Jurnal Aplikasi Manajemen, Ekonomi dan Bisnis
Vol. 7, No.2, April 2023
ISSN 2541-1438; E-ISSN 2550-0783
Published by STIM Lasharan Jaya

Exploring the Pathways to Innovation: The Interplay of Transformational Leadership, Knowledge Management Infrastructure, and Organizational Support

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ARTICLE DETAILS

History
Received : February
Revised Format : March
Accepted : April

Keywords :
transformational leadership, knowledge management infrastructure, product innovation, perceived organization support

ABSTRACTS

This study examines the effect of transformational leadership (TL) on the knowledge management infrastructure (KMI) and distinguishes its impact on product innovation and process innovation. It also explores the intermediary function of KMI and the moderating influence of perceived organizational support (POS). Drawing upon social exchange theory, the research employed questionnaires and surveys to gather data from employees in various roles within manufacturing companies in Malaysia, including project managers, team leaders, and those in administrative, accounting, operational, or R&D sales departments. Analyzing 290 samples using partial least squares structural equation modeling revealed a significant causal relationship between TL, KMI, and both types of innovation. The study underscores transformational leadership as a key predictor of KMI and innovations in products and processes, with KMI mediating the relationship between TL and these innovations. These insights are valuable for leaders and managers aiming to enhance their organization's knowledge infrastructure and foster innovation in their products and processes.

INTRODUCTION

Over the past two decades, leadership and knowledge management processes have emerged as vital elements that enable organizations to boost their innovation capabilities. Leadership significantly influences followers' attitudes and behaviors towards organizational innovation. Nevertheless, technological advancements, evolving customer demands, and global economic integration present various challenges for organizations, highlighting the importance of understanding factors that foster organizational innovation (Jia et al., 2018; Le and Lei, 2018; Damanpour and Schneider, 2006). Previous studies have identified leadership, particularly management styles, as crucial in enhancing organizational innovation capabilities (Jia et al., 2018; Jung et al., 2008). This study aims to bridge the existing research gap by exploring how the Knowledge Management (KM) process—encompassing knowledge acquisition, sharing, and application—mediates the influence of Transformational Leadership (TL) on product and process innovation. The paper seeks to address the central research question: How can organizations leverage TL to establish effective KM processes that achieve innovation goals? It sets forth four primary objectives: (1) Analyze the relationship between TL and the KM process; (2) Investigate the KM process's impact on product and process innovation; (3) Examine how the KM process mediates the relationship between TL and innovation capabilities, including product and process innovation; (4) Assess the moderating role of

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Perceived Organizational Support (POS) in the dynamics among TL, KM process, and innovation capabilities.

LITERATURE REVIEW

The scholarly discourse on transformational leadership (TL) theory did not commence recently but has its roots in the 1970s, initiated by Downton in 1973, subsequently developed by Burns in 1978, and further refined by Bass in 1985. Transformational leadership is recognized as a crucial and influential leadership style, significantly impacting an organization's key outcomes like knowledge, capital (Birasnav et al., 2011), and innovation success (Jia et al., 2018). Bass (1985, 1990) also delineated the four core components of TL: 1) Idealized Influence, which provides a vision and sense of mission, 2) Intellectual Stimulation, which promotes intelligence and reasoning in addressing problems, 3) Inspirational Motivation, which articulates significant goals clearly and compellingly, using symbolism to marshal focus and effort, and 4) Individualized Consideration, which emphasizes the personalized attention, coaching, and tailored support for each employee.

H1: Transformational leadership significantly influence knowledge management infrastructure.

According to Tsai et al. (2001), product innovation is defined as an organization's capability to offer distinctive or new products and services in the market, ultimately satisfying customer needs. Drucker (2014) elaborated on innovation as the process of introducing novel products, services, work processes, and management techniques that afford an organization a competitive edge. Furthermore, contemporary enterprises are increasingly channeling resources into research and development to foster the creation of innovative products, thereby expanding their market share and securing a competitive edge (Armbruster et al., 2008). Additional research (Kashif et al., 2011; Fitri et al., 2019) underscores the critical role of organizational knowledge assets in driving innovation, asserting that they bolster the organization's knowledge base, which in turn catalyzes innovation. Consequently, the hypothesis can be formulated as follows:

H2: There is a positive relationship between knowledge management infrastructure and product innovation.

