

Factors Influencing Innovation Capability among Employees: A Case of the Malaysian Oil and Gas Industry

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Abstract: This study addresses primary issues that are involved in innovation capability among the employees in the oil and gas industry. Three factors namely knowledge sharing, management support and trust and goal clarity are examined to help enhance the understanding on innovation capability among employees. The methodology utilizes primary data from questionnaires administered to a sample of 217 employees in oil and gas companies. These self-administered questionnaires were distributed using the non-probability sampling technique. Descriptive statistics, correlation analysis and multiple regression analysis were employed to analyze data via Statistical Package Social Sciences (SPSS). Results established that all variables have a significant positive influence over innovation capability. Recommendations to successfully compete in the current turbulent economic times include improving best-practices that enhance knowledge sharing, management support and trust and goal clarity among employees which will eventually have positive ramifications over innovation capability.

Key words: Innovation capability, knowledge sharing, management support and trust, goal clarity, oil and gas industry

INTRODUCTION

Innovation has been considered the main factor for the survival, growth and development for many decades (Fallah and Lechler, 2008). Companies competing in the global market must possess high standards of innovation performance so that their products or services will succeed and emerge as superior (Fallah and Lechler, 2008). Undoubtedly, innovation can help firms play an important role in building the future of their respective industries. Innovation performance is said to represent the extent to which a new product meets its financial and market goals in the market (Rijsdijk *et al.*, 2011). High performing innovator firms are able to maintain organizational capabilities. It is known that innovation can take place at different levels in organizations (Kiernan, 1996). Some innovations may be designed towards introducing new and enhancing products and services and some may be designed towards improving efficiency of manufacturing or the efficiency of providing customer support (Fallah and Lechler, 2008) whereas some others relate to improvement in work processes.

Innovation performance has always been the main concern for innovative firms. Innovation is a theory that has been defined and portrayed in many ways by researchers, both as a process and as an outcome (Garcia and Calantone, 2002). It is hard to find practitioners and scholars who oppose or disagree with the view that innovation as it is a crucial catalyst for organizations to succeed in an era of rapid revolution (Subramaniam and Youndt, 2005). So, in order to study the factors or the contributors of organization's innovation capability, it is rightfully defined as the belief that the organization is actually producing novel or useful ideas to improve the organization in the creation of new products (Lee and Choi, 2003). Besides that, innovation capability represents key sources of innovative ideas, products and processes that are essential to obtain and maintain economic viability especially in technology competitiveness. In the organization itself, human resource practices are an important element for companies to promote innovation capability and enjoy competitive advantage (Saunila, 2014).

This can be proven by looking at the relationship between different human resource practices and

innovation revealed in a few studies (Chandler *et al.*, 2003). Employees can create and use innovative capability not just depending on individual styles but also contextual factors which are organizational trust and managerial styles. On a related note, Romijn and Albaladejo (2002) define innovation capability through internal factors such as knowledge, professional background and skill of workforce. However, there is a dearth of empirical research that takes into account the construct of attitudinal and managerial components. Specifically reference is made to employee-focused contextual variables that will increase or decrease level of innovation capability. Firms are progressively investing more resources on R and D, yet investment by itself does not guarantee the advancement of organizational innovation capability what more enhance organizational performance. The Oil and Gas Companies experienced a problem of innovation capability in offering their services. This was especially the case due to the oil and gas industry turmoil with rapidly declined prices and the pressure was high to cut costs to the expense of innovative practices. It was deemed that the employees of the Oil and Gas Companies were far from practising high level of innovation at the workplace.

The main purpose of this research was to determine how innovation capability would be enhanced by knowledge sharing, management support and trust and goal clarity. The overriding objective was to understand the impact of those factors on innovation capability among Oil and Gas Company employees in Malaysia. Specifically, the ancillary objectives of this study were to investigate the relationship between knowledge sharing, management support and trust and goal clarity over innovation capability among Oil and Gas Company employees and to investigate the influences of knowledge sharing, management support and trust and goal clarity over innovation capability among Oil and Gas Company employees.

Literature review

Innovation capability: Scholars (Xu *et al.*, 2008) have defined the innovative capability as the capacity of gaining access to developing and implementing innovative knowledge of technologies for designing and manufacturing. Some others have (Koc, 2007), considered innovative capacity to be the continuous improvement of the whole capabilities and resources that the firm possesses to explore and feat opportunities for evolving new products to meet market needs whereas there have been some more recent studies (Chen, 2009) that defined innovative capabilities as a business's competencies, grounded in the processes, systems and organizational structure which can be applicable to the product or process innovation actions. A more comprehensive understanding of this theory (Ngo and O'Cass, 2009) and

definition of innovation capability is the collaborative process of applying the shared knowledge, skills and resources of the firm to perform innovation activities regarding to technical innovations such as the products or services and production process of technology and also the non-technical innovations such as managerial, leadership and marketing. Conclusively, innovation capability denotes the ability to make major improvements and alterations of existing technologies and to create new technologies, skills and knowledge to adapt them to the changing environment.

