Studi Ilmu Manajemen dan Organisasi (SIMO)
ISSN: 2745-7826, Vol 7, No 3, 2026, 127-142 https://doi.org/10.61401/simo.v7.n3.p127-142.2026

Enhancing Competitive Advantage through Knowledge Management: Human and Structural Capital in Public Organizations

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Article History
Received on 11 June 2026
1st Revision on 15 June 2026
2nd Revision on 23 June 2026
3rd Revision on 31 June 2026
Accepted on 10 August 2026

Abstract

Purpose: This study examines the effects of human and structural capital on competitive advantage and the mediating role of Knowledge Management in public sector organizations undergoing digital transformation and bureaucratic reform.

Research Methodology: Using a quantitative explanatory design, data were collected through a 1–5 Likert-scale online questionnaire from all 103 public sector employees in Tangerang City using the census technique. The data were analyzed using Structural Equation Modeling (SEM).

Results: The findings show that Human Capital and Knowledge Management positively and significantly influence Competitive Advantage, indicating that employee competence and effective knowledge management enhance service quality, efficiency, and innovation. Although Structural Capital has no significant direct effect on Competitive Advantage, it exerts a significant indirect effect through Knowledge Management. Furthermore, Knowledge Management mediates the relationship between Human Capital and Structural Capital and Competitive Advantage.

Conclusions: This study concludes that knowledge management is a key driver of competitive advantage in public-sector organizations. Competitiveness depends not only on the quality of human resources and organizational systems but also on effective management, integration, and sharing of knowledge.

Limitations: This study was limited to a single local government agency with a relatively small sample size, restricting the generalizability of its findings. Additionally, its quantitative approach does not fully capture the behavioral and organizational culture aspects that influence knowledge management.

Contributions: This research extends the Resource-Based View (RBV) and Knowledge-Based View (KBV) by positioning knowledge management as a strategic capability that transforms human and structural capital into competitive advantage.

Keywords: *Competitive Advantage, Human Capital, Knowledge Management, Structural Capital*

How to Cite: Qodariah, Q., & Wibowo, F. L. (2026). Enhancing Competitive Advantage through Knowledge Management: Human and Structural Capital in Public Organizations. *Studi Ilmu Manajemen dan Organisasi*, 7(3), 127-142.

1. Introduction

In the era of digital transformation and demands for bureaucratic reform, public sector organizations must improve their performance, service effectiveness, and organizational competitiveness. The Tangerang City government's public sector organization plays a strategic role in managing civil servant resources. This organization is responsible for managing civil servant human resources, from planning and competency development to employee performance evaluation (Tangerang, 2025).

In such organizations, human capital is a key asset that determines the quality of the public services. Employees with competence, experience, and the ability to adapt to change can improve the quality of organizational performance (Choi & Chang, 2020). However, the challenge is how to optimally manage the knowledge and experience possessed by individuals so that it is not lost and can be utilized sustainably (Sutrisno, Kindangen, Sendow, Bin, & Jan, 2024). In addition, capital structures, such as systems, procedures, information technology, and organizational culture, play an important role in supporting knowledge management (Faria, Kayo, Meireles, Borini, & Junior, 2024). Tangerang City's public sector organizations have begun developing personnel information systems and various digital platforms; however, these have not yet been fully integrated into a systematic knowledge management framework. This has the potential to lead to information fragmentation and suboptimal utilization of organizational knowledge (Nguyen, Nguyen, Ho, & Van, 2021).

Knowledge management is the key to integrating human and structural capital to create added value for an organization. Through effective knowledge management, public sector organizations can document best practices, enhance organizational learning, and accelerate decision-making. However, challenges persist, such as a weak knowledge-sharing culture, lack of a structured repository system, and limited use of technology to support knowledge sharing.

However, in facing the increasingly high demands for public services, Tangerang City's public sector organizations are also required to have a competitive advantage in the context of public sector organizations, namely the ability to provide services that are more effective, efficient, innovative, and responsive than other agencies (Rehman, Bresciani, Ashfaq, & Alam, 2022). This excellence can be achieved if the organization can manage knowledge strategically, resulting in policy innovation, improved service quality, and sustainable development of staff competencies (Oktaviani, Arief, & Niazi, 2025).

To improve knowledge management and competitive advantage in Tangerang City's public sector organizations, a systematic, integrated approach is needed, based on strengthening human and structural capital. Problem-solving involves an approach that identifies and analyzes existing conditions. The initial stage is carried out by identifying the actual conditions related to employee competency and capacity (human capital); systems, procedures, and supporting technology (structural capital); current knowledge management practices, and organizational performance in creating added service value (competitive advantage). Analysis was conducted through surveys, interviews, and document studies to identify the gap between ideal and actual conditions.

Human capital has long been recognized as a critical resource for creating sustainable competitive advantages (Hsu & Chen, 2019). The skills, knowledge, experience, and abilities of individuals within an organization contribute to increasing productivity, which leads to a competitive advantage. Research by Guo and Chen (2022) shows that human resources are investments, namely training and education, that can improve an organization's competitiveness. However, although many studies support the importance of human capital for competitive advantage, inconsistent results have also emerged. Research by Ali (2024) shows that the influence of human capital on competitive advantage is highly dependent on market conditions, organizational culture, and company strategy. This condition emphasizes that human capital should not be considered the sole determining factor without considering broader factors (Bashir & Javed, 2021).

Structural capital is also a crucial element in creating competitive advantages. Structural capital encompasses the organizational structure, information systems, social networks, and company culture.

Research by Tian, Wang, and Kohar (2024) shows that structural capital plays a role in accelerating the flow of information and improving coordination within an organization, thereby optimizing organizational performance and competitiveness. However, although many studies demonstrate the importance of structural capital in building competitive advantage, some studies show that structural capital does not always function as a determining factor if it is not supported by quality structural capital. Research by Liu, Zhao, Jia, and Qiu (2025) states that structural capital will be less effective without being supported by individual abilities to utilize this structure, especially in innovation and adaptation to change (Nguyen & Dao, 2024). Although previous research has shown a positive influence on competitive advantage, there is a gap in the literature linking these two factors directly to organizational success.

Knowledge management, which includes the management, distribution, and utilization of knowledge within an organization, is a key factor in bridging human and structural capital (Anjalin, 2010). Research by Sondhi, Salwan, Behl, Niranjan, and Hawkins (2024) research on knowledge creation in organizations shows that knowledge management enables the integration of individual knowledge and explicit knowledge recorded in the organizational structure. In other words, knowledge management can act as a bridge between individual capabilities and existing systems within an organization to create a sustainable competitive advantage (Wening, Moertono, & Muafi, 2023).

