

BRIDGING KNOWLEDGE MANAGEMENT AND COMPETITIVE ADVANTAGE: THE MEDIATING ROLE OF LEADERSHIP AGILITY AND AMBIDEXTROUS INNOVATION IN COFFEE SHOP SME'S

Hamidah Nayati UTAMI^{a)}, Erlina Eka SASMITA^{b)}, Fauzan Rismanda Rosanta PUTRA^{c)}

^{a), b), c)} Faculty of Administrative Sciences, Brawijaya University, INDONESIA

^{a)} e-mail: hamidahn@ub.ac.id, ORCID: 0000-0002-5853-8562

^{b)} e-mail: erlinaekasasmita@gmail.com, ORCID: 0000-0002-5144-9671

^{c)} e-mail: fauzanrrp@gmail.com, ORCID: 0009-0003-7184-5123

Abstract: This study investigates how Knowledge Management impacts Competitive Advantage, with Leadership Agility and Ambidextrous Innovation as mediators, focusing on coffee shops in Subdistrict Lowokwaru, Malang City. Using Structural Equation Modeling (SEM) with the Partial Least Square approach, the research analyzed data from coffee shop workers to examine the relationships between the variables. Knowledge Management significantly enhances Leadership Agility, Ambidextrous Innovation, and Competitive Advantage. Leadership Agility and Ambidextrous Innovation also positively affect Competitive Advantage. Coffee shop SMEs can improve their competitive edge by implementing effective knowledge management practices that foster leadership agility and innovation, thereby adapting better to market changes and boosting customer satisfaction. This study offers new insights into how knowledge management influences competitive advantage through leadership and innovation in the coffee shop sector, providing actionable strategies for SMEs to thrive.

Keywords: Knowledge Management, Leadership Agility, Ambidextrous Innovation, Competitive Advantage, Small and Medium Enterprises.

JEL Classification: M10, M12, O10.

1 Introduction

In the global market, SMEs play a pivotal role in driving economic growth and innovation, yet they face challenges such as limited resources and capabilities. Effective knowledge management (KM) is essential for their sustainability and competitive advantage, although its adoption is often hindered by a lack of structured approaches and sufficient resources (Durst and Edvardsson, 2012; Cerchione, et al., 2015; Cardoni, et al., 2020). While large enterprises leverage KM extensively, SMEs struggle to exploit its full potential due to their heterogeneity and resource constraints (Durst and Wilhelm, 2011). Integrating KM with modern technologies helps SMEs overcome these barriers, enhancing their innovation capabilities and efficiency (Cerchione, et al., 2015).

Knowledge management (KM) is integral for SMEs aiming to secure a competitive advantage, significantly affecting leadership agility and ambidextrous innovation. Specifically, aspects such as knowledge sharing,

retention, and application play a crucial role in equipping leaders with timely insights, fostering adaptability, and balancing exploitative and explorative innovation strategies. KM empowers leaders with essential insights and tools for quick adaptation and informed decision-making in dynamic markets, enhancing leadership agility through a culture of continuous learning and knowledge sharing (Chatwani, 2019; Rafi, et al., 2021). Furthermore, it supports ambidextrous innovation by enabling firms to manage exploitative and explorative activities effectively, vital for long-term competitiveness (Esamah, et al., 2023).

The impact of leadership agility and ambidextrous innovation on competitive advantage is profound, with agile leaders driving strategic initiatives that enhance organizational performance through adaptability, strategic vision, and faster decision-making. Additionally, ambidextrous innovation plays a crucial role by balancing exploration and exploitation, ensuring businesses remain relevant while optimizing existing processes (Fernandes, et al., 2023). Ambidextrous

innovation further aids in maintaining relevance and competitiveness by balancing process optimization with continuous innovation, crucial for meeting evolving market demands and differentiating from competitors (Fachrunnisa, et al., 2020). Additionally, effective KM practices are essential for capturing, disseminating, and utilizing knowledge, significantly boosting productivity and overall performance, thereby fostering sustainable competitive advantages (Govuzela and Mafini, 2019).

The selection of coffee shop SMEs for this study is critical as they represent not just places for coffee consumption but also vibrant centers for social interaction and knowledge exchange, particularly in competitive urban markets (Adeleke, 2019). These businesses highlight the role of knowledge management in fostering innovation and customer engagement, essential for sustaining profitability (Kim, 2005). Additionally, the complex coffee supply chain offers unique insights into sustainable and ethical business practices that are crucial for achieving long-term success (Davis and Golicic, 2020).

Despite the growing importance of KM in SMEs, there remains a research gap in understanding how KM specifically enhances leadership agility and ambidextrous innovation in the coffee shop industry. Coffee shop SMEs operate in a highly competitive and customer-driven market where rapid adaptability, continuous innovation, and knowledge sharing are crucial for success (Kang and Yang, 2016; Adawiah, et al., 2021). Their reliance on service differentiation (Son, et al., 2021), unique customer experiences (Tao and Kim, 2022), and dynamic supply chains (Azis and Irjayanti, 2024) makes them an ideal setting to explore the interplay between KM, leadership agility, and ambidextrous innovation. Existing literature often generalizes findings across SMEs (Durst, et al., 2024), without acknowledging the unique challenges and customer-centric innovations specific to coffee shops (Dunne, et al., 2021; Cui, et al., 2022). Furthermore, while the relevance of ambidextrous innovation in enhancing competitive strategies is acknowledged, its application in the distinctively interactive and experience-driven environment of coffee shops has not been thoroughly examined (O'Reilly and Tushman, 2013; Brettel, et al., 2015).

To address these gaps, this study seeks to answer the following research questions:

1. How does knowledge management influence leadership agility and ambidextrous innovation in coffee shop SMEs?
2. How do leadership agility and ambidextrous innovation contribute to competitive advantage in coffee shop SMEs?

The novelty of this research lies in its focused exploration of how knowledge management (KM) can enhance leadership agility and drive innovation within coffee shop SMEs. While prior studies often generalize KM practices across diverse SME sectors (Durst, et al., 2024), this investigation specifically examines the impact of KM strategies on leadership adaptability and ambidextrous innovation in the unique operational and customer-centric context of coffee shops. By highlighting the interplay between KM, strategic agility, and innovation in a service-driven industry, this study offers fresh empirical insights that diverge from traditional research focused on manufacturing and technology-based SMEs. Furthermore, it provides tailored empirical evidence for service-oriented SMEs, particularly coffee shops, delivering industry-specific perspectives. The research seeks to clarify the mechanisms through which KM fosters innovation and agility, offering actionable strategies to sustain a competitive advantage in this rapidly evolving sector.

2 Literature Review

2.1 Dynamic Capabilities Theory

Dynamic Capabilities Theory, introduced by Teece, et al. (1997), posits that a firm's ability to integrate, build, and reconfigure internal and external competencies to address rapidly changing environments is central to achieving and sustaining competitive advantage. This theory emphasizes three key processes: sensing opportunities and threats, seizing opportunities through strategic decision-making, and transforming resources and capabilities to maintain competitiveness over time (Teece, 2007). According to Teece (2018), dynamic capabilities enable organizations to adapt to technological shifts, market changes, and competitive pressures by fostering innovation and strategic flexibility. The theory builds on the resource-based view (RBV) but extends it by focusing on the firm's ability to modify

its resource base in response to external changes, making it particularly relevant in volatile and uncertain business environments (Eisenhardt and Martin, 2000). Dynamic capabilities are thus seen as a higher-order capability that underpins a firm's ability to innovate, adapt, and thrive in dynamic markets (Helfat, et al., 2007).