Knowledge sharing: Knowledge viewed as the result of gaining understanding of information, facts and skills, through experience or situation. From an educational context it was posited (Tan and Ramayah, 2014) that knowledge-sharing was viewed as a social interaction culture that ensures best practices and profound sustainability. Additionally, knowledge-sharing is primarily related to activities of exchanging both existing and new knowledge, contributing research and teaching experiences and a myriad of skills among academics for succeeding in educational competitiveness. Further benefits of knowledge-sharing (Gruenfeld *et al.*, 2000) is that it can reduce the cost of the production, services and also contribute to the success of the organization by reducing the cost of errors as well the ability to innovate and generate new ideas. Studies (Tan and Ramayah, 2014) conclude that an effective knowledge-sharing behavior cannot be forced but must be fostered the help of both intrinsic and extrinsic motivators associated with employee's intentions to share knowledge with others. On a related note, another study (Iqbal *et al.*, 2011) echoes the potential knowledge sharing has over improving work quality in reducing mistakes as well as contributing to the innovation capability.

- H₁: There will be a significant relationship between knowledge-sharing and innovation capability among Oil and Gas Company's employees

Management support and trust: An organization would not stand alone without the management support and trust with the fact that there is no existence without the creation of organizational structure, policies, support and trust. Management support can be defined as help or assistance from the top management and all levels of management to maintain their performance towards the innovation capabilities. Trust has also been linked to organizational outcomes such as higher sales and profits, lower employee turnover (Davis *et al.*, 2000). Trust also has been found increased levels of cooperative behavior among employees (Gambetta, 1988). Research has indicated (Fallah and Lechler, 2008) the existence of

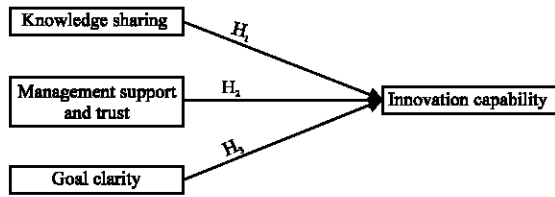


Fig. 1: Proposed conceptual framework

trust in the workplace is essential to organizational performance, innovation and competitiveness in an increasingly global economy. Organizational culture with a high level of sociability also implies the high level of trust among the employees.

- H_2 : There will be a significant relationship between management support and trust and innovation capability among Oil and Gas Company's employees

Goal clarity: Goal clarity is the factor that influences innovation capability pronounced by clear organization mission and goals. In order for employees to be committed towards their goals, this target must be communicated towards employees clearly so that, they know exactly the expectation of them. These determinants ensure employees achieve the innovation capability. Goal clarity refers to which an organizational goal is well cascaded down to all levels (Chun and Rainey, 2005).

Organization goals actually direct attention, effort and action of employees to achieve their target within a period of time. Goals that are communicated towards employees contribute to a better performance that relates to behaviors (Locke and Latham, 1990). Goal clarity also relates to self-motivation where, motivation is the complex forces, needs, drives, tension states or other mechanisms within us that will create and maintain voluntary activity directed towards the achievement of personal goals. Goal clarity is also a positive indicator of employee engagement (Medlin and Green, 2008). A recent study confirmed the role of goal clarity in enhancing innovation capability at organizations (Gor *et al.*, 2015). The reason of clear goals includes eliminating the uncertainty of employees. Another benefit is that the employees can see the connection of their research and final outcome (Mone *et al.*, 2011).

- H_3 : There will be a significant relationship between goal clarity and innovation capability among Oil and Gas Company's employees

Proposed conceptual framework: Figure 1 shows the proposed conceptual framework.

MATERIALS AND METHODS

This study provides different methods used in collecting the data for this study. Surveys were distributed to employees from the 3 oil and gas companies. Time horizon was cross-sectional because it involved the collection of data from a particular sample once only. Self-administered questionnaires used contained 6 point Likert scale items ranging from 'strongly disagree' to 'strongly agree' to measure the variables in this study. The survey items were designed to assess respondents innovation capabilities were adopted from past research (Kumar and Rose, 2010). Perceptions of knowledge sharing are measured using ten survey items adapted from an established instrument (Kumar and Rose, 2010). Respondent perceptions of goal clarity are measured using twelve survey items (Chavda, 2004) and eleven items are used to measure the influence of management support and trust (Chavda, 2004) and some modifications have been made in order to fit with the organization's specific circumstances. The total estimated population of Oil and Gas Company employees is 501 employees which covers Oil and Gas Company (A), Oil and Gas Company (B) and Oil and Gas Company (C). The sample size was inspired from Krejcie and Morgan (1970) (Table 1 and 2). Based on Table 3, the sample size of this study is 217 from the total population of 501 in oil and gas companies. Researchers used non-probability sampling technique which was convenience sampling. The principle of convenience sampling is that the collection of information from of the population who are conveniently available to provide it (Sekaran and Bougie, 2013). This was to overcome certain issues on sampling frame that arose with the original intention to sample across using

