



3rd Global Conference on Business and Social Science-2015, GCBSS-2015, 16-17 December
2015, Kuala Lumpur, Malaysia

Does Innovation Contribute To Employee Performance?

Suriati Osman^{a*}, Siti Halijah Shariff^b, Mohamad Nor Azali Lajin^c

^a*Faculty of Hotel and Tourism Management, Universiti Teknologi MARA, 43200 Bandar Puncak Alam, Selangor, Malaysia*

^b*Arshad Ayub Graduate Business School, Faculty of Business and Management, Universiti Teknologi MARA, 40450, Shah Alam, Selangor, Malaysia*

^c*Tenaga Nasional Berhad, Kuala Lumpur, Malaysia*

Abstract

This study investigated the relationship between innovation and employee performance at Tenaga Nasional Berhad (TNB), a utility company in Malaysia since TNB is unsure to place innovation as a 'nice to have' or 'must have' in their company. Responses from staff through a survey from selected management team were gathered. Two hundred and ninety-four respondents' feedback was used to analyze the impact of four types of innovation (product, process, technological and organizational) on employee performance. Through Factor Analysis the four types of innovation was reduced to three while another factor named attitude emerged. The three types of innovations (product, process, and technological and organizational) were found to influence employee performance with the exception of attitude.

© 2016 The Authors. Published by Elsevier Ltd. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

Peer-review under responsibility of the Organizing Committee of the 3rd GCBSS-2015

Keywords: employee performance; process innovation; product innovation; technological innovation; organizational innovation

* Corresponding author.

E-mail address: suriatiosman@yahoo.com

1. Introduction

Employee performance is vital to any organization as it is a form of measurement of a company's success (Sadikoglu & Zehir, 2010). It measures the non-financial indicators of a company such as teamwork, motivation, productivity index, service quality and competency (Manzoor, Ullah, Hussain, & Ahmad, 2011). There are various methods or approaches to enhance employee performance and one of them is through innovation. It was found that employee performance improves firm performance indirectly through innovation as employee generates ideas for new products or services to improve competitiveness of the firm (Sadikoglu & Zehir, 2010). Innovation activities according to Walker, Damanpour, & Devece, (2010) improve administrative process, increase efficiencies and make work management more effective. Researchers have identified process, product (Gunday, Ulusoy, Kilic, & Alpkan, 2011) technological and organizational innovations (Camisón & Villar-López, 2014) as having impact on employee performance. In fact innovation is listed as one of the 10 Big Ideas in Malaysian 10th Malaysia Plan (2011-2015) towards Malaysia as a high income and developed nation by 2020.

Tenaga Nasional Berhad (TNB), the main power utility company in Malaysia, has been involved in innovation for many years. One of the innovation platforms is through its Work Improvement Team-Innovation Creative Circle (WIT-ICC). WIT-ICC focused on resolving problems as well as improving the current working environment. However, in recent years, innovation initiatives through ICC platform at TNB have been seen not giving any impact to the company. Some ICC teams felt that ICC has become an extra task and to some extent a burden to them. Management is unsure whether this innovation activity is a 'Nice to Have' or a 'Must Have'. Thus this study is to investigate whether innovation from the perspective of TNB employees has any impact on their performance.

2. Literature Review

2.1 Employee Performance and Innovation

Traditionally, performance in organization has been measured by using financial indicators such as profit, market share, earnings and growth rate (Demirbag, Tatoglu, Tekinkus, & Zaim, 2006). However, non-financial indicators also must be considered in accessing performance which usually developed in line with human resource outcomes such as turnover, absenteeism, job satisfaction, productivities and quality (Abdalkrim, 2013). In order to gain competitive edge and achieve success, organization must give top priority to employee performance (Imran, Fatima, Zaheer, Yousaf, & Batool, 2012). Employee performance is about the way in which employees accomplish organizational set goals and relates their interpersonal behaviours to the organizational norms (Imran et al., 2012), and timely, effective and efficient completion of mutual agreed task by the employee, as set out by the employer (Tinofirei, 2011). For this study employee performance was measured from the non-financial aspect that includes competency, motivation, self-discipline and teamwork.

