

**THE MEDIATING EFFECT OF THE
INFORMATION TECHNOLOGY ADOPTION
ON THE RELATIONSHIP
TRANSFORMATIONAL LEADERSHIP AND
KNOWLEDGE MANAGEMENT IN THE
ROYAL MALAYSIAN NAVY**

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**ASIA e UNIVERSITY
2025**

THE MEDIATING EFFECT OF THE INFORMATION TECHNOLOGY
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LEADERSHIP AND KNOWLEDGE MANAGEMENT IN THE ROYAL
MALAYSIAN NAVY

SHAIFUL NIZAM BIN ABDUL MANAN

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ABSTRACT

This study examines the relationship between transformational leadership, information technology (IT), and knowledge management (KM) adoption within the Royal Malaysian Navy (RMN). It addresses a gap in understanding how leadership and IT mediate KM adoption in military settings, where challenges such as insufficient leadership and poor strategic alignment persist. The research explores how transformational leadership fosters KM processes, mediated by IT, to enhance decision-making and organizational efficiency. Using a cross-sectional survey, data were collected from 336 Senior Enlisted Leaders (SELs) at RMN's Lumut Naval Base using structured questionnaires. Key constructs, including leadership styles, KM, and IT adoption, were measured with validated tools such as the Multifactor Leadership Questionnaire (MLQ) and Technology Acceptance Model (TAM). SPSS was used for data analysis. The findings demonstrate that transformational leadership significantly impacts the knowledge management (KM) process ($\beta = 0.567$, $p < 0.001$). Information technology (IT) adoption also plays a key role, showing a positive and significant relationship with KM ($\beta = 0.193$, $p < 0.001$). Furthermore, IT partially mediates the relationship between transformational leadership and KM processes, as indicated by the reduction in the direct relationship when IT is included in the model. Correlation analyses reveal that KM is moderately correlated with transformational leadership ($r = 0.479$, $p < 0.001$) and IT ($r = 0.354$, $p < 0.001$), while the relationship between transformational leadership and IT is weaker ($r = 0.179$, $p = 0.001$). These results confirm that leadership style and IT adoption are critical enablers of effective KM practices. Transformational leadership fosters trust and collaboration, while IT enhances knowledge-sharing mechanisms, creating a synergistic effect in organizational knowledge processes. The study is limited to a single military organization and relies on self-reported data, potentially introducing biases. Future research could explore other military and public organizations, considering additional mediating factors like organizational culture or environmental influences. Practical recommendations include improving IT infrastructure, implementing training programs to support leadership initiatives, and fostering a KM-focused organizational culture. These efforts enhance both theoretical and practical understanding of leadership and KM in military settings, paving the way for stronger frameworks in knowledge-driven environments.

Keywords: Organisational theory, leadership styles, information technology, knowledge management

APPROVAL

This is to certify that this thesis conforms to acceptable standards of scholarly presentation and is fully adequate, in quality and scope, for the fulfilment of the requirements for the Doctor of Business Administration.

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DECLARATION

I hereby declare that the thesis submitted in fulfilment of the DBA degree is my own work and that all contributions from any other persons or sources are properly and duly cited. I further declare that the material has not been submitted either in whole or in part, for a degree at this or any other university. In making this declaration, I understand and acknowledge any breaches in this declaration constitute academic misconduct, which may result in my expulsion from the programme and/or exclusion from the award of the degree.

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LIST OF ABBREVIATION

4D MAF	Fourth Dimension Malaysian Armed Forces
IT	Information Technology
KM	Knowledge Management
MAF	Malaysian Armed Force
RMA	Revolution of Military Affair

CHAPTER 1

INTRODUCTION

1.0 Background of the Study

The utilization of Information Technology (IT) plays a crucial role in enhancing Knowledge Management (KM) practices within organizations. IT supports the efficient storage, dissemination, and recovery of knowledge, facilitating cross-organizational cooperation and fostering a learning culture. By incorporating IT into KM systems, organizations can handle large amounts of data effectively, enabling structured analysis and informed decision-making. Recent research indicates that IT resources such as cloud computing, artificial intelligence, and big data analytics are essential for bolstering KM strategies, significantly improving the management of both explicit and tacit knowledge.

