

# The Determinants of Innovative Work Behavior in the Knowledge Intensive Business Services Sector in Malaysia

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## Abstract

Innovative work behavior plays a central role in the long-term survival of knowledge-intensive business services in Malaysia. Even though innovation and creativity and their influences on the Malaysian economy and its future growth are important, research on this area is still inadequate. Underpinned by the Social Exchange Theory, this empirical study attempts to determine the relationship that may exist between pro-innovation climate, leader-member exchange (LMX), and social capital with the innovative work behavior (IWB) among the knowledge workers in the KIBS sector in Malaysia. A quantitative method was utilized and a total of 1520 questionnaires was distributed and resulted in 20.6% response rate. The results revealed that there were significant relationship between pro-innovation climate, social capital and leader-member exchange with the innovative work behavior of knowledge workers. In addition, among the three independent variables, pro-innovation climate had been found to be the most significant predictor of innovative work behavior.

**Keywords:** innovative work behavior, pro-innovation climate, leader-member exchange, social capital, knowledge-intensive business services (KIBS), social exchange theory, Malaysia

## 1. Introduction

Innovation has long been embraced by organizations seeking to remain viable, effective and competitive in a dynamic business environment (Peters & Waterman, 1982). An organization cannot remain viable if it keeps on producing products or services in the same way over time (Amabile, 1997) and the continuing of such behavior would lead to the decline or demise of the organization (Drucker, 1989). Innovation has long been described based on the Schumpeterian concepts in which innovation sets within the research and development (R&D) labs in order to discover knowledge (Romer, 1990). However, Kanter (1988) viewed that innovations can be in the form of product, services, market strategies, processes, and work methods which are all considered more of a product of the human mind and its creativity, where tacit knowledge resides. In other words, innovation may or may not be routed through R&D labs and thus no longer associated with those organizations and worker doing technological/scientific work per se (Smith, 2002).

## 2. Problem Statement

Malaysia intends to become a knowledge based economy and with this in mind innovation need to exist in all sectors of the economy (Ministry of Science, Technology and Innovation, Malaysia (MOSTI), 2006). Nevertheless, MOSTI had reported that there are still short of innovations in many sectors of the economy even though a lot of efforts have been carried out thus resulted in slow development of the right environment for innovation to flourish in Malaysia (Tan & Nasurdin, 2010). Innovation has also become important in the service sector as much as it did for the manufacturing sector (Poh & Zi, 2005). It is further anticipated that the services sector will continue to become a vital sector in the economic growth of Malaysia as well as its quest to become a knowledge based economy (Yeoh & Mahmood, 2013). In line with this global knowledge economy, one particular subset of services sector namely knowledge-intensive business services (KIBS) has come into the fore of Malaysia with great potential to be tapped. KIBS constitute one important characteristic of the rise of the knowledge-based economy (Muller & Zenker, 2001), and is one of the most dynamic components of the services sector in most industrialized countries (Strambach, 2001). Through the innovativeness of the KIBs sector, many activities that were regarded as non-core functions for instance human resources and customer service were

transformed into core functions thereby elevated their importance in the organizations (Jarman & Chopra, 2008). KIBS in Malaysia constitute a niche sector like IT consulting, outsourcing, system integrations, creative services, project management, environmental engineering, civil and mechanical engineering, medical services and accounting services (Economic Planning Unit, 2009). KIBS are solely dependent on the knowledge, the creativity and the innovative engagement of their knowledge workers and this is clearly evident in KIBS where the organizations do not have a separate R&D department (Bessant, 2003). Many countries like the European Union and Singapore who have a high share of GDP on service (more than 66%) had led a significant research effort directed to KIBS (Poh & Zi, 2005). However, the presence of KIBS in Malaysia is largely over-looked, under-theorized and under-documented (Jarman & Chopra, 2008). The Malaysian economy in the post agricultural phase has been largely involved in a lower value-added activity in the manufacturing sector (Jarman & Chopra, 2008). It appears as if Malaysia is set to follow a similar path in the service sector, carving out a niche for itself in lower end service sector activities. Hence, by undertaking KIBS as a strategic and innovative service industry, it will help cement the formation of Malaysia's national innovation ecosystem, as well as the new realm of research in Malaysian higher education. Thus being part of the services sector, research which looks at innovation among the KIBS is important. This is because although KIBS is relevant, the sector is still under researched especially in the context of individual innovation (Jong & Hartog, 2007). Furthermore, knowledge about innovation and creativity and their influences on the Malaysian economy and its future growth is still inadequate (Meriam, 2006).

Many past researches attempted to identify the determinants of innovation in view of its significance. The innovation determinants were classified into three broad categories which comprised of individual, organizational and environmental factors (Damanpour, Szabat & Evan, 1989; Damanpour, 1991). According to Damanpour (1991), among the three categories, determinants related to individual factor have been found to be the most significant. Thus, in previous researches on employee innovative work behavior, organizational determinants like leader-member exchange (LMX) (Graen & Scandura, 1987; Basu & Green, 1997; Yukl, 2002), pro-innovation organizational climate (Reichers & Schneider, 1990; Nystrom, 1990; Amabile, 1996), and social capital (Tovstiga, 1999; Burt, 2000) have found to influence the innovative work behavior (IWB) of employees in general. However, this study attempted to extend the studies into the context of KIBS and on the knowledge workers. This is because the natures of KIBS as discussed earlier require a continuous flow of innovations to ensure continuity and to keep up with economic development (Bilderbeek, Hertog, Marklund & Miles, 1998). Based on the findings on the above researches, this empirical study attempts to determine the relationship that may exist between leader-member exchange (LMX), pro-innovation climate and social capital with the IWB among the knowledge workers in the KIBS sector in Malaysia.

