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Sahban M.A.

THE TRANSFORMATIONAL LEADERSHIP, KNOWLEDGE MANAGEMENT AND PERCEIVED ORGANIZATIONAL SUPPORT IN PREDICTING INNOVATION CAPABILITY

Sahban M.A. *

Abstract: The purpose of this paper is to inspect how "transformational leadership (TL)" impacts the "knowledge management infrastructure (KMI)" and "product innovation and process innovation" separately. Furthermore, the mediating role of KMI and "perceived organization support (POS)" as moderator has also been tasted. Furthermore, the paper draws on "social exchange theory". Data was collected through questionnaire and survey method, from individuals working in manufacturing enterprises operating in Malaysia. Respondents comprise project managers, team leaders or the leaders working in administration, accounting, operation or R&D sales department. The model was determined by using partial least squares structural equation modeling, with a total of 290 samples for detailed analysis of the measurement and structural model. The results show strong causal relation among TL, KMI and product and process innovation. To concise, transformational leadership was found as a prognosticator of KMI, product innovation and process innovation. Furthermore, the relationship between TL and innovation (product and process) mediates by KMI. The study findings assist leaders or mangers to manage infrastructure of knowledge in their organizations and drive the organizations towards success by bringing innovations in products and processes.

Key words: transformational leadership, knowledge management infrastructure, product innovation, process innovation, perceived organization support

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Introduction

For last two decades leadership and knowledge management processes have been extensively perceived as the critical sources for the organizations to encourage the capability of innovation. Leadership is a significant factor that effects followers' behaviors and attitude toward the organizational innovation. However, the increasing variations in technology, customer requirements, and the integration of economic universally cause organizations to cope with many problems and challenges (Jia et al., 2018; Le and Lei, 2018). As such, practitioners and researchers have shown an excessive deal of curiosity in recognizing the aspects that enhance and sustain innovation in organizations (Damanpour and Schneider, 2006). Previous research presumed that managers and their leadership styles are probably the greatest significant effort of enhancing innovation competences (Jia et

* **Muhammad Amsal Sahban,** Management College, Stim Lasharan Jaya, Makassar, Indonesia
✉ corresponding author: amsal@stimlasharanjaya.ac.id

al., 2018; Jung et al., 2008). This research addresses this study gap. The focus of this study is to investigate the Knowledge Management (KM) process mechanism that contains Knowledge acquisition, Knowledge sharing and Knowledge application which conveys the TL effects on Product innovation and Process innovation. The aim of this paper is to harness the following research question; how can organizations achieve innovation objectives by establishing a knowledge management process through TL? Four main objectives are addressed: To analyze the link between TL and Knowledge management process; (2) to investigate the causal relationship between Knowledge management process, product innovation and process innovation: (3) to explore the mediating role of knowledge management process between TL and innovation capability (i.e. product innovation and process innovation): (4) to examine the moderating effects of POS in the relationship between TL, knowledge management process and innovation capability (i.e. product innovation and process innovation).

Literature Review

Discussions on the development of the theory of transformational leadership (TL) have not recently started among researchers, but in the 1970's (Burns, 1978), which was launched by Downton in 1973, developed by Burns in 1978 and more polished by Bass in 1985. It is perceived that transformational leadership is one of the main and valuable leadership styles, which can be influence the key results such as knowledge and capital of an organization (Birasnav et al., 2011) and innovation achievement as well (Jia et al., 2018). In addition, also clarified Bass (1985, 1990), TL and its four components like 1) "idealized influence" that means it has a capacity to offer a visualization and insight of a mission, 2) "intellectual motivation" that explains the capability to intelligence and rationality in the problem solving, 3) "inspirational motivation" that elaborates expressing the important purposes in simple ways and by means of symbol to focus efforts and 4) "individualized concentration" that signifies interest in individual consideration, advising and to treat every employee individually.

