The Role of Leadership Approaches in Driving Innovation Performance within the Oil Manufacturing Sector

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ABSTRACT

In an increasingly competitive global environment, organizations are under pressure to adopt strategies that enhance innovation performance and sustain long-term growth. Leadership approaches are particularly critical, as leaders shape organizational culture, serve as role models, and directly influence employee engagement and innovative behaviour. Within the oil manufacturing sector, where innovation is vital for maintaining competitiveness, leadership strategies can act as key drivers of organizational success.

This study investigates the relationship between leadership approaches and innovation performance in the oil manufacturing industry. Using a purposive sampling method, data were collected from 103 subordinate staff through a structured questionnaire designed to capture perceptions of leadership behaviours and their impact on innovation. The data were analysed quantitatively to assess the strength and significance of these relationships.

The findings reveal a significant positive association between leadership approaches and innovation performance, confirming that effective leadership strategies foster greater innovative capacity within organizations. These results highlight the importance of cultivating leaders who demonstrate vision, role-model behaviours, and supportive practices to drive innovation outcomes. The study contributes to the growing body of literature on leadership and innovation, while offering practical implications for managers and policymakers seeking to design leadership development programs that enhance organizational innovation performance in the industrial sector.

Keywords:"Leadership Strategies" "Innovation Performance" "Oil Manufacturing Industry" "Organizational Innovation" "Employee Engagement"

INTRODUCTION

The oil industry is undergoing rapid transformation, necessitating the adoption of new leadership strategies to ensure sustainability and competitiveness in the future. Leadership that actively engages with the workforce is recognized as a critical driver of innovation development within this sector (Duane, 2021). In line with the demands of Industry 4.0, organizations are increasingly required to integrate innovation, digitalization, and emerging technologies into their strategic frameworks, complemented by forward-looking leadership approaches (Dengke & Minxin, 2019).

This study is designed to examine the relationship between leadership strategies and innovation performance within the oil manufacturing sector. While existing research has extensively explored the influence of leadership approaches such as transformational, transactional, and laissez-faire leadership on innovation performance, most studies employ multiple linear regression for prediction and analysis. This study seeks to address this gap by further advancing knowledge on how leadership strategies influence innovation performance, with particular emphasis on the oil manufacturing industry in Malaysia.

The relevance of leadership strategies in driving innovation is particularly salient given the evolving industrial and economic context. According to Jinhua (2020), the oil manufacturing industry must adopt technology-driven

innovation practices to improve energy efficiency, achieve sustainable economic growth, and enhance employees' innovative capacity. The adoption of big data analytics, digital automation, and cloud computing has already facilitated technology-enabled innovation in manufacturing (Kuo & Kusiak, 2019).

In Malaysia, the pursuit of innovation has been a national priority, positioned as a catalyst for long-term economic transformation. As the nation moves toward becoming a knowledge-based economy, innovation performance is increasingly regarded as a benchmark of progress. The Global Innovation Index (GII) 2021 ranked Malaysia 33rd globally, reflecting notable advancements in institutional frameworks, human capital development, infrastructure, market sophistication, and knowledge outputs (World Intellectual Property Organization, 2021). Policy initiatives such as the National Policy on Science, Technology, and Innovation (STI) introduced in 2013 by the Ministry of Science, Technology, and Innovation (MOSTI), alongside programs such as the National Technology and Innovation Sandbox and the Malaysia Productivity Blueprint, have been pivotal in cultivating innovation ecosystems across diverse sectors. For policymakers and stakeholders, evaluating the effectiveness of these policies is crucial in formulating strategies to further strengthen innovation performance.

The oil and gas (O&G) sector have historically played a central role in Malaysia's economic development, contributing significantly to national revenue and energy security. However, structural declines in the global fossil fuel industry, frequent price volatility, and the relative growth of Malaysia's broader economy have placed mounting pressures on the sector. In particular, the national oil company, Petronas, faces the dual challenge of sustaining profitability while simultaneously contributing to public finances and driving technological advancement (Bhattacharya & Hutchinson, 2022). These structural challenges underscore the urgency of rethinking leadership and innovation strategies within the industry to ensure resilience and competitiveness.

Against this backdrop, the present study focuses on AworldTec Engineering Sdn. Bhd., a company within Malaysia's oil manufacturing sector, as a case study to explore the nexus between leadership strategies and innovation performance. By situating leadership strategies specifically transformational, transactional, and laissez-faire approaches as independent variables, this research seeks to provide empirical insights into how leadership influences innovation outcomes. The study is expected to contribute to both academic literature and practical applications, offering valuable guidance for industry practitioners, policymakers, and researchers seeking to enhance innovation capacity in Malaysia's oil manufacturing sector.