Process innovation is defined as an organization's capability to improve upon its existing operations to enhance performance (Tsai et al., 2001). Furthermore, Amundsen et al. (2014) indicated that information technology (IT) bolsters knowledge management processes by fostering an environment where organizational members can leverage their knowledge effectively. Moreover, IT adoption facilitates the assimilation of external knowledge into the organization (Surbakti and Ta'a, 2018), aiding in recognizing and harnessing potential innovation opportunities. Kashif et al. (2011) further described innovation as the endeavors and methodologies involved in creating and applying new knowledge to generate novel products, services, and processes. This approach not only fulfills diverse customer needs and preferences in unique ways but also leads to the advancement of processes, formations, and technologies, ultimately benefiting individuals, groups, and society at large. From this discussion, the hypothesis can be articulated as:

H3: There is a positive association between knowledge management infrastructure and process innovation.

Chen and Huang (2009) emphasize that an organization's ability to gain and sustain a competitive edge largely hinges on how effectively it manages and leverages employee knowledge. In this context, the integration of a knowledge management system within an organization's structure, technology, and culture facilitates the systematic execution of knowledge processes, including acquisition, dissemination, and application. Bass and Riggio (2006) further elucidate that transformational leaders exemplify innovative and outstanding behaviors, inspiring creativity and innovation among employees. Shipton et al. (2006) suggest that such leadership qualities lead to job satisfaction among employees, which in turn enhances their innovative performance. Based on these insights, the following hypotheses can be proposed:

H4: Knowledge management infrastructure mediates the relationship between transformational leadership and product innovation.

H5: Knowledge management infrastructure mediates the relationship between transformational leadership and process innovation.

George et al. (1993) highlight the significance of perceived organizational support (POS) as it assures employees of the organization's commitment to their job efficacy and stress alleviation. Eisenberger et al. (1990) delineate the distinctions among perceived organizational support, loyalty, and commitment, suggesting that recognizing and addressing diverse individual needs fosters employees' perceptions of organizational support, which in turn, enhances their commitment levels. Furthermore, Suifan et al. (2018) posited that POS engenders a sense of responsibility among employees, motivating them to consider the organization's welfare and to pursue its objectives innovatively. Based on these insights, the proposed hypotheses are as follows:

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 research adopts a quantitative methodology, employing a causative and explanatory design to explore the interactions between transformational leadership (TL) and product and process innovation, considering the mediating role of knowledge management infrastructure (KMI) and the moderating influence of perceived organizational support (POS). Employing a cross-sectional and deductive approach, the study utilizes data gathered via a survey-based questionnaire for its empirical analysis. The primary data collection occurred between May and July 2019, targeting Malaysian manufacturing enterprises, with 450 questionnaires distributed through personal visits, email, and an online platform. Out of these, 345 responses were retrieved, and following a screening process, 290 were deemed valid, culminating in a 64.4% response rate. The questionnaire, integrating items from various sources, included five sections totaling 39 questions. Responses were gauged using a five-point Likert scale, ranging from one (strongly disagree) to five (strongly agree). The survey encompassed TL with eight questions, while the third and fourth sections, addressing product innovation (PI) and process innovation (PRI), included six and five questions respectively. The final two sections pertained to KMI and POS, featuring 12 and 8 questions, respectively. TL items were adapted from Dai et al. (2013), whereas product and process innovation sections had six and

five items each. KMI was dissected into three facets—technological, cultural, and structural infrastructure—with each aspect assessed through four items derived from Abualoush et al. (2018). Similarly, POS measurement, based on eight items, was adapted from studies by Eisenberger et al. (1986) and Akgunduz et al. (2018).

