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Firm Characteristics, Leadership, and Knowledge Management: An Empirical Study

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Abstract

Implementing knowledge management (KM) process is an essential activity to be carried out by firms that strive to achieve and sustain advantage over competitors. Scholars have highlighted that KM process architecture significantly supports firms to be more adaptable to turbulent economic environment and to be more responsive for customer demands. Following knowledge-based theory, leaders transform traditional organization into a creative system through developing a structured mechanism that acts as a catalyst to organizational knowledge creation process. As a result, organizations become more flexible. However, there is a paucity of studies in the literature on examining the impact of transformational leadership behaviors on KM process implementation and on exploring the associations between KM process implementation and firm characteristics such as age, size, type, and capital. In this direction, data collected from 119 service firms located in Kingdom of Bahrain attempted to bridge the above research gaps. A series of hierarchical regression analysis and correlation analysis were performed to analyze the data. It was found that organizational characteristics have no effects on implementation of KM process architecture. It is leaders' transformational behaviors that significantly supported the implementation of KM process in the forms of acquiring, documenting, transferring, creating, and applying knowledge.

Keywords: *Kingdom of Bahrain, Knowledge management, Service firms, Transformational leadership.*

Introduction

Increasing significant amount of market share during the turbulent economic environment is a difficult task given to leaders. Performing this task needs to concentrate on development of intangible or strategic assets that endorse organizations to be more flexible. Such developmental process, in general, explains the dynamic capability of firms (Grant, 1996; Spender, 1996), which is valued in the current firms only when it creates a new knowledge. Acknowledging the importance of knowledge creation, leaders significantly make valuable efforts to implement activities leading to organizational knowledge creation in line with knowledge-based theory, which postulates that unique knowledge is a valuable source for achieving advantage in any organizations (Grant, 1996; Nonaka *et al*., 2000) where continuous changes are emerging rapidly

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in the level of strategy, employees, and systems. Knowledge management (KM) generally consists of a series of activities relating to knowledge creation, knowledge organization, knowledge sharing, and knowledge use that lead to value addition (Wiig, 1997). A significant amount of research studies has been carried out to highlight the importance of the involvement of leaders during the implementation of KM practices (Nonaka *et al.*, 2000; Politis, 2001; Crawford, 2005; Wong, 2005).

Among the leadership behaviors investigated in the literature, transformational leadership behavior attracts more attentions from researchers and managers as it facilitates human capital developmental process and supports implementing KM process (Politis, 2001; Birasnav *et al.*, 2011). In specific, Bryant (2003) highlighted that transformational leaders encourage the prevalence of knowledge sharing and creation through which they enhance individual, group, and organizational performance. However, there is a paucity of studies in the literature on explaining the effect of transformational leadership on implementation of KM process among service firms. It is also important for managers who are responsible for implementation of KM process to understand the contribution of transformational leadership behaviors while implementing KM process related activities such as knowledge acquisition, documentation, transfer, creation, and application. To bridge such gaps in the literature, this study empirically explores at what extent transformational leadership behaviors support KM process implementation among service firms located in Kingdom of Bahrain. In addition, it also empirically examines the effects of organizational characteristics such as age, sector, size, and capital on KM process implementation.

Literature Review and Hypotheses

Tactical KM Process

The concepts of KM evolved from the fundamental differences between data, information, and knowledge. Such differences are mostly context-based differences, and no researcher has clearly defined the boundaries of such terminologies. Nevertheless, some researchers describe data as raw or unabridged facts and numbers (Maglitta, 1995); whereas Alavi and Leidner (2001) consider information as the proper arrangement of data that is interpreted into a meaningful and convenient way, but knowledge is an authenticated information or true information. Knowledge is of two kinds in any organizations: tacit knowledge – unarticulated, very difficult to imitate by others, and under-utilized knowledge; whereas, explicit knowledge – manageable, documentable, and storable knowledge in database management systems (Bukowitz and Williams, 1999; Filius *et al.*, 2000). Emphasizing the importance of knowledge strategies for achieving performance, KM is defined as a management function that "responsible for regular selection, implementation and evaluation of knowledge strategies that aim at creating an environment to support work with knowledge internal and external to the organization in order to improve organizational performance" (Maier, 2005, p. 433).