The proposed novelty is the integration of human and structural capital by positioning knowledge management as a mediating variable in public sector organizations, particularly in Tangerang City public sector organizations. Unlike previous studies that were mostly oriented towards the private sector or tested the direct influence between variables, this study more comprehensively examines the mechanism of how knowledge is managed as a strategic link between individual capabilities and organizational systems in creating competitive advantage. In addition, this study provides a new empirical contribution by applying the model to local government agencies, which have bureaucracies, regulations, and organizational cultures that differ from those of the business sector. Thus, it is expected to enrich the knowledge management literature and provide practical implications for improving the performance and competitiveness of public organizations.

2. Literature Review and Hypotheses Development

This research uses the grand theory of the Resource-Based View (RBV) proposed by Barney (1991), which is one of the most relevant theories to explain the relationship between Human Capital, Structural Capital, and competitive advantage (Degravel, 2012). In this case, human and structural capital are considered strategic resources that can provide a competitive advantage. Human capital includes individual knowledge, skills, and abilities that are difficult for competitors to imitate, whereas structural capital refers to elements of the organizational structure that help coordinate and disseminate knowledge (Yong, Yusliza, Ramayah, Farooq, & Tanveer, 2023). If managed well, these two resources can increase an organization's competitiveness. This research also collaborates with the Knowledge-Based View (KBV) theory provides important explanations related to human capital, structural capital, and competitive advantage (Permatasari, Dhewanto, & Dellyana, 2023).

Competitive advantage is an organization's ability to create superior value through efficiency, service quality, innovation, and responsiveness compared to other organizations. From the RBV perspective, competitive advantage stems from the utilization of strategic resources that are valuable, rare, inimitable, and non-substitutable . In the public sector, this concept has evolved into an organization's ability to provide more effective and high-quality services to the public. Empirical research shows that competitive advantage is influenced by internal resource management and an organization's strategic orientation. A study by Otache (2024) found that knowledge management and innovation orientation contribute significantly to sustainable competitive advantage. In addition, Chatman (2021) confirms that the integration of intellectual capital and knowledge management can increase competitive advantage through effective resource orchestration. This finding is supported by Farida and Setiawan (2022) which states that the integration of knowledge and service innovation is a key factor in creating competitive advantage in a dynamic environment (Sudiyani, Goca, & Putri, 2025).

2.1 Human Capital

Human capital refers to an individual's capabilities, including knowledge, skills, experience, and competencies, in performing organizational tasks. Within the RBV framework, human capital is a strategic asset that is difficult to imitate and is a primary source of competitive advantage. Research by William (2010) shows that human capital has a positive influence on a company's competitive advantage through increasing individual capabilities. Nor, Hj, and Wasiuzzaman (2024) found that human capital significantly improves organizational performance, especially when supported by specific human capital relevant to an organization's needs. A recent study by Sultan, Jafar, and Jamal (2021) also emphasized that human capital development through training and talent management is key to maintaining competitiveness (Fithriyah & Muafi, 2025).

2.2 Capital Structure

Structural capital encompasses the systems, procedures, information technology, and organizational culture that support work processes and knowledge management. Structural capital serves as an infrastructure that enables the storage, sharing, and effective utilization of individual knowledge within an organization. Research by Nguyen, Nguyen, Ho, and Van (2021) shows that structural capital has a significant influence on competitive advantage in government institutions in Indonesia, especially in improving organizational efficiency and coordination. Kimuam, Berggren, and Faradynawati (2025) found that strong organizational structures and systems can strengthen competitiveness by improving the quality of human resource management. However, other studies show that structural capital does not always have a direct impact on competitive advantage if it is not optimally utilized by individuals. Thus, the effectiveness of structural capital depends heavily on its integration with individual capabilities and organizational strategies for managing knowledge.

2.3 Knowledge Management

Knowledge management is a systematic process of creating, storing, sharing, and utilizing knowledge to improve organizational performance. From the KBV perspective, knowledge is viewed as a key resource for creating sustainable competitive advantages. Rehman, Asif, Nasir, Ullah, and Noor (2024) explains that the process of knowledge conversion (tacit and explicit) is key to creating organizational innovation. Research by Lestari, Muhdaliha, and Putra (2020) shows that knowledge management plays an important role as a mechanism in integrating intellectual capital to generate competitive advantage. The study by Rehman et al. (2024) also emphasized that knowledge sharing, as part of knowledge management, plays a mediating role in enhancing sustainable competitive advantage. Thus, knowledge management functions not only as an information management tool but also as a strategic variable that bridges human and structural capital to create added value for an organization, particularly in the public sector (Hamdedi, Sari, & Kenamon, 2025).

2.4 The Influence of Human Capital on Competitive Advantage

Human capital enables organizations to adapt quickly, increase productivity, and innovate, all of which contribute to a sustainable competitive advantage. Research by Hsu and Chen (2019) supports this hypothesis by showing that organizations with good human capital tend to be more innovative, efficient, and able to adapt to market changes, all of which increase competitiveness. In addition, Guo and Chen (2022) found that investing in human capital development can strengthen organizational capabilities and support the achievement of strategic goals. Thus, organizations that manage human capital effectively have a greater chance of achieving and maintaining a competitive advantage in dynamic markets.

H_1: Human capital positively affects competitive advantage organization

2.5 The Influence of Structured Capital on Competitive Advantage

In terms of competitiveness, structural capital creates a strong organizational foundation for storing and distributing knowledge, thereby accelerating decision-making, encouraging innovation, and increasing operational efficiency. According to Udo, Jack, Okoh, Agbadua, Eke, and Onyemere (2024), this element is crucial in creating competitive advantage because it enables organizations to maintain knowledge as a strategic asset that is not easily imitated by competitors. Theoretically, the

influence of structural capital on competitive advantage can be explained through the Resource-Based View (RBV) approach, which states that internal organizational resources that are rare, not easily imitated, and non-substitutable are key to creating sustainable competitive advantage. Structural capital meets these criteria because it consists of unique work systems and cultures that are embedded within the organization. The results of the study by Tian, Wang, and Kohar (2024) show that structural capital contributes significantly to improving company performance and competitiveness by strengthening the knowledge management process. Therefore, it can be hypothesized that structural capital has a positive effect on competitive advantage through its strategic role in supporting the effectiveness of knowledge management (Nguyen, Nguyen, Ho, & Van, 2021).