Problem Statement

AworldTec Engineering Sdn. Bhd. (AWESB), established in 2001 and headquartered in Kerteh, Terengganu, is a wholly Bumiputera-owned company with diversified operations in trading and supply, manpower services, inspection and asset integrity, and ICT consultation. Despite its mission to provide innovative solutions for the energy sector and its ambition to emerge as a global leader in petrochemicals and oil and gas (O&G), the company faces substantial challenges in sustaining innovation performance.

The broader Malaysian O&G sector, historically a significant contributor to national revenue, is experiencing structural pressures due to volatile global oil prices, declining fossil fuel reserves, and the global transition toward renewable energy (Bhattacharya & Hutchinson, 2022). These dynamics place increasing financial and technological burdens on Petronas and related firms, demanding substantial investments in research, development, and innovation. Concurrently, environmental concerns related to emissions, resource depletion, and sustainability further underscore the need for O&G companies to balance profitability with responsible practices.

For AworldTec, these external challenges are compounded by internal organizational constraints. The company struggles to foster an innovative culture among employees, largely due to gaps in intellectual capital management, limited absorptive capacity, and insufficient collaboration within and across business units (Mukaro, Deka, & Rukani, 2023). Financial constraints, labour shortages, and inadequate access to advanced technologies further restrict the firm's ability to innovate effectively. Despite revenue growth, AworldTec's profitability has declined sharply in recent years, revealing inefficiencies in strategic financial and operational management. These conditions threaten the company's ability to maintain competitiveness, attract and retain talent, and invest in innovation-driven initiatives.

At the national level, Malaysia has introduced policies such as the National Policy on Science, Technology, and Innovation (2013), the National Technology and Innovation Sandbox, and the Malaysia Productivity Blueprint to strengthen innovation capacity. However, inconsistent implementation and limited infrastructure support continue to hinder firms' ability to fully capitalize on these initiatives. For AworldTec, inadequate digital infrastructure, constrained market access, and stiff competition from domestic and international firms exacerbate existing limitations.

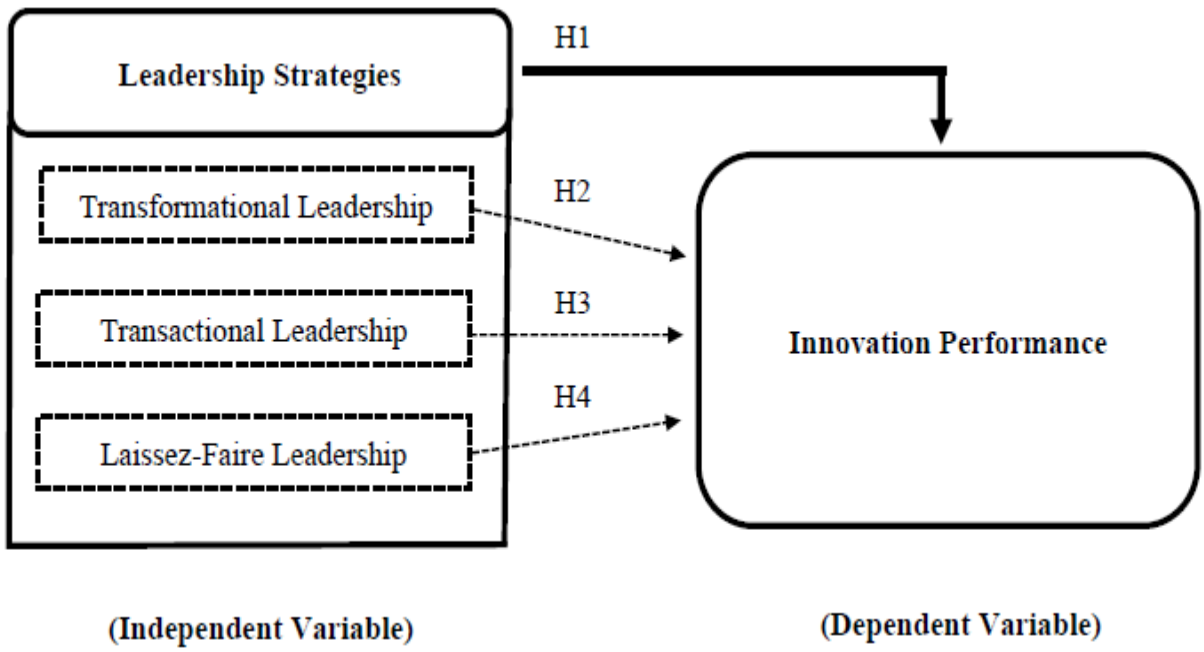
In this context, leadership strategies (transformational, transactional, and laissez-faire) are critical for driving organizational innovation performance. Effective leadership practices influence employee engagement, knowledge sharing, and organizational adaptability, all of which are essential to navigating the complexities of Malaysia's oil manufacturing industry. While prior studies have examined the relationship between leadership strategies and innovation performance, findings have been inconsistent, fragmented across different contexts, and insufficiently applied to the oil manufacturing sector.