Two types of KM process are followed in any organizations namely tactical KM process and strategic KM process. Employees and leaders engage in tactical KM process through performing their day to day work activities; whereas, strategic KM process is executed to integrate KM strategy with business strategy (Bukowitz and Williams, 1999). Tactical KM process rather than strategic KM process is focused in this study due to the reasons that it is informal in nature and frequently implemented in the firms. Filius *et al.* (2000) and Bate and Robert (2002) assert that tactical KM process comprises of activities such as knowledge acquisition, knowledge documentation, knowledge transfer, knowledge creation, and knowledge application, which support firms to build organizational knowledge and as a result, firms enhance intellectual capital level. This process is a cyclical process of acquiring unavailable knowledge from other firms;

documenting such knowledge in the forms of storing in the database management systems, writing books, and preparing policies and procedure manual; transferring knowledge to other employees by which firms create new tacit or explicit knowledge with the help of the knowledge conversion process consisting of socialization, externalization, combination, and internalization modes (SECI, Nonaka, 1994); and applying such new knowledge for performing domain-specific jobs.

Transformational Leadership

Research studies on investigating the behaviors of top-level leaders are welcomed by firms as such behaviors have significant and direct positive effects on organizational innovation and performance (Aragon-Correa *et al*., 2007; Gumusluoglu and Ilsev, 2009). To ensure these outcomes, they set a reliable and achievable vision for future and encourage employees to have individual goals to accomplish overall vision. However, behaviors the leaders show towards their followers are associated with the context under which they function. For example, there are leaders who monitor employees' job performance and carry out necessary corrective actions after failures occurred. On the other hand, leaders set a vision and communicate it to all employees, motivate and inspire them to achieve vision, encourage them to carry out risk-taking activities, and perform mentor roles for their employees. Bass (1985) described the former style as transactional leadership style and the latter style as transformational leadership style.

Leadership scholars completely focus their attentions on examining transformational leadership theory as it supports to improve the level of team performance, individual employee's performance, human capital development, organizational learning and innovation, and organizational performance (Bryant, 2003; Aragon-Correa *et al*., 2007; Gumusluoglu and Ilsev, 2009; Birasnav *et al*., 2011). Transformational leaders have the following four behaviors:

Idealized influence - influences followers to respect, admire, trust leaders; strongly encourages leaders to develop mission and vision for organizations; strongly influences leaders to follow ethical principles (Bass, 1999; Bass and Riggio, 2006).

Inspirational motivation – supports leaders to formulate tactics to inspire and motivate followers to accomplish mission and vision (Bass *et al*., 2003; Bass and Riggio, 2006).

Intellectual stimulation – leaders having such behaviors develop employees' creativity by encouraging them to approach job problems entirely in different and new ways (Bass *et al*., 2003; Bass and Riggio, 2006).

Individualized consideration - insists leaders to voluntarily perform mentorship roles that support employees to develop potential and learning capabilities and to provide support for their need for achievement and growth (Bass, 1999; Bass and Riggio, 2006).

Transformational Leadership and KM Process Implementation

Many researchers have substantially examined the importance of developing transformational leadership behaviors for managing knowledge (Politis, 2001, 2002; Bryant, 2003). Politis (2001) explored the associations between transformational leadership and attributes related to knowledge acquisition among Australian employees. Politis found that transformational leaders encouraged employees' team to negotiate with stakeholders for knowledge acquisition. Data collected from 163 Turkish companies showed that the support given by external firms enables transformational leaders to acquire missing knowledge from those firms and as a result, they improve organizational innovation (Gumusluoglu and Ilsev, 2009). Further, it is also predicted that leaders who exhibit transformational behaviors support employees to acquire knowledge that precipitates improvement in organizational learning (Aragon-Correa *et al*., 2007). According to Filius *et al*.

