The moderating effect of human resource management practices on the relationship between knowledge absorptive capacity and project performance in project-oriented companies

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Abstract

In response to recent calls for research on human resource management (HRM) in project management, this research investigates the links between HRM practices, the project team’s knowledge absorptive capacity (ACAP) and project performance in project-oriented companies (POCs). Based on survey data from 198 projects in multinational companies (MNCs) in the Thai automotive industry, this research finds that HRM practices moderate the effects of a project team’s knowledge ACAP on project performance, in particular of potential ACAP on long-run project performance. In addition, HRM practices covary with a project team’s realized ACAP, the other dimension of ACAP, to affect short-run project performance. This research sheds light on the different roles that HRM practices play in a project, finding that HRM practices not only facilitate knowledge management from the current project to future projects but also strengthen the relationship between a project team’s knowledge ACAP and long-term project performance. This research contributes to the understanding of HRM in the literature of project management.

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Keywords: HRM practices; Knowledge absorptive capacity; Project performance; Project-to-project; Project-oriented companies (POCs)

1. Introduction

Recently, many multinational companies (MNCs) have shifted toward operating as project-oriented companies (POCs), adopting temporary organizational formats to deal with an increasingly complex environment through projects (DeFillippi and Arthur, 1998; Hobday, 2000; Sydow et al., 2004; Turner et al., 2008). Managing such projects, particularly in product development, is very challenging due to the pressures of global standards and time to market (Lindkvist et al., 1998). Although project performance can be simplistically measured by the cost–time–quality triangle (Pinto and Slevin, 1988; PMI, 2008), many successful projects may not be seen as quality projects in terms of project learning and reflection (Bakker et al., 2013; Keegan and Tumer, 2001; Raelin, 1997). Scholars such as Wheelwright and Clark (1992) and Grant (1996) argue that the two most important contributing factors for project success, in particular for enhancing project learning, are human resource management (HRM) practices and a project team’s knowledge absorptive capacity (ACAP). Knowledge ACAP refers to a team’s prior-related knowledge that results from the cumulative knowledge gained during previous product development projects (Cohen and Levinthal, 1990; Zander and Kogut, 1995). A project team’s knowledge ACAP contributes to a project’s success by creating a faster process of knowledge utilization and knowledge creation during time-limited projects (Clark et al., 1987; Tsai, 2001). In the project management literature, HRM practices are found to contribute to project success by facilitating knowledge management, for instance by stimulating knowledge sharing through reward systems, improving project-related knowledge through training and development, and providing career development (Kase et al., 2009; Turner et
al., 2008). Evidently, both HRM practices and a project team’s knowledge ACAP are significantly related to project performance, but the links between these constructs have seldom been tested (Chuang et al., 2010; Clark and Colling, 2005). Accordingly, this research aims to investigate the effect of HRM practices and a project team’s knowledge ACAP on project performance.

Based on an understanding of the multi-dimensionality of knowledge ACAP, Zahra and George (2002, p. 185) argue that knowledge ACAP is a dynamic capability pertaining to knowledge utilization (or realized ACAP) and knowledge creation (or potential ACAP). These two types of ACAP work together to enhance the ability of the project team. In particular, realized ACAP has been found to affect project performance in the short run, for instance in innovation. In contrast, potential ACAP has been found to affect project performance in the long run (Zahra and George, 2002). Thus, a project team’s knowledge ACAP contributes to project innovativeness in the short run and to business strategic flexibility in the long run (Jansen et al., 2005; Ritala and Hurmelinna-Laukkanen, 2013). Many studies of product development have found that firms often undertake a series of product development projects (Hobday, 2000; Wheelwright and Clark, 1992). Despite this, most studies investigate a particular project’s short-run performance, and few focus on project performance in both the short and long run. For example, in terms of long-run project performance, Bakker et al. (2013) found that project teams are more likely to process information systematically as part of a broader effort to understand information and to enhance knowledge creation. Similarly, Braun et al. (2013) found that the relationship quality among project members can be improved in the longer time, leading to better project citizenship behavior. Given these findings, scholars have begun to pay more attention to project performance in both the short and long run.

This research explores variance in short- and long-run project performance using a multi-dimensional understanding of knowledge ACAP that encompasses realized and potential knowledge ACAP. This research also investigates the moderating effects of HRM practices on the relationship between project performance and knowledge ACAP. This research responds to the calls for research on HRM in POCs (Chuang et al., 2010; Söderlund and Bredin, 2006; Turner et al., 2008), knowledge capture from project to project (Brady and Davies, 2004; Keegan and Turner, 2001; Turner et al., 2008), and the links between the dimensions of ACAP and project performance (Shenhar et al., 1997; Zahra and George, 2002). This research aims to provide insight into how knowledge is captured from a project and transferred to subsequent projects and, in particular, the critical role that HRM practices play as a moderator in this relationship. Our results reveal that HRM practices moderate the relationship between a project team’s potential ACAP and long-run project performance. Moreover, HRM practices explain short-run project performance in addition to the realized ACAP. In the following sections, we first review the relevant literature and develop a set of hypotheses (as shown in the research model in Fig. 1). After outlining the research methodology, we describe and discuss the empirical findings of our hypotheses tests. Finally, the article concludes by discussing the implications of these findings for both theory and practice.

