MANAGING RISKS IN CONSTRUCTION PROJECTS:
LIFE CYCLE AND STAKEHOLDER PERSPECTIVES

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Abstract
As an integral part of risk management process, effective risk transfer should be based on a collective understanding of risks in terms of their impacts, responsible project stakeholders as well as likely stages of occurrence in a project life cycle. Until now, most research has focused on examining risks from the perspective of their impacts on individual project objectives. This paper aims to, from project stakeholder and life cycle perspectives, provide an alternative way to scrutinize the risks associated with construction projects. In light of the AS/NZS4360 Australian/New Zealand Standard of Risk Management and ISO31000 Risk Management (Draft), a methodological framework is developed to provide step-by-step details in identifying and analysing the key risks and allocating them to the responsible stakeholders at particular project phases using two-dimensional graphical presentations. An empirical case study is undertaken to demonstrate the application of this risk management framework. The main contribution of the paper includes the proposition, development and test of a conceptual methodological framework as an alternative way to analyse and manage key risks involved in construction project procurement. In addition, with the aid of the proposed framework, 20 key risks are identified and strategies are formulated to manage the risks from the joint perspectives of project stakeholders and life cycle.

Keywords
Risk management, life cycle, stakeholder, construction projects, Australia

INTRODUCTION

Construction projects are subject to many risks due to the unique features of construction activities, such as long period, complicated processes, abominable environment, financial intensity and dynamic organization structures (Flanagan and Norman, 1993; Akintoye and MacLeod, 1997; Smith, 2003, Zou and Zhang 2008). Due to its ability to help clients significantly transfer risks, the traditional project delivery method (design, bid and build) is still popular in many countries including Australia, particularly in the public sector. However, risk transfer does not always mean the reduction of risks if they are not well understood, assessed, transferred and managed. More often than not, the diverse interests of project stakeholders exacerbate the changeability and complexity of risks and make the optimal risk allocation and management very difficult, if not impossible.

A direct relationship between effective risk management and project success was acknowledged by Akintoye and MacLeod (1997). Efforts have been made to explore the impacts of risks on typical objectives of construction projects and probe appropriate risk solutions (Kaming et al., 1997; Shen, 1997; Mulholland and Christian, 1999; Chen et al., 2004; Tam et al., 2004, Smith et al., 2006 and PMI 2008), which significantly lifts the profile of research and practice in construction project risk management. However, most risks are dynamic in nature, resonating with the interests of project stakeholders and occurring at various phases of a project life cycle.