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Article

Digital Culture and Ambidextrous Leadership in Military Academies: Strategic Agility as a Pathway to Organizational Performance

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Abstract: This study examines how digital culture and ambidextrous leadership foster organizational performance in Indonesian military academies through strategic agility. A quantitative, cross-sectional survey was administered to 345 instructors selected through proportionate stratified random sampling from the Army, Naval, and Air Force academies. The data were analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM) in SmartPLS 4 with 5,000 bootstrap resamples. The measurement model demonstrated satisfactory internal consistency, convergent validity, and discriminant validity. Leadership ambidexterity positively affected strategic agility ($\beta = 0.273$, $t = 4.214$, $p < 0.001$), while digital culture exerted a stronger effect ($\beta = 0.635$, $t = 10.131$, $p < 0.001$). Strategic agility significantly improved organizational performance ($\beta = 0.436$, $t = 8.271$, $p < 0.001$). It also mediated the effects of leadership ambidexterity ($\beta = 0.119$, $t = 3.631$, $p < 0.001$) and digital culture ($\beta = 0.276$, $t = 6.494$, $p < 0.001$) on performance. The model explained 72.3% of the variance in strategic agility and 80.0% of the variance in organizational performance, with adequate predictive relevance and model fit. The findings extend the Resource-Based View and Dynamic Capabilities Theory to hierarchical, resource-constrained military education institutions in the Global South. Practically, military academies should prioritize digital culture, technology-enabled collaboration, and leadership development that balances experimentation with control. Strategic agility is the mechanism through which leadership and digital-cultural resources are converted into institutional performance.
Keywords: Ambidextrous leadership; digital culture; dynamic capabilities; military education; organizational performance; PLS-SEM; strategic agility

1. Introduction

Contemporary military institutions worldwide face unprecedented challenges driven by rapid technological advancement, shifting geopolitical dynamics, and generational transitions in personnel composition. In the Asia-Pacific region, intensifying competition among major powers, accelerated military modernization programs, and the proliferation of disruptive technologies have fundamentally reshaped defense education requirements [1, 2]. Military academies, as the primary institutions responsible for developing future officers, must simultaneously preserve discipline-oriented traditions while fostering the adaptability and innovation essential for operating in increasingly complex strategic environments.

Indonesian military academies exemplify these tensions within a distinct Global South context. Unlike their Western counterparts with substantial defense budgets and advanced technological infrastructure, Indonesian military academies operate under significant resource constraints while managing rapid organizational transformation [3]. Instructors, predominantly from Generation X, are tasked with preparing Generation Z cadets who possess

fundamentally different learning preferences, digital fluency, and expectations regarding leadership and communication [4, 5]. This generational mismatch is particularly acute in contexts where hierarchical traditions remain deeply embedded in institutional culture, creating unique challenges absent in more egalitarian Western military systems.

Indonesia's strategic position in Southeast Asia further intensifies these pressures. As territorial disputes in the South China Sea escalate and regional powers strengthen military capabilities, Indonesian military academies must rapidly enhance their capacity to produce officers capable of navigating complex geopolitical realities [1]. However, the pathways to achieving this transformation differ markedly from those available to Global North institutions. Where Western academies can leverage substantial investments in digital infrastructure and leadership development programs, Indonesian institutions must strategically mobilize limited resources while maintaining operational effectiveness.

Recent literature highlights the critical role of leadership style in navigating these competing demands. Leadership ambidexterity, the capacity to balance explorative behaviors that encourage innovation with exploitative behaviors that ensure discipline and efficiency, has emerged as a crucial capability for organizations facing simultaneous pressures for stability and change [6, 7]. However, existing research predominantly examines ambidextrous leadership in Western corporate contexts, leaving unclear how this leadership approach operates within the hierarchical, tradition-bound structures characteristic of military institutions in developing nations. The cultural and institutional contexts of Global South military academies, where respect for authority and adherence to protocol are deeply ingrained, may fundamentally alter how ambidextrous leadership manifests and influences organizational outcomes.

Similarly, while digital culture is widely recognized as essential for organizational transformation [8], empirical evidence on how it develops within resource-constrained military institutions remains scarce. Most digital culture research focuses on technology-rich environments in developed economies, overlooking the unique challenges faced by institutions that must cultivate digital mindsets and collaborative practices despite limited technological infrastructure and varying levels of digital literacy among personnel. In Indonesian military academies, digital culture must emerge not from abundant resources but from strategic prioritization and adaptive implementation, a process fundamentally different from digital transformation pathways documented in Western contexts.

