

2nd Global Conference on Business and Social Science-2015, GCBSS-2015, 17-18 September
2015, Bali, Indonesia

Strategic Human Resource Management, Innovation Capability and Performance: An Empirical Study in Indonesia Software Industry

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Abstract

Firms should develop innovation capability to manage innovation process from generating ideas to commercialization. Strategic human resource management (SHRM) is considered as a key element to innovation capability since the human element is involved in the innovation process. This study investigates the relationship among SHRM practices, innovation capability and innovation performance. For this purpose an empirical research is conducted to analyze data from Indonesian software firms. The result indicates that SHRM practices are positively related to innovation capability, which in turn has a positive effect on innovation performance.

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Peer-review under responsibility of the Organizing Committee of the 2nd GCBSS-2015

Keywords: Innovation; Innovation Capability; Innovation Performance; Strategic Human Resource Management; Software Industry

1. Introduction

Competition among firms is getting harder due to globalization, deregulation, the dynamics of user needs, and new technologies. In order to survive and improve growth, firms must continuously create innovation. Innovation is defined as an economically and socially successful introduction of a new way or a new combination of existing ways in transforming inputs into outputs that result in changes in the value/price relationship offered to the users (de Meyer and Garg, 2005; Fontana, 2011).

Innovation can be done not only in product innovation, but also in other forms such as process innovations,

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innovation in business model, organizational structure, brand, marketing, management systems, customer service and experience (Davila, Epstein and Shelton, 2006; Trott, 2008; Fontana 2011; Keeley, Pikkell, Quinn and Walters, 2013). Innovation considered as the main strategic tools to have a competitive advantage in today's dynamic environment. But in practice, not all firms can succeed in innovation. Based on the research conducted by Center for Innovation and Collaboration (CIC), PPM Management (2013), it is reported that 24.6% of firm respondents did not continue their innovation activities. That number increased in 2014 to 26.5% (CIC PPM Management, 2014). Results of the study revealed that one of the sources of innovation failure associated with their human resources competencies.

Human resources have strategic value that must be taken into account (De Saa-Perez and Garcia-Falon, 2002). Good quality of human resources will determine the performance of innovation (Jimenez-Jimenez and Sanz-Valle, 2005; Koc, 2007; Wichitchanya and Durongwatana, 2012). Furthermore, Gomez-Mejía et al (2007) and Snell and Bohlander (2010) suggested in order to have qualified human resources, firms need to develop effective human resources policies and activities. According to Millmore, Lewis, Saunders, Thornhill and Morrow (2007), to achieve optimum results, human resource management should be conducted strategically. It should always be associated with the company's strategy (Snell and Bohlander, 2010; Leopold and Harris, 2009). The need for strategic human resources management is also explained by Lengnick-Hall, Lengnick-Hall, Andrade and Drake (2009) and Pourkiani, Salajeghe and Ranjbar (2011). Furthermore, strategic human resources management is expected to increase innovation (Wang and Zang, 2005; Chen and Huang, 2009; Pourkiani, et al, 2011).

The main objective of this study was to investigate the influence of strategic human resource management for the firm's innovation capabilities that will also indirectly affect the firm performance. The context of this study was the software which has been given the characteristics associated with the changing dynamics of knowledge and high technology, short product life cycles, and high levels of global competition that demands continuous innovation.

2. Literature Review

This section will discuss the definition of innovation capability, strategic human resource management and innovation performance.

2.1. Innovation Capability

Firms should fulfill the demands for innovation to meet market needs, creating new needs for the market and anticipate developments in technology. Cooper (2011) explained that firms should be able to extend the life cycle of its products or to create something new with innovation. Firms need to innovate in order to survive and grow and also excel as well as significantly influencing industry direction (Davila *et al*, 2006; Trott 2008; Crossan and Apaydin, 2010).

Skarzynski and Gibson (2008) explained that in order to get a good innovation performance the company needs to have the capability of innovation. The same opinion was also delivered by Davila *et al* (2006) which stated the need for firms to develop innovation capabilities based on the positive behavior, competence and motivation of the managerial ranks and employees to get a good innovation. Lawson and Samson (2001) described the innovation capability as the capability of the firm to transform knowledge and ideas into new products, new processes for the benefit of the firm and its stakeholders. While Madanmohan (2003) defines innovation capability as the firm's ability to reconfigure and develop their resources and organizational capabilities to innovate. Based on Madanmohan (2003), there are three dimensions of innovation capability i.e. sensing capability, combination capability and relational (networking) capability.