H1: *Transformational leadership is positively related to knowledge management infrastructure.*

As stated by Tsai et al. (2001) the innovation of the product refers to "the ability of an organization providing differential to products or novel services acquisition in the market to gain the satisfaction of the customers". As Druker explained, innovation is the ability to produce fresh "products", "services", "work processes" & "management procedures" to gain the competitive benefit of an organization (Drucker, 2014). Moreover, companies nowadays are investing more in research and development that contributes to the innovation of new products to increases their market share and gains a competitive advantage (Armbruster, et al., 2008). In addition, several studies (Kashif et al., 2011; Fitri et al., 2019) highlighted that organizational knowledge assets are the soul of innovation as they increase the

knowledge capacity of the organization that directs to innovation. So it can be hypnotized that:

H2: *Knowledge management infrastructure is positively related to product innovation.*

Process innovation explains "the ability of the organization to give a better process over the current operation to obtain better performance" (Tsai et al., 2001). Moreover, Amundsen et al. (2014) demonstrated that information technology (IT) can support knowledge management processes by creating a work environment in which representative of the organization can use their knowledge base, and that the adoption of information technology promotes the movement of external knowledge of the organization (Surbakti and Ta'a, 2018), which helps organizations recognize their potential for innovation to develop. Furthermore, Kashif et al. (2011) also characterized innovation as "the activities and processes for creating and implementing new knowledge to produce new products, services, and processes to meet the needs and preferences of clients in different ways, besides it to generate the process, formation and more advanced technology that may take success to individuals, groups and society as a whole". By this explanation it can say that

H3: Knowledge management infrastructure is positively related to process innovation.

According to Chen and Huang (2009), obtaining and maintaining a competitive advantage depends primarily on the extent to which manage organizations and manage employees' knowledge. In this sense, companies introduced the knowledge management system at the organizational construction, technology and culture enables organizations to execute the process of management of knowledge in the types of attainment, move and knowledge application. It is also explained by Bass and Riggio (2006) that transformative leaders express through the example of modeling inventive and exceptional behavioral patterns that can stimulate innovation. As expressed by Shipton et al., (2006), due to these reasons, most workers who inform transformational leaders to get job satisfaction therefore, they improved innovative performance. By following all explanation, it can be hypothesized that

H4: *Knowledge management Infrastructure intercede the relationship between transformation leadership and product innovation.*

H5: *Knowledge management Infrastructure intercede the relationship between transformation leadership and process innovation.*

According to George et al., (1993) perceived organizational backing is important because it guarantees the support of an organization for job effectiveness and occupational stress management. Eisenberger et al. (1990), agreed on the difference between perceived organizational backing, loyalty and

commitment. Moreover, the researchers also suggested that different individual needs are, to gratify and that the perception of the organization regarding individuals are developed. The level of employee commitment increases with the organization because they perceive a positive support of the organization. Even though work of Suifan et al. (2018), specified that POS would produce a sense of employee's responsibility by concerning about the benefits of the organization and striving to attain its targets in the most creative way, that hypothized.

H6: *Perceived organizational support moderates the relationship between Transformational leadership and Knowledge management Infrastructure.*
H7: *Perceived organizational support moderates the relationship between Knowledge management Infrastructure and product innovation.*
H8: *Perceived organizational support moderates the relationship between Knowledge management Infrastructure and process innovation.*

Research Methodology

This study is quantitative in nature with causative and explanatory investigation that assesses the relationship among TL, and Product and process innovation, with the mediating effects off KMI and moderating effects of POS. This is a cross-sectional study with a deductive approach. This research used the data collected from survey method-based questionnaire for empirical analysis. Primary data was collected from randomly selected Malaysian manufacturing enterprises. 450 questionnaires were circulated to respondents from May to July 2019 through personal visits, e-mail and an online survey. 345 were returned and after screening 290 valid responses were usable, with a response rate of 64.4%. The questionnaire was developed by adopting items from different studies and comprised of five sections with 39 questions. All variables were measured on five point Likert scale ranging from one (strongly unwilling) to five (strongly willing) on all item scales. The questionnaire contains TL and included eight questions. While, the third and fourth sections examines PI and PRI contained six and five items respectively. The fifth and sixth sections related to KMI and POS with 12 and 8 items. Furthermore, TL was measured with eight items adopted from the study of Dai et al., (2013). Product and Process innovation were comprised of six and five items correspondingly. Furthermore, KMI comprised of three dimensions i.e. technological infrastructure, cultural infrastructure and Structural infrastructure. Four items for each of these constructs were adopted from the study of Abualoush et al., (2018) and all KMI items were rated on five point Likert scale. POS was measured with eight items adopted from the study of Eisenberger et al., (1986), Akgunduz et al., (2018).