Theoretically, this study addresses three critical gaps in the literature. First, while the Resource-Based View (RBV) positions leadership and culture as strategic resources [9], empirical validation of how these intangible assets translate into performance within Global South military education settings is virtually absent. The institutional logics, cultural values, and resource constraints characteristic of developing nation military academies may fundamentally shape how leadership behaviors and organizational culture generate value. Second, although Dynamic Capabilities Theory emphasizes organizational agility as a mechanism for leveraging resources [10], research has not adequately examined strategic agility as a mediating pathway linking leadership, culture, and performance in hierarchical institutions operating under resource scarcity. The mechanisms through which strategic agility develops and functions may differ substantially between resource-rich and resource-constrained contexts.

Third, existing studies present inconsistent findings regarding whether leadership and digital culture exert direct or indirect effects on organizational performance. Some evidence suggests mediation through dynamic capabilities [11, 12], while other research supports direct relationships [7]. These inconsistencies may reflect contextual differences that remain unexamined, particularly the distinction between Global North and Global South institutional settings. Understanding these pathways is essential for developing context-appropriate strategies for enhancing military academy performance in developing nations.

This study makes several distinct contributions by examining Indonesian military academies as a strategic research site. First, we provide rare empirical evidence on how leadership ambidexterity operates within hierarchical military institutions in the Global South, where cultural norms emphasizing deference to authority may constrain the exploratory behaviors central to ambidextrous leadership. Second, we illuminate how digital culture can be cultivated

despite resource constraints, offering insights relevant to military and civilian institutions throughout developing regions. Third, we clarify the role of strategic agility as a mediating mechanism, demonstrating how it serves as a critical pathway through which limited resources can be strategically mobilized to achieve performance gains.

By focusing on Indonesian military academies, this research addresses the underrepresentation of Global South contexts in organizational studies and strategic management literature. The findings challenge implicit assumptions embedded in Western-centric theories by demonstrating how universal constructs such as leadership ambidexterity and digital culture manifest differently when embedded in non-Western institutional logics and resource environments. For practitioners, this study offers actionable insights for military education leaders in developing nations seeking to enhance institutional performance without the substantial resources available to their Global North counterparts. For scholars, it opens pathways for theorizing organizational adaptation in contexts characterized by resource scarcity, hierarchical cultures, and rapid environmental change.

2. Literature Review and Hypothesis Development

This study draws on two complementary theoretical perspectives to explain how leadership ambidexterity and digital culture influence organizational performance in military academies: the Resource-Based View (RBV) and Dynamic Capabilities Theory. These frameworks provide a coherent lens for understanding how intangible organizational resources translate into performance outcomes, particularly in resource-constrained contexts.

The Resource-Based View posits that organizations achieve sustained competitive advantage through the strategic deployment of valuable, rare, inimitable, and non-substitutable resources [9]. In military academy contexts, leadership capabilities and organizational culture represent critical intangible resources that meet these criteria. Leadership ambidexterity, the ability to simultaneously manage exploration and exploitation, is particularly rare in hierarchical institutions where traditional command-and-control approaches typically dominate [6]. Similarly, digital culture in resource-constrained military settings represents a valuable asset that cannot be easily replicated, as it requires not merely technological investment but fundamental shifts in mindsets, practices, and collaborative behaviors [8].

However, RBV alone cannot fully explain how these resources generate performance outcomes. Dynamic Capabilities Theory extends RBV by focusing on the organizational processes through which resources are mobilized, reconfigured, and leveraged to respond to environmental change [10]. This perspective emphasizes that static resources, however valuable, must be activated through dynamic capabilities such as strategic agility to produce organizational benefits. Strategic agility encompasses the capacity to sense environmental shifts, seize emerging opportunities, and transform organizational routines in response to new demands [15]. In military academies facing rapid technological change and generational transitions, strategic agility serves as the critical mechanism translating leadership behaviors and cultural attributes into tangible performance improvements.

The integration of these two theoretical perspectives is particularly appropriate for understanding organizational adaptation in Global South military contexts. While RBV identifies what resources matter, Dynamic Capabilities Theory explains how resource-constrained institutions can strategically leverage limited assets to achieve disproportionate performance gains. This theoretical synthesis enables us to examine both the direct value of leadership ambidexterity and digital culture as strategic resources and their indirect influence through the dynamic capability of strategic agility.

2.1. Leadership Ambidexterity and Strategic Agility

Leadership ambidexterity refers to a leader's capacity to flexibly alternate between opening behaviors that encourage exploration, experimentation, and learning, and closing behaviors that emphasize execution, control, and efficiency [6]. This duality is particularly critical in military academies, where maintaining discipline and operational standards must coexist with fostering innovation and adaptability among future officers.

Opening behaviors include allowing diverse approaches to task completion, encouraging experimentation with new ideas, providing autonomy for independent thinking, welcoming input from all organizational members, and treating mistakes as learning opportunities [13]. These behaviors create psychological safety and cognitive flexibility, enabling instructors and cadets to develop novel solutions to emerging challenges. Closing behaviors, conversely, involve monitoring goal achievement, establishing clear organizational routines, taking corrective action when needed, enforcing adherence to rules and regulations, and ensuring plans are executed according to schedule [6]. These behaviors provide the structure and accountability essential for operational effectiveness.

