

# Enhancing NPD Performance through Human Resource Management Practices

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## Abstract

The purpose of this study is to examine the roles of innovation supportive culture and social capital in the relationship between Human Resource Management (HRM) practices and new product development (NPD) performance in the organizational context. A sample of 104 Taiwanese firms in the electronics industry is used to identify the linkage between constructs. The results demonstrate that HRM practices contribute to the development of innovation supportive culture and social capital within the organizational context. Both innovation supportive culture and social capital were significantly and positively related to NPD performance. This study also found the existence of a mediating role for innovation supportive culture and social capital in the relationship between HRM practices and NPD performance. These results reinforce the importance of both two organizational mechanisms and their contribution toward organizational performance, especially NPD.

## Introduction

New product development (NPD) is one of the important ways that organizations are able to adapt to changes in market, technology, and competition (Dougherty and Hardy, 1996). As a result, the use of performance in the NPD context has received considerable attention (Brown and Eisenhardt, 1995; Nixon, 1998). Effective management of employees to help organizations attain new product development goals has become a critical issue for organization managers as well as for scholars (Hauschildt, 1991; Griffin and Page, 1996). However, extant research on the management of organizations tends to focus on the relationship between HRM practices and performance (Huselid, 1995; Delery and Doty, 1996). Few extant studies have specifically examined the effect of HRM practices on new product development (NPD) performance within organizations (Laursen and Foss, 2003).

HRM practices provided by organizations will facilitate the knowledge sharing and cooperation (Cabrera and Cabrera, 2005), and then develop innovation supportive culture and form social capital among their workplaces (Cabrera and Cabrera, 2005; Hayton, 2005). This study argues that the innovation supportive culture and social capital are mediators of the relationship between HRM practice and better NPD performance. We investigated the interdependent and mediating relationships between HRM practices, innovation supportive culture, social capital, and NPD performance.

The following sections discuss the relevant theoretical background and develop hypotheses concerning HRM practices, innovation supportive culture, social capital, and NPD performance. Research methods and findings then follow, while the significance of the results is discussed in the final section.

### **Hypothesis**

This section first defines the various variables involved in this study: HRM practices, innovation supportive culture, social capital, and new product development (NPD) performance. A brief review of the relevant literature is followed by the construction of the hypotheses.

### **Managing New Product Development (NPD) Performance**

The new product development (NPD) might be viewed as a series of steps in activities, including idea generation, product design, and product commercialization (Cooper, 1975; Griffin and Hauser, 1996; Urban and Hauser, 1993). Managers and scholars generally recognize NPD as an innovative process to acquire and exploit new knowledge and market opportunities (Debruyne et al., 2002; Song and Parry, 1992), and that knowledge is a source of sustainable competitive advantage (Leonard-Barton, 1998). Though NPD performance is recognized as a critical factor for organizations nowadays (Hayton, 2005), previous researchers have focused on techniques and measurements of NPD performance (Cooper and Kleinschmidt, 1987; Griffin and Page, 1996; Hauschildt, 1991).

### **Human Resource Management Practices**

According to resource-based view (RBV), organizations use the value of HRM by developing resources such as knowledge, skills, and complex social structures that are valuable, rare and difficult for competitor to imitate. Generally, scholars and managers accept the notion that the positive effects of HRM practices on organizations could be applied to gain competitive advantage (Ulrich, 1996). HRM practices offer resources and opportunities that improve the motivation, skills, attitudes, and behaviors of their employees. Further, HRM practices are the primary vehicles to elicit or reinforce employee behavior, and to achieve organizational objectives (Latham and Wexley, 1997).

## **Innovation Supportive Culture**

Chandler et al. (2002) proposed that an innovation supportive culture is perceived by employees as approved to participate in the activities that improve current products, come up with new ideas, and enhance team efficiency. Innovation supportive culture, as defined in this study, it is a culture that creates an atmosphere where entrepreneurship, collaboration, and risk-taking are encouraged and rewarded (Hayton, 2005). Lengnick-Hall and Lengnick-Hall (2003) also argued that an innovation supportive culture provides high band-width communication for information exchange. Innovation supportive culture could lead to more chances and familiarity during information sharing.

## **HRM Practices and Innovation Supportive Culture**

Scholars argue that HRM practices may be designed to communicate important and useful values of the organization which could in turn build and promote a unique culture of innovation support (Shipton et al., 2005; Tichy, 1983). Consequently, we suggest that HRM practices may facilitate reciprocity and promote culturally aligned behaviors. HRM practices may facilitate an innovation supportive culture and thus strengthen cooperation and knowledge sharing, as well as encourage creative and collaborative behaviors, among organization members. Therefore, this study argues that an organization implementing HRM practices for its employees could foster an innovation supportive culture within the organization. Thus, we construct Hypothesis 1:

**H1.** HRM practices are positively associated with innovation supportive culture.

## **Innovation Supportive Culture and NPD Performance**

Jassawalla and Sashittal (2002) propose that an innovation supportive culture provides an overarching frame of reference, which is helpful in aligning employee behavior with organizational objectives of innovation. Hence, we propose the following hypothesis:

**H2.** Innovation supportive culture is positively associated with NPD performance.

## **Mediating Role of Innovation Supportive Culture**

Scholars assumed one of the building blocks of NPD success is the creation of an innovation supportive culture that is conducive to the achievement of specific new product objectives (Hayton, 2005; Jassawalla and Sashittal, 2002; Tomkovich and Miller, 2000). Lengnick-Hall and Lengnick-Hall (2003) also argue that innovation supportive culture provides a high band-width communication for information exchange. Hence, we propose Hypothesis 3.