H_2: Structure capital positively affects competitive advantage organization

2.6 The Influence of Knowledge Management on Competitive Advantage

Knowledge management is a strategic process encompassing the creation, storage, sharing, and utilization of knowledge within an organization and plays a crucial role in improving performance and competitiveness. Knowledge is viewed as a key resource capable of creating a sustainable competitive advantage. Effective knowledge management enables organizations to improve operational efficiency, accelerate decision-making, and drive service innovation. Empirical research shows that organizations that can systematically manage knowledge have a higher level of competitive advantage than those that cannot. A study by Rehman, Asif, Nasir, Ullah, and Noor (2024) and Sondhi, Salwan, Behl, Niranjan, and Hawkins (2024) demonstrated that knowledge management has a positive and significant impact on competitive advantage by increasing innovation and organizational effectiveness. In the public sector, good knowledge management also contributes to improving the quality of public services.

H_3: Knowledge management positively affects competitive advantage organization

2.7 The Role of Knowledge Management Mediation in The Relationship between Human Capital on Competitive Advantage

Human capital, as an organization's strategic asset, reflects individual capabilities in the form of knowledge, skills, and experience that have the potential to create a competitive advantage. However, without proper management, individual knowledge tends to be tacit and difficult for organizations to utilize. Knowledge management acts as a mechanism that transforms individual knowledge into organizational assets through the process of documenting, sharing, and utilizing knowledge. From the KBV perspective, knowledge management enables the integration of individual knowledge and organizational systems, thereby generating sustainable added value. Research by (Rehman, Bresciani, Ashfaq, & Alam, 2022) shows that knowledge management acts as a mediating variable that strengthens the relationship between human capital and competitive advantage. In addition, (Silvi & Cuganesan, 2006) found that knowledge sharing can increase the contribution of human capital to competitive advantage. Thus, knowledge management is a key factor in optimizing human capital potential to create organizational excellence.

H_4: Knowledge management mediates the influence of human capital on competitive advantage

2.8 The Role of Knowledge Management Mediation in The Relationship between Structure Capital on Competitive Advantage

Structural capital encompasses systems, procedures, information technology, and organizational culture that support knowledge management and distribution within an organization. Although structural capital provides adequate infrastructure, without an effective knowledge management mechanism, this potential cannot be optimally utilized to create a competitive advantage. Knowledge management acts as a link that integrates structural capital with the organization's value-creation process through systematic knowledge management. Within the KBV framework, knowledge management enables the optimal utilization of organizational systems and structures to enhance innovation and efficiency. Mahdi and Nassar (2021) demonstrate that structural capital influences competitive advantage, which is strengthened by the role of knowledge management as a mediator. This demonstrates that the existence

of systems and technology alone is not sufficient; they need to be supported by effective knowledge management practices to generate a competitive advantage.

H₅: Knowlegde management mediates the influence of structure capital on competitive advantage

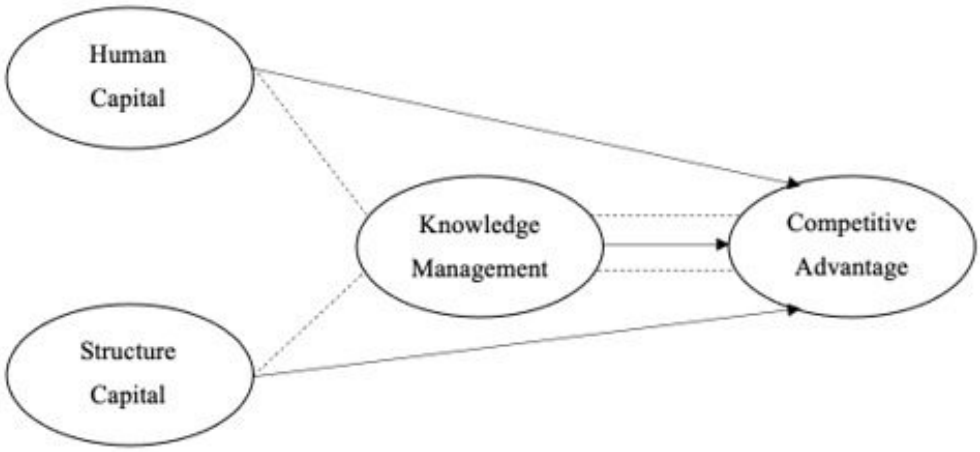


Figure 1. Research model

Based on Figure 1, the proposed research model examines the relationships among Human Capital, Structural Capital, Knowledge Management, and Competitive Advantage in public sector organizations. The model posits that Human Capital and Structural Capital have direct effects on Competitive Advantage while also influencing it indirectly through Knowledge Management as a mediating variable. Human Capital represents employees' knowledge, skills, competencies, and experience that contribute to organizational performance, whereas Structural Capital refers to organizational systems, processes, databases, and institutional mechanisms that support knowledge creation and utilization. Knowledge Management is a strategic capability that facilitates the acquisition, sharing, storage, and application of knowledge within an organization. Through effective knowledge management practices, organizations are expected to transform their human and structural resources into sustainable competitive advantages by improving innovation, operational efficiency, and the quality of their services. Therefore, the model proposes both direct and indirect pathways, highlighting the mediating role of Knowledge Management in strengthening the influence of human and structural capital on competitive advantage.

3. Research Methodology

The research design is explanatory, which aims to explain the causal relationship between variables through a quantitative approach by collecting survey data using an online questionnaire. The population in this study was all employees in the public sector organization of Tangerang City, totaling 103. The sampling technique used the census method, where the entire population was used as research respondents so that the results obtained would represent the overall condition of the organization. The research instrument was designed using a 1–5 Likert scale to measure respondents' perceptions of the variables of human capital, structural capital, knowledge management, and competitive advantage (Sekaran & Bougie, 2016).

Data analysis in this study used the Partial Least Squares-based Structural Equation Modeling (PLS-SEM) method with the assistance of SmartPLS software. PLS-SEM was chosen because it can accommodate complex research models, has a relatively small sample size, and does not require a normal data distribution. Testing in PLS-SEM is carried out in two main stages: evaluation of the measurement model (outer model) and evaluation of the structural model (inner model) (Siyoto & Sodik, 2015).