It was found that employees performance are influenced by innovation (Sadikoglu & Zehir, 2010). Innovation through employees' generation ideas for new products and services would eventually improve competitiveness (Sadikoglu & Zehir, 2010), improve administrative process, increase efficiencies and effective work management (Walker et al., 2010), increase organizational fitness (Choi, Jang, & Hyun, 2009), improve quality performance (Sadikoglu & Zehir, 2010) and lead to productivity enhancement (Rostami & Branch, 2011). Additionally, innovation will increase the quantity, quality and timeliness of output, attendance on the job, efficiency and effectiveness of work completed (Tinofirei, 2011).

2.2 Process Innovation

Most of the innovation researchers found process and product innovations has significant impact towards employee performance (Neely, 1998; Choi et al., 2009; Dasgupta & Gupta, 2009; Gunday, Ulusoy, Kilic, & Alpkan, 2011). Process Innovation can be defined as the implementation of new or significantly improved production or delivery method (OECD Oslo Manual, 2005). Most researchers found that there is positive relationship between process innovation and employee performance. Umashankar, Srinivasan, & Hindman, (2011) in their observation on the customer service agent, found that changes on the existing process will eventually help employee in their job and

improve their delivery system. In addition, the adoption of new management system, new practices, new technique and process makes management work more effective and efficient (Walker et al., 2010). Thus;

H1: Process Innovation has significant relationship to employee performance

2.3 Product Innovation

The term product can be both goods and services (Gunday et al., 2011) and can be define as introduction of goods or services that is new or significantly improved in its characteristic or intended uses, or improvement in technical specification, component and material, incorporated software, user friendliness or other functional characteristic (OECD Oslo Manual, 2005). Product innovation correlates employee performance. Internal innovation such as designing new tools alter the way employees do their job (Umashankar et al., 2011). Product innovation seems to benefit employee competency and motivation through creating new tools to solve problems (Umashankar et al., 2011), and encourage creative thinking (Rostami & Branch, 2011). Creativity is born when employees having the right skill, being in the right environment and supported by leadership, who not only cultivate their ideas but drive innovation and action (Rostami & Branch, 2011). Thus, it is essential for managers to create environment that motivates employees and help them feel pride in their work (Sadikoglu & Zehir, 2010). Hence,

H2: Product Innovation has significant relationship to Employee Performance.

2.4 Technological Innovation

Technological innovation pertaining to products, services and production involve the use of radically new technologies, combination of pre-existing technologies or new knowledge (Dasgupta, Gupta, & Sahay, 2011). Technological Innovation helps organization to learn and search for new idea through the receptive of external technological knowledge (Dasgupta et al., 2011) and it was found that technological innovation has significant impact towards employee performance (Dasgupta & Gupta, 2009; Camisón & Villar-López, 2014). Technological advancement increase the value of service product innovation through electronic linkages that could alter the ways in firm acquiring and delivering information (Tsou, 2012). The underpinning idea of technological innovation is that technology had change the way of working and therefore machine and tools have to be more flexible, user friendly human – machine, and could ease the process of work (Sabadie, 2014). Therefore;

H3: Technological innovation has significant relationship to Employee Performance

2.5 Organizational Innovation

Organizational innovation can be define as the implementation of new method in the firm's business practice, workplace organization or external relation (OECD Oslo Manual, 2005). Organizational Innovation relates with all of administrative efforts of renewing the organizational routines, procedures, mechanism and system in the organization (Gunday et al., 2011). Organizational Innovation has strong relationship with employee performance. Firms tend to innovate their administrative procedures to increase firm performance by reducing administrative and transaction cost, improve workplace satisfaction (OECD Oslo Manual, 2005). In addition, organizational innovation not only requires team and individual creative performance but also activities at the organizational level that may create creative output of the firm (Aime, Dyne, & Petrenko, 2011). Hence,

H4: Organizational Innovation has significant relationship to Employee Performance.

