



A three-step design science approach to develop a novel human resource-planning framework in projects: the cases of construction projects in USA, Europe, and Iran

Mehrdokht Pournader^{a,*}, Amin Akhavan Tabassi^b, Peter Baloh^c

^a Macquarie Graduate School of Management, Macquarie University, Macquarie Park, NSW 2109, Australia

^b School of Housing, Building and Planning, Universiti Sains Malaysia, 11800- Penang, Malaysia

^c IEDC Bled School of Management, Department of Innovation and Technology Management, Prešernova cesta 33, SI-4260 Bled, Slovenia

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Abstract

Developing a comprehensive human resource (HR)-planning framework that corresponds to the variety of HR-related issues has seldom been observed in existing project management literature. The present study applies a three-step design science approach to introduce a holistic HR-planning framework. The rigor and relevance cycles in this approach address the HR-related issues in projects and the shortcomings of the literature associated with developing a thorough HR-planning framework. Subsequently, the proposed framework is being validated by an exploratory study undertaken at Parsons Brinckerhoff (USA) and BISOL Group (EU). Next, in line with the guidelines of the design cycle for justifying the use of the framework, a survey is conducted on the collected data from 110 Iranian experts in the construction industry. Using Partial Least Squares for analyzing the data, the outcomes indicate that ‘Empowerment/Training’ could significantly improve the performance of HRs in projects. The results also confirm the substantial impact of ‘Quality Assessment’ on the constructs included the HR-planning framework. Furthermore, ‘Networking Management’, ‘Delegating’, and ‘Reward/Compensation’ are prioritized as the subsequent influential constructs for effective HR management practices.

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1. Introduction

Project Management Body of Knowledge (PMBOK) (PMI, 2013 p. 255) identifies human resource management (HRM)

Abbreviations: AVE, average variance extracted; CR, composite reliability; DG, delegating; EHP, effective HRM practices; ET, empowerment/training; GOF, goodness of fit; HR, human resource; HRM, human resource management; IPMA, Iran Project Management Association; IUST, Iran University of Science and Technology; NGDIR, National Geoscience Database of Iran; NM, networking management; OG, organizing; PL, partial least squares; PMBOK, Project Management Body of Knowledge; PMI, Project Management Institute; QA, quality assessment; RC, reward/compensation; SM, staffing management.

* Corresponding author. Tel./fax: +61 2 9982 5082.

E-mail addresses: mehrdokhtp@gmail.com (M. Pournader), akhavan.ta@gmail.com (A.A. Tabassi), peter@baloh.net (P. Baloh).

practices as ‘...the processes that organize, manage and lead the project team’. According to Hackman (1987), teams include individuals (i.e. human resources) who work interdependently to achieve project objectives. Thus, human resources (HRs) and their effective management are deemed as core elements of directing projects in organizations towards success (Banker et al., 1996; Maurer, 2010). As Tsui (1987) and Tabassi et al. (2012) argue, planning is critical to increase competency levels of HRs and it entails a better management of HRs in an organizational context. Additionally, planning to enhance HRs’ competencies, trust, collaboration, and team working skills could eliminate a majority of HR-related risks that might emerge in the course of a project (Baiden and Price, 2011; Bredin, 2008; Campion et al., 1993).

Nonetheless, planning for HRs in projects is often considered more reactive than to be made upon the long-term requirements of

projects, employees, and organizations (Raiden et al., 2004). Project managers prefer to devote themselves more to such aspects of scheduling, budgeting, risk management, and controlling in projects and mostly overlook HR-related issues (Scott-Young and Samson, 2008; Zwikael and Unger-Aviram, 2010). This lack of planning for HRs in projects is followed by the research literature, where there are few studies devoted to thoroughly investigate influential factors that could contribute to a better management of HRs within project's environment (Belout and Gauvreau, 2004; Huemann, 2010). Moreover, as discussed in more details in Section 2, the main shortcoming of the existing HR-planning frameworks is that they are generally parts of more holistic project management frameworks and are not specifically designed for the HRs (Davis, 2014; Pinto and Prescott, 1988; Tsui and Milkovich, 1987). Overall, the attempts that have been made heretofore to introduce factors towards successful HRM practices are mostly general or limited to certain criteria such as HR empowerment (e.g., Kukenberger et al., 2012; Pant and Baroudi, 2008) and/or HR training (e.g., Huemann, 2010; Raiden et al., 2004; Tabassi et al., 2012).