Moreover, transformational leadership profoundly impacts the integration of KM practices in organizations. Leaders who exhibit transformational traits—such as intellectual stimulation, idealized influence, and individualized consideration—create an atmosphere that promotes knowledge exchange and continuous organizational learning. Such leaders motivate staff to engage in knowledge-sharing activities, which are vital for the successful deployment of KM systems.

Research highlights that transformational leaders not only motivate employees to generate and share knowledge but also facilitate the alignment of individual goals with organisational knowledge objectives, enhancing overall KM adoption and success (Zhang et al., 2023; Kılıç & Uludağ, 2021). Furthermore, transformational leadership strengthens knowledge acquisition, dissemination, and application, leading to improved organisational innovation and performance (Kaur Bagga et al., 2023).

Many studies have pointed out that KM serves as a mediator between transformational leadership and organizational performance, highlighting how crucial leadership is in the success of KM initiatives. By cultivating an environment of ongoing learning and intellectual involvement, transformational leaders make sure that KM becomes a core part of the organization's strategic operations, which in turn boosts competitive edge and long-term sustainability (Deng et al., 2022).

From 2022 to 2024, research has emphasized that the synergy between IT adoption and KM strategies enhances innovation, productivity, and knowledge-sharing behaviours within firms. IT enables the automation of KM processes, which improves accessibility and encourages knowledge dissemination among employees. Furthermore, the choice of IT tools is essential in shaping the KM infrastructure, impacting how organisation capture, store, and utilise knowledge. For example, advancements in data storage and retrieval systems have significantly contributed to the sophistication of KM solutions, allowing organisation to optimize workflows and ensure knowledge continuity.

By leveraging IT, organisation can build robust KM systems that align with business goals, ensuring that knowledge is not only shared but also effectively used to foster organisational learning and growth. This mutual reinforcement between IT and KM leads to a more dynamic and innovative organisational environment. Transformational leadership is key in driving the implementation and effectiveness of knowledge management (KM) practices within organizations. Leaders who embody transformational qualities—such as inspirational motivation, idealized influence, intellectual stimulation, and individualized consideration—naturally cultivate environments that encourage sharing knowledge, fostering innovation, and promoting learning. Such leaders not only encourage employees to exchange and apply

knowledge but also create a culture that values continuous improvement and collaboration. This supportive environment is essential for effective KM, which in turn enhances organisational performance and innovation capabilities.

An organisation based on knowledge, specified by the ability to manage knowledge efficiently; is being defined by Teece (1999) as a knowledge-based organisation. Such organisation acquire, create, document, transfer and apply knowledge in ways that we identify as Knowledge Management (KM). Here, the employees often practice knowledge sharing among one another in order to have information, with ideas and thoughts being communicated thereby to ensure work functions among them are well coordinated. As the nature of knowledge-based resources are intangible to other tangible resources and assets, it was argued that organisation practicing KM would consequently sustain their competitive advantages thus improving their organisational performance, in comparison to those who did not practice the same (Hayat et al., 2015).

Organisation will depend on their leaders more as they realised the importance of knowledge assets in strengthening their organisational performance (Bryant, 2003; Hayat et al., 2015). Hence, the emphasis on leadership has changed a great deal in today's businesses. Directing the knowledge management (KM) adoption are turning out to be a fundamental duty of leadership (Manz & Sims, 2001; Hayat et al., 2015).

This can be achieved when leaders are able to convey the KM requirements, encourage their workers and establish the necessary frameworks that can coordinate every level in the organisation (Bryant, 2003). The organisation can be controlled by the leaders in several other ways too. For instance, leaders may introduce the feasible KM system to act as a platform of network among workers to acquire, monitor, and maintain their knowledge assets (Zhang & Faerman, 2007). Leaders can also impose

the use of new technologies to the workers as they see the advantages and benefits that can be gained from it.