### **3. Theoretical Background**

#### *3.1 Social Exchange Theory (SET)*

The SET was developed to understand the human behavior in view of the dynamic of the relationship cycle (Homans, 1958). In this regards, social exchange was seen as a form of activity in which two persons or more will engage in a tangible or intangible activity that can be either be rewarding or costly (Blau, 1964). Using the reciprocal approach in rewarding, Blau (1964) and Gouldner (1960) suggested that there should not be a direct reward of performance from the employees but rather on offering resources in the form of developmental and social benefits. These resources are given to employees in advance as a gift without subjecting it to performance and more on voluntarily basis of the organizations (Schulte, Hauser & Kirsch, 2009). The act of giving on a voluntarily basis and its effects on performance behavior are well discussed in the Social Exchange Theory (SET) and the principles of the gift economy (Dolfsma, Eijk & Jolink, 2008; Marcoux, 2009) as well as in the reciprocity principles (Gouldner, 1960). These theories implied that employees will increase their loyalty, engagement, and work performance since they are obliged to return the act of kindness that they have received (Aselage & Eisenberger, 2003). Hence, the above descriptions depict that when employees are given more innovation-relevant resources, the more trust and fairness will be perceived by them exist in the organization. This will in turn make the employees obliged to take on the extra role behavior (Organ, 1988) which is important in seeding creativity and innovative behavior among the employees. The larger the obligation the greater it will exert the IWB on them (Blau, 1964). In view of the importance of reciprocity and social exchange between employees and organization in cultivating the IWB, the research framework of this study as shown in Figure 1 underpinned by the SET as developed by Blau (1964).

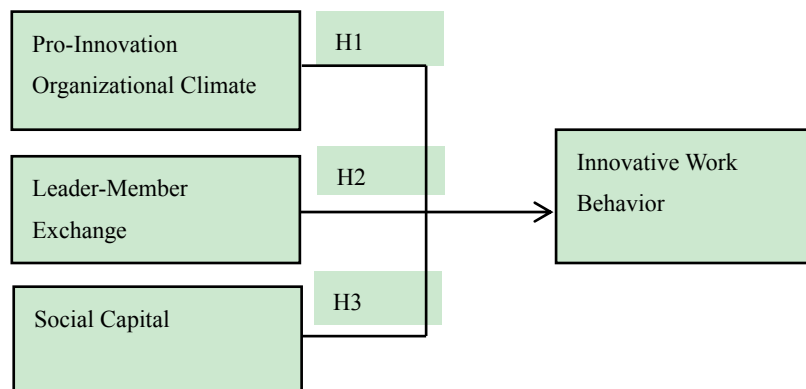


Figure 1. Research framework

### 3.2 Innovative Work Behavior (IWB)

There is still no universally accepted definition of innovation. This is evidenced in many past researches in which a diverse definitions can be found ranging from highly specific to those very broad (Amabile, 1983; Cummings & Oldham, 1997). West and Farr (1990) defined innovation as the intentional introduction and application (within an individual, group or organization) of ideas, processes, products or procedures which are relevant to the new unit of adoption, designed to significantly benefit the individual, the group, organization or wider society. On the other hand, innovation is regarded as a social process in view of the interaction between those who innovate and those who are affected by the innovation (Jain, 2010). Based on the work of West and Farr (1989), this study defines IWB as an employee's action directed at the generation, application and implementation of novelty ideas, products, processes, and methods to his or her job position, departmental unit, or organization. Literature on innovation reveals that innovation is a multistage process (Kanter, 1988; Wheelwright & Clark, 1995). Kanter's (1988) model describes the work behaviors of an individual engage in at each stage of the innovation process. This model outlines the discrete tasks involved in innovation as (a) idea generation and activation of the drivers of the innovation; (b) coalition building and acquisition of the power necessary to move the idea into reality; (c) idea realization and innovation production, turning the idea into a model-a product or plan or prototype that can be implemented; and (d) transfer or diffusion, the spreading of the model-the commercialization of the product, the adoption of the idea.

### 3.3 Pro-Innovation Organizational Climate and IWB

Yukl (2006) described the organizational climate as the assumptions, beliefs, and values that member of a group share. Innovation scholars have paid attention to co-workers' climate perceptions (e.g. Burningham & West, 1995; West & Anderson, 1996). Organizations with an innovative work climate are said to have better innovation results. A co-worker's perception of climate affects the extent to which creative solutions are encouraged, supported and implemented. It encourages innovative ways of representing problems and finding solutions (Martins & Terblanche, 2003). Research revealed that innovative organizations seem to demonstrate good organizational climate (Hartmann, 2006). An innovative climate of an organization depicts one that has comprehensive rewards, allows autonomous work, focuses on training and provides immediate feedback (Hartman, 2006). Research has generally demonstrated that IWB increases when co-workers feel that new ideas are encouraged and expected, and when their ideas can be expressed openly without being directly punished for mistakes or criticized (Axtell et al., 2000). Literature suggests that implementing innovative services requires a corporate environment that encourages and supports 'stepping out' beyond the norm (Brentani, 2001). Given that innovation is also a social process; Axtell et al. (2000) found that the climate is equally important for IWB which can affect the implementation of ideas through the involvement of others in the implementation stage. However, not all support the notion that climate correlates with an IWB. Some of them concluded the relationship is rather weak (Scott & Bruce, 1994; Klein & Sorra, 1996). This makes it even more crucial to include climate as a variable in this study given the opposing findings. Thus, this study hypothesized that:

**Hypothesis 1:** Pro-innovation organizational climate is significantly related to the IWB of knowledge workers in KIBS.