RESULTS OF THE STUDY

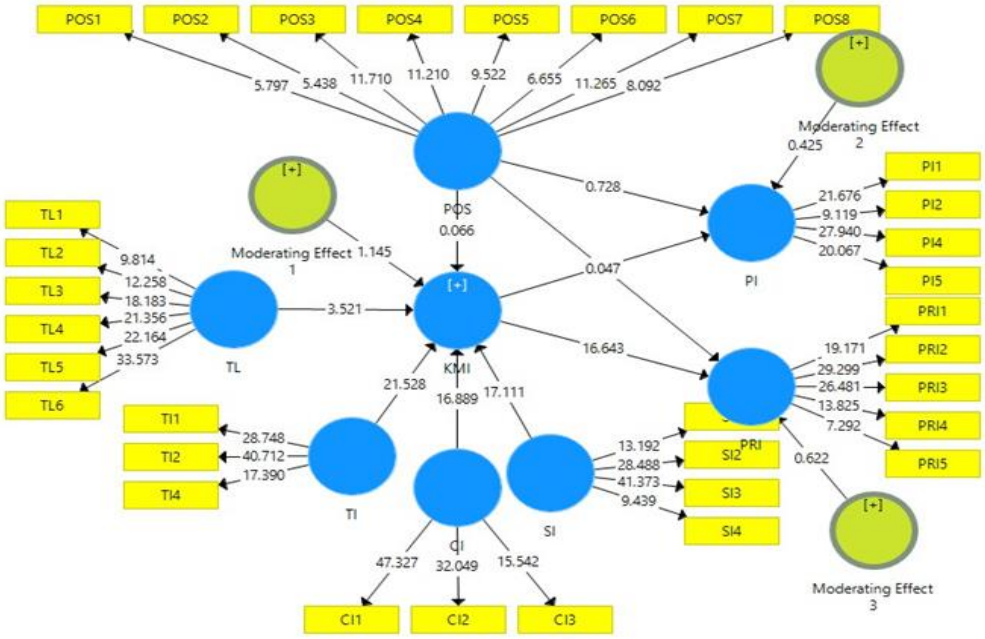
The validity of the measurement model was confirmed using Cronbach's alpha and composite reliability, as illustrated in Table 1. All constructs displayed Cronbach's alpha values above 0.7, considered acceptable according to Werts et al. (2007). Similarly, the composite reliability for each construct exceeded 0.7, reinforcing their reliability. Bagozzi and Yi (1988) stipulate a threshold of 0.5 for acceptable average variance extracted (AVE) for each construct. As indicated in Table 2, the AVE values for all constructs either meet or surpass this benchmark, confirming their convergent validity. Discriminant validity was assessed using the Fornell-Larcker criterion and cross-loadings analysis. Per Fornell and Larcker (1981), the square root of AVE for each construct should exceed its highest correlation with any other construct. This condition is met in the model, as demonstrated in Table 1, where the AVE values surpass the 0.5 threshold and the square root of AVE (diagonally placed in the latent construct matrix) exceeds the inter-construct correlations in the respective columns. These findings affirm the discriminant validity of all latent constructs and their dimensions.

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.

Figure 1 outlines the methodology for examining direct relationships, where direct effect analysis was employed to evaluate the hypotheses. The significance of the path coefficients was determined using bootstrapping with 1000 subsamples, which also facilitated the calculation of standard errors along with P and T-values, offering concrete evidence for the acceptance or rejection of the hypotheses. The outcomes from the structural model analysis are displayed in Table 3, detailing the path coefficients and their levels of significance. These results substantiate the significance of all three direct effects, leading to the acceptance of hypotheses H1, H2, and H3. Additionally, to investigate the mediating role of KMI in the dynamics between TL, product innovation, and process innovation, a process macro employing a bootstrapping indirect method was utilized (Preacher and Hayes, 2008). This analysis confirmed the significance of two indirect effects (as shown in Table 2), with the indirect effects not crossing zero, indicating mediation presence as per Preacher and Hayes (2008). Hence, it is concluded that the mediation effects hold statistical significance, corroborating hypotheses H4 and H5.