Results of the Study

The construct authenticity of the measurement model was assessed through Cronbach's alpha and composite authenticity (as shown in table1). The values of Cronbach's alpha of all constructs are greater than 0.7, which is acceptable

(Werts et al., 2007). The values of composite reliability of all the constructs are also greater than 0.7 that further toughens the assessment of reliability of all the variables. According to (Bagozzi and Yi, 1988) the cut off value for average variance extracted is 0.5 for each construct. The value of Average variance extracted of all constructs are very close or greater than 0.5 as shown in table 2. This reflects the convergent validity of the constructs. The Fornell-Larcker benchmark and the cross loadings are checked for discriminant validity. According to the (Fornell & Larcker, 1981) criterion, the square root of the average variance extracted of individual construct should be greater than the construct's highest correlation with any other construct in the model (Fornell & Larcker, 1981). All the average variance extracted value are higher than the squared inter-construct correlations as shown in table 1. The AVE values are greater than threshold of 0.50 for each constructs and square root of AVE on the diagonal of latent construct matrix are greater than inter correlations of the constructs in corresponding columns, which reflect the discriminant validity of all latent constructs and their dimension.

Table 1: Discriminant validity

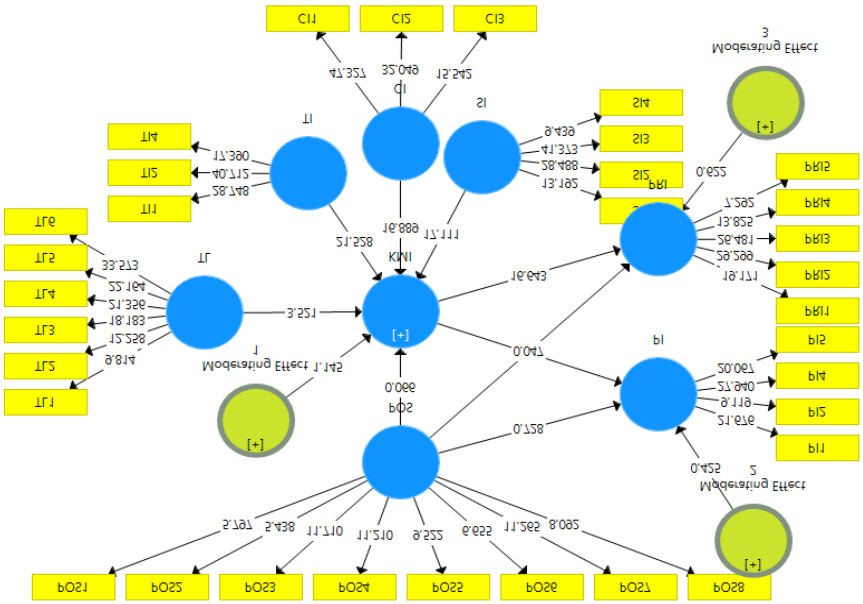
	CI	PI	POS	PRI	SI	TI	TL
CI	0.814						
PI	0.52	0.744					
POS	0.203	0.148	0.762				
PRI	0.703	0.652	0.128	0.728			
SI	0.647	0.421	0.116	0.519	0.745		
TI	0.746	0.534	0.153	0.625	0.714	0.795	
TL	0.745	0.529	0.173	0.667	0.363	0.461	0.735

Note: Diagonal Values are the square root of Average Variance Extracted (AVE). These values should be greater than the inter construct correlations for appropriate discriminant validity.

As presented in Figure 1 in order to test direct relations, direct effect analysis was used to assess the hypotheses. Bootstrapping (1000 subsamples) was used to assess the significance of the path coefficient and calculate the standard error with P and T-values providing direct evidence of the hypotheses being accepted or rejected. Table.3 shows the results of the structural model analysis, showing the path coefficients along with their significance levels. The results confirmed that all the three direct effect were significant and, it can be concluded that all the direct effects H1, H2, and H3 were accepted.

To test the mediation effects of KMI in the relationship among TL, product innovation and process innovation relationship, the process macro was utilized by means of a bootstrapping indirect method (Preacher and Hayes, 2008).