2.2. Innovation Performance

Fontana (2011) and Wang and Lin (2012) described the innovation performance as achievement or success of innovation made by a firm in accordance with the target. Innovation performance can be measured by several approaches range from technical, non technical and financial approaches (Gamal, 2011). OSLO Manual developed by the OECD (2005) described some aspects that can be used to measure the innovation performance in the form of the output of innovation (eg number of new products produced, an increase in the quality of the work, as well as the improvement of the systems that exist within the firm) and impact of innovation (examples: changes in competition, market expansion, increased productivity, profit and environmental impact). Furthermore, based on the result of a

literature review of research publications, especially De Meyer and Garg (2005), Fontana (2011) described the concept of the five dimensions of innovation performance: (i) internal performance; (ii) technical performance; (iii) commercial performance; (iv) economic performance; and (v) social performance.

2.3. Strategic Human Resource Management

Employee competencies can be used as a competitive advantage. Wright, Dunford and Snell (2001) added a human resources management is expected to be able to align the people competencies (knowledge, skills, experience, motivation, value) and the firm (*people-job fit, people- organization fit*). A human resource management includes all policies, practices and systems that affect the behavior, attitude and performance of employees in the firm (Noe, Hollenbeck, Gerhart and Wright (2000)

To achieve optimum results, human resource management should be conducted strategically. It should always be associated and aligned with firm's strategy (Millmore *et al*, 2007; Leopold and Harris, 2009; Snell and Bohlander 2010). Lengnick-Hall *et al* (2009) and Pourkiani *et al* (2011) added that the strategic human resource management focuses on the company's strategic options related to human resources management and its impact on performance that are aligned with firm goals. Furthermore, Wright and McMahan (1992) suggested the definition of strategic human resource management as patterns and activities planned for the management of human resources which are expected to enable the company to achieve its objectives. Another definition is also disclosed by Armstrong (2001), who defined human resource management as a strategic approach to decision making and planning firm associated with employment (*employment relationship*) and the strategy, policies and practices of recruitment, training, development, performance management, compensation and relationships between employees who are integrated with each other horizontally (with other functions) and vertical (corporate strategy). This research used five dimensions of strategic human resource management: (i) HR planning, (ii) HR acquisition, (iii) HR development, (iv) performance management, and (v) reward management.

3. Hypotheses

Research conducted by Romijn and Albaladejo (2002) on software firms in South East England, discovered evidences of the importance of human resources in increasing innovation capabilities. The same thing was also presented from studies by Capaldo *et al* (2002), Koc (2007), Simatupang and Widjaja (2012) and Edison *et al* (2013). Other research showed the relationship between human resource management practices with innovation is found in research by Jimenez-Jimenez and Sanz-Valle (2005), Ling and Nasurdin (2010).

Hypothesis 1: Strategic Human Resource Management has positive impact on Firm Innovation Capability

The study conducted by Martinez-Roman *et al* (2011) explained that there is connection between innovation capabilities with the performance of product and process innovation Relationships between innovation capability and performance are also found in the study conducted by Romijn and Albaladejo (2002) which investigated the relationship between innovation capabilities and innovation performance in manufacturing industry.

Hypothesis 2 : Firm Innovation Capability has positive impact on Firm Innovation Performance

4. Methods

This study was conducted in Indonesian software industry. The survey was conducted by an online questionnaire consists 91 Likert-scale-type indicators with response 1 (strongly disagree) to 6 (strongly agree). The use of an even number of categories (scale 1-6) is intended to avoid the tendency of respondents to fill out the middle value in order to shorten the time of filling out the questionnaire. Prior to the distribution of the questionnaire and collecting data, the instruments was tested and reviewed in advance by pre-test and discussions with experts.

Research model examination was conducted using variance-based SEM (*Partial Least Squares* -PLS). The model were tested by : (i) Evaluation of *the outer model* or models of measurement, to examine indicators of latent variables, and (ii) Evaluation of *inner models* or structural models, to test the effect of one latent variable to other latent variable (Hair, *et al.*, 2014).