2.2 Competitive Advantage

Michael Porter initially defined competitive advantage as the ability of a firm to create superior value that its competitors cannot easily duplicate or find too costly to imitate, identifying cost leadership, differentiation, and focus as the primary means to achieve this (Porter, 1985). Porter's framework identified cost leadership, differentiation, and focus as primary means by which companies achieve a sustainable competitive advantage. This foundational idea has driven much of the strategic management literature, with competitive advantage being seen as crucial for long-term success in the global marketplace (Barney, 1991; Porter, 1991). Further developments by Wernerfelt (1984) and Peteraf (1993) emphasized resource management, while Dierickx and Cool (1989) highlighted the critical role of resource accumulation over time. Teece, et al. (1997) later introduced the dynamic capabilities framework, underscoring a firm's ability to adapt and innovate in response to changing environments, with Nonaka (1994) emphasizing continual learning and knowledge management as vital for maintaining a competitive edge.

In the context of SMEs, particularly coffee shops, competitive advantage is often derived from the ability to deliver unique customer experiences, innovate service offerings, and adapt swiftly to market changes. Unlike large enterprises, coffee shop SMEs typically lack extensive resources, making differentiation through customer-centric strategies and operational agility critical for sustaining competitiveness (Kim, 2005; Davis and Golicic, 2020). The dynamic capabilities framework (Teece, et al., 1997) is particularly relevant here, as it emphasizes the importance of adaptability, innovation, and knowledge management in responding to evolving market demands. For coffee shops, this translates into leveraging KM practices to enhance service quality, foster leadership agility, and

balance explorative and exploitative innovations, thereby creating a sustainable competitive edge in a highly competitive and customer-driven industry (Arsawan, et al., 2022; Zhang, et al., 2024).

2.3 Knowledge Management

Knowledge Management (KM) was first delineated by Peter Drucker, highlighting its role in transforming knowledge into a critical economic asset within the knowledge society (Drucker, 1993). This concept was elaborated by Nonaka and Takeuchi through the SECI model, emphasizing the cyclic transformation of tacit and explicit knowledge essential for organizational learning and innovation (Nonaka and Takeuchi, 1995). Further expanding on these ideas, Davenport and Prusak defined KM as the process of capturing, distributing, and effectively using knowledge to boost organizational performance, a view supported by Alavi and Leidner who added the importance of knowledge storage, retrieval, and transfer in enhancing firm capabilities (Davenport and Prusak, 1998; Alavi and Leidner, 2001). In the context of SMEs, particularly coffee shops, KM plays a pivotal role in fostering innovation and adaptability, enabling these businesses to leverage customer insights, operational best practices, and market trends to enhance service quality and customer satisfaction (Massaro, et al., 2016; Arsawan, et al., 2022). Modern discourse extends KM applications to include advanced technologies such as artificial intelligence and data analytics to improve the processing and application of knowledge in businesses (Kane and Alavi, 2007). For coffee shop SMEs, this translates into using KM systems to streamline operations, personalize customer experiences, and drive both explorative and exploitative innovations, thereby maintaining competitiveness in a dynamic and customer-driven market (Cegarra-Navarro, et al., 2016; Zhang, et al., 2024).

Recent studies highlight the essential connections between knowledge management, leadership agility, ambidextrous innovation, and competitive advantage. Băeșu and Bejinaru (2020) establish that effective knowledge management systems are pivotal in enhancing leadership agility, allowing leaders to make quick, informed decisions that are crucial in dynamic market conditions. Further, Hayaeian and Hesarzadeh

(2023) demonstrate that effective management of knowledge enhances ambidextrous innovation by facilitating the seamless integration and exploration of new opportunities alongside the exploitation of existing resources. This capability is critical for maintaining competitive relevance, as indicated by a study by Jia, et al. (2022), which found that companies proficient in ambidextrous innovation generally achieve higher performance metrics. Ultimately, Azeem, et al. (2021) argue that these capacities lead directly to competitive advantage by improving operational efficiency and customer satisfaction, proving the strategic value of knowledge management in fostering overall business success. Thus, we hypothesize the following:

H1: Knowledge Management has a significant direct effect on Leadership Agility

H2: Knowledge Management has a significant direct effect on Ambidextrous Innovation

H3: Knowledge Management has a significant direct effect on Competitive Advantage

2.4 Leadership Agility

Leadership Agility, initially articulated by Bill Joiner and Stephen Josephs, highlights the capacity of leaders to navigate complex, rapidly changing environments by embodying flexibility, balance, and adaptability (Joiner and Josephs, 2006). This concept is crucial in a volatile, uncertain, complex, and ambiguous (VUCA) world, enabling leaders to continuously adjust strategies, mindsets, and operational tactics. Researchers have linked such agility to vital organizational outcomes like innovation, resilience, and employee engagement, noting that agile leaders use emotional and social intelligence to enhance workplace creativity and team dynamics (Riggio and Reichard, 2008; Tandon, et al., 2024). For SMEs, particularly in the coffee shop industry, leadership agility is critical for responding to shifting consumer preferences, competitive pressures, and market trends. In this context, agile leaders must quickly adapt service offerings, optimize customer experiences, and foster a culture of continuous learning to maintain relevance and competitiveness (Arsawan, et al., 2022; Zhang, et al., 2024). As coffee shops operate in a highly customer-centric and dynamic environment, the ability of leaders to balance short-term operational demands with long-term strategic

innovation is essential for sustaining growth and differentiation (Kang and Yang, 2016; Adawiah, et al., 2021). Thus, leadership agility not only drives organizational success but also ensures that coffee shop SMEs can thrive in an ever-evolving market landscape (Petrie, 2014; Uhl-Bien and Arena, 2018).

The relationship between leadership agility and competitive advantage has been rigorously examined in recent studies, establishing a critical link between agile leadership and enhanced organizational performance. Yusuf, et al. (2022) found that agile leaders, capable of swiftly adapting strategies in response to environmental changes, significantly contribute to creating a sustainable competitive advantage by fostering innovation and responsiveness. This finding is supported by Medeiros and Maçada (2022), who observed that agility in leadership practices correlates strongly with higher profitability and market differentiation. Furthermore, agility in leadership is instrumental in driving strategic initiatives that align with evolving market demands, enhancing both customer satisfaction and operational efficiency, as detailed by Battour, et al. (2021) and Zhang and Suntrayuth (2024). These studies collectively underscore the significant impact of leadership agility on maintaining a competitive edge, essential for thriving in today's fast-paced business environments. Thus, the hypothesis is as follows:

H4: Leadership Agility has a significant direct effect on Competitive Advantage.