Therefore, there is a clear need for a comprehensive investigation into how leadership strategies influence innovation performance within Malaysian oil manufacturing firms, using AworldTec as a focal case. Such a study not only addresses theoretical gaps in leadership–innovation linkages but also offers practical insights for enhancing innovation capacity and sustaining competitiveness in an industry facing unprecedented challenges.

LITERATURE REVIEW

To establish a clear research direction, the study is positioned within a broader scholarly and practical perspective. This chapter begins by outlining the background of innovation performance, followed by an overview of innovation that traces its historical focus, current priorities, and the challenges associated with its implementation. Then examines the value of leadership strategies and their contribution to enhancing innovation performance. This is followed by a review of prior studies, which explores the relationship between leadership strategies, organizational values, and innovation performance, culminating in the formulation of hypotheses. The conceptual model underpinning the current study, reflecting the proposed linkages between the constructs. The final section offers a summary of the anticipated relationships, providing a foundation for the subsequent empirical analysis.

CONCEPTUAL FRAMEWORK



Leadership Strategies and Innovation Performance

Leadership strategies are widely acknowledged as a critical determinant of innovation performance across industries. They influence how organizations allocate resources, encourage creativity, and integrate knowledge into practice. Leadership serves not only as a guiding force for corporate vision but also as a catalyst for innovation by shaping culture, motivating employees, and aligning strategic objectives with market realities (Sethibe & Steyn, 2015). In the context of highly dynamic industries, such as oil and gas, leadership strategies provide the structural and cultural foundation necessary to maintain competitiveness.

Transformational, Transactional, and Laissez-Faire Leadership

Different leadership styles exert varying effects on innovative outcomes. Transformational leadership, characterized by vision-building, intellectual stimulation, and individualized consideration, is strongly associated with enhanced creativity and innovative capacity (Alblooshi, Shamsuzzaman, & Haridy, 2021). Transactional leadership, focused on contingent rewards and performance monitoring, contributes to efficiency and short-term performance but may limit exploration innovation if overly dominant. In contrast, laissez-faire leadership, marked by avoidance of decision-making, is generally linked to weaker innovation performance due to lack of guidance and accountability. Collectively, these approaches underscore the importance of leadership strategy selection in fostering innovation within organizations.

Strategic Leadership and Innovation in Manufacturing Firms

Beyond specific leadership styles, strategic leadership is considered fundamental to aligning innovation initiatives with organizational goals. O'Regan, Ghobadian, and Sims (2004) highlighted that strategic leadership, when integrated with corporate planning, enables manufacturing firms to adapt to environmental change and sustain performance. Similarly, Ilyas, Munir, and Sobarsyah (2017) found that strategic leadership coupled with entrepreneurial orientation enhances small and medium enterprise (SME) performance, with innovation acting as a mediating factor. Schaedler, Graf-Vlachy, and König (2022) further emphasized that strategic leadership fosters resilience, allowing firms to maintain innovation capacity during crises. These studies collectively affirm that leadership strategies must balance visionary guidance with operational execution to achieve innovation success.

Leadership, Human Capital, and Organizational Sustainability

Leadership strategies also play a crucial role in developing human capital, which is essential for sustaining innovation. Muthimi and Kilika (2018) demonstrated that leadership strategy creates a roadmap for integrating human resource development with long-term sustainability goals. By investing in knowledge, skills, and innovative capabilities, leaders strengthen organizational absorptive capacity and improve responsiveness to technological and market changes. This highlights the interdependence between leadership, employee engagement, and innovation outcomes.