(2000), knowledge documentation refers to a process of documenting knowledge created by employee teams or quality circles formed to resolve job-related issues, documenting outcomes occurred while completing projects, or documenting necessary changes in the organizational policies and handbooks. Focusing leaders' support for documenting knowledge, Crawford (2005) observed among employees that their leaders' complete transformational behaviors insisted them to focus on document creation. In this direction, it is highly expected from such leaders that they will encourage their followers to document knowledge.

Many research studies (for example, Swap *et al*., 2001) pointed out that developing mentor-protégé relationships between leaders and employees ensures the occurrence of knowledge transfer. According to Bass (1990), leaders who have individualized consideration play a mentor role for their followers. This role enables leaders to share their knowledge with employees, and as a result, employees develop potential and solve task-oriented problems. In addition, transformational leaders frequently formulate reward strategies to motivate employees to share knowledge with their co-workers. Bass and Riggio (2006) have shown through a research study that transformational leaders offer either monetary or non-monetary rewards to employees for sharing knowledge with others. It is obvious that leaders who have a goal of creating flexible organizations always encourage knowledge sharing between employees, and as a result, they develop organizational knowledge to achieve competitive advantage. Knowledge application is a kind process of applying knowledge that is created at a particular department into other departments or applying suppliers and customers' product experiences into a manufacturing process to improve products or services development (Filius *et al*., 2000). Researchers (Yahya and Goh, 2002; Crawford, 2005) found that transformational leaders encourage team members of a particular department to share their created knowledge to other team members who are then strongly insisted by leaders to apply such knowledge to resolve their job-oriented problems. Therefore, the above arguments led to the following hypotheses:

Hypothesis 1: Transformational leadership is positively associated with knowledge acquisition.

Hypothesis 2: Transformational leadership is positively associated with knowledge documentation.

Hypothesis 3: Transformational leadership is positively associated with knowledge transfer.

Hypothesis 4: Transformational leadership is positively associated with knowledge creation.

Hypothesis 5: Transformational leadership is positively associated with knowledge application.

Firm Characteristics and KM Process Implementation

Sinkula (1994) reviewed the literature of both information management and organizational learning, which helped to find that when firms become older, the quantity of the supply of market information from both suppliers and customers has dramatically been increased. Sinkula also proposed that acquisition, documentation, and transfer of market information are a function of firm's age. Further, since older firms are well experienced, they have capabilities to create a flexible mechanism that helps to integrate all the diversified knowledge that were created within the organizational premises and to overcome barriers from achieving competitive advantage (Kogut and Zander, 1992). Gopalakrishnan and Bierly (2006) found among the American firms that older and larger firms create broader knowledge base than younger and small firms. Further, a research study focusing upon the relationship between collaborative climate and KM effectiveness found that private firms establish collaborative climate comparably faster than public firms (Sveiby and Simons, 2002). It is also expected that companies having high capital investment are most likely to concentrate on establishing technological infrastructure. In other

words, such companies may provide higher importance to investing on new technologies to be used for documenting and sharing knowledge. Therefore, the above arguments led to the following hypotheses:

Hypothesis 6: Firm's age is significantly related to KM process implementation.

Hypothesis 7: Firm's type is significantly related to KM process implementation.

Hypothesis 8: Firm's size is significantly related to KM process implementation.

Hypothesis 9: Firm's capital is significantly related to KM process implementation.

Methods

Sample

A trained team comprising of three graduate students was formed to collect responses from service firms located in Bahrain. This team prepared a list of 500 firms that represent service industry, and thereafter, firms were clustered into three groups based on the geographical location. Each group was assigned to one student on the basis of convenient access. This team had requested human resource managers to rate their immediate superior's transformational leadership behaviors and to rate the extent at which they agree with the prevalence of tactical KM process in their firms. The team was able to collect 121 responses from these managers. Of 121 responses, two responses were found incomplete and so were not taken into consideration for data analysis. The final sample of firms represents twenty-five sectors of service industry such as accounting firms, health care, restaurant, retail/distribution, telecommunication, etc. In total, there were 75 private firms and 44 public firms provided useful responses for this study.