2. Theoretical background and hypotheses

2.1. Project performance

Project-oriented companies (POCs) are temporary organizations that integrate diverse resources and expertise to deal with increasingly complex environments through projects (Hobday, 2000; Sydow et al., 2004; Turner et al., 2008). Project-oriented companies can overcome traditional barriers to organizational change and innovation, as the benefits of projects include increased technical and product complexity, shortened time to market, and rapid response to client needs (Hobday, 2000; Sydow et al., 2004). In the literature, POCs are found in a wide range of industries, both in services (e.g., DeFillippi and Arthur, 1998) and in manufacturing (e.g., Hobday, 2000). Projects in POCs can be constituted in many contexts. For instance, Sydow et al. (2004, p. 1478) described projects as occurring on four levels: 1) organizational units, in which the project is embedded in a functional or business...
unit; 2) entire organizations, in which the organization is entirely based on projects; 3) networks that provide interorganizational cooperation on projects; and 4) organizational fields in a particular region or industry that provide a particular context for project-based organizing.

This research investigates projects at the unit level of MNCs in the Thai automotive industry. These MNCs do most of their work, and in particular product development, as projects (Lindkvist et al., 1998; Lindkvist, 2004). Clark et al. (1987) found that product development in the automotive industry consists, to a large extent, of investment in research and development (R&D) and represents a substantial commitment of company resources to ensure advances in technology through the introduction of timely new products to the marketplace. Thus, in this study, MNCs are assumed to operate as project-oriented companies (POCs) and their projects are assumed to be related to the transfer of knowledge from MNC headquarters to the local subsidiary to develop new products. In this regard, a project that is defined as a completed product development project may simply be one that incorporates minor changes to establish designs or one that uses new technologies to create new markets (Clark et al., 1987). Product development projects focus on the specific form that the project will take, the degree of performance it will achieve, and its acceptance in the market, and thus the evaluation of project performance may depend on the nature of the individual project (Clark et al., 1987; Wheelwright and Clark, 1992).

In the literature, project performance can be simplistically measured using the cost–time–quality triangle at the desired level (Pinto and Slevin, 1988). Although this may be appropriate in some cases when the time to market is of critical importance, this simple approach is not sufficient in many cases (Shenhar et al., 2001). Scholars have widened the evaluation of project performance to include behavioral aspects, such as communication with clients (Jugdev and Muller, 2005); the view of stakeholders, such as customer satisfaction and profitability (Freeman and Beale, 1992); internal and external stakeholders (Lester, 1998); the project environment, such as incremental or radical change (Raz et al., 2002); and cross-cultural perceptions (Pinto, 2013). However, in the area of product development, many scholars have paid more attention to how to manage project-to-project transitions as one of the key criteria for long-term project success (Brady and Davies, 2004; Keegan and Turner, 2001; Shenhar et al., 2001; Wheelwright and Clark, 1992). POCs often measure the extent to which the knowledge earned from one project could be transferred successfully to the next relevant project, thus shortening the timeline of the new project.

Shenhar et al. (1997, p. 9) provide an important distinction in separating the evaluation of project performance in the short and long run. Short-run project performance refers to project completion, which includes project efficiency and the immediate and commercial success of the project. In contrast, long-run project performance refers to the potential created by the project for future projects. These short and long run aspects of project success measures are analogous to the nature of sequential product development projects (Wheelwright and Clark, 1992). As such, firms often retain core project members from previous successful projects to serve on future successor projects (e.g., Hobday, 2000; Shenhar et al., 2001; Wheelwright and Clark, 1992). This research explains variance in project performance both in the short and long run (adapted from Shenhar et al., 1997) resulting from the level of a project team’s knowledge ACAP and HRM practices. These terms are explained in the next section.

2.2. Knowledge absorptive capacity

Cohen and Levinthal (1990, p.128) define absorptive capacity (ACAP) as “the ability of a firm to recognize the value of new external information, assimilate it and apply it to commercial ends.” They further explain that knowledge ACAP results from the cumulative prior related knowledge from previous R&D projects that can be used to create innovative new products. Zahra and George (2002) re-conceptualize Cohen and Levinthal’s original concept by proposing two elements of knowledge absorptive capacity, realized ACAP and potential ACAP. Realized ACAP is similar to the original ACAP concept that Cohen and Levinthal describe that significantly affects innovation-related outcomes and enhances competitive advantage (Kotabe et al., 2011). Potential ACAP allows firms to sustain a competitive advantage in the long term. For instance, Zahra and George (2002, p. 185) write that “potential capacity provides firms with the strategic flexibility and the degrees of freedom to adapt and evolve in high-velocity environments.”