3. Methodology

An empirical study was conducted in a non-contrived setting using individuals as the unit of analysis at Transmission Division at TNB. Transmission Division was chosen since it is one of the core departments at TNB. Two level sampling approaches were used with the first approach using purposive sampling in identifying employees that are involved in innovation activities in the company. With the exception of 30 Innovation Change Agents and Coordinators, survey forms were given to 320 employees involved in innovation activities using convenient sampling approach and by means of drop and collect method. The 30 Innovation Change Agents and Coordinators received their set of questionnaires via email since they are situated throughout the country. The items on innovation were adapted from Choi, Jang and Hyun (2009) and Gunday, Ulusoy, Kilic, and Alpkan (2011) while the items for employee performances were adapted from Zdunczyk and Blenkinsopp (2007) and Tinofirei (2012). Out of 350 survey forms distributed 294 were useable with a response rate of 84%.

4. Results and Findings

The respondents consisted of 215 (73.1%) non-executives, and 76 (25.9%) executives, out of which 81.3% are males and 13.6% females. Three respondents did not respond to 'position' while 15 respondents did not respond to gender. One hundred and twenty nine (43.9%) respondents age are within 20 to 30 years, 27.9% between 31 to 40 years, 17% between 41 to 50 years while 10.9% above 51 years with 36.4% having work experience between 1 to 5 years, 18.4% between 6 to 10 years, 17.7% between 11 to 15 years and 27.6% more than 15 years.

4.1 Factor Analysis

Factor analysis was computed to confirm the existence and relevant of existing variables. The analysis was performed to both dependent and independent variables. No item was removed from employee performance. However, 6 items were removed from Innovation that resulted in the KMO measure of sampling adequacy to be 0.972 with significant results for Barlett's Test of Sphericity. Table 4.1 shows the results of factor analysis for innovation.

Table 4.1 Factor Analysis for Innovation

Item	Innovation			
	Tech & Org	Attitude	Process	Product
<i>Developing new innovation based on new technology is a strategic priority in my organization</i>	.715	.270	.070	.413
<i>Technological innovation activities improve teamwork among my colleague</i>	.686	.182	.467	.297
<i>My competency (knowledge, skill and ability) improve through Technological innovation activities</i>	.734	.263	.316	.294
<i>My self-discipline has improved through Technological innovation activities</i>	.748	.368	.233	.202
<i>I am motivated to be involve in the Technological innovation activities</i>	.728	.412	.256	.159
<i>My performance has getting better through Technological innovation activities</i>	.748	.358	.286	.186
<i>My competency (knowledge, skill and ability) improve through organizational innovation activities</i>	.732	.283	.224	.352
<i>My self-discipline has improved through organizational innovation activities</i>	.705	.301	.216	.415
<i>I am motivated to be involve in the organizational innovation activities</i>	.741	.400	.258	.233
<i>My performance has getting better through organizational innovation activities</i>	.783	.290	.320	.196
<i>My competency (knowledge, skill and ability) improve through process innovation activities</i>	.359	.643	.287	.397
<i>My self-discipline has improved through process innovation activities</i>	.424	.700	.361	.209

<i>I am motivated to be involve in the process innovation activities</i>	.429	.703	.248	.329
<i>My performance has getting better through process innovation activities</i>	.466	.628	.330	.342
<i>Product innovation activities produce components and tools to ease maintenance and project work</i>	.265	.318	.784	.308
<i>Product innovation activities improve teamwork among my colleague</i>	.420	.374	.675	.228
<i>Process innovation initiatives focus on improving core processes</i>	.360	.318	.278	.707
<i>Process innovation activities improve teamwork among my colleague</i>	.337	.341	.355	.682
Eigenvalue	12.792	.903	.498	.465
Percentage (81.432%) of variance	36.460	18.194	13.596	13.183

The results showed technological innovation and organizational innovation had merged into component 1. Process Innovation and Product Innovation maintained in component 3 and 4 respectively. Interestingly, four items from Process and Product Innovation were loaded into component 2 and renamed as Attitude due to the contents of the items. The results required construction of a new theoretical framework and hypothesis for this study. Figure 4.1 and table 4.2 shows the new theoretical framework and hypothesis that was used for the analysis.