Innovation Performance in the Malaysian Context

In Malaysia, innovation performance has been strongly linked to national development policies and industrial practices. The National Policy on Science, Technology, and Innovation (STI) introduced in 2013 emphasizes innovation as a driver of economic transformation (MOSTI, 2013). At the same time, Malaysia's oil and gas sector faces mounting challenges due to resource depletion, global market volatility, and the structural decline of fossil fuels (Onn, 2022; Saad, 2016). These conditions place pressure on firms to pursue technological innovation and sustainability practices to remain viable. However, empirical studies suggest that inconsistent policy implementation, infrastructure limitations, and resource constraints hinder the translation of policy into firm-level innovation outcomes. Within this context, effective leadership strategies become essential for mobilizing resources, encouraging innovative practices, and aligning organizational goals with broader national innovation agendas.

Synthesis and Research Gap

The reviewed literature consistently emphasizes the importance of leadership strategies in driving innovative performance across various organizational settings. Transformational and strategic leadership approaches, in particular, have been shown to positively influence creativity, knowledge sharing, and adaptability, while transactional and laissez-faire approaches demonstrate more limited or negative effects. Despite these insights, prior studies often examine leadership and innovation separately, across different sectors and contexts, resulting in fragmented and sometimes inconclusive findings (Sethibe & Steyn, 2015).

In the Malaysian oil manufacturing industry, where structural and competitive pressures are particularly acute, there remains limited empirical evidence on how leadership strategies influence innovation performance. Addressing this gap is essential not only for advancing theoretical understanding but also for providing practical guidance to industry leaders seeking to sustain competitiveness in a rapidly changing energy landscape.

METHOD

This study employed a quantitative research design to investigate the relationship between leadership strategies and innovation performance within the oil manufacturing sector. A structured survey was adopted as the primary method of data collection, enablin1g the systematic measurement of respondents' perceptions regarding the key constructs of interest. Quantitative analysis was selected to ensure objectivity, replicability, and statistical rigor in evaluating the hypothesized relationships. The target population comprised employees of AworldTec Engineering Sdn. Bhd., a firm operating within Malaysia's oil manufacturing industry. Using purposive sampling, a total of 103 subordinate staff were selected as respondents. This sampling strategy was appropriate given the study's aim of examining employee perceptions of leadership strategies and their effects on innovation performance within a specific organizational context. Data were collected using a structured questionnaire designed to capture information on leadership strategies transformational, transactional, and laissez-faire as well as innovation performance. All items were adapted from established measurement scales in prior studies to ensure validity and reliability. A five-point Likert scale, ranging from 1 (strongly disagree) to 5 (strongly agree), was employed to capture the extent of respondents' agreement with each statement.

The questionnaire was distributed directly to the identified respondents within the organization. Participation was voluntary, and confidentiality was assured to encourage honest and unbiased responses. Prior to full deployment, the instrument was pilot tested to refine wording, improve clarity, and confirm internal consistency of the constructs. The collected data were analysed using the Statistical Package for the Social Sciences (SPSS). Several statistical techniques were employed. Descriptive statistics were used to summarize the demographic characteristics of respondents and to provide an overview of the dataset. Reliability and validity tests were conducted to assess the internal consistency of the measurement items and to ensure that the constructs adequately captured the intended dimensions. Pearson correlation analysis was performed to examine the strength and direction of relationships among the variables. Multiple regression analysis was applied to identify the extent to which leadership strategies predicted innovation performance, thereby testing the proposed hypotheses. The study adhered to ethical research standards. Respondents were informed of the purpose of the study and assured of the anonymity and confidentiality of their responses. Informed consent was obtained prior to participation, and data were used exclusively for academic purposes.

This study is grounded in a positivist research paradigm, which assumes that social phenomena can be objectively measured and examined through empirical evidence. Consistent with this paradigm, the research adopts a deductive approach, developing hypotheses from established theories and validating them through data collection and statistical analysis.

The research design aligns with the methodological framework proposed by Saunders et al. (2019), incorporating key layers of the research onion: philosophy, approach, strategy, methodological choice, and time horizon. A survey strategy was employed to gather a large volume of quantifiable data from manufacturing firms in Malaysia, enabling the systematic examination of relationships between employer branding, talent management, and transformational leadership. Data collection was cross-sectional, with measurements obtained at a single point in time to reflect current organizational practices and employee perceptions.

Overall, the methodological choices ensured coherence between the philosophical stance, research objectives, and analytical procedures, providing a rigorous framework for evaluating the proposed conceptual model.