Building on this extended concept of ACAP (Zahra and George, 2002) at the project level, realized ACAP refers to a project’s capacity to leverage knowledge and to transform and exploit the knowledge that has been absorbed. Realized ACAP also enhances project performance by allowing innovation in specific tasks within the project’s time frame (Escribano et al., 2009; Kotabe et al., 2011; Tsai, 2001). This idea is consistent with the concepts of ‘within project learning’ (Keegan and Turner, 2001, p. 79) and ‘vanguard projects’ (Brady and Davies, 2004, p. 1607). An experienced project team is able to use its existing knowledge as a tool to guide its actions and to invent new ways of working to more effectively carry out its specific work. For instance, based on an empirical study that collected data from 24 units in a petrochemical company and 36 units in a food-manufacturing company, Tsai (2001) finds that a unit’s ACAP is critical for knowledge utilization, which enables units to enhance their short-term, required innovation performance.

In addition, Zahra and George (2002) posit that the development of a project’s potential ACAP is path dependent and influenced by its past experience; it is the cumulative knowledge resulting from prior projects. This idea supports the concepts of ‘between projects learning’ (Keegan and Turner, 2001, p. 79) and ‘project-to-project’ (Brady and Davies, 2004, p. 1607) that attempt to capture and transfer the knowledge gained as part of a project to subsequent projects. Moreover, Bakker et al. (2013) find that, in terms of long-run performance, project teams are more likely to process information systematically as part of a broader effort to evaluate and understand information, and to enhance knowledge creation. Similarly, Wheelwright and Clark (1992) and Shenhar et al. (2001) also find that firms often retain core project members from previous successful projects to serve on successor projects. The existence of required, prior related knowledge of a project
often helps expedite the assimilation and acquisition of new knowledge to develop new projects in dynamic markets. Fosfuri and Tribó (2008) and Ritala and Hurmelinna-Laukkana (2013) find that potential ACAP also plays a significant role in projects as a source of competitive advantage by enhancing innovation in dynamic environments. Accordingly, this line of reasoning leads to the following hypotheses.

**Hypothesis 1a.** There is a positive relationship between a project team’s realized ACAP and short-run project performance.

**Hypothesis 1b.** There is a positive relationship between a project team’s potential ACAP and long-run project performance.

### 2.3. Human resource management practices

In the project management literature, HRM practices are found to favorably affect project performance (Huemann et al., 2007; PMI, 2008). Since Pinto and Slevin’s (1988) assertion that human resources are a critical factor in project success, other researchers such as Belout and Gauvreau (2004), Fabi and Pettersen (1992), and Huemann et al. (2007) have further explored how HRM practices can facilitate project operations to achieve the desired project performance. Project-oriented companies adopt temporary organizations to implement their work processes through projects (Turner et al., 2008). In this regard, scholars such as Söderlund and Bredin (2006) and Turner et al. (2008) argue that the HRM practices adopted by POCs should be applied specifically to the temporary work processes adopted. Thus, HRM practices in POCs may differ from those practices in the classic model of management because the design of HRM practices will vary between individual projects (Turner et al., 2008).

Many scholars have contributed to the understanding of the role of HRM practices in POC. For example, Begin (1992) made an early contribution to this subject, arguing that different patterns of people management systems vary across different types of organizations, in particular the organizational form in high-velocity knowledge environments. Begin’s work contributes the important point that people management systems should be congruent with organizational structure. Clark and Colling (2005) also argue that attention should be paid to the significant role of HRM practices in project management, addressing that recruitment, selection, appraisal, development, and reward should potentially be varied from project to project. However, they do not explain how HRM practices in a particular project might be linked to practices in POCs. Söderlund and Bredin (2006) point to four distinctive challenges for the analysis of HRM in POCs: competence, trust, change, and people. They discuss these challenges in relation to the roles of HRM in POCs (i.e., knowledge brokers, trust builders, change agents, and artist agencies) and provide useful questions for the continuous development of this concept. Despite contributing the findings on the precise roles of HRM, they do not identify which HRM practices would be useful for managing projects in POCs.

Our research builds on an earlier work by Turner and his colleagues who propose that there are clear links between how HRM practices facilitate the success of a project and the broader strategy of the POC. Turner et al. (2008, p. 42) focus on the general processes of HRM in POCs, including assignment to projects, employment on projects (i.e., development, performance, appraisal, and reward) and project dispersion. Focusing more specifically on HRM practices in project employment, Turner et al. (2008) assert that HRM practices that contribute to project success are those that develop a project team’s specific skills and abilities, and those that motivate the team through project appraisals and rewards (both monetary and non-monetary). However, HRM scholars have found that HRM practices are most effective when they foster people in terms of their ability, motivation, and opportunity to effectiveness (Appelbaum et al., 2000; Boxall and Purcell, 2003; Gerhart, 2007; Lepak et al., 2006). This result is also consistent with the meta-analysis of Subramony (2009). Lepak et al. (2006, pp. 232–233) similarly find that “even if employees have the ability and are motivated to work toward organizational objectives, organizations must provide them with appropriate opportunities to use their skills.” Argote et al. (2003) note that ability–motivation–opportunity enhancing HRM practices can improve the process of knowledge management and that these practices affect a project team’s capability to achieve knowledge outcomes. Accordingly, this research extends the original model proposed by Turner et al. (2008) by adding practices that provide employees with an opportunity to participate in project success.