### 3.4 Leader-Member Exchange and IWB

Employee IWB has found to be affected by LMX (Scott & Bruce, 1994; Basu & Green, 1997). LMX is described as the interactions that exist between a leader and a subordinate characterized by mutual influence and interdependencies (Yulk, 1998; Scandura, 1999). The LMX theory suggested that the quality of the relationship between leaders and followers relates to innovativeness (Green & Scandura, 1987). When employees perceived that they have been fairly rewarded by their leader, employees tend to react more innovatively in a higher level of job demand situation (Janssen, 2000). This is because employees view the existence of distribution equity with regards to the rewards thus encouraging them to engage in IWB greater (Sanders, Moorkamp, Torka, Groenvelde & Groenvelde, 2010). In organizations supervisors are viewed as the direct agent of organizations (Sanders et al., 2010) and any actions of the supervisor are viewed as the actions of the organization (Eisenberger, Huntington, Hutchinson & Sowa, 1986). Thus favorable actions by the supervisor will encourage employees to engage in expected behavior such as innovativeness (Sanders et al., 2010). A study by Janssen and Van Yperen (2004) based on 170 employees from an energy supplier found a positive impact of LMX on IWB. In addition, the outcome of the higher quality exchange of IWB was also discovered by Basu and Green (1997). In a high quality exchanges, involvement by both leaders and followers played a crucial aspect. As a consequence of this involvement from both sides, ideas can be generated freely since opportunities for information exchange has increased through high quality exchanges (Liden, Sparrowe & Wayne, 1997). Given the above literatures that have resulted in positive findings between LMX and IWB, thus it is hypothesized that:

**Hypothesis 2:** Leader member exchange is significantly related to the IWB of knowledge workers in KIBS.

### 3.5 Social Capital and IWB

Organizational knowledge requires the existence of knowledge sharing among the members of the organizations and sharing requires socialization. Socialization is a process of face-to-face interaction and communication, engagement and mutual understanding that ultimately generalized trust and norms of reciprocity among the members of the family, organization, community and society (Oh, Myung-Ho & Labianca, 2004). Thus, socialization leads to the formation of social capital (Albrecht & Ropp, 1984). Cohen and Prusak (2001) defined social capital as a social relation-working network (internal & external) that is bounded by mutual trust, understanding, support, and shared values and behaviors to enable innovative collaboration. Through the process of socialization among the knowledge workers, tacit knowledge can be converted to an explicit knowledge and this sharing is vital for the knowledge workers (Tovstiga, 1999). Nonaka and Takeuchi (1995) mentioned that transference of tacit knowledge among individuals can occur when individuals were able to observe, practice and imitate others during the exchanges of complicated technical experience and sharing of common interest in a socialization process. Maintaining external contacts are inevitable to adequately produce a service and be informed about new trends and developments (Kline & Rosenberg, 1986). Therefore, in KIBS, it is essential for workers to participate in conferences, training and education to keep them updated with the latest development in their field of work (Jong, Hartog & Zoetermeer, 2003). It was found that workers who are in regular contact with external entities tend to engage in IWB (Jong, Hartog & Zoetermeer, 2003). When workers had the opportunity making contact with the external entities such as customers, they were able to discover and obtain new ideas which are important for the organization (Kline & Rosenberg, 1986; Martin & Horne, 1995; Brentani, 2001). It is widely recognized that customer feedback must be used to improve an innovative idea (Burpitt & Bigoness, 1997). To be effective, organizations need to manage their employees' relationships with internal and external members and other groups in order to bring information and other resources into the system (Gladstein, 1984; Ancona & Caldwell, 1992). Additionally, frequent contacts with the competitors have also been found to be vital. Studies by Easingwood (1986), and Hooley and Mann (1988) have found that one of the best sources of ideas for innovation can actually be obtained through frequent contacts with the organizations' competitors. Hence, drawing on prior theories and evidences, it was hypothesized that:

**Hypothesis 3:** Social capital is significantly related to the IWB of knowledge workers in KIBS.

## 4. Methodology

### 4.1 Measurement

The measurements in this study were from several sources. A measurement adapted from Janssen's (2000) was used to measure the IWB of employees from the KIBS sector with a reported reliability statistic of .89. As for the LMX, measurement was adapted from Liden and Maslyn's (1998) multi-dimensional model of LMX (LMX-MDM) scale. This scale comprised of thirteen items which measure the quality of relationship between respondents and their superiors. The reliability statistic of this scale is .90. The measurement of pro-innovation organizational climate was adapted from Siegel and Kaemmerer (1978) which consisted of twenty items with a

Cronbach's alpha value of .92. Finally, in order to measure social capital, an adaptation from the measurement of Heydebreck (1997) was carried out. The reported Cronbach's alpha value of this measurement was .85.

#### 4.2 Population and Sampling

Data was collected using questionnaire through a mail survey from workers who work in a Multimedia Super Corridor (MSC) status companies which act as the sampling frame for this study. A systematic random sampling technique was utilized to select samples in which every sample was selected randomly at a starting point and then picking every  $K^{\text{th}}$  element in the series from the sampling frame (Hair, Black, Babin, Anderson & Tatham, 2006). As of May 2011, there were approximately 40000 workers working in the 2433 MSC status companies in Malaysia (Multimedia Development Corporation, 2011). Thus, the appropriate sample size as suggested by Krejcie and Morgan (1970) for a population of 40,000 was 380 knowledge workers.

### 5. Results

Data was collected by mailing 1,520 questionnaires to knowledge workers who worked in the MSC status companies in Malaysia. There were 355 workers responded to the questionnaire. However, only 318 questionnaires were used for further analysis as some of the responded questionnaires have non-response items. This marked the response rate of 20.9%. The response rate of 20.9% is deemed to be exceptionally good as responses expected from academic mail survey are usually low (Sekaran, 2003). All collected responses were properly examined before they were coded into SPSS version 18.0.

In order to test construct validity, the factor analysis test was used for all the variables in this study. The suitability of this test was subjected to the utilization of Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy and the Bartlett's Test of Sphericity. Therefore, if the KMO values are greater than 0.6 (Coakes, Steed & Ong, 2009), and the Bartlett's test is large and significant ( $p < 0.05$ ) (Hair, Black, Babin, Anderson & Tatham, 2006), factorability is then considered possible. Once factor analysis has been carried out, items with factor loadings of more than 0.3 will be accepted to represent a factor since it is regarded as the threshold to meet the minimal level for interpretation of the structure (Sekaran, 2003; Hair et al., 2006).