Figure 4.1 New Theoretical Framework for Innovation and Employee Performance

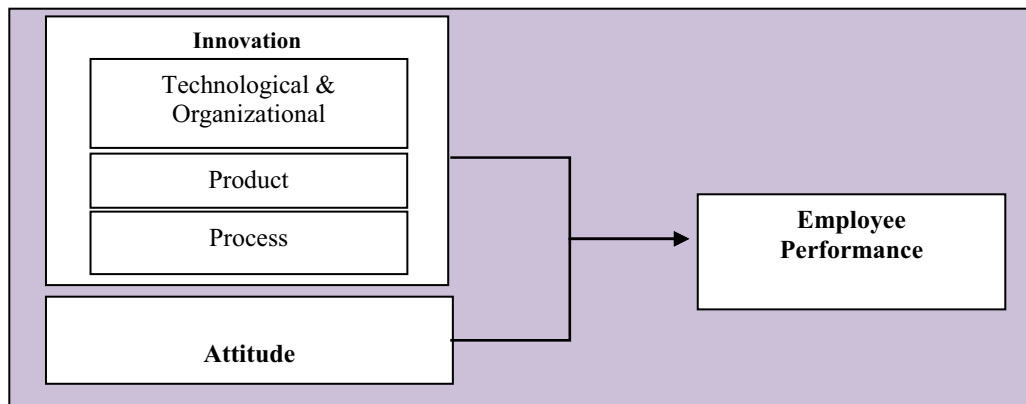


Table 4.2 New Hypothesis after Computed Factor Analysis

H No.	Hypothesis Statement
H₁	Innovation has significant relationship with Employee Performance
H_{1a}	Technological & Organizational Innovation have significant Relationship with Employee Performance
H_{1b}	Product Innovation has significant relationship with Employee Performance
H_{1c}	Process Innovation has significant relationship with Employee Performance
H₂	Attitude has significant relationship with Employee Performance

4.2 Reliability Analysis

Reliability analysis was done to check the goodness of the data. Table 4.3 shows the summary of reliability analysis

of this study where the Cronbach Alpha for all factors was more than commonly acceptance level of 0.7. Cronbach Alpha for Technological and Organizational Innovation was nearest to 1 ($\alpha=0.968$) indicating the items calculated has high internal consistency and stability from others.

Table 4.3 Reliability Analysis Summary

	Number of items	Item deleted	Cronbach 's Alpha
<i>Employee Performance</i>	15	-	0.948
<i>Technological & organizational Innovation</i>	10	-	0.968
<i>Product Innovation</i>	2	-	0.845
<i>Process Innovation</i>	2	-	0.819
<i>Attitude</i>	4	-	0.930

4.3 Descriptive Analysis

Descriptive analysis was computed to identify the mean score and standard deviation of the variables. Table 4.4 shows the results of descriptive analysis for this study. Process innovation has the highest mean score of 5.0358 followed by product innovation, process innovation, and technological and organizational innovation.

Table 4.4 Summary of Descriptive Statistic

Variables	Mean	Std. Deviation
<i>Employee Performance</i>	4.9682	.69595
<i>Tech & Org Innovation</i>	4.9693	.64550
<i>Product Innovation</i>	4.9829	.65536
<i>Process Innovation</i>	5.0358	.60921
<i>Attitude</i>	4.9716	.64012

4.4 Pearson Correlation Analysis

Pearson Correlation was used to describe the strength and direction of the linear relationship between two variables. Table 4.5 shows the summary of Pearson Correlation Analysis for this study. Results shows that there was quite strong positive significant relation between Employee Performance and Innovation and Attitude with r values more than .500, as suggested by Cohen (1988). Correlation between Attitude, and Technological and Organizational Innovation was the strongest among all variables with r value of .855; followed by Process Innovation and Attitude with r value of .807. Overall, for the independent variables, the results revealed that Attitude correlates very well towards Employee Performance with r value of .609 followed by Technological and Organizational Innovation, Process Innovation and Product Innovation with r value of .606, .589 and .578 respectively.