Consistently, strategic HRM (SHRM) scholars have emphasized the importance of examining multiple HRM practices rather than focusing on a single practice and the role of these practices in developing an organization’s human resources so as to enhance the business competitive advantage (Barney and Wright, 1998; MacDuffie, 1995). In addition, Deley and Doty (1996, p. 802) propose that “the basic premise underlying SHRM is that organizations adopting a particular strategy require HR practices that are different from those required by organizations adopting alternative strategies.” This pointed to the importance of the inclusion of particular HRM practices in a particular work environment. Applying this to a project, the performance impact of HRM practices would be most effective should the practices in place be relevant or fit with the project environment. Accordingly, in this research, HRM practices are considered to comprise training, reward, and career development as identified by Turner et al. (2008), and the additional practices that have been found to increase the opportunities for project team members to participate in (i.e., participation and project team autonomy). These practices are reported to improve project performance (e.g., Chuang et al., 2010).

According to empirical studies, HRM practices have a positive association with project-related performance in both the short and long run. For short-run performance, for example, Chen and Huang (2009) find that HRM practices have a positive effect on innovation performance by enhancing the capacity for knowledge acquisition, sharing, and application in Taiwanese firms. Chuang et al. (2010) find that team-based HRM practices contribute to the process of knowledge acquisition and sharing, and play a critical role in building knowledge resources and capabilities. Considering long-run performance, Swart and Kinnie (2010) used a multiple-case study to identify that HRM practices determine the extent to which unit learning is supported.
In addition, HRM practices sharpen a future perspective, which may lead to the provision of better support and thus better project performance. Taken together, HRM practices help project teams to achieve project performance in both the short and long run. In line with this reasoning, we advance the following hypotheses.

**Hypothesis 2a.** There is a positive relationship between HRM practices and short-run project performance.

**Hypothesis 2b.** There is a positive relationship between HRM practices and long-run project performance.

### 2.4. The moderating role of HRM practices on the effects of ACAP on project performance

Several studies have found that HRM practices in POCs contribute to knowledge integration among project team members and to the identification of possibilities for change (Bredin and Soderlund, 2011; Keegan et al., 2012). For instance, HRM practices can improve the utility of a project team’s realized ACAP on outcomes by enhancing project team participation and providing incentives to share best practices and training project-related skills (Meng and Gallagher, 2012; Minbaeva et al., 2012). These practices stimulate the process of knowledge management within a project team in terms of knowledge creation and utilization to achieve the target, short-run project performance (Nonaka and Takeuchi, 1995). Furthermore, Simonin and Ozsomer (2009) find that specific HRM practices have a moderating effect, with training and expatriation having a moderating effect on knowledge processes and project-related outcomes. HRM practices can also enhance a project team’s potential ACAP by assigning suitable project team members through competency-based systems and coordinating their career development in line with the company’s long-term strategic plan (Keegan et al., 2012). These actions also lead to a higher likelihood of success in future potential projects. Thus, HRM practices drive decision making by identifying possibilities for change. HRM practices also help implement future potential projects by considering accumulated and prior-related knowledge, and by horizontally supporting project-to-future projects. In sum, HRM practices can improve the utility of a project team’s ACAP for project performance outcomes. Consequently, a more intensive provision of HRM practices could trigger a stronger contribution of ACAP (realized and potential) to the achievement of the desired project performance (in both the short and long run). Accordingly, we introduce two further hypotheses.

**Hypothesis 3a.** HRM practices moderate the relationship between a project team’s realized ACAP and short-run project performance.

**Hypothesis 3b.** HRM practices moderate the relationship between a project team’s potential ACAP and long-run project performance.

### 3. Methods

We developed our survey based on existing scales in the literature. Eight experts in the sample companies, including Engineering Managers, Product Managers, R&D Managers, and HR Managers, validated the questions. The survey was first prepared in English and then translated into Thai. A double-blind back-translation process was used to check for meaning accuracy (Sinaiko and Brislin, 1973). Before the survey was administered, a pretest with 33 project team leaders was conducted to validate the measures in terms of their clarity and appropriateness to the context of MNCs in the Thai automotive industry. The reliabilities of all of the measures exceeded 0.70, which is the rule of thumb for Cronbach’s alpha (Nunnally, 1978).

