
Preface

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Projects and businesses are becoming ever more complicated and complex and this is coupled with financial crisis, economic downturn and intensified competition. Hence, the associated risks are also becoming more complicated and complex. Properly identifying, assessing and responding to these risks are of vital importance for achieving project and organisational objectives and success. Further, it is also vitally important to monitor and learn from the risk management process. This special issue draws expert opinions on managing risks in a complicated and dynamic environment and presents recent research efforts on risk management application and development for projects and enterprises globally. While the first six research papers focused on risk management application in projects and enterprises, the remaining four introduced development of new risk management approaches to guide practice.

Current risk management practice tends to separately allocate risks to individual project stakeholders, which results in independent risk evaluation and discourages the potential of managing risk collectively. One of the major reasons leading to the isolated risk management practice is the use of traditional procurement procedure in which more focus is placed on price and short-term result rather than collaboration and long-term relationship. Osipova and Eriksson's 'The effects of cooperative procurement procedures on joint risk management in Swedish construction projects' investigates the commonality of using JRM in Sweden and its potential relationship with the application of cooperative procurement procedures in the project. The paper concludes that collaborative tools have a positive effect on the use of JRM. The paper further asserts that JRM can be viewed as an important element of the collaborative tools for cooperative procurement.

China has the largest construction market in the world which attracts many overseas companies to either choose to bid for projects on an individual base or set up a branch in China for wider opportunities. However, cost overrun is not uncommon in today's construction projects in China and managing risks influencing project cost is critical. The

aim of Wang and Yuan's 'Major cost-overflow risks in construction projects in China' is to provide a better understanding of cost overflow risks in the Chinese market and develop strategies for minimising the likelihood of occurrence and possible effect of key risks. The findings of this paper are useful to both domestic and foreign practitioners, providing them with informed strategies to better manage cost overflow risks associated with construction projects in China.

Optimal risk allocation decides the success of public private partnership (PPP) projects. Among the various risks that may eventually materialise in PPP projects, demand risk is the most controversial risk as it causes demand for a service to vary adversely. Managing demand risk effectively is paramount to PPP stakeholders. Jin, Lee and Zhang's 'Critical uncertainty factors for efficient allocation of demand risk in privately financed public infrastructure projects in Australia' proposes to study demand risk allocation through investigating uncertainty factors based on transaction cost economics, in order to minimise risk management-related costs in a long term view. Through an industry-wide questionnaire survey, critical uncertainty factors are ascertained and scrutinised to help PPP stakeholders to manage demand risk more efficiently.

In the energy industry, off-take agreements are used to allow the purchasers to commit themselves to purchase a predefined quantity of the goods or services produced by a project, which can be used by the lenders as a form of guarantee. While the purchasers may have obligated themselves to the promised commitment, they may, under special circumstances, do not want to take the contracted goods or services and as a result should pay a penalty equal to the fixed costs of the project. Option capacity is often used to conquer this kind of stiffness and mitigate the purchasers' risk. Costantino and Pellegrino's 'Risk mitigation in take or pay and take and pay contracts in project financing: the purchaser's perspective' developed a computational model based on real options to estimate the value of this risk mitigation tool. The model uses Monte Carlo technique to price the option and employs a fuzzy Delphi method to determine the uncertain input parameters, in order to present a fair value of the contract.

A managed investment scheme sets up an investment vehicle where members of the scheme dedicate the power of operating and managing the scheme to nominated entity. Managed investment scheme is often used in primary production, and the investment returns are subject to economic conditions, extreme natural events, weather, market competition, pests, diseases and consumer behaviour. In a nutshell, risk abounds in setting up and managing such investment projects. Carmichael and Balatbat's 'Risk associated with managed investment primary production projects' develops a quantitative investment risk model to assist informed decision making based on estimates of the probability of business failure, the probability of a return and the probability of when that return will occur.