The outer model evaluation aimed to test the validity and reliability of the research instrument. Convergent validity was tested by examining the outer loading value (>0.70) and the Average Variance Extracted (AVE) value (>0.50). Discriminant validity was tested using the Fornell-Larcker criterion and the Heterotrait-Monotrait Ratio (HTMT) (<0.90). Furthermore, construct reliability was measured using Composite Reliability and Cronbach's alpha values (>0.70) to ensure the internal consistency of the indicators in measuring the latent variables.

The inner model evaluation aims to examine the relationships between the latent variables in the research model. This test was performed by examining the R-squared (R^2) value to determine the ability of the independent variables to explain the dependent variable and the adjusted R-squared value to correct for model complexity. Additionally, an effect size (f^2) test was performed to determine the contribution of each exogenous variable to the endogenous variable.

Hypotheses testing was conducted using the bootstrapping method in SmartPLS with a specific number of resamplings (5,000 subsamples) to obtain the t-statistics and p-values. The hypothesis was declared significant if the t-statistics value was > 1.96 and the p-value was < 0.05. To test the mediation effect of knowledge management, a specific indirect effect approach was used, and the significance of the indirect path was analyzed to determine whether full or partial mediation occurred.

4. Results and Discussions

4.1 Research Results

Table 1. Respondent Identity

	Amount	Percentage (%)
Gender		
Woman	65	63
Man	38	37
Age		
< 25 years	11	11
25 years - < 35 years	35	34
35 years - < 45 years	41	40
> 45 years	16	16
Length of work		
< 1 year	16	16
1 year - < 10 years	53	51
10 years - < 20 years	24	23
> 20 years	10	10

Based on Table 1, respondent identity, the majority of respondents in this study were women, amounting to 65 people or 63%, while men numbered 38 people or 37%. In terms of age, most respondents were in the age range of 35 years to less than 45 years, with a total of 41 people (40%), followed by the age group of 25 years to less than 35 years, with 35 people (34%). Respondents aged over 45 years numbered 16 (16%), while those aged under 25 years were the smallest group, with 11 (11%).

In terms of length of service, the majority of respondents had work experience between 1 and less than 10 years, namely 53 people (51%), indicating a dominance of employees with medium work experience. Furthermore, respondents with a work experience of 10 years to less than 20 years numbered 24 (23%), followed by respondents with a work experience of less than 1 year, as many as 16 (16%). Meanwhile, respondents with work experience of more than 20 years were the smallest group, with 10 people (10%). Overall, these characteristics indicate that respondents were dominated by employees of productive age and sufficient work experience; therefore, they were considered able to provide a relevant perspective on the variables studied.

Table 2. Measurement models and outer loading

Variables	Statement Items (Likert 1–5)	Loading Factor
Human Capital (X_1) (Hsu & Chen, 2019)	1. I have the competencies that suit my job requirements.	0.769
	2. My work experience helps me complete assignments.	0.885
	3. I have the skills that support my performance.	0.936
	4. I can adapt to changes in the work environment.	0.924
Structure Capital (X2) (Tian, Xu Wang, Yan Kohar, Umar HA, 2024)	1. The information system in the organization aided my work.	0.921
	2. The work procedures in this agency are clear and easy to comprehend.	0.953
	3. Organizational culture supports knowledge sharing collaboration.	0.884
	4. Technological facilities support the implementation of my duty.	0.908
Knowledge Management (Z) (Dhewanto, Dellyana, Dina, 2023)	1. I often generate new ideas and solutions at work.	0.821
	2. I share knowledge with my colleagues.	0.778
	3. Well-documented working knowledge.	0.857
	4. Existing knowledge is used for decision-making.	0.888
Competitive Advantage (Y) (Azeem, Ahmed, Haider, & Sajjad, 2021)	1. The organization provides high-quality services.	0.856
	2. The work process was carried out efficiently.	0.874
	3. There is innovation in personnel service.	0.905
	4. The agency is responsive to employees' needs.	0.884
	5. Agencies are responsive to the needs of the community.	0.829

Based on Table 2, the results of the outer loading test indicate that all indicators in the Human Capital, Structural Capital, Knowledge Management, and Competitive Advantage variables have loading factor values above 0.70, which means that all statement items have met the convergent validity criteria. The highest loading values are seen in the skills indicator in the Human Capital variable (0.936) and the clarity of work procedures in Structural Capital (0.953), which shows a strong contribution to reflecting the construct. Overall, these results indicate that the research instrument has a good level of validity, and all indicators are suitable for further analysis in the PLS-SEM model.

Table 3. Construct reliability and validity test

	Cronbach alpha	Composite reliability	Average variance extracted
Competitive advantage	0.919	0.940	0.757
Human capital	0.901	0.932	0.776
Knowledge management	0.858	0.903	0.700
Capital structure	0.937	0.955	0.841

As shown in Table 3, the results of the reliability and construct validity tests indicate that all variables in this study met the established criteria. The Cronbach's Alpha and Composite Reliability values for all variables were above 0.70, indicating that each construct had good internal consistency and reliability. Furthermore, the Average Variance Extracted (AVE) values for all variables are also above 0.50, indicating that the constructs have good convergent validity because they can explain more than 50% of the indicator's variance. Thus, it can be concluded that all variables, namely Competitive Advantage, Human Capital, Knowledge Management, and Structural Capital, are valid and reliable for use in further analysis in the PLS-SEM model.

Table 4. Discriminant validity test

	Heterotrait-monotrait ratio (HTMT)
Human capital ↔ Competitive advantage	0.979
Knowledge management ↔ Competitive advantage	0.965
Knowledge management ↔ Human capital	0.912
Structure capital ↔ Competitive advantage	0.738
Structure capital ↔ Human capital	0.765
Structure capital ↔ Knowledge management	0.840

Based on Table 4, the results of the discriminant validity test using the Heterotrait-Monotrait Ratio (HTMT) approach show that most values are below the threshold of 0.90, such as in the relationship between Structure Capital and other variables; therefore, it can be stated that it meets the discriminant validity criteria. However, several values exceed the recommended limit, namely the relationship between Human Capital and Competitive Advantage (0.979), Knowledge Management with Competitive Advantage (0.965), and Knowledge Management with Human Capital (0.912). This indicates a potential problem in construct discrimination, where several variables have a very high level of interrelationships. Nevertheless, in general, the model can still be used, but further attention is needed, such as indicator evaluation or strengthening theoretical justification, to ensure that each construct has clear conceptual differences.