### 3.1. The context of study

Our target organizations were project-oriented companies in the Thai automotive industry, which are mainly multinational companies. The Thailand Board of Investment (2012) has called Thailand the “Detroit of Asia,” with Thailand ranking 15th among the world’s automotive manufacturing countries. Nearly every Japanese carmaker has manufacturing facilities in Thailand, as do many major US and German companies. In recent years, these MNC manufacturers have established regional R&D hubs and expanded their production capacity through regional networks (Thailand Automotive Institute, 2012). When the advanced technology of the MNC headquarters is influenced by global dynamic changes (for instance, global energy shortages or changing international standards) the subsidiaries in Thailand need to adjust themselves in line with the headquarters, in particular in advancing production technology; developing green production, and alternative and renewable energy; and moving toward nanotechnology and biotechnologies (Thailand Board of Investment, 2012). As such, not only have our target organizations received an intensive transfer of knowledge from their headquarters but the headquarters have also invested a great deal in R&D for new product development in their local organizations and other subsidiaries in the Asia-Pacific region. These organizations are divided into two main groups: one group is automotive assemblers, comprising 23 MNCs, and the other group is automotive parts-and-accessories makers (the, so-called, first-tier industry), comprising 349 MNCs (TAIA, 2012). Both groups use project-based operations to transfer knowhow from their headquarters and to undertake R&D for new products.

### 3.2. Sample and data collection procedures

The population of this study consists of MNCs in the Thai automotive industry at the project level. The projects selected for this survey were implemented between 2006 and 2011. Project outcomes are new products that have been in the market for at least a year (Clark et al., 1987). Therefore, project leaders, who are considered to be the best source of information about the project, include plant managers, engineering managers, product managers, and R&D managers. The number of projects implemented depends on many criteria, including company size, company growth, and the economy. As experts recommend, the number of projects that companies had implemented during the past five years averaged approximately 10.
We obtained a list of the 372 MNCs in the two main groups from the Thai Automotive Industry Association (TAIA, 2012). However, the unit of analysis of this research is discrete projects, and it would be an unmanageable task to identify the number of completed projects in each of the 372 MNCs. Accordingly, we sent a packet, addressed to the plant manager, to 150 MNCs. The packets, which were sent twice, included ten copies of the survey and a personalized cover letter outlining the nature of the study and its confidential nature. Target respondents who had worked on different projects were identified by the plant managers to fill in the questionnaires. We distributed the first round survey packets to 100 MNCs in May 2012, which yielded 144 effective responses from 28 MNCs. One month later, we distributed a second round of survey packets to an additional 50 MNCs, which yielded an additional 63 responses from 11 MNCs.

The returned questionnaires were all carefully cross checked for accuracy with respect to the target companies and sample respondents. Our questionnaire had two identification questions to ensure that each respondent had worked as a project leader on a different project in the same MNC. One of the two questions was a closed-ended question concerning the role assigned in the project (i.e., project leader or project member) and the other was an open-ended question seeking an explanation as to the nature of the study and its confidential nature. Target respondents who had worked on different projects were identified by the plant managers to fill in the questionnaires. We distributed the first round survey packets to 100 MNCs in May 2012, which yielded 144 effective responses from 28 MNCs. One month later, we distributed a second round of survey packets to an additional 50 MNCs, which yielded an additional 63 responses from 11 MNCs.

3.3. Sample characteristics

Sixty percent of the projects in our sample were projects that aimed at radical change or had a high complexity in developing a new product. The remaining 40% focused on incremental change. About 50% of the questionnaires indicated that the project duration was around one year, about 43% lasted between one and three years, and 7% of the sample respondents said that their project lasted for more than three years. Most projects were undertaken in Japanese-owned MNCs (71%), with 14% in German MNCs, 12% in US MNCs and 3% in UK MNCs.

3.4. Measures

We used multi-item measurement scales derived from existing studies that have been validated by experts in the field. Each item was rated on a Likert-type scale ranging from 1 (“strongly disagree”) to 7 (“strongly agree”). The item scales were validated using principal component factor analysis (PCFA) for a unidimensional construct. The Kaiser–Meyer–Olkin values of all of the measures exceeded the recommend value of 0.60 (Kaiser, 1974) and Barlett’s Test of Sphericity was statistical significant at the 1% level (Barlett, 1954), which indicates that the data obtained for each construct are appropriate. Following this, Cronbach’s alpha was used to assess the internal consistency of the measures. The rule of thumb for Cronbach’s alpha is that the value should exceed 0.70 (Nunnally, 1978). As presented in Table 1, the Cronbach’s alpha for all of the study variables was found to be above the acceptable level of 0.70.

3.4.1. Dependent variables

We adopted Shenhar et al.’s (1997) measurement of project management (see Appendix 1). They separated project management into three dimensions: realization, potential, and complementarity. The overall construct of ACAP was separated into two dimensions: realized and potential ACAP. The construct of HRM practices was split into two dimensions: short-run and long-run project performance.

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performance into short-run project performance and long-run project performance. Short-run project performance includes project efficiency (assessed with four items), the effect on users (assessed with four items), and direct business success (assessed with two items). Long-run project performance was assessed by three items that were related to future potential projects. We replaced the word “customer” with “user” in the question items so that what was asked was more relevant to the context of study.

3.4.2. Independent variables

3.4.2.1. Realized ACAP and potential ACAP. We used Jansen et al.’s (2005) measurement of realized and potential ACAP (see Appendix 1). The eleven-item measure of realized ACAP assessed the processes of transformation (using six items) and exploitation (using five items). The seven-item measure of potential ACAP examined the processes of acquisition (using five items) and assimilation (using two items). We changed the wording of questions from “unit” to “project” and from “employees” to “project members” to suit the context of study.