Whilst addressing the concept that continuous development is desired to enhance the nation's ambitious stance, Malaysia started to lay the foundation and infrastructure for its knowledge-based economy in early 1990s (Nazatul et al., 2013). Knowledge management actions were organized at various government agencies, educational establishment and also financial institutions (Chowdhury, 2006). The efforts undertaken by these agencies are directed towards the improvement of knowledge enabler including but not limited to, infrastructure, information and communication technology (ICT), human capital and research and development.

However, compared to other developed countries and international organizations, there remains a significant gap in the adoption of KM practices in Malaysia (Nazatul et al., 2013). A significant issue was observed especially in regards to the lack of KM adoption. It was also noticed that in these diverse operations the leadership acts as an essential element to spearhead the change processes (Nazatul et al., 2013). The requirement for change must be conveyed in a persuasive manner and it should be carried out by most qualified leaders to ensure the KM transformation is fully rewarding at all level of employees. In short, the Malaysian public sector is still experiencing low impact in the implementation of KM adoption (MAMPU), 2011).

In the military sector, adopting KM practices, which enhance innovation and value, could significantly impact the doctrinal changes expected from the Revolution in Military Affairs (RMA). The implementation of KM is likely to strongly propel the evolution of military doctrines and the application of modern warfare techniques. Contrary to corporate organizations, earlier studies have indicated that while the

context, content, and pace of KM adoption in the military differ, the underlying principles remain consistent (McIntyre et al., 2003).

While corporate KM tools often rely on stationary office desktops, military operations necessitate mobile solutions that come with their own set of challenges including security, bandwidth, robustness, and reliability. Building collective knowledge boosts military capabilities through the creation, collection, organization, sharing, and transformation of knowledge into actionable steps. As the operational requirement dictates such processes to be robust and reliable, the KM inputs will have to produce actionable items that would facilitate precise decision making in addressing all potential threats on the ground. In the context of Malaysian military setting however, there are more measures need to be done to improve the KM implementation and military leaders are called to put greater emphasis on it to cope with the future challenges of regional and global security environment (Ismail & Raja Abdullah, 2011).

In preparation for this setting, the Royal Malaysian Navy (RMN) has tailored its future capabilities to meet the criteria outlined in the Fourth Dimension Malaysian Armed Forces (4D MAF). The 4D MAF emphasizes three key aspects: Joint Force cooperation, Information Superiority, and Multidimensional operational capabilities. Therefore, the RMN readiness strategic plan has acknowledged the importance of KM system as one of its strategic objectives. It has to be noted that the information superiority is very crucial in managing future battle space management and this requires strategic approach in building up KM capacity by creating superior KM system (Alberts et al., 2000).

Furthermore, the awareness of managing knowledge effectively should be focussed on the application of KM adoption. For most organisation without exception

to the RMN, the application of KM is regarded as inevitable. In essence, KM system is considered as a new area of management which incorporates the element of information technology to speed up the process of actionable inputs. This new knowledge respiratory system would assist the RMN leaders in developing military core competencies in delivering their precise course of actions at various level of military operations. The constructs developed for this study highlight a noticeable lack of empirical evidence within the context of Malaysia's public sectors and military settings. Therefore, the findings of this study are anticipated to make a significant contribution to the existing body of knowledge in this area.

1.1 Problem Statement

The impact of transformational leadership on the adoption of knowledge management (KM) is a crucial subject for organizations aiming to maintain a competitive edge. While KM is increasingly recognized as vital for organizational success, its adoption can be slowed by several challenges, such as resistance to change and insufficient leadership. Transformational leadership is crucial for overcoming these obstacles, as it promotes a culture of trust, learning, and collaboration, essential for the effective deployment of KM systems (Kılıç & Uludağ, 2021; Deng et al., 2022). Nevertheless, many organizations struggle to fully capitalize on the benefits of transformational leadership, often due to unclear understanding of how these leadership styles directly affect KM practices.

The need to explore how transformational leaders can more effectively promote KM adoption, particularly through the dimensions of intellectual stimulation and individualized consideration, is therefore pressing (Zhang et al., 2023; Kaur Bagga et al., 2023). This problem underscores the importance of developing strategic

leadership approaches that align with KM goals, as the failure to do so can result in suboptimal knowledge utilisation and hinder organisational innovation.