Table 5. R Square

	R-square adjusted
Competitive advantage	0.854
Knowledge management	0.714

Based on Table 5, the adjusted R-squared value indicates that the Knowledge Management variable can be explained by Human Capital and Structural Capital by 0.714 or 71.4%, which is included in the strong category. Meanwhile, the Competitive Advantage variable has an adjusted R-square value of 0.854 or 85.4%, which indicates that this variable can be explained very strongly by the variables in the model, namely, Human Capital, Structural Capital, and Knowledge Management. These results indicate that the research model has high explanatory power for endogenous variables, making it suitable for hypothesis testing.

Table 6. F Square

	Competitive Advantage	Knowledge Management
Human capital	0.712	0.538
Capital structure	0.005	0.232
Knowledge management	0.394	

Based on Table 6, the results of the effect size (f^2) test show that Human Capital has a large influence on Competitive Advantage (0.712) and Knowledge Management (0.538), which is included in the large effect category. Knowledge Management also has a large influence on Competitive Advantage, with an f^2 value of 0.394. Meanwhile, Structural Capital has a moderate influence on Knowledge Management (0.232), but its influence on Competitive Advantage is very small (0.005) and tends to be insignificant. These findings indicate that Human Capital and Knowledge Management are dominant factors in increasing competitive advantage, while Structural Capital contributes more indirectly through Knowledge Management.

Table 7. Hypotheses testing

	Standard deviation	T statistics	P values
Human capital → Competitive advantage	0.071	7.907	0.000
Knowledge management → Competitive advantage	0.099	4.495	0.000
Structure capital → Competitive advantage	0.075	0.584	0.559
Structure capital → Knowledge management → Competitive advantage	0.052	3.085	0.002
Human capital → Knowledge management → Competitive advantage	0.065	3.795	0.000

Based on Table 7, the results of the hypothesis testing show that Human Capital has a positive and significant influence on Competitive Advantage, with a t-statistic value of 7.907 and a p-value of 0.000; therefore, the hypothesis is accepted. Knowledge Management also has a positive and significant influence on Competitive Advantage (t-statistics 4.495; p-value 0.000). Conversely, Structural Capital does not have a significant direct influence on Competitive Advantage (t-statistics 0.584; p-value 0.559), so the hypothesis is rejected. However, the results of the mediation test show that Structural Capital has a significant influence on competitive advantage through Knowledge Management (t-statistics 3.085; p-value 0.002), and Human Capital also has a significant influence on competitive advantage through Knowledge Management (t-statistics 3.795; p-value 0.000). This finding indicates that Knowledge Management plays an important role as a mediating variable, especially in strengthening the influence of human and structural capital on competitive advantage.

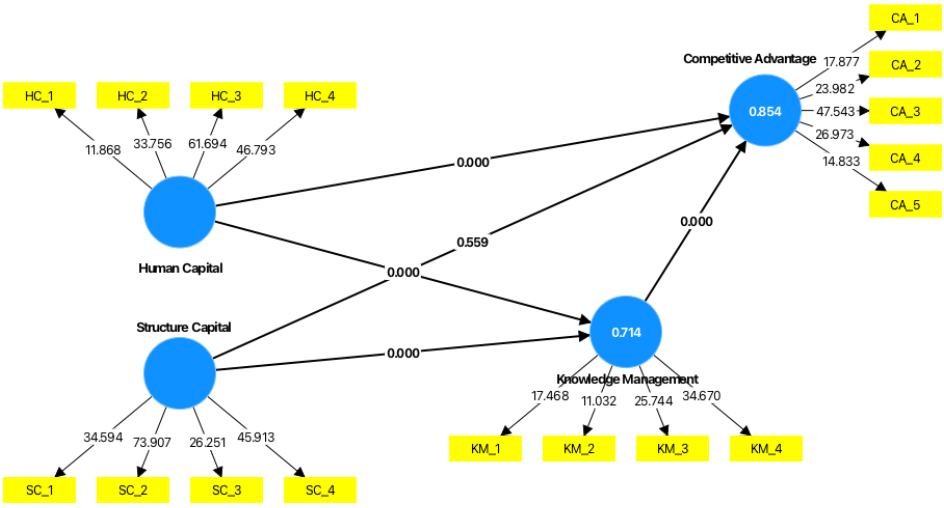


Figure 2. Research model results

Figure 2 presents the results of the proposed research model, illustrating the relationships among Human Capital, Structural Capital, Knowledge Management, and Competitive Advantage. The findings indicate that Human Capital positively influences both Knowledge Management and Competitive Advantage, while Structural Capital contributes to Competitive Advantage primarily through Knowledge Management. In addition, Knowledge Management plays a significant mediating role by transforming organizational resources into strategic capabilities that enhance Competitive Advantage. Overall, the model demonstrates that effective knowledge management is essential for leveraging human and structural capital to improve public sector competitiveness.

4.2 Discussion

4.2.1 Human Capital Positively Affects Competitive Advantage Organization

The results of the study show that Human Capital has a positive and significant effect on Competitive Advantage, indicating that the higher the quality of human resources owned by an organization in terms of competence, skills, experience, and adaptability, the higher the organization's ability to create competitive advantages, especially in improving service quality, work efficiency, innovation, and responsiveness. This result is in line with the RBV theory, which states that human capital is a strategic asset that is difficult to imitate and is the main source of sustainable competitive advantage (Barney, 1991). This finding is also supported by various previous studies, such as Otache (2024) who found that human capital contributes significantly to competitive advantage by increasing individual capabilities. In addition, Chatman (2021) confirms that talent management and competency development are important factors in maintaining organizational competitiveness. In the context of the public sector, these results strengthen with research by Farida and Setiawan (2022), which states that human capital plays a crucial role in increasing competitive advantage in government institutions.

These findings are relevant, given the strategic role of the organization in managing human resources. Employees with relevant competencies, adequate work experience, and the ability to adapt to digital transformation and bureaucratic reform can improve the quality of public services. This is reflected in research indicators, where employee skills and adaptability are dominant factors in shaping the human capital. Therefore, improving human resource quality through training, competency development, and continuous learning is a strategic step to strengthen public sector organizations' competitive advantage.

