

## **Quality of Information - A Need of Change and Firm's Product Innovation Performance: The Mediating Effect of Change Willingness**

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### ***Abstract***

*Innovation is the pillar for sustainable economic development. Yet, firms always face problem in enhancing their innovation performance. Past studies reveal that new knowledge is the main input which help firm to enhance its innovation performance. Thus, acquiring and exploiting new knowledge have become one of the critical tasks that firm focuses on. Extant studies have used absorptive capacity to measure acquiring and exploiting knowledge and tested its relationship with firm innovation performance. However, the results are mixed. A need to separate the acquiring and exploiting knowledge is essential. Based on data collected from 156 Malaysian firms, this study has measured the absorptive capacity by using two constructs, which are quality of information and change willingness and tested its relationship with firm's product innovation.*

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***Key words:*** Change willingness, Innovation, Malaysia

***JEL Classification:*** M16

## **1. Introduction**

In 21<sup>st</sup> century, the fundamental pillar for sustainable economic development is innovation (Chow and Wang, 2009; Tomlinson, 2010; Cavusgil, Calantone and Zhao, 2003). According to Wang and Ahmed (2004), firm's innovativeness is the ability of a firm to combine strategic orientation with innovative behavior and process in introducing new products and developing new markets. To achieve this, policy makers need to devise policy to help firms to develop firm's innovative capacity. Firm's innovative capability is very much affected by its absorptive capability, which is defined as firm's ability to recognize, assimilate, and apply the new external knowledge to commercial ends (Cohen and Levinthal, 1990). Without new knowledge, it is very hard for firms to generate new idea which is essential for firms to innovate. Thus, ample research has examined the relationship between absorptive capacity and firm innovation performance in the past decade (Wang and Yan, 2011, Wang, Wang, and Horng 2010; Chen, Lin and Chang, 2009; Liao, Fei and Chen, 2007; Tsai, 2001). However, some firms have successfully acquired the needed knowledge and information, yet they fail to innovate. One of the reasons is they are unwilling to change the way they run the business by leveraging on the new knowledge acquired. Thus, change willingness of firm plays an important role in the success of firm innovation. Yet, few studies have separated the knowledge acquisition and change willingness and examine their relationships with innovation performance. To fill the gap, this study measures the absorptive capacity by using two constructs, which are quality of information and change willingness and examines the relationship among quality information about change, a need of achievement, change willingness, and firm product innovation.

## **2. Literature Review**

Change resistance is one of the most important obstacles for firms to enhance its innovation performance (Michaelis, Stegmaier and Zonntag, 2009). Hence, resolving change resistance is the utmost important task of firm. Quality of information and a need of change are considered the key determinants to shape the change attitude of employees (Miller, Johnson and Grau, 1994). Firm's willingness to change is represented by fostering new ideas and improving commitments to perform new things differently and effectively which ultimately leads to better innovation performance (Rainey, 1999). Hence, it is hypothesized as:

H1: Change willingness is positively related to firm's product innovation.

Quality of information can be considered as central to the formation of employees' attitudes in money-making and cost-effective organizations (Beer and Walton, 1987; Starbuck, 1965). Thus, information relating to pros and cons of change and plan for change of

a firm must be disseminated to all relevant employees in the firm to shape their change attitude (Miller, Johnson and Grau, 1994). Based on the arguments, they are hypothesized as:

H2: Quality information about change is positively related to change willingness.

H3: Change willingness mediates the relationship between quality information about change and firm innovation performance.

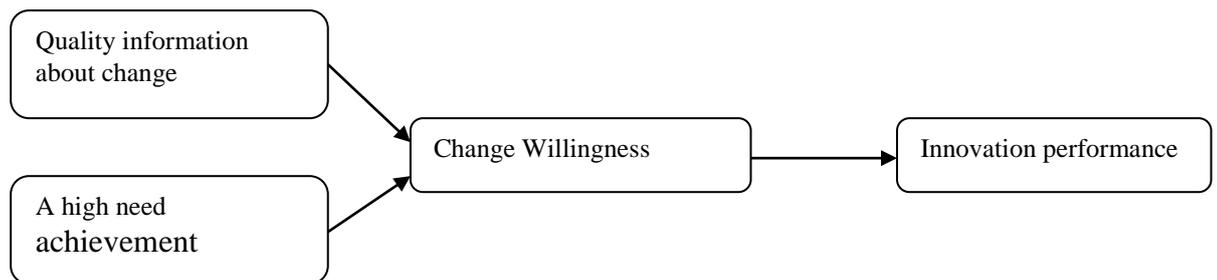
On the other hand, a high need of achievement can help individuals to enjoy challenging situation and generate creative and innovative idea to overcome the situation (Litwin and Stringer, 1968). In other words, these people are more positive towards challenging tasks. They are more willing to change to make higher achievement. Thus, they are postulated as:

H4: A need of change is positively related to change willingness.

H5: Change willingness mediates the relationship between a need of change and firm innovation performance.

Figure 1 illustrates the research framework that quality information about the change and a high need of achievement contributes to change willingness and change willingness, at the same time, will affect firm innovation performance.

**Figure 1: Research Framework**



### 3. Methodology

#### 3.1 Data

The sample of the study was generated from a list of companies provided by SME Corporation Malaysia. A total of 156 responses were collected. The items of the constructs were adapted from Miller, Johnson and Grau (2009) and Wang and Ahmed (2004).

### 4. Results and Discussion

Table 1 shows the reliability and validity of the constructs. The Cronbach's alpha for all the variables exceed .70 which show that all the constructs pass the reliability test.