Table 1: Demographic analysis

Demographic	Frequency	Percentage (%)
Gender		
Male	118	54.4
Female	99	45.6
Education level		
Certificate	8	3.7
Diploma	11	5.1
Bachelor degree	173	79.7
Master	18	8.3
PhD	7	3.2
Marital status		
Single	84	38.7
Divorced/separated/widowed	5	2.3
Married	128	59.0
Age (years)		
21-30	88	40.6
31-40	118	54.4
41-50	11	5.1
Length of services (years)		
<1	45	20.7
1-5	126	58.1
6-10	43	19.8
11-5	3	1.4

Table 2: Cronbach's alpha reliability analysis

Models	N	Cronbach's alpha	Remarks
Innovation capability	217	0.741	Acceptable
Knowledge sharing	217	0.630	Acceptable
Management support and trust	217	0.671	Acceptable
Goal clarity	217	0.732	Acceptable

Table 3: Descriptive analysis

Model	N	Mean	SD
Innovation capability	217	4.072	0.943
Knowledge sharing	217	4.065	0.805
Management support and trust	217	4.130	0.804
Goal clarity	217	4.199	0.762

the probability sampling technique. Getting access to employees was a limitation of research which warranted resorting to the decision to conduct convenience sampling.

RESULTS AND DISCUSSION

Based on Table 4 pearson correlation coefficient analysis shows there is a positive relationship between innovation capability and goal clarity with a significant value is $r = 0.855$, $p = 0.000$ indicating a strong relationship. Followed by innovation capability and knowledge sharing value is $r = 0.699$, $p = 0.000$ with strong relationships. However, the correlation between management support and Trust have moderate relationship where the value is $r = 0.416$ $p = 0.000$.

The overall results for regression model was significant ($p = 0.000 < 0.05$) with F-value 176.086. Table 5 shows the results of regression of three independent variables against a dependent variable, innovation capability. From the results, the adjusted R^2 in Table 5 shows. About 0.0802 in innovation capability has been significantly explained by all the three independent variables. It means that 80.7% of variance in innovation capability was explained by the variance in the independent variables. In other words, the other 19.3% of variance in innovation capability were explained by other predictors that were not considered or examined by the researchers in this study.

The significant relationship of the knowledge sharing on innovation capability shows that when the employees share their knowledge they will get more job security and it has bearing on Innovation Capability of employees. In multiple regressions analysis it shows that Knowledge Sharing is significant at ($p < 0.00$) with a Beta value of 0.542. This result also supported past research (Lin, 2007) which found that knowledge sharing has significant positive relationship towards innovation capability. This can be said that every employee in oil and gas company enjoys sharing the knowledge and information that they have amongst one another.

Therefore, H_1 was accepted. The other significant independent variable on innovation capability is

Table 4: Pearson correlation coefficient analysis

Models	Innovation capability
Knowledge sharing	
Pearson correlation	0.699
Sig. (2-tailed)	0.000
Management support and trust	
Pearson correlation	0.416
Sig. (2-tailed)	0.000
Goal clarity	
Pearson correlation	0.855
Sig. (2-tailed)	0.000

Table 5: Multiple regressions analysis

Variables	β	Sig.
Innovation capability	0.836	0.836
Knowledge sharing	0.542	0.542
Management support and trust	0.763	0.763
Goal clarity	0.636	0.636
F-value: 176.086; Sig.: 0.000; $R = 0.898$; $R^2 = 0.807$;		
Adjusted $R^2 = 0.802$; R^2 change = 0.807		

management support and trust. In multiple regressions analysis it shows that management support and trust is significant at ($p < 0.00$) with beta value of 0.763. Thus, this result also supported past research (Lin, 2007) which found that management support and trust has significant positive relationship towards innovation capability. This indicates that when employees receive management support and trust it will enhance them to be more innovative and will help their ideas to be contribute into the company. Therefore, H_2 was accepted.

The other significant independent variable on innovation capability is goal clarity. In multiple regressions analysis it shows that Goal Clarity is significant at ($p < 0.00$) with a beta value of 0.636. This finding echoes that in past research (Carbonell and Rodriguez, 2009) which found goal clarity has strong positive relationship towards firm innovation capability. It shows that when they get clear mission and goals of the company they will expected to perform their task and responsibility as well drive to produce fresh and excellent ideas. Therefore, H_3 was accepted.

CONCLUSION

Despite the oil and gas industry turmoil, this sector presents a strong contribution to the economy of malaysia nonetheless. Innovation capability is the essence that would help drive the employees towards greater levels of performance and eventually present as competitive advantages in the markets. If employees fall back on being innovative, they will be less productive in their jobs and this will have negative repercussions on customers and the bottom line of the company. Based on the result and discussion of this study, researchers had found the factors that influence and contribute to innovation capability among oil and gas company employees. There were significant relationships between

knowledge sharing, management support and trust, goal clarity and innovation capability among oil and gas company employees. It goes without saying that oil and gas company employee has significant relationship when they possess their support from organization and the results from this study supported this contention. In the future oil and gas company can work towards enriching management and support as well as trust in the best interest of the company. Ultimately, innovative efforts should be channeled towards improved cost-cutting strategies to ensure sustainability of the industry in the long-run.

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