The bootstrapping analysis, confirmed that all two out of the two indirect effects were significant (Table 2) and, as indicated by Preacher and Hayes (2008), the indirect effect did not straddle 0 in between, expressing that there is mediation. Thus, the researchers can conclude that the mediation effects are statistically significant, which indicates that H4 and H5 were supported.



Furthermore, Two stage continuous moderation analysis was employed by following the method of Fassott et al. (2016) for calculating the Perceived organizational support table 2. Findings of the study provide insignificant support for H6, H7, and H8. POS does not moderate the relationship between TL and KMI for (H6), KMI and PI for (H7), and KMI and PRI for (H8).

Table 2: Hypotheses Results

95% Bootstrap BCI					
Hypothesis	**Relationships**	**Std. Beta**	**Std. Error**	**T Statistics**	**P Values**
H1	TL -> KMI	0.024	0.007	3.521	0.000
H2	KMI -> PI	0.541	0.055	9.867	0.000
H3	KMI -> PRI	0.707	0.042	16.643	0.000
H4	TL -> KMI -> PI	0.013	0.003	3.727	0.000
H5	TL -> KMI -> PRI	0.017	0.004	3.689	0.000
H6	TL*POS->KMI	-0.002	0.002	1.159	0.247
H7	KMI*POS->PI	-0.028	0.08	0.427	0.669
H8	KMI*POS->PRI	0.024	0.049	0.597	0.55

Discussion

Like so many organizations "manufacturing industries also want to take understanding how to choose, develop and maintain leadership, infrastructure for the knowledge management, bring innovation in process and product and also build a perception about organizational support." So, this research draws attention to the growing body of knowledge relating the concept of transformational leadership,

knowledge management infrastructure, product and process innovation and also the effect of perceived organizational support to make strengthen or weaker the relationship of above discussed concepts. Moreover, it also endorses and describes the meaning of transformational leadership, which helps to form knowledge management infrastructure in the work environment that drives to carry innovation in product and process of an organization as well, particularly in the Malaysian manufacturing sector. In addition, as a way to operationalize the role of developing relationships in encouraging organizational success; latest work in the field of manufacturing industry has looked to transformational leadership.

Conclusion

Based on the results of the present study, it can be concluded, that transformational leadership had a significant, positive relationship with knowledge management infrastructure, and knowledge management infrastructure also significantly increased the innovation in product and process. Study results also provide the empirical evidences on mediating mechanism of "transformational leadership", "knowledge management infrastructure" and innovation of product and process. Overall findings of this study varies from prior work and intensify the understanding of the conditions and trails to advance definitive aspects of innovation capacity" product and process innovation" by investigating the mediating role of KMI and moderating mechanism of POS. Additionally, there has no moderation effect of perceived organization support, on the relationships with TL, KMI and product innovation and process innovative, that reveals that without the POS, organization can also be work progressively with a factual and efficient transformational leadership, who controls all knowledge management infrastructure , that can innovate the product and process in a manufacturing organizational environment.

Theoretical Implications

Generally, this study adds to previous literature and made several important theoretical contributions. Firstly, it comprehensively examines the moderating effects of perceived organizational support on the relationship between TL and KMI, KMI and product innovation and process innovative separately as knowledge is an indispensable element for innovation (Anderson et al., 2014), significant to organization's competitiveness and long lasting success. Secondly, by exploring the relationships between like TL and innovation narrations (Choi et al., 2016; Cheng and Yi, 2018), in a manufacturing organization of Malaysia, it also contributes to the current body of literature, although the previous study of Le and Lei, (2019) explained the relation of these variables but with the mediation of "knowledge sharing" so this research contributes by adding the new variable of KMI. Furthermore, the present study found that perceived organizational support had a no moderating effect on the relationship of TL and KMI, also with KMI and

product, and KMI with process innovation that totally reverses the results of study results of Le and Lei, (2019) with KS as moderator.

Practical implications

By using the findings of this study, organizations can practice and focus their efforts to increase innovation in their product to satisfy their costumers and also to make their market expend and also process innovation by adapting the new and up to date procedures in manufacturing industries. The research instrument of this study could be applied by manufacturing organizations and also by the other sectors as well, as a checklist or an analyze tool that could be helpful to introduce innovation in product and process and also highlighted the knowledge management infrastructure. It is also important to be noted, that in this study the relationship between transformational leadership and knowledge management infrastructure was found to be greater for innovation of the organizational product and procedure, even though with no moderation effect of perceived organizational support that can clearly signifies that leadership would be a most effective and critical element for the development of an organization, that can reduce the effect of perceived organizational support (that organizations and managers, they expresses value for the employees' contributions and care about the employees' well-being).

