PENTAGON TRI-WHEEL MODEL (PTW): A NEW PROJECT MANAGEMENT MODEL BASED ON COMPLEXITY THEORY

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Abstract
Construction project management (PM) is to ensure the successful delivery of construction projects, and in turn bring benefits to stakeholders. Nonetheless, achieving project success is not an easy task in the construction sector in particular when contemporary projects become more complex, larger, include more variety, face more uncertainty, and have tougher objectives. Various PM models have been introduced while none of them is the panacea to deal with the increasing complexity of construction organizations and projects. This research suggests a Pentagon Tri-Wheel Model (PTW) which builds its foundation on the complexity theory and aims to make sense of the complexity of modern PM. A marriage of critical thinking on existing PM research and practical experience gives birth to the PTW. The model was further demonstrated and validated by conducting a case study on the Hong Kong Disneyland Theme Park. The result of this study suggested that the PTW accommodates the complexity of construction and many problems of contemporary PM can be settled by this new PM model.

Keywords
complexity theory, construction management, project management, Pentagon Tri-Wheel Model

INTRODUCTION

Construction firms are typically “projectification” organizations (Midler, 1995) whose profit mainly comes from projects that they manage and achieve. Project management (PM), as a new discipline emerging from the 1950s, has been diffused into the construction industry to help people accomplish projects on time, within budget, and meeting quality standards. PM is also recognized as the core enabler of business change and a vital contributor to future business success for construction firms (Maylor, 2001). However, the construction sector is facing widespread criticism of delayed delivery time, escalating cost for projects, unsatisfied stakeholders’ benefits etc. In practise, many projects failed to meet their objectives although they were well-planned and equipped with advanced technologies (Williams, 2005; Mantel et al., 2001). This gives rise to the exploration of better PM theories or methods that help the construction sector to improve its performance (e.g. Melgrati and Damiani, 2002; Winter et al., 2006; Li et al., 2007).

A handful of research tries to improve the theoretical foundation on which the PM discipline is based. Researchers argue that PM as practised today rests on an implicit and narrow theory that must be continuously developed (Shenhar, 1996). Koskela and Howell (2002), for example, argue that current PM theory is obsolete and has to be substituted by a wider and more powerful theoretical foundation. Following their initiation, some efforts have shown paradigmatic transformation of PM. Pollack (2007) suggests that the previous “hard” paradigm