Measures

Transformational leadership: To measure transformational leadership behavior, 20-item measure from Multifactor Leadership Questionnaire (MLQ - Form 5X – Short, rater form) developed by Bass and Avolio (1995) was used in this study. After examining the convergent and discriminant validity, researchers have proved that MLQ is a best instrument for measuring leadership behaviors (Lowe and Galen, 1996; Avolio *et al*., 1999). Participants had rated their leaders' behaviors in a 5-point Likert scale ranging from 1 (Not at all) to 5 (Frequently). This measure comprised of four components such as idealized influence, intellectual stimulation, inspirational motivation, and individualized consideration. The sample item included in the idealized influence measure (cronbach alpha (α) = 0.85) was "Specifies the importance of having a strong sense of purpose". The sample item included in the intellectual stimulation measure (α = 0.70) was "Re-examines critical assumptions to question whether they are appropriate". The sample item included in the inspirational motivation measure (α = 0.76) was "Talks optimistically about the future". The sample item included in the individualized consideration measure (α = 0.74) was "Spends time teaching and coaching".

Tactical KM process: This study used a 34-item measure developed by Filius *et al*. (2000), and this measure comprised of knowledge acquisition (seven items), knowledge documentation (six items), knowledge transfer (six items), knowledge creation (seven items), and knowledge application (eight items). Exploratory factor analyses were conducted to prove unidimensionality of the above measures, and results suggested excluding one item from each measure of knowledge acquisition, knowledge documentation, knowledge creation, and knowledge application. Participants had rated the prevalence of KM process in a 5-point Likert scale ranging from 1 (Completely disagree) to 5 (Completely agree). The sample item included in the knowledge acquisition measure (α = 0.73) was "This organization actively collects information about needs

and wishes of clients". The sample item included in the knowledge documentation measure (α = 0.75) was "This organization has its disposable up-to-date handbooks, which are frequently used". The sample item included in the knowledge transfer measure (α = 0.80) was "There are regular meeting being organized in which professional matters are discussed". The sample item included in the knowledge creation measure (α = 0.78) was "New ideas and insights lead, if necessary, to redesign of business processes and work methods". The sample item included in the knowledge application measure (α = 0.83) was "We use existing know-how in a creative manner for new applications".

Firm characteristics: Firm age, type, size, and capital were considered as organizational characteristics. Firm age was measured by a 5-point Likert scale ranging from 1 ($\leq$ 5 years) to 5 ($\geq$ 21 years). A categorical question (1 = Private, 2 = Public) was used to measure type of firm. Firm size was measured by a 5-point Likert scale ranging from 1 ($\leq$ 24 employees) to 5 ($\geq$ 200 employees). Firm capital was measured by a 4-point Likert scale ranging from 1 ($\leq$ 500,000 BHD) to 4 ($\geq$ 2,000,000 BHD).

Data Analysis and Results

Correlation analysis and hierarchical regression analyses were performed to test the proposed hypotheses with the help of SPSS software version 20. Hierarchical regression analysis was performed in the following ways: in the first block, variables related to organizational characteristics such as age, type, size, and capital were entered; and in the second block, components of transformational leadership such as idealized influence, intellectual stimulation, inspirational motivation, and individualized consideration were entered.

The results of correlation analysis (see Table 1) showed that firm's age, size, and capital had no associations with either transformational leadership variables or KM variables. However, type of firm had negative associations with intellectual stimulation ($r = -0.18$, $p < .05$) and knowledge creation ($r = -0.19$, $p < .05$). It implied that intellectual stimulation behaviors are widely observed in public firms, which had provided more importance for knowledge creation. Further, all the transformational leadership components had positive associations with KM variables.