3.4.2.2. Human resource management practices. In this research, HRM practices include training, reward, career development, participation, and project team autonomy. All of the items were measured on a seven-point disagree/agree scale (see Appendix 1). Questions assessing HRM practices consisted of 14 items in five areas. The first area, training, consisted of three items concerning the project team’s orientation toward job-related skills, knowledge, and abilities (Minbaeva, 2005). The second area, reward, was assessed with one item concerning monetary rewards based on project team performance. In the third area, career development, three items concerned the progression and development of the project team (Thompson and Heron, 2006). The fourth area, participation, was assessed with four items that examined the extent to which the project team had input to their project assignment that reflected their participation and voice (Delery and Doty, 1996). In these questions, the wording was refined from “employees” to “project members.” Lastly, team autonomy was assessed using three items that encompassed all types of teams that experienced increased responsibility and autonomy (Foss et al., 2009).

3.4.3. Control variables

The study controlled for several factors that could be alternate explanations for variance in project performance: MNC home country, mode of entry, operational period, project duration, project complexity/change, automotive tiers, and project related experience. Regarding MNC home country, it has been demonstrated that the cultural distance between the headquarters and the subsidiary is likely to affect knowledge transfer effectiveness (Myloni et al., 2007) (1 = Japanese MNCs, 0 = Non-Japanese MNCs). The mode of entry is known to affect the degree of knowledge transferred to local subsidiaries (Foss and Pedersen, 2002) (1 = FDI, 0 = IJV). Operational period was included as a control variable because longer tenure subsidiaries may have received more transferred knowledge than shorter tenure organizations, and thus have a higher potential to enhance their innovativeness than younger subsidiaries (e.g., Foss and Pedersen, 2002) (1 = more than 10 years, 0 = below 10 years). Project duration could also introduce a level of uncertainty to project performance (Raz et al., 2002) (1 = lower than 1 year, 0 = more than 1 year). Differences in project complexity can also lead to a variance of project success (Zander and Kogut, 1995) (1 = incremental change, 0 = radical change). Automotive tier was controlled for because automotive assemblers are more likely to be global innovators and to have a higher level of transferred knowledge than the second group (Gupta and Govindarajan, 2000) (1 = assemblers, 0 = parts and accessories). Regarding project related experience, it has been shown that prior related knowledge has a positive effect on ACAP (Cohen and Levinthal, 1990) (1 = below 3 years, 0 = more than 3 years).

4. Results

This research explores the relationship between HRM practices, absorptive capacity (realized and potential), and project performance (short and long run). Table 1 displays the means, standard deviations, scale reliability estimates, and correlations for all of the variables.

Table 2 presents a preliminary analysis conducted before the hypotheses testing. We hypothesized that realized ACAP contributes to short-run project performance and potential ACAP contributes to long-run project performance. We tested the association of both realized ACAP and potential ACAP on short- and long-run project performance. Table 2 presents the relationship of project performance with realized and potential ACAP. Model 1 assesses the extent to which realized and potential ACAP explain the short-run project performance, while Model 2 tests the variation in the long-run project performance against

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Note: Standardized regression coefficients are reported, N = 198.
* Significant at the 5% level.
** Significant at the 1% level.
these two dimensions of absorptive capacity. The results of Model 1 indicate that realized ACAP is positively associated with short-term performance. Model 2 demonstrates that potential ACAP is associated with long-run project performance.

Next, we tested our hypotheses using hierarchical regression analysis and, as previously, we identified project performance as the criteria (see Models 1–3 for short-run project performance, and Models 4–6 for long-run project performance). We ran a three-step analysis. In the first step, all of the controls were entered. Then, the main effects of realized and potential ACAP and HRM practices were tested. Lastly, we analyzed the interaction effects. Following Aiken and West (1991), before creating the interaction terms, the independent variables and moderating variable were mean-centered to mitigate the potential problem of multicollinearity. The maximum VIF within the models was 2.161, well below the rule-of-thumb cut-off of 10, indicating that no serious concerns should be raised about multicollinearity (Hair et al., 2006).

4.1. The effect of ACAP (realized and potential) on project performance (short- and long-run)

H1a and H1b hypotheses concern the relationship between ACAP and project performance. As seen in Table 3 (Model 2 and Model 5), our results show that realized ACAP is positively related to short-run project performance ($\beta = 0.436$ at the 1% level), providing support for H1a. Potential ACAP was found to be related to long-run project performance ($\beta = 0.395$ at the 1% level), providing support for H1b.

4.2. The effect of HRM practices on short- and long-run project performance

Our hypotheses H2a and H2b assume that HRM practices affect short- and long-run project performance. As seen in Table 3 (Model 2 and Model 5), we found that HRM practices are statistically and significantly related to short-run project performance ($\beta = 0.166$ at the 5% level, supporting H2a) and to long-run project performance ($\beta = 0.182$ at the 5% level, supporting H2b).