Knowledge is essential for an organization's success and its ability to maintain a competitive edge. Organizations aiming to offer superior services, foster innovation, and stay ahead of competitors must enhance their service and innovation capabilities, improve flexibility and adoption, empower their workforce, and continuously generate, share, and learn new knowledge. Thus, knowledge is widely recognized as a crucial resource in the acquisition, development, and preservation of intellectual capital (Drucker, 1993; Marr & Schiuma, 2001; Hayat et al., 2015).

Managing knowledge is very important and a fundamental action as applied by many organisation (Kingston & Macintosh, 2000; Hayat et al., 2015). In doing so, such organisation are required to keep abreast of their current organisational knowledge resources in order to become competitive (Harrison & Leitch, 2000; Hayat et al., 2015). It is also generally accepted that the nature of leadership is particularly importance for organisation interested in evolving their culture to one which supports and encourages knowledge development (Ribiere & Sitar, 2003, Fais et al., 2014, Hayat et al., 2015).

Similarly, a survey of existing literature confirms that information technology is a crucial component within organizations that influences both leadership styles and the adoption of knowledge management (Xu & Quaddus, 2007; Schepers et al., 2005). As the importance of knowledge continues to grow in the modern era, the use of information technology, which is essential for organizations to achieve a competitive advantage, is also evolving rapidly. Organizations can establish and maintain a competitive lead by developing strategies through their knowledge management systems. Information technology helps transform data and information about

competitors into actionable knowledge that is extremely valuable for managers (O'Leary & Selfridge, 2000).

For military organizations, adopting knowledge management is essential to manage the swift pace of technological advancements and changes in doctrine and structure. The Revolution in Military Affairs (RMA) of the 21st century has introduced new technologies to address complex and ever-evolving security challenges. Military leaders must analyze and evaluate information from multiple sources to fully understand the dynamics of any military operation.

In modern operational planning, the processes of sense-making, problem-solving, and decision-making have become more complex and challenging than in the past. The military organisation are demanded to possess the appropriate capacity and capabilities such as know-how, expertise, and interoperability to gain knowledge superiority. The military personnel are no longer fighting forces *per se*, but they are now turning into highly knowledgeable workers as the nature of command and control is changing into new dimensions (Ismail & Raja Abdullah, 2011).

Having understood the importance mentioned above, this paragraph seeks to highlight the current problem and gaps in relation to the KM practices in Malaysia. As explained earlier in the background, there is still a huge discrepancy in the implementation of KM mainly, due to the lack of KM adoption (Nazatul et al., 2013). The same scenario was also reported within the context of local military setting. A preliminary investigation revealed that the overall Malaysian Armed Forces does not have any specific KM adoption (Ismail & Raja Abdullah, 2011). Although knowledge is embedded in the form of doctrines, policies and procedures, the elements of KM were presence in silos and not managed in concerted effort.

The lack of KM adoption was perceived as the lack of awareness, understanding and exposure about KM in organisational context. This current scenario stresses on the need to re-evaluate the military philosophies and methodologies to suit to the operational realities and the ability to leverage defence knowledge. Without proper research to support such preliminary findings, especially so in its application to the RMN, incorrect assumptions may be made and can become assumed fact.

Conversely, regarding theoretical frameworks, most existing research primarily focuses on the interplay between knowledge management adoption and leadership style, predominantly recognized in business organizations and the education sector (Hitam et al., 2008; Fais et al., 2014). A study by Fais et al. (2014) in Malaysia investigated the connections between transformational leadership, knowledge management, and organizational structure at a public university. The authors concluded by suggesting that future studies could explore additional variables, both moderating and mediating, to enhance their theoretical model. Consequently, it appears there are few studies exploring the dual impact of information technology on leadership styles and knowledge management adoption concurrently in Malaysia, especially within the military context.

To address this gap, this study aims to explore and deepen understanding of the relationship between transformational leadership styles, as defined by Bass (1985) and both explicit and tacit knowledge management adoption, with information technology acting as a mediator. This research will specifically focus on the Royal Malaysian Navy, an organization pivotal in upholding national maritime interests and security. By delving into these under-explored areas, the study anticipates uncovering new insights into a relatively uncharted research territory.