The results of hierarchical regression analyses (see Table 2) show that none of the organizational characteristics variables were related to KM variables. Therefore, results did not provide enough support to accept hypotheses from 6 to 9. After controlling for organizational characteristics, leadership behaviors such as inspirational motivation (β = 0.29, $p < .01$), individualized consideration (β = 0.30, $p < .01$), and idealized influence (β = 0.21, $p < .1$) were positively associated with knowledge acquisition. Therefore, hypothesis 1 is partially supported. Behaviors such as inspirational motivation (β = 0.18, $p < .1$), individualized consideration (β = 0.28, $p < .05$), and idealized influence (β = 0.20, $p < .1$) were positively associated with knowledge documentation. Thus hypothesis 2 predicting the positive associations between transformational leadership and knowledge documentation is partially supported. Leadership behaviors such as intellectual stimulation (β = 0.21, $p < .1$) and idealized influence (β = 0.26, $p < .05$) were positively associated with knowledge transfer. Hence, these results provide partial support to hypothesis 3. Transformational behaviors such as intellectual stimulation (β = 0.26, $p < .05$), individualized consideration (β = 0.26, $p < .05$), and idealized influence (β = 0.24, $p < .05$) were positively related to knowledge creation, and hence, these results provide partial support to hypothesis 4. The final model shows that all leadership components were strongly associated with knowledge application, and thus results provide complete support to hypothesis 5.

Discussions and Conclusion

Scholars have concurred with firms that leadership is the source of sustainable competitive

advantage due to the reasons that leaders improve knowledge creation process and produce intellectual capital. However, they have concerns on leveraging superior human capital in the organizations. Since knowledge is embedded in employees' brain, leaders rigorously influence the process that converts combined human capital and structural capital into intellectual capital. Though many researchers have attempted to investigate the associations between leadership and KM process implementation (Nonaka *et al*., 2000; Politis, 2001; Crawford, 2005; Wong, 2005; Birasnav *et al*., 2011), there was a paucity of studies in the literature on explaining a supportive leadership style for implementation of tactical KM process in service firms.

In this direction, this study attempted to examine the impact of transformational leadership behaviors on tactical KM process among service firms located in Kingdom of Bahrain. In addition, it also investigated the associations between KM process implementation and firm characteristics such as firm age, sector, size, and capital. New product development is a critical activity that relies upon certain amount of true information (in other words, knowledge) from suppliers in relation to improving the product quality and from customers in relation to improving product design. It is transformational leaders who first, influence employees who are in close contact with suppliers and customers and help employees to acquire knowledge from them.

Table 1: Correlation and Alpha Coefficients

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13
2 Type	31*	-											
3 Size	66*	61*	-										
4 Capital	38*	42*	69*	-									
5 Intellectual stimulation	03	-18**	-04	-01	(.70)								
6 Inspirational motivation	02	-16	01	-01	68*	(.76)							
7 Individualized consideration	-03	05	06	-01	58*	56*	(.74)						
8 Idealized influence	-04	-09	-03	01	63*	61*	72*	(.85)					
9 Knowledge acquisition	-00	04	06	09	53*	60*	64*	58*	(.73)				
10 Knowledge documentation	00	00	06	01	51*	52*	62*	58*	65*	(.75)			
11 Knowledge transfer	-04	-01	-04	-04	51*	47*	56*	55*	60*	74*	(.80)		
12 Knowledge creation	-08	-19**	-18	-16	57*	53*	59*	56*	63*	65*	64*	(.78)	
13 Knowledge application	-01	-03	-04	-03	57*	57*	64*	64*	64*	69*	72*	74*	(.83)

Notes: *p < .01; **p < .05;
Cronbach alpha values are mentioned within the parentheses;
Decimals are omitted from the correlation coefficients.