4.3. HRM practices as a moderator of the relationship between ACAP (realized and potential) and project performance (short- and long-run)

The hierarchical regression analyses revealed that HRM practices moderate the relationship between potential ACAP and long-run project performance (see Model 6). The interaction coefficient is significant ($\beta = 0.146$ at the 5% level, supporting H3b). However, the interaction coefficient for the relationship between realized ACAP and the short-run project performance is not significantly different from zero (Model 3). Thus, H3a was rejected.

To better explain the interactions found in the hierarchical regression analysis, we plotted the interaction effect (Fig. 2) using one standard deviation above and below the mean to capture high and low levels of HRM practices (Aiken and West, 1991). Fig. 2 illustrates this finding for the relative long-run project performance when considering HRM practices as the moderating variable. This indicates that the effect of a project team’s potential
ACAP on long-run project performance is dependent on HRM practices. HRM practices strengthen the relationship between potential ACAP and long-run project performance when HRM practices are at a high level. Thus H3b is supported.

5. Discussion and conclusion

Our research sheds light on the different roles that HRM practices play in project management, including strengthening the relationship between a project team’s knowledge absorptive capacity and project performance, project-to-project management, and facilitating project performance in the short and long run. Despite some important limitations, this research offers several insights into the role of HRM in project management, and the limitations of this research suggest future research opportunities.

5.1. Discussion

This research contributes to the substantial body of knowledge on project management in three main ways. First, it provides insight into the provision of HRM practices as part of short- and long-run project management. While previous studies have paid little attention to the moderating role that HRM practices play on the relationship between a project team’s absorptive capacity (realized and potential) and project performance (in both the short and long run), our study has applied and tested HRM practices as a moderator in this regard. We found that HRM practices moderate the relationship between a project team’s potential ACAP and long-run project performance. This is partially in response to a call from Turner et al. (2008, p. 108) for empirical research into the critical roles played by HRM practices in enhancing knowledge capture from project to project. Additionally, our results support the arguments made earlier by Brady and Davies (2004, pp. 1606–1607) and Keegan and Turner (2001, p. 79), specifically in terms of building project capabilities through project-based learning, that HRM practices related to a project play a crucial role in enhancing a project team’s potential ACAP by facilitating the accumulation of prior related knowledge through a knowledge management program. For example, HRM practices can help prepare for future potential projects in terms of assigning suitable project participants, developing their careers (e.g., their project-to-future project assignment), and managing changes to fit with the strategic long-term plan of business units.

Second, this research responded to calls from various researchers (Chuang et al., 2010; Söderlund and Bredin, 2006; Turner et al., 2008) for empirical research about HRM practices in project-oriented companies. These researchers encourage investigation into how HRM practices affect long-run project performance. In addition, HRM practices strategically focusing on key knowledge people such as project team members can contribute to project performance, supporting previous findings in relevant contexts (Lopez-Cabrales et al., 2009; Minbaeva, 2005; Minbaeva et al., 2012).

While HRM practices favorably affect project performance, our results found that HRM practices do not significantly moderate the relationship between realized ACAP and short-run project performance. Our results suggest that HRM practices covary with a project team’s realized ACAP to affect short-run project performance. This conclusion is consistent with Dvir and Shenhar’s (1990) argument that building human resources is necessary but needs sufficient time to be effective. Similarly Bakker et al. (2013) argue that project teams with a short time frame focus more on the immediate task than on project learning and reflection. Moreover, several studies have found obstacles to the effective implementation of HRM systems in POCs, such as the design of the HRM systems for individual projects (Keegan et al., 2012). These challenges are important in implementing effective HRM practices for short-term project performance.

The third major contribution of this research is that we used dimensional measures of both project performance (short- and long-run) (Shenhar et al., 1997) and knowledge ACAP (realized and potential) (Jansen et al., 2005; Zahra and George, 2002). Our results show strong evidence that realized ACAP (transformation and exploitation capabilities) has a direct effect on short-run project performance. This is consistent with previous arguments that transformation capability helps projects to develop new ideas with reference to existing processes (Zahra and George, 2002, p. 195), and that exploitation capabilities facilitate the conversion of knowledge into new products within the required time of a specific task (Zander and Kogut, 1995). In terms of long-run project performance, our results show that potential ACAP (acquisition and assimilation capacities) contributes to future potential projects and long-run project performance. This finding matches Zahra and George’s (2002) argument that potential ACAP is the cumulative knowledge resulting from previous product development projects and that projects with a well-developed potential ACAP are more likely to quickly spot trends in their external environment and internalize this knowledge through knowledge creation for future potential projects in terms of strategic adaptation.

5.2. Managerial implications

Our findings raise important managerial implications for project manager and project practitioners. Our results suggest that it is worth investing in key people by providing systematic
support for employment practices that are aligned with the firm’s short- and long-term strategy and competitive needs. Well-developed HRM practices need to align not only horizontally (project-to-future projects) but also vertically (firm strategy). HRM practices should support project practitioners in terms of their attained competencies, career development plans, and achievements. Moreover, project managers should focus on both the design of the HRM system’s orientation toward ability, motivation and opportunity, and its application to maximize knowledge sharing, knowledge creation, and knowledge utilization among project team members. Furthermore, project managers should take the role of an HRM implementer seriously to make sure that project members’ competences, career development paths, contributions, and performance are aligned with the project objectives.