4.2.2 Structure Capital Positively Affects Competitive Advantage Organization

The results show that Structural Capital does not significantly affect Competitive Advantage. This result is in line with several previous studies stating that structural capital does not always have a direct influence on competitive advantage. Liu, Zhao, Jia, and Qiu (2025) shows that organizational structure will only have a significant impact if it is supported by the individual's ability to utilize the system. In addition, Udo, Jack, Okoh, Agbadua, Eke, and Onyemere (2024) emphasized that intellectual capital, including structural capital, will be more effective when integrated through knowledge management.

This finding also indicates that the role of structural capital tends to be indirect, which is reinforced by the results of this study, which found that structural capital significantly influences competitive advantage through the mediation of knowledge management.This finding also represents a novel research finding, demonstrating that in public sector organizations, structural capital does not play a direct role in creating a competitive advantage. This indicates that the existence of systems, procedures, information technology, and organizational culture does not directly enhance an organization's competitive advantage. In other words, even if an organization has adequate infrastructure and working mechanisms, these are not sufficient to create superior value if they are not optimally utilized to support performance and innovation.

4.2.3 Knowledge Management Positively Affects The Organization's Competitive Advantage

The results of the study show that Knowledge Management has a positive and significant effect on Competitive Advantage, indicating that the more effective the process of creating, storing, sharing, and utilizing knowledge in an organization, the higher the organization's ability to create competitive advantages in terms of service quality, work efficiency, innovation, and responsiveness. In the KBV perspective, knowledge is a strategic asset that is the main source of sustainable competitive advantage; thus, organizations that can manage knowledge optimally will have higher competitiveness.

These results are consistent with previous research, such as Rehman, Asif, Nasir, Ullah, and Noor (2024) who found that knowledge management orientation has a significant influence on sustainable competitive advantage through increased innovation and efficiency. In addition, Sondhi, Salwan, Behl, Niranjan, and Hawkins (2024) also emphasized that knowledge management plays an important

role in integrating intellectual capital to create added value for the organization. This finding is also supported by Mirsya, Nasution, Daulay, and Purnama (2025) which states that knowledge sharing practices can increase competitive advantage in a sustainable manner.

The application of knowledge management, such as knowledge sharing among employees, documentation of work knowledge, and utilization of knowledge in decision-making, has significantly contributed to improving the quality of public services. This practice allows organizations to reduce their dependence on specific individuals, accelerate work processes, and encourage innovation in personnel services. Thus, strengthening knowledge management is a key strategy for increasing the competitiveness of public sector organizations. This finding also represents a novel research issue, confirming that in the context of public sector organizations, knowledge management plays a key role not only as a supporter but also as a key driver in creating competitive advantages, especially in complex bureaucratic environments.

4.2.4 Knowledge Management Mediates The Influence of Human Capital on Competitive Advantage
The results of the study show that Knowledge Management can mediate the influence of Human Capital on Competitive Advantage. This indicates that human capital not only has a direct influence but also provides a stronger impact on competitive advantage when supported by an effective knowledge management process. The knowledge, skills, and experience of individuals possessed by employees will provide greater added value when processed through knowledge management mechanisms, such as knowledge sharing, knowledge documentation, and its use in organizational decision-making. These results are in line with KBV theory, which emphasizes that knowledge is the main strategic asset in creating competitive advantage. Rehman, Bresciani, Ashfaq, and Alam (2022) explains that the integration between tacit knowledge and explicit knowledge is key to creating innovation and organizational value. A study by (Silvi & Cuganesan, 2006) also emphasized that knowledge sharing is able to strengthen the contribution of human capital to sustainable competitive advantage.

Employee competency and experience cannot be fully utilized optimally without a robust knowledge management system. For example, knowledge held by a specific individual will be difficult to utilize widely if it is not documented or shared with other employees. With knowledge management practices, such as best practice documentation, employee information systems, and a culture of knowledge sharing, human capital potential can be maximized to improve service quality and organizational innovation.

4.2.5 Knowledge Management Mediates The Influence of Structure Capital on Competitive Advantage
The results of the study show that Knowledge Management can mediate the influence of Structural Capital on Competitive Advantage, indicating that although structural capital does not have a significant direct effect on competitive advantage, its contribution becomes significant through the role of knowledge management, its contribution becomes significant. This means that new systems, procedures, information technology, and organizational culture will provide added value if they are utilized effectively in the process of creating, storing, and distributing knowledge within an organization.

This result is in line with the KBV theory, which emphasizes that competitive advantage does not only come from the ownership of resources, but from the organization's ability to manage and integrate knowledge. Mahdi and Nassar (2021) states that structural capital will be more effective in increasing competitiveness if optimized through knowledge management practices. Thus, knowledge management acts as a bridge that transforms structural capital into a source of strategic value for organizations.

The existence of information systems, work procedures, and technological infrastructure will not fully impact competitive advantage if they are not integrated into knowledge management practices. For example, existing systems are not necessarily effective if they are not used to document knowledge, share information, or support decision-making. With good knowledge management, structural capital

can be optimally utilized to improve work efficiency, accelerate coordination, and encourage innovation in public service. This finding is novel, showing that in public sector organizations, structural capital does not have a direct influence on competitive advantage, but rather plays an indirect role through knowledge management as the main mediator. This provides a new perspective that the successful utilization of organizational systems and technology is highly dependent on the ability to manage knowledge, making knowledge management a key factor in optimizing the role of structural capital in creating a competitive advantage.

5. Conclusions

5.1 Conclusion

This study aims to analyze the influence of Human Capital and Structural Capital on Competitive Advantage with the mediating role of Knowledge Management in public sector organizations in Tangerang City. The novelty of this study lies in its integration of Human Capital, Structural Capital, and Knowledge Management in explaining Competitive Advantage within the public sector context, particularly by positioning Knowledge Management as a strategic mediating mechanism that converts organizational resources into competitive value. The results show that Human Capital and Knowledge Management have a positive and significant effect on Competitive Advantage, while Structural Capital has no direct effect. However, Structural Capital has a significant influence on Competitive Advantage through the mediation of Knowledge Management. In addition, Knowledge Management can mediate the relationship between Human Capital and Competitive Advantage. These findings confirm that Knowledge Management has a strategic role as a key link in optimizing the potential of organizational resources to create competitive advantages, especially in the context of the public sector. Thus, the success of an organization in increasing competitiveness depends not only on the quality of human resources and organizational systems but also on the effectiveness of knowledge management. This study contributes to the literature by demonstrating that organizational systems and structures may not directly generate competitive advantages unless they are supported by effective knowledge management practices.