**H3.** An innovation supportive culture mediates the relationship between HRM practices and new product development performance.

## **HRM Practices and Social Capital**

HRM practices facilitate knowledge sharing and cooperation among employees (Laursen and Foss, 2003), and develop these skills effectively as well (Delaney and Huselid, 1996; Delery and Doty, 1996; Edgar and Geare, 2005). Therefore, this study proposes that HRM practices could induce the employee to build social capital.

**H4.** HRM practices are positively associated with an organization's social capital.

## **Social Capital and NPD Performance**

Social capital should promote NPD performance by strengthening cooperation and knowledge sharing and encouraging creative and collaborative behaviors. Thus, we propose the following hypothesis:

**H5.** Social capital is positively associated with NPD performance.

## **Mediating Role of Social Capital**

HRM practices such as job rotation or team-based work design may enhance knowledge dissemination in the organization and increase social interaction among employees, thus stimulating the development of organizational social capital (Laursen and Foss, 2003).

Social capital may in turn enhance NPD performance. Hence, we hypothesize:

**H6.** Social capital mediates the relationship between HRM practices and NPD performance.

## **Method**

### **Research Context and Sample**

This study uses a questionnaire-based methodology in Taiwan, with the target sample including all listed/public companies in the electronics industry, as provided by the Taiwan Stock Exchange Inc. and Gre Tai Securities Market (Market Observed Post System). We collected responses from 156 HR managers and 137 R&D and marketing managers.

### **Measures**

To measure HRM practices, we adopted twenty-two items from Delaney and Huselid (1996), and Delery and Doty (1996) to measure the three dimensions of HRM practices. We assessed the innovation supportive culture with three items adopted from De Brentani and Kleinschmidt (2004). Social capital was measured using five items adopted from Youndt and Subramaniam (2004). We also used the six items developed by Moorman and Miner (1997) to measure NPD performance.

## **Analysis and results**

Table 1 presents the results of the regression analysis with regard to HRM practices and NPD performance. Overall, it suggests that the constructs are largely related in the

theoretically predicted manner. Model 1 captures the direct effects of HRM practices and innovation supportive culture. The model is significant at the  $p < 0.00$  level and  $R^2 = 0.21$ . These findings indicate that HRM practices have a direct, positive influence on innovation supportive culture, supporting Hypothesis 1. Furthermore, in Model 2, we find that HRM practices in the organizational context are positively related to social capital ( $\beta = 0.36$ ), with the result for the significance level and  $R^2$  both being acceptable ( $R^2 = 0.24$ ,  $p < 0.00$ ). Hypothesis 4, is thus supported.

With regard to the impact of innovation supportive culture and social capital on NPD performance, Models 4 and 5 show the relationships. These findings indicate that Hypotheses 2 and 5 are supported.

We next analyzed the mediating role of innovation supportive culture and social capital in the relationship between HRM practices and NPD performance. Following the procedure of Baron and Kenny (1986), our findings suggest that innovation supportive culture and social capital partial mediate the relationship between HRM practices and NPD performance. These results are consistent with Hypotheses 3 and 6.

We further examined the significance of the indirect effect of HRM practices and NPD performance using the Sobel test. The results of the Sobel test provide further support for the mediating role of innovation supportive culture and social capital in affecting the relationships between HRM practices and NPD performance. Accordingly, Hypotheses 3 and 6, which state that innovation supportive culture and social capital mediate the effect of HRM practices and NPD performance, are supported.

## **Discussion**

Extending our research on NPD performance, we argue that the present research attempts to identify factors that can help firms promote their NPD performance by recognizing the role of HRM in this process. The overall results suggest that HRM practices that facilitate cooperation and knowledge sharing among employees enhance a firm's innovation supportive culture and social capital, and indirectly promote NPD performance by these organizational mechanisms. Our findings also indicate that employees who communicate with team members and employees from different departments in a broader and more extensive fashion have much denser communication networks, representing a higher level of social capital.

This study contributes to the development of a conceptual model to answer the question of what HRM practices organizations can use to create and accumulate social capital and develop an innovation supportive culture.

Table I: Results of Regression Analysis Predicting Innovation Supportive Culture and Social Capital as a Mediator

Dependent Variable	Model 1:	Model 2:	Model 3:	Model 4:	Model 5:	Model 6:	Model 7:	Sobel test
	Innovation Supportive Culture	Social Capital	New Product Development Performance					
	$\beta$	$\beta$	$\beta$	$\beta$	$\beta$	$\beta$	$\beta$	
<b>Control Variables</b>								
Company Size	0.30**	0.17	0.40***	-0.11	0.31**	0.35**	0.21*	
Team Size	0.40	0.04	0.01	0.27	0.21	-0.01	-0.03	
<b>Independent Variable</b>								
HRM Practices	0.21*	0.36***	0.51**			0.21*	0.17*	
<b>Mediating variable</b>								
Innovation Supportive Culture				0.73***		0.43***		1.97*
Social Capital					0.46**		0.57***	1.89*
<b>Model Statistics</b>								
R <sup>2</sup>	0.21	0.24	0.26	0.33	0.21	0.41	0.30	
Adjusted R <sup>2</sup>	0.19	0.22	0.25	0.30	0.21	0.40	0.27	
F	8.90***	10.55***	36.84**	24.57**	28.54***	72.38***	38.75**	
N	104	104	104	104	104	104	104	104

\* p<0.05, \*\* p<0.01, \*\*\* p<0.001

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