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

Many organizations in the manufacturing industry aspire to comprehend the selection, development, and maintenance of leadership, the establishment of knowledge management infrastructure, the instigation of innovation in processes and products, and the cultivation of a perception regarding organizational support. This research sheds light on the expanding knowledge base concerning transformational leadership, knowledge management infrastructure, product and process innovation, and the impact of perceived organizational support, examining how these elements influence each other. Furthermore, it elucidates the significance of transformational leadership in shaping the knowledge management infrastructure within the working environment, fostering innovation in both products and processes, particularly within the Malaysian manufacturing sector. Additionally, recent efforts

in the manufacturing industry focus on employing transformational leadership to operationalize relationship development, thereby promoting organizational success.

CONCLUSION

The findings of the current study lead to the conclusion that transformational leadership exhibits a significant and positive correlation with knowledge management infrastructure. Furthermore, knowledge management infrastructure proves to have a substantial impact on enhancing innovation in both product and process. The study results also offer empirical evidence regarding the mediating role of "transformational leadership," "knowledge management infrastructure," and innovation in products and processes. The overall outcomes of this research diverge from previous studies, contributing to a deeper understanding of the conditions and pathways for advancing specific facets of innovation capacity, particularly in product and process innovation. This investigation delves into the mediating role of KMI and the moderating mechanism of POS. Notably, there is no moderating effect of perceived organizational support on the relationships with TL, KMI, product innovation, and process innovation. This suggests that, even in the absence of POS, an organization can progress effectively with a factual and efficient transformational leadership overseeing all aspects of knowledge management infrastructure, leading to innovation in both product and process within a manufacturing organizational environment.

THEORETICAL IMPLICATIONS

This study makes significant theoretical contributions, building upon existing literature in several key aspects. Firstly, it provides a comprehensive examination of the moderating effects of perceived organizational support on the relationships between TL and KMI, KMI and product innovation, and process innovation. This is crucial given the recognized importance of knowledge as an essential element for innovation, contributing significantly to an organization's competitiveness and long-term success (Anderson et al., 2014). Secondly, the exploration of relationships between variables such as TL and innovation narratives in a Malaysian manufacturing organization contributes to the current body of literature. While a prior study by Le and Lei (2019) explained the relation of these variables with the mediation of "knowledge sharing," this research adds a new variable, KMI, to the analysis. Additionally, the present study reveals that perceived organizational support has no moderating effect on the relationship between TL and KMI, as well as between KMI and both product and process innovation. This finding contradicts the results of the study by Le and Lei (2019), which considered knowledge sharing as a moderator.

PRACTICAL IMPLICATIONS

Utilizing the insights derived from this study, organizations can strategically direct their efforts towards enhancing innovation in their products to meet customer satisfaction. Additionally, they can expand their market presence through process innovation by adopting contemporary procedures in the manufacturing industry. The research tools employed in this study can be applied not only by manufacturing organizations but also by various other sectors. They can serve as checklists or analytical tools, aiding in the introduction of innovation in both product and process, while also emphasizing the importance of knowledge management infrastructure. It is crucial to highlight that in this study, the relationship between transformational leadership and knowledge management infrastructure was found to have a significant impact on the innovation of organizational products and procedures. Importantly, this relationship persists even in the absence of a moderation effect from perceived organizational support. This underscores the notion that leadership stands out as a highly effective and critical element in organizational development, capable of mitigating the

influence of perceived organizational support, which typically reflects an organization's expressed value for employees' contributions and concern for their well-being.

LIMITATIONS AND FUTURE RESEARCH

Having explored a wide array of topics, the researcher has delved into a vast reservoir of knowledge that holds potential value for fellow researchers in their future endeavors. However, certain limitations in this study prompt suggestions for future research. The primary constraint lies in the exclusive focus on the manufacturing sector, and it is plausible that the model's applicability may vary across different sectors. To enhance our understanding, future research endeavors could benefit from a larger and more diverse sample size, expanding the scope to encompass various employee demographics.

This study, being quantitative and employing a single attempt (cross-sectional) for data collection, calls for complementary qualitative investigations to deeply root the insights within the sector. Conducting repeated surveys with the same set of respondents over time can illuminate changes in organizational dynamics. The exclusive reliance on a questionnaire for data collection suggests a potential avenue for improvement in future research. Researchers are encouraged to adopt a mixed-method approach, combining various data collection techniques to cross-examine and enrich the study's findings.