4.5 Multiple Regression Analysis

Multiple regression analysis was used to identify which predictor variables can best explained the dependent variable. Durbin Watson for the study was 2.103, which is between the acceptance range of 1.5 and 2.5. Case diagnostics table showed 5 outliers have to be removed. Adjusted R² value for the model after the removal of the outliers is .418 which means that 41.8% of the variance in dependent variable is explained by the independent variables. Innovation variables have positive significant relationship to Employee Performance but attitude does not have significant relationship to Employee Performance.

Table 4.5 Summary of Pearson's Correlation

	Employee Performance	Org & Tech Innovation	Product Innovation	Process Innovation	Attitude
Employee Performance	1				
Organizational & Tech Innovation	.606**	1			
Product innovation	.603**	.788**	1		
Process Innovation	.589**	.777**	.786**	1	
Attitude	.609**	.855**	.815**	.807**	1

** . Correlation is significant at the 0.01 level (2-tailed).

Results also revealed that technological and organizational innovation has a strong positive significant relationship with employee Performance, with beta value of .225. The results indicated that every increase of one standard deviation of technological and organizational innovation, will increase employee performance by .225. In addition, process innovation also has positive significant relationship with employee performance with beta value of .144. Product innovation has a positive significant relationship with employee performance with beta value of .209. However, attitude does not have significant relationship with employee performance in this study. Table 4.6 shows the summary of multiple regression results. Based on the multiple regression results, Hypothesis 1 is accepted while hypothesis 2 is rejected (refer to Table 4.7)

Table 4.6
Summary of Multiple Linear Regression Analysis

	Employee Performance
Independent Variables:	
<i>Technological & Organizational Innovation</i>	.225*
<i>Product Innovation</i>	.209*
<i>Process Innovation</i>	.144**
<i>Attitude</i>	.131
F value	52.626
R²	.426
Adjusted R²	.418
Note:	
* p < 0.05	
** p < 0.10	

Table 4.7:
Summary of Hypothesis Testing

H No.	Hypothesis Statement	results
H₁	Innovation have significant relationship to Employee Performance	accepted
H_{1a}	Technological & Organizational Innovation Have significant relationship with Employee Performance	accepted
H_{1b}	Product Innovation has significant relationship with Employee Performance	accepted
H_{1c}	Process Innovation has significant relationship with Employee Performance	accepted
H₂	Attitude has significant relationship with Employee Performance	rejected

5. Discussions and Conclusion

Based on the multiple regression analysis it was found that 41.8% of the variance in employee performance is explained by innovation and attitude. However the significant positive relationships on employee performance were mainly innovation. This result indicated that innovation activity at the utility company should not be reduced. In fact it should not be ‘Nice to Have’ but ‘Must Have’. The fear that reduced innovation may have impact on employee performance is empirically proven. The study further found among all types of innovation, technological and organizational innovation has the highest impact on employee performance followed by product and lastly process innovation. This again provides indication to management on the focus of innovation at the company. This study not only provides insights on the impact of innovation on employee performance but also on the strategic planning of the company in ensuring innovation in the company is maintained. It also can be translated on the allocation of budget put aside for innovation. The company should consider itself lucky for having employees that are passionate about innovation since it may lead to productivity enhancement (Rostami & Branch, 2011).

Acknowledgements

We would like to thank Tenaga Nasional Berhad for the cooperation and support in making this investigation possible.