Table 1 shows the result of factor analysis for IWB. It shows that IWB had all nine items loaded onto a single factor with eigenvalue more than 1.0. The single factor extracted 58.82% of the total variance explained. The factor loading had all found to be greater than 0.6 indicating a good correlation between the items and the factor grouping they belong to.

Table 1. Summary of factor loadings for IWB

Questions	Component 1
IBW1 I create new ideas for difficult issues	.815
IWB2 I search out new technologies, processes, working methods, techniques, and/or product ideas.	.772
IWB3 I generate original solutions for problems.	.623
IWB4 I mobilize support for innovative ideas.	.618
IWB8 I introduce ideas into the work environment in a systematic way.	.776
IWB9 I evaluate the utility (benefits) of innovative idea.	.703
IWB7 I transform innovative ideas into useful applications.	.679
IWB5 I make organizational members enthusiastic for innovative ideas.	.813
IWB6 I try to acquire approval for innovative ideas.	.649
Eigen values	5.294
Percentage of variance explained = 58.82%	
KMO= 0.645	
Bartlett's Test of Sphericity :	
Approx Chi-square = 493.700	
df = 36	
Sig = .000	

Table 2 shows the factor analysis conducted on pro-innovation climate. Twenty items used to measure the pro-innovation climate and loaded onto single factor eigenvalue more than 1.0. The single factor extracted 63.07% of the total variance explained.

Table 2. Summary of factor loadings for pro-innovation climate

Question	Component 1
PI 15 There is adequate time available to pursue innovative ideas here.	.754
PI 14 There is adequate resources devoted to innovation in this organization.	.697
PI 16 Funding to investigate creative ideas is not a problem in this organization.	.660
PI 7 The best way to get along in this organization is to think innovatively without conforming to the way the rest of the group does.	.554
PI 4 Around here, a person will not can get into trouble by being different.	.455
PI 19 The reward system here encourages innovation.	.816
PI 18 This organization gives me free time to pursue creative ideas during the workday.	.786
PI 17 Personnel shortages do not inhibit innovation in this organization.	.663
PI 20 This organization publicly recognizes those who are innovative.	.593
PI 3 Around here, people are allowed to try to solve the same problems in different ways.	.806
PI2 Our ability to function innovatively is respected by the leadership.	.766
PI1 Innovative behavior is encouraged here.	.580
P19 This organization is open and responsive to change	.505
PI 10 The people in charge around here not usually get credit for others' ideas.	.793
PI 8 People around here are not expected to deal with problems in the same way.	.647
PI 11 In this organization, we tend not to stick to tried and true ways.	.513
PI 12 This place seems to be more concerned with change than status quo.	.773
PI 13 Assistance in developing new ideas is readily available.	.764
PI 6 A person can do things that are quite different around here without provoking anger.	.838
P15 This organization can be described as flexible and continually adapting to change.	.731
Eigen values	
Percentage of variance explained = 63.07%	
KMO= 0.740	
Bartlett's Test of Sphericity :	12.614
Approx Chi-square = 2216.314	
df = 190	
Sig = .000	

Table 3 on the other hand shows the result of the factor analysis for LMX variable. There were thirteen items used to measure LMX and all items were loaded onto single factor with eigenvalue more than 1.0. The single factor extracted 69.97% of the total variance explained.

Table 3. Summary of factor loadings for leader-member exchange

	Component 1
LMX 4 My supervisor/manager defends my work actions to a superior, even without complete knowledge of the issue in question.	.725
LMX 3 My supervisor/manager is a lot of fun to work with.	.722
LMX 11 I respect my supervisor/manager's knowledge of and competence on the job.	.659
LMX 6 My supervisor/manager would defend me to others in the organization if I made an honest mistake.	.803
LMX 5 My supervisor/manager would come to my defense if I were "attacked" by others.	.714
LMX 7 I do work for my supervisor/manager that goes beyond what is specified in my job description.	.701
LMX 8 I am willing to apply extra efforts, beyond those normally required, to further the interests of my work group.	.791
LMX 9 I have enough confidence in my supervisor/manager that I would defend and justify his/her decision if he/she were not present to do so.	.777
LMX 10 I am impressed with my supervisor/manager's knowledge of his/her job.	.528
LMX 13 My supervisor(s) encourages me to share knowledge.	.830
LMX 12 I admire my supervisor/manager's professional skills.	.801
LMX 2 My supervisor /manager is the kind of person one would like to have as a friend.	.820
LMX 1 I like my supervisor/manager very much as a person.	.816
Eigen values	
Percentage of variance explained = 69.97%	
KMO= 0.669	
Bartlett's Test of Sphericity :	9.097
Approx Chi-square = 1160.313	
df = 78	
Sig = .000	

Finally, twelve items were used to measure social capital. Table 4 shows that all the twelve questions were loaded onto single factor with eigenvalue more than 1.0. The single factor extracted explained 70.39% of the total variance in response.

Table 4. Summary of factor loadings for social capital

	Component 1
SC 7 My organization has effective policies and procedures for knowledge sharing in place.	.787
SC 8 My organization has trainings and workshops that focus around sharing knowledge.	.716
SC 6 In my organization, senior management models the knowledge sharing behaviors they want to see.	.694
SC 2 I have frequent contacts with suppliers of my company.	.857
SC 1 I have frequent contacts with the customers of our company.	.848
SC 4 I always perceived my colleagues as important sources of professional advice, when I have a work-related problem, or when I want advice on a decision that I have to make.	.758
SC 5 I always perceived my colleagues as a group of person that I can count on, whom I view as allies, who are dependable in times of crisis (support).	.709
SC 3 I often talk to other professionals from other companies in our industry.	.683
SC 10 My organization uses organizational learning to support existing core competencies and create new ones.	.778
SC 9 My organization has company-wide social events which provide opportunities for knowledge sharing.	.758
SC 12 Knowledge sharing is linked to employee advancement.	.865
SC 11 My organization provides me with the time and resources to share knowledge.	.816
Eigenvalues	
Percentage of variance explained = 70.39%	
KMO = 0.560	
Bartlett's Test of Sphericity :	8.446
Approx Chi-square = 927.541	
df = 66	
Sig = .000	

Reliability analysis was again performed on all the variables to ensure that internal consistency exists after factor analyses were carried out. It was found that all variables had adequate levels of internal consistency ranging from .676 (for IWB), .849 (for pro-innovation climate), .772 (for leader-member exchange) and .664 (for social capital). Therefore, all the variables met the threshold as suggested by Hair, Money, Samouel and Page (2007) and Nunnally (1983).