Construction projects are inherent with diverse risks. Contractors generally price the risk when preparing for the tender. However, it appears to be not clear how contractors actually take account of risk in the whole process of calculating prices for their construction bids. Laryea's 'Risk accountability in the tender process of contractors in Ghana and UK' aims to explore systematic differences in approaches used by contractors in different countries to take account of risk when calculating their bids for construction work. A series of investigations and live observational case studies of the whole tender process are presented in the paper to ascertain and compare differences in the way that risk is taken into account by contractors in Ghana and UK.

Social infrastructure has strong connections to the community, and hence the public is an important stakeholder who is too important to be overlooked. With a number of unsuccessful experiences, e.g., the cross city tunnel project in Sydney, government realises and stresses the importance of consultation, collaboration and community engagement in delivering social infrastructure projects. Construction organisations' technical skills have been well established in dealing with traditional risk, managing human perceptions of construction related risk is, however, a great challenge. Loosemore's 'Managing stakeholder perceptions of risk and opportunity in social infrastructure projects using a multimedia approach' critically analyses the problems with current risk management practices. It is revealed that most current risk management approaches are not driven by the need for broad consultation and engender negative response from the community, risk is managed in isolation and often transferred to the party of least resistance, and the construction industry has a narrow view of its stakeholder base. The paper further discusses the power of multimedia as a solution by better engaging the public in the risk management process in a practical and realistic way. A new risk management methodology called ROMS is briefly introduced at the end.

Past literature commonly categorises construction risks in a hierarchical structure, and risks under different branch of the structure are seen to be independent. However, the cause-effect relationship among risk factors demonstrates to be dynamic which results in a network risk structure rather than one-way hierarchical risk structure. Risk paths representing the causal relationships between risk sources, events and consequences have been proposed for effective risk identification in recent years. On the other hand, different project systems may react differently to risk factors and the vulnerability of a project system has to be taken into account. Ozcan, Dikmen and Birgonul's 'Assessment of risk paths in construction projects' aims to develop a risk path assessment model which combines risk path and vulnerability in the management of construction project risks. The paper presents the development of the risk path assessment model and associated prediction models.

Earned value management (EVM) is widely used for project monitoring and controlling in many construction projects. However, EVM technique does not consider risk and distinguish among earned value gained from activities with different criticality level, which significantly compromises the effectiveness of EVM. Risk management may complement EVM in practice. Diamantas, Kirytopoulos and Leopoulos' 'Earned value management under risk' presents a new criticality index in EVM to monitor and control project progress, based on the synergy between project risk management and earned value management. Two new stochastic indices, i.e., the weighted time estimate at completion index and the weighted schedule performance index, are established, taking into consideration of the stochastic nature of project activity duration and risk exposure.

A growing awareness has been established in the building industry on the necessity of reducing carbon footprint. Using materials with lower embodied energy, optimising the construction process, and reducing energy consumption in the post construction phases all help. In recent years, energy efficient buildings and associated green technologies have been well developed in developed countries. The application of energy efficient technologies in developing countries such as China appears to progress slowly. This might be due to the risks and uncertainties associated with developing green buildings. A mature building energy efficiency market has yet to be established in China. Zou, Qin, Zhang and Wang's 'Risk factor analysis of the Chinese building energy efficiency market using system dynamics methodology' argues that risk factors in building energy

efficiency market present certain dynamic and complexity features and using traditional risk management approach cannot tackle these risks well. The paper proposes to use system dynamics based modelling to simulate the causal relationships and feedback loops among influencing risk factors and through the qualitatively analysis to highlight critical risk factors in building energy efficiency market.

Each of these papers had been subjected to the double blind peer-review process set out by the journal. We thank all reviewers who sacrificed their time to provide critical and yet constructive comments to the papers.

As Guest Editors, we thank the Editor of *IJPOM* for the opportunity to bring this special issue together. We most sincerely thank all of the authors for their contributions.

We hope you find the papers included in this special issue provide an important collection of current thinking on and insight into 'risk management for projects and enterprises'. We look forward to future extensions of the work presented here.