**Table 1: Results of reliability test and exploratory factor analysis**

Factor	Factor Loading
Quality of Information	
QI 1. The information I have received about the implementation of the work of work teams has been timely.	.788
QI 2. The information I have received about the implementation of the work of work teams has been useful.	.927
QI 3. The information I have received about the implementation of the work of work teams has been adequately answered my questions about the change.	.752

QI 4.	The information provided about the implementation of work teams was positive.	.853
QI 5.	The information provided about the implementation of work teams was favorable.	.773
QI 6.	The way in which the information about the implementation of work teams was communicated appropriately.	.894
Eigenvalue		4.172
Accumulated variance explained (%)		69.531
Cronbach $\alpha$		.911
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A need of achievement		
NA2	We do my best work when our job assignments are fairly difficult.	.896
NA3	We take moderate risks and stick our neck out to get ahead at work.	.652
NA4	We try to perform better than our coworkers.	.920
NA5	We try very hard to improve on our past performance at work.	.927
Eigenvalue		2.934
Accumulated variance explained (%)		73.339
Cronbach $\alpha$		.874
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Change Willingness		
CW1	We would consider ourselves to be open to the changes the work teams will bring to our work role	.856
CW3	We are looking forward to the changes in our work role brought about by the implementation of work teams.	.887
CW5	We think that the implementation of work teams will have a positive effect on how we accomplish our work.	.910
CW6	The proposed changes in the work teams will be for the better.	.873
Eigenvalue		3.140
Accumulated variance explained (%)		62.798
Cronbach $\alpha$		.902
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Product Innovation Performance		
IP1	In new product and service introductions, our company is often the first-to-market.	.824
IP2	Our new products and services are often perceived as very novel by customers.	.718
IP3	In comparison with our competitors, our company is faster in introducing new products or services into the market.	.826
Eigenvalue		2.442
Accumulated variance explained (%)		81.402
Cronbach $\alpha$		.880

Table 2 shows a summary of the correlation results. As shown in the table, quality of information and a need of change are significantly associated with change willingness ( $r=581$  &  $r=.501$ ). Change willingness is positively associated with product innovation ( $r=.475$ ).

**Table 2: Results of correlation analysis**

Variables	Mean	Standard Deviation	1	2	3	4
Quality of information	3.464	.6850	1			
A need of change	3.728	.7923	.661**	1		
Change Willingness	3.824	.7913	.581**	.501**	1	
Product Innovation	3.355	.8607	.612**	.532**	.475**	1

Table 3 shows the multiple regression results. The results show that both H2 & H4 are statistically significant ( $t=.445$  &  $.206$ ,  $P<0.01$ ). Thus, both hypotheses are supported.

**Table 3: Multiple Regression Results**

	Change Willingness
Quality of Information	.445**
A need of Achievement	.206**
R square	.622
Adjusted R square	.354
F	43.386
$P<0.01$ **	

Table 4 shows the result of mediating effect of change willingness on the relationship between quality of information/ a need of achievement and firm's product innovation. Result of bootstrapping shows that H3 and H5 are statistically significant at  $P<0.05$  with 95 percent CI= .0030, .4534 and CI=.0208, .3839. Thus, both hypotheses are supported.

**Table 4: Results of the Mediating Effect of Change Willingness on the Relationship between Quality of Information/a Need of Achievement and Firm's Product Innovation Performance (Bootstrapping Method)**

Independent variables (IV)	Mediator (M)	Dependent variable (DV)	Effect of IV on M (a)	Effect of M on DV (b)	Direct effect (c')	Indirect effect (a x b)	Total effects (c)	95% CI for indirect effect
1. QI	CW	PI	.6714	.1955	.6372	.1312	.7685	.0030, .4534
2. NA	CW	PI	.4998	.3022	.4270	.1511	.5780	.0208, .3839

## 5. Conclusions and Recommendations

Extant research has examined the relationship between various key determinants and firm innovation performance. But, results are mixed. It is still a challenging task for firm to enhance its innovation performance to compete in marketplace. To enhance firm's innovation performance, it is necessary to look at the change willingness of firm. Thus, this study examines the relationship among quality of information, a need of achievement, change willingness and product innovation. The findings show that quality of information and a need of achievement are positively related to change willingness. This is in line with Miller, Johnson and Grau (1994). In Malaysia, people tend to be more interested on the reasons why they need to change before they will involve in change. Once they understand the reason why they need to change, they will start looking for information and acquire the knowledge on how to change happen. On the other hand, the findings also show that change willingness will affect the product innovation. The success of innovation is very much built on the willingness of firm to apply new knowledge to challenge the industry norm and use new method to develop new products or new markets (Wang and Ahmed, 2004). The finding is in line with Michaelis, Stegmaier and Zonntag (2009) and Rainey (1999).

This study makes several theoretical and managerial contributions. First of all, this study broadens the knowledge base in two ways, it splits the absorptive capacity into two parts which are knowledge acquisition and change willingness. In addition, it tested the mediating effect of change willingness on the relationship of quality of information/a need of achievement and production innovation. To enhance the product innovation, firms need to make sure their employees are willing to change to support the product innovation. In order to enhance the employee change willingness, firms need to provide quality information regarding why and how they need to change.

In conclusion, this study contributes both to theory and business practice by examining the antecedents and consequences of change willingness based on data gathered from Malaysian firms. Firm's product innovation can be enhanced when firm understand how to enhance the employees change willingness. Quality of information and a need of achievement might not be neglected when firms want to overcome change resistance.

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