Further data analysis was carried to determine the interactions between the variables understudied. Table 5 above presented the inter-correlations of all the variables in this study. At a significance level of 5% (.05) (Sekaran & Bougie, 2009), the result of the correlation analysis shows that all the independent variables are significantly related to IWB. Table 5 indicates that pro-innovation climate, LMX and social capital constructs are positively correlated to IWB at ( $r = .459, p < .01$ ), ( $r = .406, p < .01$ ), and ( $r = .436, p < .01$ ) respectively. Hence, H1, H2 and H3 are supported. Additionally, it can be acknowledged that the IWB of knowledge workers in the knowledge-intensive business services had a strong correlation with pro-innovation climate, followed by social capital and finally with leader-member exchange.

Table 5. Correlation matrix of the variables

Variables	IWB	PIC	LMX	SC
1 Innovative work behavior (IWB)	1.000			
2 Pro-innovation climate (PIC)	.459**	1.000		
3 Leader-member exchange (LMX)	.406**	.701**	1.000	
4 Social Capital (SC)	.436**	.562**	.586**	1.000

Note: \*\* Correlation is significant at the 0.01 level (2-tailed)



Table 6 provided the result of the integration between the independent variables and the dependent variable. Based on the result of the  $R^2$  ( $R^2 = .260$ ,  $F = 35.798$ ,  $p < .01$ ), it showed that leader-member exchange, pro-innovation climate and social capital only had a mild impact (26%) toward explaining the IWB amongst the knowledge workers in KIBS.

Table 6. Multiple regressions on the effects of leader-member exchange, pro-innovation climate and social capital on innovative work behavior

Independent Variables	Innovative Work Behavior (Dependent Variable)						
	Beta	Std. Error	Beta	t	sig	Tolerance	VIF
(Constant)	2.379	.316		7.519	.000		
Pro-innovation climate	.249	.066	.271	3.796	.000	.474	2.109
Leader-member exchange	.072	.070	.076	1.038	.300	.454	2.201
Social capital	.257	.670	.240	3.811	.000	.612	1.635
R2	0.260						
Adjusted R2	0.253						
F	35.798						
Significance of F	0.000						

In addition, in order to determine which among the three independent variables play more significant role in influencing the dependent variable, reference was made to the regression coefficients. In view of the similarity of measurement scale utilized in this dissertation, the standardized regression coefficient Beta was used as suggested by Hair et al. (2006). Inspection of Table 6 shows that only two variables can be a significant indicator to IWB that are pro-innovation climate ( $B = .271$ ,  $t = 3.796$ ,  $p < .01$ ) and social capital ( $B = .240$ ,  $t = 3.811$ ,  $p < .01$ ). Leader-member exchange has found to be insignificant ( $B = .076$ ,  $t = 1.038$ ,  $p > .01$ ) as compared to other two variables in a multivariate context; although during the bivariate analysis, leader-member exchange had been found to be significantly related to IWB. Hence, this study stating that pro-innovation climate was the most significant variable that relate to the IWBs of knowledge workers in KIBS compared to leader-member exchange and social capital variables. As a conclusion, this study found that all the independent variables, which comprised of pro-innovation climate, leader-member exchange and social capital, have significant relationships with IWB.

## 6. Discussion and Conclusion

Overall, this research is to investigate whether there is a significant relationship between three organizational factors namely leader-member exchange (LMX), pro-innovation organizational climate and social capital with the IWB of knowledge workers serving in the KIBS sector in Malaysia.

This study posited that there is a significant relationship of pro-innovation organizational climate on IWBs of knowledge workers in KIBS. Based on the result of the Pearson analysis of this study, there is a significant relationship exists between pro-innovation climate and IWB. This finding supported by previous literatures in which a pro-innovation organizational climate encourages IWB because it legitimates experimentation (West & Wallace, 1991), creates psychological safety for trial and error, and reduces the image risk involved in innovation attempts (Ashford, Rothbard, Piderit & Dutton, 1998). Furthermore, this finding also demonstrates the importance of pro-innovation climate for IWB at the implementation stage since innovation is a social process; the implementation of ideas relies more heavily on the involvement of others (Axtell et al., 2000).

The finding from this study also suggested that there is a significant relationship between LMX and IWB of knowledge workers in the KIBS. This outcome was consistent with previous studies in which LMX had found to influence the innovation performance of the employees (Scott & Bruce, 1994; Basu & Green, 1997). Thus, it is important for organizations to consider several aspects which can encourage innovative work behavior such as through the creation of facilitating task conditions, development of subordinate skills and self-efficacy, and reduction of fears of negative evaluation of innovative ideas.

Lastly, the correlation results revealed that there is a significant relationship between IWB and social capital and

similar result had also been evidenced in the previous literatures. Social capital plays a significant positive role in influencing the development of both incremental and radical innovation (Subramaniam & Youndt, 2005). Through socialization, knowledge workers share their intricate technical experiences and mental models of common interest with each other through observation, practice, and imitation. Socialization outside the workplace and with members of other organizations is also beneficial. It increases the trust, opportunity, and the motivation to engage in knowledge sharing (Oh, Myung-Ho & Labianca, 2004). To be effective, organizations need to manage their employees' relationships with internal and external members and other groups in order to bring information and other resources into the system (Ancona & Caldwell, 1992).