Limitations and Future Research

After covering the wide areas of the study, the researcher has directed towards a vast vista of knowledge that would be helpful to other researchers, when they will conduct their researches. The study has the following few limitations that provoke suggestions for future research examinations. The study limitation pertains to considering one sector for examination that is the manufacturing sector. There is also possibility that this model will work different in other sectors. Future research might make our knowledge advance by using a larger sample size to expand the area of employees. The current investigation is quantitative in nature and single attempt (cross sectional) was made to collect the responses, also qualitative investigation is required to get rooted the vision of this sector, in which the responses may be collected from the set of respondents again and again to examine the changes in the organizational overtime. The single method of survey is used for the study to collect the data was questionnaire. It is recommended for future research that the researchers may adopt combination of the data collection techniques (mixed method) that will help them to cross examine the responses gathered for the study. Only transformational leadership style is used in his research, the style of leadership can change as per the organizational structure and sector in future.

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TRANSFORMACYJNE PRZYWÓDZTWO, ZARZĄDZANIE WIEDZĄ ORAZ WSPARCIE ORGANIZACYJNE W PRZEWIDYWANIU ZDOLNOŚCI DO INNOWACJI

Streszczenie: Celem tego artykułu jest pokazanie, w jaki sposób „przywództwo transformacyjne (TL)" wpływa na „infrastrukturę zarządzania wiedzą (KMI)" oraz „innowacje produktowe i innowacje procesowe" oddzielnie. Ponadto zasmakowano mediacyjnej roli KMI i „postrzeganego wsparcia organizacji (POS)" jako moderatora. Ponadto w artykule wykorzystano „teorię wymiany społecznej". Dane zebrano za pomocą kwestionariusza i metody ankietowej wśród osób pracujących w przedsiębiorstwach produkcyjnych działających w Malezji. Respondenci to kierownicy projektów, kierownicy zespołów lub liderzy pracujący w dziale administracji, księgowości, operacji lub sprzedaży i badań i rozwoju. Model został określony przy użyciu częściowego modelowania równań strukturalnych metodą najmniejszych kwadratów, w sumie 290 próbek do szczegółowej analizy modelu pomiarowego i strukturalnego. Wyniki pokazują silny związek przyczynowy między TL, KMI a innowacjami produktowymi i procesowymi. Podsumowując, transformacyjne przywództwo zostało znalezione jako prognostyk KMI, innowacji produktowych i innowacji procesowych. Ponadto związek między TL a innowacją (produktem i procesem) pośredniczy w KMI. Przedstawione wyniki badania pomagają liderom lub menedżerom w zarządzaniu infrastrukturą wiedzy w ich organizacjach i poprowadzą organizacje do sukcesu, wprowadzając innowacje w produktach i procesach.

Słowa kluczowe: przywództwo transformacyjne, infrastruktura zarządzania wiedzą, innowacje produktowe, innowacje procesowe, postrzegane wsparcie organizacji

预测创新能力时的转型领导力，知识管理和可感知的组织支持

摘要：本文的目的是分别检查“变革型领导（TL）”如何影响“知识管理基础架构（KMI）”和“产品创新与流程创新”。此外，还品尝了KMI和“感知组织支持（POS）”作为主持人的中介作用。此外，本文借鉴了“社会交换理论”。数据是通过问卷调查和调查方法从在马来西亚运营的制造企业工作的个人收集的。受访者包括项目经理，团队负责人或在行政，会计，运营或研发销售部门工作的负责人。该模型是通过使用偏最小二乘结构方程模型确定的，总共有290个样本用于测量和结构模型的详细分析。结果表明，TL，KMI与产品和流程创新之间存在很强的因果关系。简而言之，变革型领导被认为是KMI，产品创新和流程创新的预兆。此外，TL和创新（产品和过程）之间的关系由KMI调解。研究结果可帮助领导者或管理者管理其组织中的知识基础架构，并通过在产品和流程中进行创新来推动组织走向成功。

关键字：变革型领导，知识管理基础架构，产品创新，流程创新，可感知的组织支持。