2.5 Ambidextrous Innovation

Introduced by Michael Tushman and Charles O'Reilly, the concept of ambidextrous innovation describes an organization's capability to simultaneously pursue explorative and exploitative innovations, crucial for navigating through rapid market changes and technological advancements (Tushman and O'Reilly, 1996; O'Reilly and Tushman, 2008). Achieving this requires not just strategic resource allocation but also aligning organizational structures and cultures to foster separate units for different innovation types, addressing the complexities of managing these dual paths and the inherent leadership challenges (Gibson and Birkinshaw, 2004; Jansen, et al., 2006). In the context of SMEs, particularly coffee shops, ambidextrous innovation is vital for balancing the refinement of existing

services with the exploration of new offerings, enabling these businesses to adapt to evolving consumer preferences and market trends. For instance, coffee shop SMEs can leverage exploitative innovation to optimize operational efficiency and customer service while simultaneously engaging in explorative innovation to introduce novel menu items, unique customer experiences, or sustainable practices (Cegarra-Navarro, et al., 2016; Zhang, et al., 2024). Raisch, et al. (2009) underscore that ambidextrous innovation significantly enhances firm adaptability and performance, stressing the importance of continuous adaptation to maintain competitive advantage in dynamic environments. In the highly competitive and customer-driven coffee shop industry, this dual approach allows SMEs to remain relevant, differentiate themselves from competitors, and sustain long-term growth (Kang and Yang, 2016; Adawiah, et al., 2021).

Ambidextrous innovation has been identified as a key driver of competitive advantage in recent research, emphasizing its crucial role in enabling organizations to simultaneously explore new opportunities while exploiting existing capabilities. A study by Zhang, et al. (2022) highlights that firms practicing ambidextrous innovation achieve superior performance metrics by balancing these dual strategies, which fosters both incremental and radical innovations. Similarly, Khan, et al. (2022) confirm that such innovation strategies significantly enhance market share and customer retention by continuously adapting to changing market conditions and customer needs. Additionally, the work of Wang and Fang (2022) supports these findings, suggesting that ambidextrous innovation leads to improved financial performance and strategic positioning by leveraging organizational flexibility and responsiveness. Collectively, these studies underscore the critical impact of ambidextrous innovation in sustaining competitive advantages in various industry sectors, from technology to consumer goods. Thus, the hypothesis is as follows:

H5: Ambidextrous Innovation has a significant direct effect on Competitive Advantage.

2.6 Theoretical Framework

The theoretical framework guiding this study integrates key concepts of Knowledge Management (KM),

Leadership Agility, Ambidextrous Innovation, and Competitive Advantage, as illustrated in the conceptual model (see Figure 1). Grounded in Dynamic Capabilities Theory (Teece, et al., 1997), the framework posits that KM serves as the foundational driver, enhancing leadership agility and ambidextrous innovation, which in turn mediate the relationship between KM and competitive advantage. Leadership agility enables SMEs, particularly coffee shops, to adapt swiftly to market changes and customer demands, while ambidextrous innovation allows them to balance explorative and exploitative strategies, fostering both incremental improvements and radical innovations. Together, these elements create a synergistic effect, enabling coffee shop SMEs to achieve and sustain a competitive edge in a dynamic and customer-centric industry. This framework provides a comprehensive lens for understanding how KM practices can be strategically leveraged to drive innovation, agility, and long-term competitiveness in the context of coffee shop SMEs.

3 Research Methodology

3.1 Sample and Data Collection

This study adopts a quantitative research design, utilizing a survey-based approach to collect primary data from coffee shop SMEs in Malang City. The selection of this location was strategic, as Malang City is known for its vibrant coffee shop culture, with numerous establishments scattered across the city, making it an ideal setting for investigating the interplay between knowledge management, leadership agility, ambidextrous innovation, and competitive advantage. The research sample consisted of owner or manager of each coffee shop SMEs, as they are the key decision-makers responsible for implementing KM practices, driving innovation, and ensuring competitive advantage. These respondents were chosen due to their in-depth understanding of operational strategies, customer engagement, and market dynamics within their businesses. The sampling method employed was purposive sampling, targeting coffee shop SMEs that met specific criteria, such as being independently owned and operated, having 10-20 employees, and operating within Malang City.

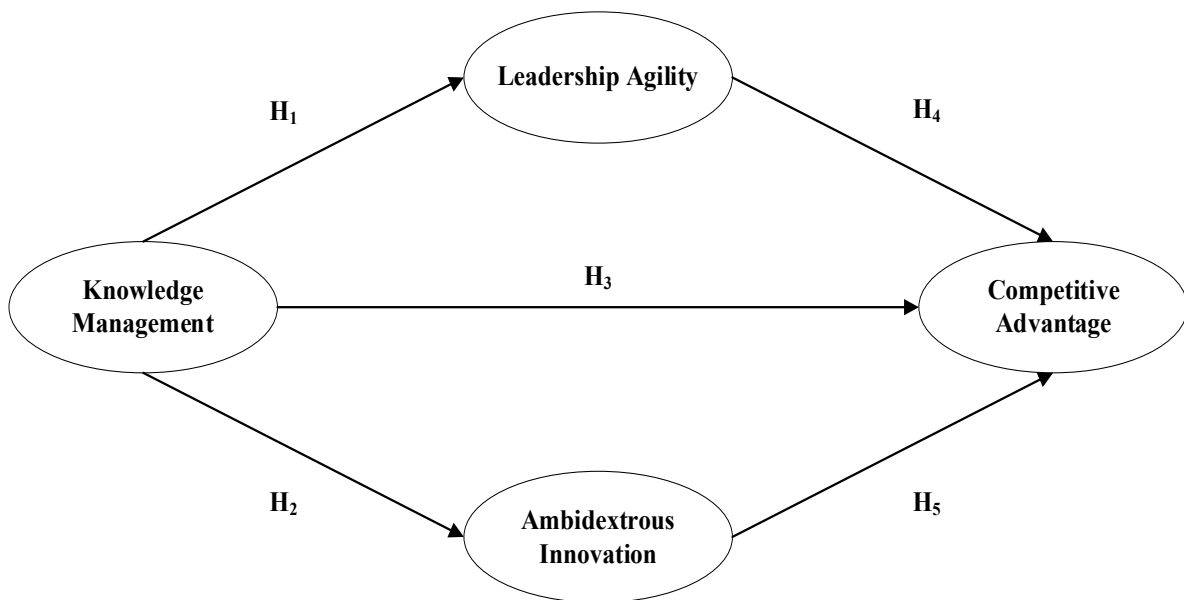


Figure 1. Conceptual model
(Source: Author's own research)

This approach ensured that the sample was representative of the SME coffee shop sector in the region. Data collection was conducted directly with the assistance of Google Forms, using a structured questionnaire designed to capture respondents' perceptions and evaluations of KM practices, leadership agility, ambidextrous innovation, and competitive advantage. A total of 54 completed questionnaires were obtained, representing a 100% response rate. This sample size is considered adequate as it meets the minimum requirement of 10 observations per indicator (Hair, et al., 2022). The data collection process ensured anonymity and confidentiality, encouraging respondents to provide honest and accurate responses. The use of Google Forms

facilitated efficient data collection while adhering to ethical research practices.

Based on the results of the descriptive analysis on Table 1, it is known that the majority of respondents in the study are male, accounting for 70%. Meanwhile, female respondents account for 30%. Additionally, the highest percentage of respondents' age is below 25 years at 44%. The fewest respondents are above 45 years old, totaling 6%. Regarding education, 70% of respondents have a high school degree, 13% have a diploma degree, and 17% have obtained a bachelor's degree.