Drawing from the social exchange theory on innovation, the model tested here provides a theoretical framework for understanding why employees engage in innovative behavior in relation to pro-innovation climate, leader-member exchange and social capital. It is hoped that this study will stimulate more theory building and testing to investigate the processes leading to individual innovation. In addition, this study also projected that business services will become a catalyst and driver in Malaysia's transformation into a knowledge economy. Although currently small with a GNI contribution of RM 19.5 Billion in 2009, the business services sector has a unique role to play in driving the competitiveness of a wide range of industries by offering differentiated world-class IT outsourcing, accounting and other related services. Consequently, this study helps to highlight one of the important issues related to knowledge workers and their IWB. This study provides a good source for policy maker at the organizational level or governmental level to look for ways to further enhance the IWB of knowledge workers through all the determinants that had been thoroughly explained in this study.

## References

- Albrecht, T., & Ropp, V. A. (1984). Communicating about innovation in networks of three U.S. organizations. *Journal of Communication*, 78-91. <http://dx.doi.org/10.1111/j.1460-2466.1984.tb02175.x>
- Amabile, T. M. (1983). *The social psychology of creativity*. New York: Springer-Verlag. <http://dx.doi.org/10.1007/978-1-4612-5533-8>
- Amabile, T. M. (1996). *Creativity in context*. Boulder, CO: Westview Press.
- Amabile, T. M. (1997). Motivating creativity in organizations: On doing what you love and loving what you do. *California Management Review*, 40(1), 39-58. <http://dx.doi.org/10.2307/41165921>
- Ancona, D. G., & Caldwell, D. F. (1992). Demography and design: predictors of new product team performance. *Organization Science*, 3(3), 338-341. <http://dx.doi.org/10.1287/orsc.3.3.321>
- Aselage, J., & Eisenberger, R. (2003). Perceived organizational support and psychological contracts: A theoretical integration. *Journal of Organizational Behavior*, 24, 491-495. <http://dx.doi.org/10.1002/job.211>
- Ashford, S. J., Rothbard, N. P., Piderit, S. K., & Dutton, J. E. (1998). Out on a limb: The role of context and impression management in selling gender-equity issues. *Administrative Science Quarterly*, 43, 23-57. <http://dx.doi.org/10.2307/2393590>
- Axtell, C. M., Holman, D. J., Unsworth, K. L., Wall, T. D., Waterson, P. E., & Harrington, E. (2000). Shop floor innovation: Facilitating the suggestion and implementation of ideas. *Journal of Occupational and Organizational Psychology*, 73, 265-285. <http://dx.doi.org/10.1348/096317900167029>
- Basu, R., & Green, S. G. (1997). Leader-member exchange and transformational leadership: An empirical examination of innovative work behaviors in leader-member dyads. *Journal of Applied Social Psychology*, 27(6), 477-499. <http://dx.doi.org/10.1111/j.1559-1816.1997.tb00643.x>
- Bessant, J. (2003). Challenges in innovation management. In L. V. Shavinina (Ed.), *The international handbook on innovation*. Oxford, UK: Elsevier, 761-774. <http://dx.doi.org/10.1016/B978-008044198-6/50052-8>
- Bilderbeek, R., Hertog, P. D., Marklund, G., & Miles, I. (1998). *Services in Innovation: Knowledge Intensive Business Services (KBIS) as co-producers of innovation*. SI4S Synthesis Paper No. 3, STEP Group Oslo.
- Blau, P. M. (1964). *Exchange and power in social life*. New York: Wiley.
- Brentani, U. D. (2001). Innovative versus incremental new business services: Different keys for achieving success. *Journal of Product Innovation Management*, 18(3), 169-187. [http://dx.doi.org/10.1016/S0737-6782\(01\)00071-6](http://dx.doi.org/10.1016/S0737-6782(01)00071-6)
- Burningham, C., & West, M. A. (1995). Individual, climate, and group interaction processes as predictors of work team innovation. *Small Group Research*, 26, 106-117. <http://dx.doi.org/10.1177/1046496495261006>
- Burpitt, W. J., & Bigoness, W. J. (1997). Leadership and innovation among teams: The impact of empowerment. *Small Group Research*, 28(3), 414-423. <http://dx.doi.org/10.1177/1046496497283005>
- Burt, R. S. (2000). The network structure of social capital. *Research in Organizational Behavior*. Greenwich CT:

- JAI Press.
- Coakes, S. J., Steed, L., & Ong, C. (2009). *SPSS 16.0 for windows: Analysis without anguish*. Australia: John Wiley & Sons.
- Cohen, D., & Prusak, L. (2001). How to invest in social capital. *Harvard Business Review*, 79(6), 86-93.
- Cummings, A., & Oldham, G. R. (1997). Enhancing creativity: managing work contexts for the high potential employee. *California Management Review*, 40(1), 22-38. <http://dx.doi.org/10.2307/41165920>
- Damanpour, F. (1991). Organizational innovation: A meta-analysis of effects of determinants and moderators. *Academy of Management Journal*, 34, 555- 590. <http://dx.doi.org/10.2307/256406>
- Damanpour, F., Szabat, K. A., & Evan, W. M. (1989). The relationship between types of innovation and organizational performance. *Journal of Management Studies*, 26(6), 587-601. <http://dx.doi.org/10.1111/j.1467-6486.1989.tb00746.x>
- Dolfsma, W., Eijk, R., & Jolink, A. (2008). On a source of social capital: Gift exchange. *Journal of Business Ethics*, 89, 315-329. <http://dx.doi.org/10.1007/s10551-008-0002-z>
- Drucker, P. F. (1989). *The New Realities*. New York: Harper and Row.
- Easingwood, C. J. (1986). New product development for service companies. *Journal of Product Innovation Management*, 3(4), 264-275. [http://dx.doi.org/10.1016/0737-6782\(86\)90005-6](http://dx.doi.org/10.1016/0737-6782(86)90005-6)
- Economic Planning Unit. (2009). *Knowledge Content in Key Economic Sectors in Malaysia Phase*. Putrajaya: Percetakan Nasional Malaysia Bhd.
- Eisenberger, R., Huntington, R., Hutchinson, S., & Sowa, D. (1986). Perceived organizational support. *Journal of Applied Psychology*, 71, 500-507. <http://dx.doi.org/10.1037/0021-9010.71.3.500>
- Gladstein, D. L. (1984). Groups in context: a model of task group effectiveness. *Administrative Science Quarterly*, 29(4), 499-517. <http://dx.doi.org/10.2307/2392936>
- Gouldner, A. W. (1960). The norm of reciprocity: A preliminary statement. *American Sociological Review*, 25, 161-178. <http://dx.doi.org/10.2307/2092623>
- Graen, G. B., & Scandura, T. A. (1987). Toward a psychology of dyadic organizing. In L. L. Cummings & B. M. Staw (Eds.), *Research in organizational behavior* (Volume 9, pp. 175-208). Greenwich, CT: JAI Press.
- Hair, J. F., Black, W. C., Babin, B. J., Anderson, R. E., & Tatham, R. L. (2006). *Multivariate data analysis* (6th ed.). New Jersey: Prentice Hall.
- Hair, J. F., Money, A. H., Samouel, P., & Page, M. (2007). *Research Method for Business*. Chichester: John Wiley & Sons Ltd.
- Hartmann, A. (2006). The role of organizational culture in motivating innovative work behavior in construction organizations. *Construction Innovation*, 3(6), 159-172. <http://dx.doi.org/10.1108/14714170610710712>
- Heydebreck, P. (1997). *Technological interweavement: a means for new technology-based organizations to achieve innovation success*. London: Macmillan.
- Homans, G. C. (1958). Social behavior as exchange. *American Journal of Sociology*, 63(6), 31-41. <http://dx.doi.org/10.1086/222355>
- Hooley, G., & Mann, S. (1988). The adoption of marketing by financial institutions. *Service Industry Journal*, 5(3), 261-272. <http://dx.doi.org/10.1080/02642068500000041>
- Jain, R. (2010). Innovation in organizations: A comprehensive conceptual framework for future research. *South Asian Journal of Management*, 17(2), 81-111.
- Janssen, O. (2000). Job demands, perceptions of effort-reward fairness, and innovative work behavior. *Journal of Occupational and Organizational Psychology*, 73, 287-302. <http://dx.doi.org/10.1348/096317900167038>
- Janssen, O., & Yperen, N. W. V. (2004). Employees' goal orientations, the quality of leader member exchange, and the role of job performance and job satisfaction. *Academy of Management Journal*, 47(3), 368-384. <http://dx.doi.org/10.2307/20159587>
- Jarman, J., & Chopra, P. S. (2008). Business services and the knowledge economy in Malaysia. *International Journal of Sociology and Social Policy*, 28(5/6), 93-203. <http://dx.doi.org/10.1108/01443330810881240>
- Jong, J. D., Hartog, D. D., & Zoetermeer. (2003). Leadership as determinant of innovative behavior: A conceptual framework. *Research Report H200303*, 1-95.
- Jong, J. P. J. D., & Hartog, D. N. D. (2007). How leaders influence employees' innovative work behavior. *European Journal of Innovation Management*, 10(1), 41-64. <http://dx.doi.org/10.1108/14601060710720546>
- Kanter, R. M. (1988). When a thousand flowers bloom: structural, collective and social conditions for innovation