Table 2: Results of Hierarchical Regression Analyses

Predictors	Knowledge acquisition		Knowledge documentation		Knowledge transfer		Knowledge creation		Knowledge application	
	1	2	1	2	1	2	1	2	1	2
Age	-0.03	-0.02	-0.06	-0.06	-0.03	-0.04	-0.03	0.02	0.00	-0.00
Type	0.00	0.09	-0.03	0.05	0.02	0.11	-0.13	-0.04	0.00	0.11
Size	0.13	-0.03	0.22	0.10	0.08	-0.02	0.03	-0.08	0.11	-0.02
Capital	0.04	0.11	-0.11	-0.06	-0.09	-0.05	-0.10	-0.05	-0.09	-0.04
Transformational leadership										
Intellectual stimulation		0.03		0.13		0.21†		0.26**		0.18†
Inspirational motivation		0.29*		0.18†		0.14		0.09		0.20**
Individualized consideration		0.30*		0.28**		0.16		0.26**		0.19†
Idealized influence		0.21†		0.20†		0.26**		0.24**		0.34*
F	0.52	13.62*	0.40	11.10*	0.12	09.60*	0.70	14.79*	0.16	17.92*
ΔF		26.21*		21.49*		19.00*		28.15*		35.48*
R^2	0.02	0.52*	0.02	0.47*	0.01	0.43*	0.03	0.54*	0.01	0.59*
ΔR^2		0.50*		0.46*		0.43*		0.52*		0.58*

Notes: Coefficients are standardized beta weights;

$^{*}p < .01$; $^{**}p < .05$; $^{\dagger}p < .1$;

Second, they exercise collaborative strategies with stakeholder to acquire knowledge directly, and such collaborative climate helps leaders to identify new knowledge missing in the organizations. In particular, idealized influence behavior supports leaders to build trust and commitment among suppliers and customers, which in turn, help leaders to acquire knowledge from them. Supporting this notion, Jayakody and Sanjeewani (2006) proved that bank leaders having idealized influence and individualized consideration behaviors showed high trust and commitment to customer relationship. Overall, transformational leaders concentrate on acquiring missing knowledge as knowledge acquisition is unavoidable for improving organizational innovation. Idealized influence behaviors of transformational leaders always empower employees, which enables employees to confront uncertain environment and improves employees' adaptability (Bass, 1999). In this direction, transformational leaders encourage their followers to document the outcomes of these activities with an aim of helping project team members to achieve success or to avoid occurrence of failures.

Knowledge transfer or sharing is an essential process in firms, and the difference between the amount of knowledge sent by employees and amount of knowledge received by employees may prove the effectiveness of knowledge sharing. In pursuit of accomplishing goals, leaders request team members to try new and different ways to develop new products or services. Simultaneously, they establish employee-supportive culture that enables members to share their knowledge to others. Further, individualized consideration influences leaders to perform mentor role for their employees, and such role provides opportunities for direct knowledge sharing between leaders and employees. However, this kind of role-playing is not observed among leaders in the service firms. Instead, they might have involved in offering monetary or non-monetary rewards to their employees who suggest creative ideas and knowledge. For example, it is observed across Bahrain service industry that they distribute employee of month award and appreciate employees' creative efforts.

The collected data did not provide significant support to the hypotheses predicting the relationships between firm characteristics and KM process implementation. However, it cannot be concluded that it is common among all of these firms that employees enormously involve in tactical KM process, for example, sharing their knowledge with co-workers in the corridors and attending frequent meetings. It was also highly expected that older firms might have effective KM process due to the reasons that they frequently develop KM strategies and invest highly on infrastructure. But nowadays, new and larger firms also invest highly on new technologies to share knowledge and to document knowledge. Therefore, significant differences between older and new larger firms on implementing KM process could not be observed.

The findings of this study recommend human resource managers to provide training to their managers on developing transformational leadership style. At this moment, they should be more cautious on leadership development since such style invariably encourages employees to involve in risk-taking activities. Whenever leaders encourage activities having uncertain outcomes, employees are more likely to over-utilize the available resources and may deviate from the policies and principles.

Further, the findings of this study have certain limitations. First, the sample size collected from the Bahrain service industry is comparably not large; second, certain sectors of service industry (for example, airlines) were not included in the sample, and so the sample did not represent the entire service industry. In future, the investigation on the associations between transformational

leadership and KM process implementation will be extended to predict organizational outcomes such as organizational innovation and organizational performance. In addition, the role of human capital will also be focused in the relationships between KM process and organizational innovation and between KM process and organizational performance.

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