Table 1. Demographic Profile of Respondents
(Source: Author's own research)

Characteristics	Frequency	Percentage
Gender		
Male	38	70%
Female	16	30%
Age		
Below 25	24	44%
25–35	17	31%
35–45	10	19%
45 and above	3	6%
Education		
High school	38	70%
Diploma degree	7	13%
Bachelor degree	9	17%

Table 2. Variable Metrics and Measurements
(Source: Author's own research)

Variables	Indicators	Sources
Knowledge Management	Knowledge Identification	Shannak, et al. (2017)
	Knowledge Creation	
	Knowledge Collection	
	Knowledge Organization	
	Knowledge Storage	
	Knowledge Dissemination	
	Knowledge Application	
Leadership Agility	Self-Agility	Joiner and Joseph (2006)
	Context Agility	
	Stakeholder Agility	
	Problem-Solving Agility	
Ambidextrous Innovation	Exploitative Innovation	Atuahene-Gima (2005)
	Explorative Innovation	
Competitive Advantage	Price	Koufteros, et al. (2012)
	Quality	
	Dependable Delivery	
	Product Innovation	
	Time to Market	

3.2 Measurements

This study examines four key variables: Knowledge Management, Leadership Agility, Ambidextrous Innovation, and Competitive Advantage. The questionnaire was developed based on validated measurement scales from existing literature to ensure reliability and validity, with all items measured using a 5-point Likert scale. The indicators for each variable, adapted from previous studies, are detailed in Table 2, while the complete scales are provided in the Appendix.

3.3 Statistical Analysis

Data analysis was conducted using Partial Least Squares Structural Equation Modeling (PLS-SEM) with SmartPLS 3.0 software. PLS-SEM was selected as the analytical tool for this study due to its suitability for several key reasons. First, PLS-SEM is widely recognized in SME research for its ability to handle small sample sizes and analyze complex models with multiple constructs and mediating relationships, making it ideal for this study's context (Hair, et al., 2022). Second, PLS-SEM is particularly effective for predictive modeling and theory development (Sarstedt, et al., 2021), aligning with the study's objective of exploring how knowledge management influences leadership agility, ambidextrous innovation, and competitive

advantage. Third, PLS-SEM is well-suited for validating reflective measurement models, as it employs bootstrapping techniques and rigorous measurement model assessment to ensure construct validity and reliability. Finally, given the study's sample size ($n = 54$), PLS-SEM is appropriate as it does not impose strict sample size requirements while providing robust parameter estimation (Hair et al., 2019).

The analysis involved two main assessments (Hair, et al., 2019):

1. Measurement Model Assessment: This stage examined factor loadings, Cronbach's alpha, composite reliability, and Average Variance Extracted (AVE) to assess convergent validity and reliability. Additionally, the Heterotrait-Monotrait (HTMT) ratio was used to evaluate discriminant validity, ensuring that the constructs were distinct and free from redundancy.
2. Structural Model Assessment: This stage evaluated path coefficients, R-squared values, and bootstrapping results to test the significance of the hypothesized relationships, providing insights into the direct and mediating effects within the model.

4 Results

4.1 Measurement Model Assessment

Evaluating the measurement model is an essential step in determining the model's appropriateness and confirming its alignment with the research data, as detailed in Table 3. This study utilizes a reflective measurement model and adheres to several established criteria by Hair, et al. (2019). We verified that the loadings of the reflective indicators reached a minimum factor value of 0.708. Both Cronbach's alpha and composite reliability were kept within the range of 0.7–0.95 to ensure reliability while preventing indicator redundancy. Furthermore, convergent validity was evaluated using the Average Variance Extracted (AVE) method, where a model showing an AVE score of 0.5 or higher was

considered to have strong convergent validity, reflecting that the constructs capture a substantial amount of variance relative to measurement error. Convergent validity and reliability are shown in Table 3.

The evaluation of the measurement model included an assessment of discriminant validity, which was conducted using the Heterotrait-Monotrait (HTMT) ratio of correlations, as described by Hair, et al. (2019). The HTMT criterion stipulates that values should be below 0.85 to confirm adequate discriminant validity. The analysis of discriminant validity, as presented in Table 4, verified that all measures adhered to the standards prescribed by the HTMT method.

Table 3. Measurement Model Assessment Results
(Source: Author's own research)

Variables	Indicators	Loading	Cronbach's Alpha	Composite Reliability	AVE
Knowledge Management (KM)	Knowledge Identification (KM1)	0.795	0.794	0.716	0.770
	Knowledge Creation (KM2)	0.880			
	Knowledge Collection (KM3)	0.844			
	Knowledge Organization (KM4)	0.825			
	Knowledge Storage (KM5)	0.825			
	Knowledge Dissemination (KM6)	0.899			
	Knowledge Application (KM7)	0.722			
Leadership Agility (LA)	Self-Agility (LA1)	0.771	0.875	0.755	0.672
	Context Agility (LA2)	0.735			
	Stakeholder Agility (LA3)	0.893			
	Problem-Solving Agility (LA4)	0.719			
Ambidextrous Innovation (AI)	Explorative Innovation (AI1)	0.885	0.773	0.715	0.575
	Exploitative Innovation (AI2)	0.751			
Competitive Advantage (CA)	Price (CA1)	0.805	0.795	0.785	0.697
	Quality (CA2)	0.727			
	Dependable Delivery (CA3)	0.821			
	Product Innovation (CA4)	0.868			
	Time to Market (CA5)	0.850			

Table 4. HTMT Ratio
(Source: Author's own research)

-	KM	LA	AI	CA
KM	-	-	-	-
LA	0.749	-	-	-
AI	0.774	0.640	-	-
CA	0.703	0.647	0.780	-

Notes: KM = Knowledge Management; LA = Leadership Agility; AI = Ambidextrous Innovation; CA = Competitive Advantage.

4.2 Structural Modal Assessment

After confirming the validity and reliability of the measurement model, the next step was to evaluate the structural model to assess its robustness and predictive power. This evaluation focused on three key aspects: collinearity, explanatory power (R^2), and the significance of path coefficients (Hair, et al., 2019). Each of these elements provides critical insights into the model’s ability to explain the relationships between the constructs and predict outcomes effectively.

To assess collinearity among the constructs, Variance Inflation Factor (VIF) values were calculated. Collinearity can distort the interpretation of path coefficients, so it is essential to ensure that VIF values are below the threshold of 3.3, as recommended by Kock, et al.

(2012) and Kock and Gaskins (2014). In this study, the VIF values for all constructs—Knowledge Management (2.134), Leadership Agility (2.349), Organizational Innovation (2.241), and Competitive Advantage (2.483)—were well below 3.3 (Table 5). This indicates that collinearity is not a concern, confirming that the structural model is robust and free from multicollinearity or common method bias. These results allow for a reliable interpretation of the relationships between the constructs.

The explanatory power of the model was evaluated using the coefficient of determination (R^2), which measures the proportion of variance explained in the endogenous constructs. According to Hair, et al. (2022), R^2 values range from 0 to 1, with higher values indicating greater explanatory power.

Table 5. Variance Inflation Factor
(Source: Author’s own research)

Variables	VIF
Knowledge Management	2.134
Leadership Agility	2.349
Ambidextrous Innovation	2.241
Competitive Advantage	2.483

Table 6. Hypothesis Testing Results
(Source: Author’s own research)

Relationship		Path Coefficient	T-Statistics	P-Value	Decision
H ₁	Knowledge Management → Leadership Agility	0.169	3.692	0.004	Supported
H ₂	Knowledge Management → Ambidextrous Innovation	0.252	5.383	0.000	Supported
H ₃	Knowledge Management → Competitive Advantage	0.211	4.132	0.000	Supported
H ₄	Leadership Agility → Competitive Advantage	0.176	3.140	0.002	Supported
H ₅	Ambidextrous Innovation → Competitive Advantage	0.322	6.699	0.000	Supported

In this study, the R^2 values for the endogenous constructs were as follows: Leadership Agility ($R^2 = 0.378$), Organizational Innovation ($R^2 = 0.393$), and Competitive Advantage ($R^2 = 0.532$). These results suggest that the model has moderate explanatory power for Leadership Agility and Organizational

Innovation while demonstrating strong explanatory power for Competitive Advantage. Specifically, 37.8% of the variance in Leadership Agility is explained by Knowledge Management, 39.3% of the variance in Ambidextrous Innovation is explained by Knowledge Management and Leadership Agility, and

53.2% of the variance in Competitive Advantage is explained by Knowledge Management, Leadership Agility, and Organizational Innovation. These findings highlight the meaningful impact of the predictors on the endogenous constructs, particularly in explaining Competitive Advantage.