- in organization. *Research in Organizational Behavior*, 10, 169-211.
- Klein, K. J., & Sorra, J. S. (1996). The challenge of innovation implementation. *Academy of Management Review*, 21(4), 1055-1080.
- Kline, S. J., & Rosenberg, N. (1986). An overview of innovation. In R. Landau & N. Rosenberg (Eds.), *The Positive sum strategy: Harnessing technology for economic growth* (pp.275-305). Washington D.C.: National Academy Press.
- Krejcie, R., & Morgan, D. (1970). Determining sample size for research activities. *Educational and Psychological Measurement*, 30, 607-610.
- Liden, R. C., & Maslyn, J. M. (1998). Multidimensionality of leader-member exchange: an empirical assessment through scale development. *Journal of Management*, 24, 43-72.
- Liden, R. C., Sparrowe, R. T., & Wayne, S. J. (1997). Leader-member exchange theory: The past and potential for the future. *Research in Personnel and Human Resources Management*, 15, 47-119.
- Marcoux, J. S. (2009). Escaping the gift economy. *Journal of Consumer Research*, 36, 671-685. <http://dx.doi.org/10.1086/600485>
- Martin, C. R., & Horne, D. A. (1995). Level of success inputs for service innovations in the same firm. *International Journal of Service Industry Management*, 6(4), 40-56. <http://dx.doi.org/10.1108/09564239510096894>
- Martins, E. C., & Terblanche, F. (2003). Building organizational culture that stimulates creativity and innovation. *European Journal of Innovation Management*, 6(1), 64-74. <http://dx.doi.org/10.1108/14601060310456337>
- Meriam, I. (2006). Creative climate and learning culture: Their contributions towards innovation within a property developer organization. *Journal for the Advancement of Science & Arts*, 1, 22-28.
- Ministry of Science, Technology and Innovation, Malaysia (MOSTI). (2006). *National survey of Innovation 2002-2004*. Putrajaya: Malaysian Science and Technology Information Centre.
- Muller, E., & Zenker, A. (2001). Business services as actors of knowledge transformation: The role of KIBS in regional and national innovation systems. *Research Policy*, 30, 1501-1516. [http://dx.doi.org/10.1016/S0048-7333\(01\)00164-0](http://dx.doi.org/10.1016/S0048-7333(01)00164-0)
- Multimedia Development Corporation (MDeC), Malaysia. (2011). Retrieved May 18, 2011, from <http://www.msc.com.my>
- Nonaka, I., & Takeuchi, H. (1995). *The Knowledge Creating Company*. New York: Oxford University Press.
- Nunnally, J. C. (1983). *Psychometric theory*. New York: McGraw-Hill.
- Nystrom, H. (1990). Organizational innovation. In M. A. West & J. L. Farr (Eds.), *Innovation and creativity at work: Psychological and organizational strategies* (pp.143-161). Chichester: John Wiley & Sons Ltd.
- Oh, H., Myung-Ho, C., & Labianca, G. (2004). Group social capital and group effectiveness: The role of informal socializing ties. *Academy of Management Journal*, 47, 860-875. <http://dx.doi.org/10.2307/20159627>
- Organ, D. W. (1988). *Organizational citizenship behavior: The good soldier syndrome*. Lexington, MA: Lexington Books.
- Peters, T. J., & Waterman, R. H. (1982). *In search of excellence: Lessons from America's best-run companies (1st ed.)*. New York: Harper & Row.
- Poh, K. W., & Zi, L. H. (2005). A comparative study of innovation behaviour in Singapore's KIBS and manufacturing organizations. *The Service Industries Journal*, 25(1), 23-42. <http://dx.doi.org/10.1080/0264206042000302397>
- Reichers, A., & Schneider, B. (1990). Climate and culture: An evolution of constructs. In B. Schneider (Ed.), *Organizational climate and culture* (pp. 5-39). San Francisco: Jossey-Bass.
- Romer, P. M. (1990). Endogenous technological change. *The Journal of Political Economy*, 98(5), S70-S102. <http://dx.doi.org/10.1086/261725>
- Sanders, K. S., Moorkamp, M., Torka, N., Groenveld, S., & Groenveld, C. (2010). How to Support Innovative work behavior? The Role of LMX and Satisfaction with HR Practice. *Technology and Investment*, 1, 59-68. <http://dx.doi.org/10.4236/ti.2010.11007>
- Scandura, T. A. (1999). Rethinking leader-member exchange: An organizational justice perspective. *Leadership Quarterly*, 10(1), 25-40. [http://dx.doi.org/10.1016/S1048-9843\(99\)80007-1](http://dx.doi.org/10.1016/S1048-9843(99)80007-1)
- Schulte, K., Hauser, F., & Kirsch, J. (2009). Was macht Unternehmen zu guten Arbeitgebern? Empirische Befunde über die wichtigsten Determinanten einer erfolgreichen Arbeitsplatzkultur. *Wirtschaftspsychologie*,

11(3), 17-30.

- Scott, S. G., & Bruce, R. A. (1994). Determinants of innovative work behavior: a path model of individual innovation in the workplace. *Academy of Management Journal*, 38, 1442-1165.
- Sekaran, U. (2003). *Research methods for business: A skill building approaches* (4th ed.). New York: John Wiley & Sons Inc.
- Sekaran, U., & Bougie, R. (2009). *Research methods for business* (5th ed.). West Sussex UK: John Wiley & Sons, Inc.
- Siegel, S., & Kaemmerer, W. (1978). Measuring the perceived support for innovation in organizations. *Journal of Applied Psychology*, 63, 553-562. <http://dx.doi.org/10.1037/0021-9010.63.5.553>
- Smith, G. P. (2002). *The new leader: bringing creativity and innovation to the workplace*. Conyers: Chart Your Course.
- Strambach, S. (2001). Innovation process and the role of knowledge-intensive business services. In K. Koschatzky, M. Kulicke & A. Zenker (Eds.), *Innovation networks-concepts and challenges in the european perspective* (pp. 53-68). Heidelberg, New York: Physica-Verlag.
- Subramaniam, M., & Youndt, M. A. (2005). The influence of intellectual capital on the types of innovative capabilities. *Academy of Management Journal*, 48, 450-463. <http://dx.doi.org/10.5465/AMJ.2005.17407911>
- Tan, C. L., & Nasurdin, A. M. (2010). The influence of knowledge management effectiveness on administration innovation among Malaysian manufacturing organizations. *Asian Academy of Management Journal*, 15(1), 63-77.
- Tovstiga, G. (1999). Profiling the knowledge workers in the knowledge intensive organization: emerging roles. *International Journal of Technology Management*, 18(5-8), 731-744.
- West, M. A., & Anderson, N. (1996). Innovation in top management teams. *Journal of Applied Psychology*, 81, 680-693. <http://dx.doi.org/10.1037/0021-9010.81.6.680>
- West, M. A., & Farr, J. L. (1989). Innovation at work: Psychological perspectives. *Social Behavior*, 4, 15-30.
- West, M. A., & Farr, J. L. (1990). Innovation at work. In M. A. West & J. L. Farr (Eds.), *Innovation and Creativity at Work: Psychological and Organizational Strategies* (pp. 3-13). Chichester: Wiley.
- West, M. A., & Wallace, M. (1991). Innovation in health care teams. *European Journal of Social Psychology*, 21, 303-315. <http://dx.doi.org/10.1002/ejsp.2420210404>
- Wheelwright, S. C., & Clark, K. B. (1995). *Leading product development: the senior manager's guide to creating and shaping the enterprise*. New York: Free Press.
- Yeoh, K. K., & Mahmood, R. (2013). The Relationship between Pro-Innovation Organizational Climate, Leader-member Exchange and Innovative Work Behavior: A Study among the Knowledge Workers of the Knowledge Intensive Business Services in Malaysia. *Business Management Dynamics*, 2(8), 15-30.
- Yukl, G. A. (1998). *Leadership in organizations* (4th ed.). Englewood Cliffs, NJ.: Prentice-Hall.
- Yukl, G. A. (2002). *Leadership in organizations* (5th ed.). Upper Saddle River, NJ.: Prentice Hall.
- Yukl, G. A. (2006). *Leadership in organizations* (6th ed.). Upper Saddle River, NJ.: Prentice Hall.

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