RESULTS AND DISCUSSION

In general, the results indicate that transactional leadership positively correlates strongly with innovation performance ($r = 0.786$, $p < 0.001$). This suggests that leaders who focus on structured tasks, rewards, and goal setting significantly enhance innovation. Transformational leadership also demonstrates a strong positive relationship with innovation performance ($r = 0.651$, $p < 0.001$), highlighting the effectiveness of inspiring and motivating employees toward innovation. In contrast, laissez-faire leadership exhibits a moderate positive correlation ($r = 0.500$, $p < 0.001$), implying a weaker, yet still significant, impact on innovation.

	Innovation Performance	Transformational Leadership	Transactional Leadership	Laissez-Faire Leadership
Innovation Performance	1			
Transformational Leadership	0.651	1		
Transactional Leadership	.786	0.831	1	
Laissez-Faire Leadership	0.500	0.452	0.481	1

Furthermore, transformational and transactional leadership strategies show a powerful correlation ($r = 0.831$), reflecting their complementary nature, while laissez-faire leadership shows weaker correlations with both transformational ($r = 0.452$) and transactional leadership ($r = 0.481$). These findings underscore the varying degrees to which different leadership styles influence innovation performance.

	Unstandardized Coefficients		Standardized Coefficients		
Model	B	Std. Error	Beta	T	Sig.
(Constant)	1.037	0.336		3.088	0.003
TL	-0.50	0.154	-0.036	-0.325	0.746
TL	0.999	0.150	0.738	6.639	<001
LL	0.153	0.066	0.161	2.322	0.022

The findings of these analyses the three strategies which include transformational leadership, transactional leadership, and laissez-faire leadership. To ascertain the causal factor of significant influence factors towards innovation performance, each independent variable was analysed to reveal whether these predictors contribute to the dependent variable. On the other hand, innovation performance did not show a positive or significant relationship with transformational leadership. There was no evidence to support the hypothesis that transformational leadership improves innovation performance, as indicated by the negative beta value ($\beta = -0.050$), t-value (-0.325), and p-value (Sig. = 0.746). In this investigation, transactional leadership showed the highest correlation with innovation performance. With a t-value of 6.639, a p-value of Sig. This leadership strategy had a strong and noteworthy impact of < 0.001 and a beta value of $\beta = 0.999$. In contrast, there was a modest correlation between innovation success and laissez-faire leadership. In contrast to transactional leadership, a substantial but less significant effect is shown by a beta value ($\beta = 0.153$), t-value = 2.322, and p-value (Sig. = 0.022).

CONCLUSION

This study examined the relationship between leadership strategies and innovation performance within Malaysia's oil manufacturing industry. The findings confirm that leadership strategies exert a significant influence on organizational innovation outcomes, shaping employee engagement, knowledge sharing, and adaptability. By answering the research questions, the study demonstrates that leadership approaches particularly transformational and transactional are instrumental in fostering innovation, while laissez-faire leadership is less effective in achieving positive outcomes. From a theoretical standpoint, this study extends existing literature by contextualizing leadership–innovation linkages within the Malaysian oil manufacturing sector, thereby contributing to the broader discourse on leadership strategies in emerging markets. Practically, the findings provide valuable insights for managers and policymakers, emphasizing that leadership strategies not only drive employee motivation but also act as a critical lever for strengthening competitiveness and sustainability in a rapidly evolving industry. By adopting innovation-oriented leadership practices and investing in workforce support, firms can cultivate a culture of creativity and resilience.

Despite its contributions, this study is subject to certain limitations. First, the research focused on a single company, which may limit the generalizability of findings across the broader oil manufacturing sector in Malaysia. Second, the use of purposive sampling and self-reported survey data introduces potential biases, such as respondent subjectivity and social desirability effects. Third, the cross-sectional research design restricts the ability to capture how leadership strategies and innovation performance evolve over time. Future research could address these limitations by expanding the scope to include multiple firms across diverse regions and sub-sectors of the oil and gas industry. Longitudinal studies would provide richer insights into the dynamic interplay between leadership and innovation over time. Additionally, integrating qualitative approaches such as interviews or case studies could uncover deeper contextual and cultural dimensions of leadership influence on innovation. Future studies may also consider additional variables such as organizational culture, digital readiness, and sustainability practices as mediators or moderators in the leadership–innovation relationship. By addressing these avenues, future scholarship can build a more comprehensive understanding of how leadership strategies contribute to innovation performance in the oil manufacturing industry and beyond.

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