5. Results and Discussion

A total 42 firms from 172 Indonesia software firms invited (respond rate of 24.4%) were willing to participate in the study. A total of 21.4% of respondent firms are firms that provide services to develop customized software for clients. A total of 23.8% of respondent firms develop and sell software products (e.g. human resources information system and accounting applications) and the other 54.8% of respondents are doing both services.

Before hypotheses testing, validity and reliability evaluation were performed to the research model. This study used indicator reliability (minimum score of 0.4), discriminant validity, average variance extracted (AVE, minimum score of 0.5) and composite reliability (CR, minimum score of 0.7) for validity and reliability evaluation. The result of validity and reliability evaluation is described in Table 1.

Table 1. Result of Validity and Reliability Evaluation

Latent variables		Number of Initiate Indicators	Outer Loading range	Average Variance Extracted	Composite Reliability	Number of Final Indicators
2 nd Order	1 st Order					
SHRM	HR Planning	3	0.86-0.94	0.505	0.958	3
	HR Acquisition	6	0.72-0.87	0.788	0.918	5
	HR Development	9	0.67-0.85	0.622	0.891	8
	Performance Mgt	5	0.81-0.93	0.629	0.931	4
	Reward Mgt	4	0.76-0.83	0.747	0.922	4
Innovation Capability	Sensing Cap.	7	0.62-0.87	0.651	0.848	3
	Combination Cap	15	0.68-0.90	0.503	0.965	7
	Networking Cap	8	0.58-0.84	0.569	0.901	15
Innovation Performance	Internal Perf.	9	0.62-0.96	0.640	0.893	6
	Technical Perf.	11	0.55-0.83	0.540	0.973	9
	Commercial Perf.	7	0.74-0.88	0.747	0.963	9
	Economy Perf.	4	0.63-0.94	0.526	0.908	6
	Social Perf.	3	0.78-0.92	0.649	0.926	4
				0.714	0.907	4
				0.766	0.907	3

Hypotheses testing were taken after ensuring all the indicators and dimensions are valid and reliable. According to Hair *et al* (2014), hypotheses testing using SEM-PLS is done by measuring the structural model that describes the relationship between latent variables. Structural model will be tested using coefficients of determination (R^2 values, the general value of 0.75, 0.50 or 0.25 for endogenous variables, demonstrated the value of a strong, moderate and weak), the path coefficient value and the value of t-statistic (t-values, > 1.96 for the alpha 5%) of each track to test the significance between variables in the research model. The model is considered suitable if the estimated value is significant. The estimated value to the relationship paths in the model can be obtained by bootstrapping procedure.

The value of each endogenous variable based on their coefficients of determination (R^2) is 0.655 for innovation capability (moderate) and 0.729 for innovation performance (strong). Furthermore, the result of Hypotheses testing is described in Table 2.

Table 2. Results of Hypotheses Testing

Hypotheses	Path	Path Coefficient	t-value
H1	SHRM → Innovation Capability	0.809	17.415
H2	Innovation capability → Innovation Performance	0.620	4.269

Based on structural model evaluation, it can be concluded that both hypotheses are accepted. The path coefficient value between strategic human resource management and innovation capability is 0.809. It means that both variables have strong relationship. Furthermore, strategic human resource management can explain 65.5% of innovation capability. With such results, it can be said that strategic human resource management can be a good predictor for innovation capability of the firm, as the conclusion of previous study such as Pourkiani *et al* (2011) which states that the firm can increase the innovation capability by creating employees who have the knowledge and experience of a quality of work, motivating them to share knowledge and retain competence employees.

6. Conclusion

This study proves that strategic human resource management significantly affects innovation capability and furthermore the innovation capability also significantly affects innovation performance. This results are in line with previous studies, which conducted by different methods and contexts. In order to improve their innovation capability, firms should pay attention and hold a good strategic human resource management. Thus the firm is expected to have a competitive advantage.

7. Limitation of the Study

The main limitation of this study is the number of samples used due to the limited numbers of software firms participating in this study (42 firms). Although the respond rate is 24.4%, but this study will get better results if it has a sufficient number of samples. Expanding the sample size appears to potentially improve some of the statistically conclusions obtained from this study. Another limitation is related to the variables used in this study. Based on previous studies, there are other variables in addition to strategic human resource management that could affect innovation capability. Therefore, further study may be advisable.

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