The significance of the hypothesized relationships was tested using bootstrapping with 5,000 subsamples to evaluate the path coefficients. All direct hypotheses (H1 - H5) were supported, with significant positive relationships (significant level of 5%; t-statistics > 1.96; p-value < 0.05) (see Table 6). Specifically, Knowledge Management was found to significantly influence Leadership Agility and Organizational Innovation, underscoring its foundational role in fostering adaptive leadership and innovation capabilities. Additionally, Leadership Agility and Organizational Innovation significantly influenced Competitive Advantage, emphasizing their critical roles in driving sustainable competitive advantage. These results confirm the theoretical model's validity and provide empirical evidence supporting the proposed relationships.

5 Discussion

The primary goal of this study was to investigate the influence of knowledge management on leadership agility, ambidextrous innovation, and competitive advantage within coffee shop SMEs, focusing on how internal knowledge practices can boost managerial effectiveness and innovative outcomes in a competitive market. The interplay between knowledge management and leadership agility is particularly pivotal in coffee shop SMEs, as these enterprises thrive on customer interaction and require rapid service adaptations. Effective knowledge management equips leaders with the necessary insights to make prompt decisions that meet consumer expectations and market shifts, critical in the hospitality industry where customer satisfaction significantly impacts repeat business and overall competitiveness (Arsawan, et al., 2022; Zhang, et al., 2024).

This study's findings align with previous research that demonstrates well-structured knowledge management systems enhance decision-making and leader agility in dynamic sectors, with pronounced effects in coffee shop SMEs due to their direct consumer interactions

and immediate feedback loops (Massaro, et al., 2016). However, the influence varies across industries; in technology firms, for instance, knowledge management's impact on leadership agility is often mediated by technological changes and innovation rates, contrasting with the more stable and customer-centric environment of coffee shops (Jansen, et al., 2006; Vega-Jurado, et al., 2008; O'Reilly and Tushman, 2008).

In coffee shop SMEs, the significant positive impact of knowledge management on ambidextrous innovation is crucial for adapting to rapidly evolving consumer trends and market conditions, as stated by Kim, et al. (2021). Effective knowledge management enables these businesses to engage in both exploratory and exploitative innovation practices, which are essential for continuously refining service offerings and experimenting with new concepts. This adaptability is especially vital in the highly competitive hospitality industry, where maintaining relevance and customer satisfaction demands frequent service innovations and enhancements (Hughes, et al., 2014). Coffee shop SMEs utilize knowledge management to focus specifically on improving customer experiences and service delivery, showcasing how ambidextrous innovation is tailored to meet the unique needs and dynamics of this sector (Cegarra-Navarro, et al., 2016).

Building on the connection between knowledge management and ambidextrous innovation, this research reveals that effective knowledge management significantly boosts competitive advantage in coffee shop SMEs by adapting to market demands and enhancing customer engagement. In these dynamic, service-oriented settings, strategic knowledge management is crucial for differentiating businesses through improved service quality and innovative strategies. Comparative research shows that while knowledge management in technology firms often drives technological leadership (Ferraris, et al., 2019), in the hospitality sector, it enhances customer service and operational efficiency (Mota Veiga, et al., 2023), closely aligning with the results observed in coffee shop SMEs. These findings underscore the importance of agile knowledge management practices in maintaining a competitive edge, particularly in SMEs where rapid adaptability is vital (Arsawan, et al., 2022).

Transitioning from the foundational role of knowledge management in securing competitive advantage, this

study also highlights the significant positive impact of leadership agility on competitive advantage in coffee shop SMEs. Leadership agility is crucial for swiftly responding to market shifts and customer preferences, essential in service-oriented sectors like coffee shops where the market and consumer expectations evolve rapidly (Isfianadewi, et al., 2022). Unlike technology sectors where agility may focus on technological innovations (Hayward, 2021), in coffee shops, agile leadership drives service innovations and quick adjustments to customer service, enhancing customer satisfaction and loyalty (Salahat, 2021; Porkodi, 2024). Next, the significant role of ambidextrous innovation in coffee shop SMEs underscores its necessity for maintaining market relevance. This strategy allows coffee shops to balance refining existing services with introducing new offerings, thereby meeting diverse consumer demands and adapting to evolving market trends. Comparative studies indicate that while technology sectors use ambidextrous innovation for balancing incremental and radical technological changes, coffee shop SMEs focus on enhancing customer engagement and operational efficiency (Winata, et al., 2025). This sector-specific application highlights that while the core advantages of ambidextrous innovation are consistent across different industries, the specific implementations and their impacts are tailored to industry needs.

6 Research Implications

6.1 Theoretical Implications

This study contributes to the existing body of knowledge by extending the application of Dynamic Capabilities Theory (Teece, et al., 1997) to the context of service-oriented SMEs, particularly coffee shops. It demonstrates how knowledge management (KM) serves as a foundational driver for enhancing leadership agility and ambidextrous innovation, bridging the gap between theoretical frameworks traditionally applied to large enterprises and their relevance to SMEs. By empirically validating the mediating roles of leadership agility and ambidextrous innovation in the relationship between KM and competitive advantage, the study enriches the strategic management literature. It highlights the mechanisms through which KM practices translate into sustainable competitive advantages,

particularly in dynamic and customer-centric industries. Additionally, the study advances the discourse on innovation by showing how KM enables SMEs to balance explorative and exploitative innovations, a concept that has been underexplored in the context of service-oriented SMEs. These findings provide a nuanced understanding of how KM fosters both incremental and radical innovations, contributing to the growing body of research on innovation strategies in SMEs (Durst, et al., 2024; Zhang, et al., 2024).

6.2 Practical Implications

The findings of this study offer actionable insights for coffee shop SMEs aiming to enhance their competitive advantage. Investing in robust KM systems that facilitate knowledge sharing, storage, and application is crucial for capturing customer feedback, operational best practices, and market trends. These insights can inform decision-making and innovation strategies, enabling SMEs to adapt to rapidly changing market demands. Leadership agility plays a critical role in navigating the complexities of a dynamic market, emphasizing the need for coffee shop leaders to develop adaptive capabilities. Training programs and workshops on agile leadership can help managers enhance their decision-making skills and emotional intelligence, which are essential for driving organizational success. Ambidextrous innovation is another key takeaway, as it allows SMEs to balance the refinement of existing services with the introduction of new offerings. For instance, while improving operational efficiency and customer service, businesses can experiment with new menu items, unique customer experiences, or sustainable practices. This dual approach ensures that SMEs remain competitive while meeting evolving customer demands. Policymakers and industry stakeholders can also benefit from these findings by designing targeted support programs, such as funding for KM infrastructure, training initiatives for agile leadership, and incentives for innovation. These efforts can create an enabling environment for SMEs to thrive in a rapidly changing market landscape.