5.2 Research Limitations

This study had several limitations that should be considered. First, this study was only conducted in one local government agency, namely, the public sector organization of Tangerang City. Therefore, the generalizability of the research results to other organizations in both the public and private sectors remains limited. Second, the sample size used was relatively small, with 103 respondents, despite using a census method. Third, this study used a quantitative approach based on a questionnaire; therefore, it has the potential to contain bias in respondent perceptions. Fourth, the research model only used Human Capital, Structural Capital, and Knowledge Management variables; it did not include other factors that may also influence Competitive Advantage, such as leadership, organizational culture, or innovation.

5.3 Suggestions and Directions for Future Research

Based on these limitations, further research is recommended to expand the research object to various organizations in the public and private sectors to increase the generalizability of the research results. Furthermore, future studies can increase the number of samples and use mixed methods with a qualitative approach to gain a deeper understanding of Knowledge Management practices. Future research should also consider other variables, such as leadership, organizational culture, innovation, or digital technology, as factors that can influence Competitive Advantage. In addition, further exploration of the role of Knowledge Management as a mediating or moderating variable in various organizational contexts is an interesting research direction to be developed in the future. The implications of this study suggest that organizations need to strengthen Knowledge Management practices as a strategic mechanism to transform human and structural capital into competitive advantage. For public sector organizations, these findings imply that improving employee competence and organizational systems alone is insufficient without effective knowledge sharing, storage, and utilization processes. Therefore, managers and policymakers should develop integrated knowledge management systems, encourage a knowledge-sharing culture, and support digital platforms that

facilitate collaboration and organizational learning. These efforts are expected to improve service quality, work efficiency, innovation, and organizational competitiveness in the long term.

Acknowledgement

The authors would like to express their sincere gratitude to Budi Luhur University for providing financial support for this research through an independent research scheme aimed at international publication outcomes. The authors also extend their appreciation to the management and all employees of the public sector organizations in Tangerang City for their willingness to participate and provide valuable data for this study. Furthermore, the authors would like to thank the colleagues, reviewers, and all parties who have contributed both directly and indirectly to the completion of this research. Their support, insights, and constructive feedback were invaluable in improving the quality of this study.

Author Contributions

QQ conceived and designed the study, developed the research framework, supervised the research process, interpreted the findings, and approved the final manuscript. FLW contributed to the data collection, data analysis, literature review, manuscript drafting, and revision. Both authors reviewed and approved the final version of the manuscript and agreed to be accountable for all aspects of the work.

References

Ali, A. (2024). Nurturing talent: Human capital as the source of competitive advantage. *Strategic Direction*, *40*(4), 26-27. https://doi.org/10.1108/SD-03-2024-0033

Anjalin, U. (2010). Knowledge for competitive advantage : Putting knowledge at the core of the business. *ABAC Journal*, *30*(1), 34-52. https://doi.org/10.1080/23311975.2020.1785779

Azeem, M., Ahmed, M., Haider, S., & Sajjad, M. (2021). Expanding competitive advantage through organizational culture, knowledge sharing and organizational innovation. *Technology in Society*, *66*. https://doi.org/10.1016/j.techsoc.2021.101635

Barney, J. B. (1991). Firm resources and sustained competitive advantage. *Journal of Management*, *17*(1), 99-120. https://doi.org/10.1177/014920639101700108

Bashir, A., & Javed, S. (2021). In the pursuit of competitive advantage through leadership: Role of human capital. *Global Management Journal for Academic & Corporate Studies*, *11*(1), 1-18. https://doi.org/10.1016/j.GMJ.2021.11.074

Choi, Y., & Chang, S. (2020). The effect of social entrepreneurs' human capital on and firm performance: The moderating role of specific human capital. *Cogent Business and Management*, *7*(1), 1-16. https://doi.org/10.1080/23311975.2020.1785779

Degravel, D. (2012). Strategy as practice to reconcile small businesses' strategies and RBV?. *Journal of Management Policy and Practice*, *13*(1), 46–66. https://doi.org/10.3390/jmpp13010043

Faria, A. M. d., Kayo, E. K., Meireles, B. L., Borini, F. M., & Junior, M. d. M. O. (2024). The effect of innovation and strategic resources on capital structure. *RAE Revista de Administracao de Empresas*, *64*(6), 1-25. https://doi.org/10.1590/S0034-759020240608

Farida, I., & Setiawan, D. (2022). Business strategies and competitive advantage: The role of performance and innovation. *Journal of Open Innovation: Technology, Market, and Complexity*, *8*(3), 163-163. https://doi.org/10.3390/joitmc8030163

Fithriyah, N., & Muafi, M. (2025). Green training and innovation in Giriloyo Batik MSMEs : The roles of green culture, human capital. *Reviu Akuntansi, Manajemen, dan Bisnis (RAMBIS)*, *5*(2), 501-514. https://doi.org/10.35912/rambis.v5i2.6361

Guo, W., & Chen, M. (2022). Construction of structural dimensions of organizational human capital competitive advantage. *Journal of Intellectual Capital*, *23*(5), 1081-1106. https://doi.org/10.1108/JIC-07-2020-0223

Hamdedi, Sari, Y., & Kenamon, M. (2025). Influence of knowledge management and innovation on organizational performance enhancement. *Studi Ilmu Manajemen dan Organisasi (SIMO)*, *6*(2), 349-362. https://doi.org/10.35912/simo.v6i2.4069

Hsu, B. X., & Chen, Y. M. (2019). Industrial policy, social capital, human capital, and firm-level competitive advantage. *International Entrepreneurship and Management Journal*, *15*(3), 883-903. https://doi.org/10.1007/s11365-019-00584-7

Kimuam, K., Berggren, B., & Faradynawati, I. A. A. (2025). Capital structure decisions in swedish biotechnology firms: The Role of intellectual capital and innovation activities. *International Journal of Financial Studies*, *13*(1). https://doi.org/10.3390/ijfs13010043

Lestari, S. D., Muhdaliha, E., & Putra, A. H. P. K. (2020). E-commerce performance based on knowledge management and organizational innovativeness. *Journal of Distribution Science*, *18*(2), 49-58. https://doi.org/10.15722/jds.18.2.20202.49

Liu, Y., Zhao, F. Y., Jia, S. Q., & Qiu, L. R. (2025). The relationship between enterprise human capital structure and international M&A performance based on cultural differences in China. *Plos One*, 1–30. https://doi.org/10.1371/journal.pone.0289270