Considering the above, holistic HR-planning frameworks or performance measures should be developed and adopted to reflect main aspects of HRM in projects including appraisal, training, recruitment and development (Bourne and Walker, 2005; Partington et al., 2005) to name a few. The current study is therefore seeking to fill these gaps by presenting a HR-planning framework using a three-step design science approach for developing artifacts consisted of rigor, relevance, and design cycles (Baloh and Desouza, 2009; Baloh et al., 2012; Hevner, 2007; Hevner et al., 2004). Rigor and relevance cycles direct the research towards a comprehensive review of the literature, proposing the initial HR-planning framework, and conducting a qualitative exploratory study of two construction-engineering companies (i.e. Parsons Brinckerhoff and BISOL Group) to establish the face validity of the framework, respectively. The design cycle at the final stage instructs to assess the applicability of the proposed framework, which is being fulfilled by quantitatively testing it through a survey of 110 experts in the construction industry of Iran.

The remainder of the paper is organized as follows. First, a review of the literature addresses the call for devising a detailed plan for managing HRs in projects and identifies the studies that have focused on developing independent HR-planning frameworks in the context of projects. The applied research method of this study, i.e. design science approach, as well as the research steps that follow is presented in Section 3. In Section 4, the presented HR-planning framework is supported by the literature and the exploratory case studies of Parsons Brinckerhoff and BISOL Group. Section 5 presents the numerical results of the survey conducted in the construction industry of Iran using Partial Least Squares (PLS). Eventually, this research concludes by enumerating the highlights of the study and by outlining the limitations and implications for future investigations.

2. Research background

Researchers (Antonioli et al., 2013; Buller and McEvoy, 2012; Datta et al., 2005; Huselid, 1995; Pfeffer, 1998) have emphasized on the positive relationship between HRM practices and organizational performance to help companies achieve their goals. HRM practices in organizations could be defined as plans involved in eliminating HR-related issues in such processes including recruiting, screening, training, rewarding, and appraising the performance of HRs within organizations (Bowen and Ostroff, 2004; Dessler, 2012; Huselid, 1995). However, in the context of projects and in the presence of time and budget constraints as well as the expectations of a wide range of stakeholders from projects' deliverables (Lim and Mohamed, 1999; PMI, 2013), common HRM practices could not always be applied.

Projects encompass several stakeholders including end users, promoters, project designers, government/public bodies, project team, and work force. Hence, countless parties as the core elements of HRs with a variety of expectations would require their needs to be reflected on project's deliverables as well (Cleland and Ireland, 2006; Davis, 2014; Newcombe, 2003; Ballesteros Pérez et al., 2010). Thus, despite the fact that developing HR-planning/management frameworks for large organizations are common practices in the research literature (e.g., Becker and Huselid, 2006; Lepak and Snell, 1999; Wright and Boswell, 2002; Wright and Snell, 1998), these frameworks usually do not take into account HR wellbeing in the unique features of projects' environment within organizations (Belout and Gauvreau, 2004; Huemann, 2010; Huemann et al., 2007).

Nevertheless, a number of attempts have been made to present HR-planning frameworks and/or to highlight the impacts that HRs have on projects. For instance, Tsui and Milkovich (1987) studied HRM through the prism of planning for HR staffing, development, compensation, support, legal issues, job descriptions, and training. Turner and Müller (2005) discussed project managers' critical competencies in directing projects towards success. Belout and Gauvreau (2004) compared the overall impact of HRs entitled as 'Personnel' on the different aspects of a project for its successful implementation. More recently, Davis (2014) identified a limited number of HR-related factors that constitute the standpoint of project stakeholders for project accomplishment. There are also similar studies that identify criteria for project's success, which generally encompass HRM success factors (e.g. Cooke-Davies, 2001, 2002; Lim and Mohamed, 1999; Pinto and Prescott, 1988; Pinto and Slevin, 1988; Verburg et al., 2012). However, considerable amounts of these articles have seldom considered the prioritizations and the applications of the HRM success factors within projects. Moreover, as an internationally renowned project management standard, PMBOK (PMI, 2013) introduces HRM in four consecutive sections including 'Plan Human Resource Management', 'Acquire Project Team', 'Develop Project Team', and 'Manage Project Team'. However, albeit it seems to be a rather holistic HRM framework introduced in PMBOK, Section 4 of this study argues that there are other aspects yet to be addressed in this standard, which could profoundly affect HRM practices in projects.

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