Moreover, it is noteworthy that this research exclusively utilizes the transformational leadership style. Acknowledging that leadership styles can evolve based on organizational structures and sectors, future studies may benefit from exploring a variety of leadership styles to obtain a more comprehensive understanding of their impact..

REFERENCES:

Al-dalahmeh, M.A. (2015). The Role of Knowledge Management Infrastructure in Enhancing Innovation at Mobile Telecommunication Companies in Jordan, (December).

Amundsen, O., Aasen, T.M., Gressgård, L.J., & Hansen, K (2014). Use of information and communication technology to support employee driven innovation in organizations: A knowledge management perspective. Journal of Knowledge Management, 18(4), 633- 650.

Anderson, N., Potocnik, K. & Zhou, J. (2014). Innovation and creativity in organizations: a state-of-the-science review, prospective commentary, and guiding framework. Journal of Management, 40(5), 1297-1333.

Aryee, S., Budhwar, P.S. & Chen, Z.X. (2002). Trust as a mediator of the relationship between organizational justice and work outcomes: test of a social exchange model. Journal of Organizational Behavior, 23(3), 267-285.

Birasnav, M., Rangnekar, S. & Dalpati, A. (2011). Transformational leadership and human capital benefits: the role of knowledge management. Leadership & Organization Development Journal, 32(2), 106-126.

Cheng, J.C., Yi, O. (2018). Hotel employee job crafting, burnout, and satisfaction: the moderating role of perceived organizational support. International Journal of Hospitality Management, 72, 78-85.

Cheung, F.Y.M., Peng, K. & Wong, C.-S. (2018). Beyond exchange and prosocial motives, is altruistic helping a valid motive for organizational citizenship behavior? Chinese Management Studies.

Gould-Williams, J., Davies, F. (2005). Using social exchange theory to predict the effects of HRM on employee outcomes. Public Management Review, 7(1), 1-24.

Hogan, S.J., Coote, L.V. (2014). Organizational culture, innovation, and performance: a test of Schein'smodel. Journal of Business Research, 67(8), 1609-1621.

Kashif, A., Siddiqui, S.H., Nawaz, M.A., Ghauri, T.A., & Hayat Cheema, A.K. (2011). 'Role of Knowledge Management to Bring Innovation: An Integrated Approach. International Bulletin of Business Administration, 11(11), 121-134.

Nonaka, I. (1995). A Dynamic Theory of Organizational Knowledge Creation. Organization Science, 5(1), 14-37.

Nugraha, A.T., Hakimah, Y. (2019). Role of Relational Capabilities on the Supply Chain Performance of Indonesian Textile Sector with Moderating Effect of Technology Adoption. International Journal of Supply Chain Management, 8(5), 509-522. Okatan, K. (2012). Managing Knowledge for Innovation and Intra Networking: A Case

Study. Procedia- Social and Behavioral Sciences, 62, 59-63. Shipton, H., West, M., Parkes, C., & Dawson, J. (2006). When promoting positive feelings pays: Aggregate job satisfaction, work design features, and innovation in manufacturing organizations. European Journal of Work and Organizational Psychology, 15(4), 404-430.

Sosik, J.J., Godshalk, V.M., & Yammarino, F.J. (2004). Transformational leadership, learning goal orientation, and expectations for career success in mentor-protégé relationships: A multiple levels of analysis perspective. Leadership Quarterly, 15, 241-261.

Surbakti, H., Ta'a, A. (2018). Tacit knowledge for business intelligence framework: A part of unstructured data? Journal of Theoretical and Applied Information Technology, 96(3), 616-625.

Zhou, J., George, J.M. (2001). When job dissatisfaction leads to creativity: encouraging the expression of voice. Academy of Management Journal, 44(4), 682-696.

Zhu, W., Chew, I.K.H., & Spangler, W.D. (2005). CEO transformational leadership and organizational outcomes: The mediating role of human capital-enhancing human resource management. Leadership Quarterly, 16, 39-52.