References

- Abdalkrim, G. M. (2013). The Impact of Strategic Planning Activities on Private Sector Organizations Performance in Sudan: An Empirical Research. *International Journal of Business and Management*, 8(10). doi:10.5539/ijbm.v8n10p134
- Aime, F., Dyne, L. V., & Petrenko, O. V. (2011). Role innovation through employee social networks: The embedded nature of roles and their effect on job satisfaction and career success. *Organizational Psychology Review*, 1(4), 339–361. doi:10.1177/2041386611411230
- Camisón, C., & Villar-López, A. (2014). Organizational innovation as an enabler of technological innovation capabilities and firm performance. *Journal of Business Research*, 67(1), 2891–2902. doi:10.1016/j.jbusres.2012.06.004
- Choi, S., Jang, H., & Hyun, J. (2009). Correlation between innovation and performance of construction firms. *Canadian Journal of Civil Engineering*, 36(11), 1722–1731. doi:10.1139/L09-070
- Dasgupta, M., & Gupta, R. K. (2009). Innovation in Organizations: A Review of the Role of Organizational Learning and Knowledge Management. *Global Business Review*, 10(2), 203–224. doi:10.1177/097215090901000205
- Dasgupta, M., Gupta, R. K., & Sahay, a. (2011). Linking Technological Innovation, Technology Strategy and Organizational Factors: A Review. *Global Business Review*, 12(2), 257–277. doi:10.1177/097215091101200206
- Demirbag, M., Tatoglu, E., Tekinkus, M., & Zaim, S. (2006). An analysis of the relationship between TQM implementation and organizational performance: Evidence from Turkish SMEs. *Journal of Manufacturing Technology Management*, 17(6), 829–847. doi:10.1108/17410380610678828
- Gunday, G., Ulusoy, G., Kilic, K., & Alpkan, L. (2011). EFFECTS OF INNOVATION TYPES ON FIRM PERFORMANCE *. *Middle-East Journal of Scientific Research* 11, 10(10), 662–676.
- Imran, R., Fatima, A., Zaheer, A., Yousaf, I., & Batool, I. (2012). How to Boost Employee Performance : Investigating the Influence of Transformational Leadership and Work Environment in a Pakistani Perspective. *Journal of Scientific Research*, 11(10), 1455–1462. doi:10.5829/idosi.mejsr.2012.11.10.741
- Manzoor, S. R., Ullah, H., Hussain, M., & Ahmad, Z. M. (2011). Effect of Teamwork on Employee Performance. *International Journal of Learning and Development*, 1(1), 110–126. doi:10.5296/ijld.v1i1.1110
- Neely, A. (1998). INNOVATION AND BUSINESS PERFORMANCE :
- Rostami, A. S., & Branch, N. (2011). Impact of innovation and creativity on productivity enhancement of employees in Isfahan Telecommunications Company, 359–365.
- Sabadie, J. A. (2014). Technological innovation, human capital and social change for sustainability. Lessons learnt from the industrial technologies theme of the EU’s Research Framework Programme. *The Science of the Total Environment*, 481, 668–73. doi:10.1016/j.scitotenv.2013.09.082
- Sadikoglu, E., & Zehir, C. (2010). Investigating the effects of innovation and employee performance on the relationship between total quality management practices and firm performance: An empirical study of Turkish firms. *International Journal of Production Economics*, 127(1), 13–26. doi:10.1016/j.ijpe.2010.02.013
- Tinofirei, C. (2011). *The Unique Factors Affecting Employee Performance in Non Profit Organizations*.
- Tsou, H. T. (2012). Collaboration competency and partner match for e-service product innovation through knowledge integration mechanisms.

- Journal of Service Management*, 23(5), 640–663. doi:10.1108/09564231211269810
- Umashankar, N., Srinivasan, R., & Hindman, D. (2011). Developing Customer Service Innovations for Service Employees: The Effects of NSD Characteristics on Internal Innovation Magnitude. *Journal of Service Research*, 14(2), 164–179. doi:10.1177/1094670511401007
- Walker, R. M., Damanpour, F., & Devece, C. A. (2010). Management Innovation and Organizational Performance: The Mediating Effect of Performance Management. *Journal of Public Administration Research and Theory*, 21(2), 367–386. doi:10.1093/jopart/muq043
- OECD Oslo Manual. (2005). *Oslo manual :THE MEASUREMENT OF SCIENTIFIC AND TECHNOLOGICAL ACTIVITIES PROPOSED*.