5.3. Limitations and future research

This study has several limitations that should be addressed in future research. First, the study uses cross-sectional data. As such, cause-and-effect relationships cannot be definitively inferred from the results because causality can only be tested with data collected at different points in time (Wright et al., 2005). Thus, future studies would benefit from the use of longitudinal data to observe how the relationships between these variables develop over time. Second, the survey data used in this research were self-reported and the data collected for each project were based only on the perspective of the individual who completed the questionnaire, which may lead to common method bias (Podsakoff et al., 2003). Although our tests suggest no serious concern for multicollinearity given that the variance inflation factor obtained was far below the cut-off point (Hair et al., 2006), future studies should attempt to obtain data from multiple sources, for instance from both the project manager and team members. Third, data collected from projects related to knowledge transfer in MNCs should also consider the effects of the HRM policy at the MNC headquarters on the HRM practices of subsidiaries (Myloni et al., 2007) and the effect of cultural differences on acceptable standards of project performance (Pinto, 2013; Zwikael et al., 2005). Accordingly, future research should consider these factors, including the time frame of project duration, given that different cultures have different views of time (Bakker et al., 2013; Hofstede, 1983). Furthermore, a test of the roles of each domain of HRM practices (ability, motivation, and opportunity) in relation to the effects that a project team’s knowledge absorptive capacity has on project performance would provide insight into the way in which POCs should prioritize their resources for highly effective operations. Finally, the generalizability of the findings may be limited because the sample was drawn from MNCs operating in the automobile industry in Thailand. Future research should confirm these findings in other industries.

In conclusion, this research sheds light on the different roles of HRM practices in the project management literature. Our results indicate that HRM practices and a project team’s realized ACAP have shared effects on short-run project performance. HRM practices also have a moderating role in the relationship between a project team’s potential ACAP and long-run project performance. This research contributes to the substantial body of knowledge on project management.

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Appendix 1. PROJECT PERFORMANCE

Short-run project performance

a) Project efficiency
1. Meeting operational specifications
2. Meeting technical specifications
3. Meeting time goals
4. Meeting budget goals
b) Impact on users
5. Fulfilling user needs
6. Solving major operational problems
7. Actually used by the users
8. Level of user satisfaction
c) Direct business success
9. Level of commercial success
10. Generated a large market share

Long-run project performance

11. Opened a new market/opportunity
12. Opened a new line of products
13. Developed a new technology

Note: Shenhar et al. (1997)

ABSORPTIVE CAPACITY (ACAP)

Potential ACAP

Acquisition
1. Our project has frequent interactions with corporate headquarters to acquire new knowledge
2. Members of our project regularly visit other units/departments
3. We collect industry information through informal means (e.g. lunch with industry friends, talks with trade partners)
4. Our project periodically organizes special meetings with users/customers or third parties to acquire new knowledge
5. Project members regularly approach third parties such as accountants, consultants, or tax consultants

Assimilation
1. New opportunities to serve our clients are quickly understood
2. We quickly analyze and interpret changing market demands
Realized ACAP

Transformation
1. Our project regularly considers the consequences of changing market demands in terms of new products and services
2. Project members record and store newly acquired knowledge for future reference
3. Our project team quickly recognizes the usefulness of new external knowledge to existing knowledge
4. Project members hardly share practical experiences (reverse-coded)
5. We laboriously grasp the opportunities for our project from external knowledge
6. Our project periodically meets to discuss consequences of market trends and new product development

Exploitation
1. It is clearly known how activities within our project should be performed
2. Users complaints fall on deaf ears in our project (reverse-coded)
3. Our project has a clear division of roles and responsibilities
4. We constantly consider how to better exploit knowledge
5. Project team have a common language regarding our products and services

Note: Jansen et al. (2005)

HRM practices

Training
1. The extent of organized training on project/job-related skills training
2. The extent of organized training on regularity of training
3. The extent of organized training on degree-earning programs supported by the organization

Note: Minbaeva (2005)

Reward and career development

1. Annual group bonus based on project team performance
2. Opportunities to exercise leadership
3. The chance to contribute to important decisions
4. Opportunities to develop professional reputation

Note: Thompson and Heron (2006)

Participation

1. Project team in this job are allowed to make many decisions
2. Project team in this job are often asked by their supervisor to participate in decisions
3. Project team are provided the opportunity to suggest improvements in the way things are done
4. Superiors keep open communications with project members in this job

Note: Delery and Doty (1996)

Project team autonomous

1. The extent is your job characterized by the freedom to carry out my job the way I want to
2. The extent is your job characterized by the opportunity for independent initiative
3. The extent is your job characterized by high level of variety in my job

Note: Foss et al. (2009)

References


