prognostication, facilitating the formulation of proactive risk mitigation strategies aligned with stakeholder risk thresholds.

Implementing the decision-making frameworks and methodologies outlined herein may pose challenges for stakeholders and investors. Ensuring the accessibility and integrity of diverse data sources (e.g., economic, environmental, social) mandates rigorous data collection and validation protocols. Stakeholder engagement and consensus-building may prove intricate, particularly in navigating disparate viewpoints and priorities. Addressing uncertainties regarding criteria weighting and decision parameters requires sensitivity analyses and scenario mapping. Operationalising selected investment sites mandates prudent resource allocation, regulatory adherence, and ongoing vigilance to pre-empt unforeseen risks and fortify project success.

These challenges underscore the need for interdisciplinary collaboration, technological assimilation, and adaptive managerial strategies to drive successful execution and optimise outcomes. Our findings provide invaluable insights and tools, empowering industry professionals and stakeholders to make well-informed investment decisions within the construction domain.