7 Conclusion

This study has thoroughly examined the impact of knowledge management on leadership agility, ambidextrous innovation, and competitive advantage within coffee shop SMEs, affirming that effective knowledge management crucially enhances leadership agility and ambidextrous innovation, subsequently boosting competitive advantage in this sector. By demonstrating how knowledge management empowers leaders with agility and fosters an environment ripe for both explorative and exploitative innovations, the research significantly contributes to strategic management literature. It not only underscores the pivotal roles of these elements in enhancing competitive advantage but also provides a nuanced understanding specific to the context of coffee shop SMEs, offering valuable theoretical and practical insights for future research and application in similar settings.

The practical implications of these findings are clear: coffee shop SMEs can gain substantial competitive advantages by investing in robust knowledge management systems that enhance both the agility of their leadership and their capacity for innovation. This dual focus not only helps in refining current service offerings but also in capturing new market opportunities through innovative practices. Consequently, SMEs in the coffee shop industry are encouraged to develop strategies that enhance information dissemination and foster a culture of continuous learning and adaptability.

However, this study is not without its limitations. The research was confined to coffee shop SMEs in urban settings, which may limit the generalizability of the findings to rural settings or other types of SMEs. Future research could expand the scope to include diverse geographical locations and different sectors within the hospitality industry to further validate and extend these findings.

8 References

- [1] Adawiah, A., Echdar, S., Umar, A., Ardianto, S.Y. and Putranto, S.Y., 2020. Strategies for improving business performance through entrepreneurial competence, market orientation, and entrepreneurial motivation (Study on SME Coffee Shops in Makassar City). *Academy of Entrepreneurship Journal*, 26(4), pp.1-15.
- [2] Adeleke, A., 2019. *Marketing strategies of successful coffee shop owners*. Walden University.
- [3] Alavi, M. and Leidner, D.E., 2001. Knowledge management and knowledge management systems: Conceptual foundations and research issues. *MIS Quarterly*, 25(1), pp.107-136.
- [4] Arsawan, I.W.E., Koval, V., Rajiani, I., Rustiarini, N.W., Supartha and W.G., Suryantini, N.P.S., 2022. Leveraging knowledge sharing and innovation culture into SMEs sustainable competitive advantage. *International Journal of Productivity and Performance Management*, 71(2), pp.405-428.
- [5] Atuahene-Gima, K., 2005. Resolving the capability-rigidity paradox in new product innovation. *Journal of Marketing*, 69(4), pp.61-83.
- [6] Azeem, M., Ahmed, M., Haider, S. and Sajjad, M., 2021. Expanding competitive advantage through organizational culture, knowledge sharing and organizational innovation. *Technology in Society*, 66, 101635.
- [7] Azis, A.M. and Irjayanti, M., 2024. Strengthening the accuracy and visibility of supply chain management data in the coffee industry. *Cogent Business & Management*, 11(1), 2380811.
- [8] Băeșu, C. and Bejinaru, R., 2020. Knowledge management strategies for leadership in the digital business environment. In *Proceedings of the International Conference on Business Excellence*, 14(1), pp.646-656.
- [9] Barney, J., 1991. Firm resources and sustained competitive advantage. *Journal of Management*, 17(1), pp.99-120.
- [10] Battour, M., Barahma, M. and Al-Awlaqi, M., 2021. The relationship between HRM strategies and sustainable competitive advantage: Testing the mediating role of strategic agility. *Sustainability*, 13(9), 5315.
- [11] Brettel, M., Chomik, C. and Flatten, T.C., 2015. How organizational culture influences innovativeness, proactiveness, and risk-taking: Fostering entrepreneurial orientation in SMEs. *Journal of Small Business Management*, 53(4), pp.868-885.
- [12] Cardoni, A., Zanin, F., Corazza, G. and Paradisi, A., 2020. Knowledge management and performance measurement systems for SMEs' economic sustainability. *Sustainability*, 12(7), 2594.
- [13] Cegarra-Navarro, J.G., Soto-Acosta, P. and Wensley, A.K., 2016. Structured knowledge processes and firm performance: The role of organizational agility. *Journal of Business Research*, 69(5), pp.1544-1549.
- [14] Cerchione, R., Esposito, E. and Spadaro, M.R., 2015. The spread of knowledge management in SMEs: A scenario in evolution. *Sustainability*, 7(8), pp.10210-10232.
- [15] Chatwani, N., 2019. Agility revisited. In N. Chatwani (Ed.), *Organisational agility* (pp.1-21). Springer International Publishing.