Mahdi, O. R., & Nassar, I. A. (2021). The business model of sustainable competitive advantage through strategic leadership capabilities and knowledge management processes to overcome covid-19 pandemic. *Sustainability (Switzerland)*, *13*(17), 1-28. https://doi.org/10.3390/su13179891

Mirsya, S., Nasution, A., Daulay, R., & Purnama, N. I. (2025). Knowledge sharing and absorptive capacity in improving the innovation performance of MSMEs handicrafts in Indonesia. *Problems and Perspectives in Management*, *23*(2), 357-370. https://doi.org/10.21511/ppm.23(2).2025.25

Nguyen, G. D., & Dao, T. H. T. (2024). Factors influencing continuance intention to use mobile banking: An extended expectation-confirmation model with moderating role of trust. *Humanities and Social Sciences Communications*, *11*(1). https://doi.org/10.1057/s41599-024-02778-z

Nguyen, N. T. V., Nguyen, C. T. K., Ho, P. T. M., Thi Nguyen, H., & Van Nguyen, D. (2021). How does capital structure affect firm's market competitiveness?. *Cogent Economics and Finance*, *9*(1), 1–15. https://doi.org/10.1080/23322039.2021.2002501

Nor, S., Hj, S., & Wasiuzzaman, S. (2024). Influence of human capital and social capital on MSME access to finance : Assessing the mediating role of financial literacy. *International Journal of Bank Marketing*, *42*(3), 458-485. https://doi.org/10.1108/IJBM-04-2023-0214

Oktaviani, R. F., Arief, R., & Niazi, H. A. (2025). From survival to sustainability : Financial performance and literacy effects in indonesian small and medium-sized. *Ekuitas: Jurnal Ekonomi dan Keuangan*, *9*(4), 598-616. https://doi.org/10.24034/j25485024.y2025.v9.i4.7454

Otache, I. (2024). Innovation capability , strategic flexibility and SME performance : The roles of competitive advantage and competitive intensity. *African Journal of Economic and Management Studies*, *15*(1), 248-262. https://doi.org/10.1108/AJEMS-06-2023-0221

O'Reilly, C., & Chatman, J. (2021). Organizational culture: A key driver of competitive advantage. *International Journal of Research*. https://doi.org/10.1109/1469193061068142

Permatasari, A., Dhewanto, W., & Dellyana, D. (2023). The role of traditional knowledge-based dynamic capabilities to improve the sustainable performance of weaving craft in Indonesia. *Journal of Enterprising Communities*, *17*(3), 664-683. https://doi.org/10.1108/JEC-11-2021-0156

Rehman, S., Asif, T., Nasir, A., Ullah, A., & Noor, N. (2024). Harnessing knowledge management for green product competitive advantage with green process innovation as a mediator. *Journal of Open Innovation: Technology, Market, and Complexity*, *10*(2), 100274-100274. https://doi.org/10.1016/j.joitmc.2024.100274

Rehman, S. U., Bresciani, S., Ashfaq, K., & Alam, G. M. (2022). Intellectual capital, knowledge management and competitive advantage: A resource orchestration perspective. *Journal of Knowledge Management*, *26*(7), 1705-1731. https://doi.org/10.1108/JKM-06-2021-0453

Sekaran, U., & Bougie, R. (2016). *Research methods for business: A skill-building approach*. John Wiley & Sons.

Silvi, R., & Cuganesan, S. (2006). Investigating the management of knowledge for competitive advantage: A strategic cost management perspective. *Journal of Intellectual Capital*, *7*(3), 309-323. https://doi.org/10.1108/14691930610681429

Siyoto, & Sodik. (2015). *Dasar metodologi penelitian* (1st ed.).

Sondhi, S. S., Salwan, P., Behl, A., Niranjan, S., & Hawkins, T. (2024). Evaluation of strategic orientation-led competitive advantage: The role of knowledge integration and service innovation. *Journal of Knowledge Management*, *28*(7), 1937-1962. https://doi.org/10.1108/JKM-07-2023-0660

Sudiyani, N. Y., Goca, I. G. P. A., & Putri, C. I. A. V. (2025). Optimizing the competitive advantage of four and five star hotels in bali with strategic thinking and local wisdom. *Studi Akuntansi, Keuangan, dan Manajemen*, *4*(2), 479-491. https://doi.org/10.35912/sakman.v4i2.3966

Sultan, K., Mohammad Ameen, F., Muzammal Murtaza, M., Jafar, R., & Jamal, S. (2021). Human capital as competitive advantage: Empirical evidence from entities of Pakistan. *Turkish Journal of Computer and Mathematics Education*, *12*(7), 2176-2184. https://doi.org/10.31920/1750-4562/2021/v19n3a18

Sutrisno, E. R., Kindangen, P., Sendow, G. M., Bin, A., & Jan, H. (2024). Impact of human capital and structural capital on competitive advantage: Evidence from Indonesian provincial government institutions. *Revista de Gestão Social e Ambiental*, *18*(12), 1-29. https://doi.org/10.24857/rgsa.v18n12-037

Tangerang, B. K. (2025). Rencana Strategis BKPSDM Tahun 2025-2029. Retrieved from https://bkpsdm.tangerangkota.go.id

Tian, X., Wang, Y., & Kohar, U. H. A. (2024). Capital structure, business model innovation, and firm performance: Evidence from Chinese listed corporate based on system GMM model. *Plos One*, *19*(6), 1-24. https://doi.org/10.1371/journal.pone.0306054

Udo, E. S., Jack, A. E., Okoh, J. I., Agbadua, O. B., Eke, R., & Onyemere, I. (2024). Intricate capital structure influence on firm performance: An empirical analysis of oil and gas firms in Nigeria. *African Journal of Business and Economic Research*, *19*(3), 395-415. https://doi.org/10.31920/1750-4562/2024/v19n3a18

Wening, N., Moertono, B., & Muafi. (2023). The mediating role of creativity on the effect of knowledge sharing on sustainable competitive advantage. *ABAC Journal*, *43*(2), 42-61. https://doi.org/10.14456/abacj.2023.14

William, I. M. (2010). Human capital : The importance of staffing levels. *Business Administration*.

Yong, J. Y., Yusliza, M. Y., Ramayah, T., Farooq, K., & Tanveer, M. I. (2023). Accentuating the interconnection between green intellectual capital, green human resource management and sustainability. *Benchmarking*, *30*(8), 2783-2808. https://doi.org/10.1108/BIJ-11-2021-0641