- [16] Cui, F., Lim, H. and Song, J., 2022. The influence of leadership style in China SMEs on enterprise innovation performance: The mediating roles of organizational learning. *Sustainability*, 14(6), 3249.
- [17] Davenport, T.H. and Prusak, L., 1998. *Working knowledge: How organizations manage what they know*. Harvard Business Press.
- [18] Davis, D.F. and Golcicic, S.L., 2020. Sustainability in the coffee supply chain: A study of knowledge management and ethical sourcing practices. *Journal of Supply Chain Management*, 56(4), pp.47-65.
- [19] Dierickx, I. and Cool, K., 1989. Asset stock accumulation and sustainability of competitive advantage. *Management Science*, 35(12), pp.1504-1511.
- [20] Drucker, P.F., 1993. *Post-capitalist society*. Butterworth-Heinemann.
- [21] Dunne, T.C., Aaron, J.R., McDowell, W.C., Urban, D.J. and Geho, P.R., 2016. The impact of leadership on small business innovativeness. *Journal of Business Research*, 69(11), pp.4876-4881.
- [22] Durst, S., Foli, S. and Edvardsson, I.R., 2024. A systematic literature review on knowledge management in SMEs: current trends and future directions. *Management Review Quarterly*, 74(1), pp.263-288.
- [23] Durst, S. and Runar Edvardsson, I., 2012. Knowledge management in SMEs: A literature review. *Journal of Knowledge Management*, 16(6), pp.879-903.
- [24] Durst, S. and Wilhelm, S., 2011. Knowledge management in practice: Insights into a medium-sized enterprise's exposure to knowledge loss. *Prometheus*, 29(1), 23-38.
- [25] Eisenhardt, K.M. and Martin, J.A., 2000. Dynamic capabilities: What are they? *Strategic Management Journal*, 21(10-11), pp.1105-1121.
- [26] Esamah, A., Aujirapongpan, S., Rakangthong, N.K. and Imjai, N., 2023. Agile leadership and digital transformation in savings cooperative limited: Impact on sustainable performance amidst COVID-19. *Journal of Human Earth Future*, 4(1), pp.36-53.
- [27] Fachrunnisa, O., Adhiatma, A., Lukman, N. and Ab-Majid, M.N., 2020. Towards SMEs' digital transformation: The role of agile leadership and strategic flexibility. *Journal of Small Business Strategy*, 30, pp.65-85.
- [28] Fernandes, V., Wong, W. and Noonan, M., 2023. Developing adaptability and agility in leadership amidst the COVID-19 crisis: Experiences of early-career school principals. *International Journal of Educational Management*, 37(2), pp.483-506.
- [29] Ferraris, A., Mazzoleni, A., Devalle, A. and Couturier, J., 2019. Big data analytics capabilities and knowledge management: Impact on firm performance. *Management Decision*, 57(8), pp.1923-1936.
- [30] Gibson, C.B. and Birkinshaw, J., 2004. The antecedents, consequences, and mediating role of organizational ambidexterity. *Academy of Management Journal*, 47(2), pp.209-226.
- [31] Govuzela, S. and Mafini, C., 2019. Organisational agility, business best practices and the performance of small to medium enterprises in South Africa. *South African Journal of Business Management*, 50(1), pp.1-13.
- [32] Hair, J.F., Hult, G.T.M., Ringle, C.M. and Sarstedt, M., 2022. *A Primer on Partial Least Squares Structural Equation Modeling (PLS-SEM)* (3rd ed). Sage Publications.
- [33] Hair, J.F., Risher, J.J., Sarstedt, M. and Ringle, C.M., 2019. When to use and how to report the results of PLS-SEM. *European Business Review*, 31(1), pp.2-24.
- [34] Hayaecian, S. and Hesarzadeh, R., 2023. Knowledge Management Strategies, Intellectual Capital, and Ambidextrous Innovation Capability in SMEs: Are They Relevant? *Journal of the Knowledge Economy*, pp.1-28.
- [35] Hayward, S., 2021. *The agile leader: How to create an agile business in the digital age*. Kogan Page Publishers.
- [36] Helfat, C.E., Finkelstein, S., Mitchell, W., Peteraf, M.A., Singh, H., Teece, D.J. and Winter, S.G., 2007. *Dynamic capabilities: Understanding strategic change in organizations*. Blackwell Publishing.
- [37] Hughes, M., Morgan, R.E., Ireland, R.D. and Hughes, P., 2014. Social capital and learning advantages: A problem of absorptive capacity. *Strategic Entrepreneurship Journal*, 8(3), pp.214-233.
- [38] Isfianadewi, D., Rahayu, N.E.E. and Muzakir, M.F.A., 2022. The Role of Supply Chain Agility in Mediating the Effect of Knowledge Sharing, Innovation, and Absorptive Capacity on Competitive Advantage. In *1st Australian International Conference on Industrial Engineering and Operations Management*.
- [39] Jansen, J.J., Van Den Bosch, F.A. and Volberda, H.W., 2006. Exploratory innovation, exploitative innovation, and performance: Effects of organizational antecedents and environmental moderators. *Management Science*, 52(11), pp.1661-1674.
- [40] Jia, R., Hu, W. and Li, S., 2022. Ambidextrous leadership and organizational innovation: The importance of knowledge search and strategic flexibility. *Journal of Knowledge Management*, 26(3), pp.781-801.
- [41] Joiner, W.B. and Josephs, S.A., 2006. *Leadership agility: Five levels of mastery for anticipating and initiating change* (Vol. 164). John Wiley & Sons.
- [42] Kane, G.C. and Alavi, M., 2007. Information technology and organizational learning: An investigation of exploration and exploitation processes. *Organization Science*, 18(5), pp.796-812.
- [43] Kang, T.W. and Yang, H.K., 2016. The impact of coffee shop franchise CEO leadership on innovation performance: Mediating role of organizational trust. *The Korean Journal of Franchise Management*, 7(2), pp.37-45.
- [44] Kartiraharjo, H. and Isfianadewi, D., 2021. Enhancing competitive advantage through knowledge sharing,

- absorptive capacity, and innovation capability. *International Journal of Research in Business Social Science*, 10(8), pp.83-93.
- [45] Khan, Z., Amankwah-Amoah, J., Lew, Y.K., Puthusserry, P. and Czinkota, M., 2022. Strategic ambidexterity and its performance implications for emerging economies multinationals. *International Business Review*, 31(3), pp.101762.
- [46] Kim, M., Koo, D.W. and Han, H.S., 2021. Innovative behavior motivations among frontline employees: The mediating role of knowledge management. *International Journal of Hospitality Management*, 99, 103062.
- [47] Kim, W.C., 2005. Blue ocean strategy: From theory to practice. *California Management Review*, 47(3), 105-121.
- [48] Kock, N. and Lynn, G., 2012. Lateral Collinearity and Misleading Results in Variance-Based SEM: An Illustration and Recommendations. *Journal of the Association for Information Systems*, 13(7), pp.546-580.
- [49] Koufteros, X., Vickery, S.K. and Dröge, C., 2012. The effects of strategic supplier selection on buyer competitive performance in matched domains: Does supplier integration mediate the relationships? *Journal of Supply Chain Management*, 48(2), pp.93-115.
- [50] Massaro, M., Handley, K., Bagnoli, C. and Dumay, J., 2016. Knowledge management in small and medium enterprises: A structured literature review. *Journal of Knowledge Management*, 20(2), pp.258-291.
- [51] Medeiros, M.M.D. and Maçada, A.C.G., 2022. Competitive advantage of data-driven analytical capabilities: The role of big data visualization and of organizational agility. *Management Decision*, 60(4), pp.953-975.
- [52] Mota Veiga, P., Fernandes, C. and Ambrósio, F., 2023. Knowledge spillover, knowledge management and innovation of the Portuguese hotel industry in times of crisis. *Journal of Hospitality and Tourism Insights*, 6(4), pp.1521-1534.
- [53] Nonaka, I., 1994. A dynamic theory of organizational knowledge creation. *Organization Science*, 5(1), pp.14-37.
- [54] Nonaka, I. and Takeuchi, H., 1995. *The knowledge-creating company: How Japanese companies create the dynamics of innovation*. Oxford University Press.
- [55] O'Reilly III, C.A. and Tushman, M.L., 2008. Ambidexterity as a dynamic capability: Resolving the innovator's dilemma. *Research in Organizational Behavior*, 28, pp.185-206.
- [56] O'Reilly III, C.A. and Tushman, M.L., 2013. Organizational ambidexterity: Past, present, and future. *Academy of Management Perspectives*, 27(4), pp.324-338.
- [57] Peteraf, M.A., 1993. The cornerstones of competitive advantage: A resource-based view. *Strategic Management Journal*, 14(3), pp.179-191.
- [58] Petrie, N., 2014. *Future trends in leadership development*. Center for Creative Leadership.
- [59] Porkodi, S., 2024. The effectiveness of agile leadership in practice: A comprehensive meta-analysis of empirical studies on organizational outcomes. *Journal of Entrepreneurship, Management and Innovation*, 20(2), pp.117-138.
- [60] Porter, M.E., 1985. *Competitive Advantage: Creating and Sustaining Superior Performance*. Free Press.
- [61] Porter, M.E., 1991. Towards a dynamic theory of strategy. *Strategic Management Journal*, 12(S2), pp.95-117.
- [62] Rafi, N., Ahmed, A., Shafique, I. and Kalyar, M.N., 2022. Knowledge management capabilities and organizational agility as liaisons of business performance. *South Asian Journal of Business Studies*, 11(4), pp.397-417.
- [63] Raisch, S., Birkinshaw, J., Probst, G. and Tushman, M.L., 2009. Organizational ambidexterity: Balancing exploitation and exploration for sustained performance. *Organization Science*, 20(4), pp.685-695.
- [64] Riggio, R.E. and Reichard, R.J., 2008. The emotional and social intelligences of effective leadership: An emotional and social skill approach. *Journal of Managerial Psychology*, 23(2), pp.169-185.
- [65] Salahat, M.A., 2021. Improving customer responsiveness agility through leadership styles; mediating role of employee empowerment. *Australian Journal of Basic and Applied Sciences*, 15(11), pp.1-11.
- [66] Shannak, R., Maqableh, M. and Tarhini, A., 2017. The impact of knowledge management on job performance in higher education: The case of the University of Jordan. *Journal of Enterprise Information Management*, 30(2), pp.244-262.
- [67] Son, J.H., Kim, J.H. and Kim, G.J., 2021. Does employee satisfaction influence customer satisfaction? Assessing coffee shops through the service profit chain model. *International Journal of Hospitality Management*, 94, 102866.
- [68] Tandon, L., Bhatnagar, T. and Sharma, T., 2024. Leadership agility in the context of organisational agility: A systematic literature review. *Management Review Quarterly*, pp.1-71.
- [69] Tao, S. and Kim, H.S., 2022. Online customer reviews: Insights from the coffee shops industry and the moderating effect of business types. *Tourism Review*, 77(5), pp.1349-1364.
- [70] Teece, D.J., 2007. Explicating dynamic capabilities: The nature and microfoundations of (sustainable) enterprise performance. *Strategic Management Journal*, 28(13), pp.1319-1350. <https://doi.org/10.1002/smj.640>
- [71] Teece, D.J., 2018. Business models and dynamic capabilities. *Long Range Planning*, 51(1), pp.40-49. <https://doi.org/10.1016/j.lrp.2017.06.007>
- [72] Teece, D.J., Pisano, G. and Shuen, A., 1997. Dynamic capabilities and strategic management. *Strategic Management Journal*, 18(7), pp.509-533.

[73] Tushman, M.L. and O'Reilly III, C.A., 1996. Ambidextrous organizations: Managing evolutionary and revolutionary change. *California Management Review*, 38(4), pp.8-29.

[74] Uhl-Bien, M. and Arena, M., 2018. Leadership for organizational adaptability: A theoretical synthesis and integrative framework. *The Leadership Quarterly*, 29(1), pp.89-104.

[75] Vega-Jurado, J., Gutiérrez-Gracia, A., Fernández-de-Lucio, I. and Manjarrés-Henríquez, L., 2008. The effect of external and internal factors on firms' product innovation. *Research Policy*, 37(4), pp.616-632.

[76] Wang, H. and Fang, C.C., 2022. The influence of corporate networks on competitive advantage: The mediating effect of ambidextrous innovation. *Technology Analysis & Strategic Management*, 34(8), pp.946-960.

[77] Wernerfelt, B., 1984. A resource-based view of the firm. *Strategic Management Journal*, 5(2), pp.171-180.

[78] Winata, E., Ayu, A.R. and Idris, I., 2025. Enhancing consumer experience at modern coffee shops through analysis of customer acquisition cost, lifetime value, and implementation of blockchain technology: A case study in Medan City. *Journal of Science and Education (JSE)*, 5(2), pp.484-490.

[79] Yusuf, M., Surya, B., Menne, F., Ruslan, M., Suriani, S. and Iskandar, I., 2022. Business agility and competitive advantage of SMEs in Makassar City, Indonesia. *Sustainability*, 15(1), 627.

[80] Zhang, S. and Suntrayuth, S., 2024. The synergy of ambidextrous leadership, agility, and entrepreneurial orientation to achieve sustainable AI product innovation. *Sustainability*, 16(10), 4248.

[81] Zhang, X.A., Cao, Q. and Tjosvold, D., 2011. Linking transformational leadership and team performance: A conflict management approach. *Journal of Management Studies*, 48(7), pp.1586-1611.

[82] Zhang, Z., Shang, Y., Cheng, L. and Hu, A., 2022. Big data capability and sustainable competitive advantage: The mediating role of ambidextrous innovation strategy. *Sustainability*, 14(14), 8249.

9 Appendix: Measures used in this study

Knowledge Management		
Knowledge Identification	<ol style="list-style-type: none"> 1. Possesses knowledge about work skills 2. Attempts to align knowledge and abilities 3. Identifies knowledge 4. Identifies useful and available knowledge 	Shannak, et al. (2017)
Knowledge Creation	<ol style="list-style-type: none"> 1. Has mechanisms to create and acquire knowledge 2. Encourages employees to exchange knowledge 3. Rewards new ideas and knowledge 4. Has mechanisms to generate new knowledge 	
Knowledge Collection	<ol style="list-style-type: none"> 1. Collects knowledge from various sources 2. Provides opportunities for mutual inquiry 3. Shares information about knowledge 4. Allows colleagues to inquire about each other's skills 	
Knowledge Organization	<ol style="list-style-type: none"> 1. Reviews knowledge to keep it up to date 2. Has mechanisms to filter knowledge 3. Provides feedback on ideas and knowledge 4. Has processes to apply learned knowledge 	
Knowledge Storage	<ol style="list-style-type: none"> 1. Uses databases, repositories, and technology to store knowledge 2. Utilizes written tools to preserve knowledge 3. Has publications to display knowledge 4. Has mechanisms to store knowledge 	
Knowledge Dissemination	<ol style="list-style-type: none"> 1. Ensures knowledge is easily accessible 2. Delivers timely reports with relevant information 3. Maintains resource centers and forums for knowledge exchange 4. Conducts training sessions to share knowledge 	
Knowledge Application	<ol style="list-style-type: none"> 1. Has methods to develop knowledge 2. Has mechanisms to share knowledge both within and outside the organization 3. Applies knowledge for competitive needs 4. Has methods to analyze and evaluate knowledge 	

Leadership Agility		
Self-Agility	<ol style="list-style-type: none"> 1. Agility in improving personal capabilities 2. Agility in developing methods for giving instructions 3. Agility in developing methods for motivation 	Joiner and Joseph (2007)
Context Agility	<ol style="list-style-type: none"> 1. Agility in recognizing environmental changes 2. Agility in mastering the business field 3. Agility in predicting business success 	
Stakeholder Agility	<ol style="list-style-type: none"> 1. Agility in seeking business partners 2. Agility in attracting customers 3. Agility in collaborating with business partners 	
Problem-Solving Agility	<ol style="list-style-type: none"> 1. Agility in identifying problems 2. Agility in seeking alternative solutions 3. Agility in solving problems 	
Ambidextrous Innovation		
Exploitative Innovation	<ol style="list-style-type: none"> 1. Service modifications 2. Service innovation focused on efficiency 3. Service innovation focused on effectiveness 	Atuahene-Gima (2005)
Explorative Innovation	<ol style="list-style-type: none"> 1. New service systems 2. New marketing strategies 3. Addition of new products 4. Collaboration on new service systems 	
Competitive Advantage		
Price	<ol style="list-style-type: none"> 1. Offering prices that are competitive with rivals 2. Providing lower or more affordable prices compared to competitors 3. Maintaining pricing strategies that attract cost-conscious customers 	Koufteros, et al. (2005)
Quality	<ol style="list-style-type: none"> 1. Delivering products with superior quality 2. Ensuring consistent product quality standards 3. Meeting or exceeding customer expectations for product quality 	
Dependable Delivery	<ol style="list-style-type: none"> 1. Ensuring timely delivery of products 2. Delivering products in accordance with customer orders 3. Maintaining reliable and accurate delivery processes 	
Product Innovation	<ol style="list-style-type: none"> 1. Developing products that align with customer needs and preferences 2. Continuously innovating to adapt to changing customer demands 3. Introducing products with new taste 	
Time to Market	<ol style="list-style-type: none"> 1. Being a pioneer in launching new products 2. Moving quickly to introduce products to the market 3. Reducing the time between product development and market release 	