Recent empirical research demonstrates that ambidextrous leadership significantly enhances organizational agility. Shen et al. [7] found that ambidextrous leadership enables organizations to build dynamic capabilities by fostering both the exploration of new opportunities and the exploitation of existing competencies. In their study of Chinese firms, leaders who effectively balanced opening and closing behaviors cultivated teams capable of rapid environmental sensing and swift strategic responses. This evidence indicates that ambidextrous leaders create climates in which employees can innovate while executing with precision.

The relationship between ambidextrous leadership and strategic agility is theoretically grounded in the notion that agility requires simultaneous stability and flexibility [13]. Military academies must maintain operational readiness and disciplinary standards while continuously adapting training methods, curricula, and pedagogical approaches to address evolving defense requirements. Leaders who can toggle between encouraging creative problem-solving and enforcing rigorous execution enable their institutions to develop the dual capabilities essential for strategic agility.

In Global South military contexts, this relationship may be particularly pronounced. Resource constraints limit the ability to address organizational challenges through increased investments in technology or personnel. Instead, strategic agility must emerge from the effective mobilization of existing human capital through leadership practices that simultaneously unlock innovation and maintain operational discipline. Ambidextrous leaders who can navigate the tension between tradition and transformation are therefore critical for building agile institutions capable of achieving performance gains despite resource limitations. Based on this theoretical and empirical foundation, we propose:

H1: Leadership ambidexterity positively influences strategic agility in military academies.

2.2. Digital Culture and Strategic Agility

Digital culture encompasses the shared values, beliefs, and practices that characterize an organization's approach to digital technology and information [8]. It extends beyond technological infrastructure to include collaborative mindsets, data-driven decision-making norms, digital skill development, and openness to technology-enabled innovation [14]. In military academies, digital culture manifests in how instructors and cadets leverage technology for communication, learning, problem-solving, and operational coordination.

Four key dimensions define digital culture in organizational contexts. First, organizational culture for digital adoption reflects the degree to which decision-making is participative, collaboration is encouraged, and responsiveness to feedback is valued [8]. Second, digital transformation encompasses the extent to which processes are digitized, data is systematically collected and utilized, and digital connectivity integrates organizational units. Third, human capability refers to organizational support for digital skill development and employees' proficiency in using digital tools. Fourth, innovation capability captures how digitality enables the generation of new ideas, solutions, and programs [8].

Empirical research consistently demonstrates that digital culture enhances strategic agility. Bicen et al. [12] found that organizations with strong digital cultures exhibited superior agility through enhanced information flow, accelerated decision-making processes, and improved coordination across functional boundaries. Their study revealed that digital culture operates as an enabling condition for organizational agility by reducing information asymmetries and facilitating rapid resource reconfiguration. Similarly, Zhou et al. [11] demonstrated that digital culture amplifies

organizational responsiveness by creating shared mental models that enable distributed actors to coordinate effectively during periods of environmental turbulence.

The relationship between digital culture and strategic agility is particularly salient in military academies facing generational transitions. Generation Z cadets, having grown up with ubiquitous digital technology, expect seamless access to information, collaborative digital platforms, and technology-enabled learning experiences [5]. Academies that cultivate digital cultures aligned with these expectations can more effectively leverage the digital fluency of younger personnel to enhance institutional agility. Conversely, academies that maintain predominantly analog cultures risk disengagement and underutilization of the technological capabilities that could enhance strategic responsiveness.

In resource-constrained Global South contexts, digital culture may be especially critical for building strategic agility. Limited financial resources constrain the ability to invest in cutting-edge technological infrastructure. However, strategic cultivation of digital mindsets and collaborative practices can enable institutions to maximize the value extracted from available technologies. Digital culture in such contexts represents a form of organizational innovation that substitutes for resource abundance, enabling institutions to "do more with less" through effective technology utilization and knowledge sharing.

Theoretically, the digital culture-agility relationship aligns with Dynamic Capabilities Theory's emphasis on organizational routines and processes. Digital culture shapes the micro-level practices through which organizational members sense environmental changes (through enhanced information access), seize opportunities (through collaborative digital platforms), and transform operations (through digitally-enabled process improvements). By embedding digital practices into organizational routines, military academies develop the procedural capabilities essential for rapid strategic adaptation. Based on this theoretical and empirical foundation, we propose:

H2: Digital culture positively influences strategic agility in military academies.

2.3. Strategic Agility and Organizational Performance

Strategic agility represents an organization's capacity to sense environmental changes, make bold decisions rapidly, and reconfigure resources to capitalize on emerging opportunities or mitigate threats [15]. It encompasses three interrelated dimensions: strategic sensitivity (anticipating future developments and experimenting proactively), leadership unity (cohesive top management teams making swift decisions), and resource fluidity (rapidly reallocating capabilities and aligning structures with strategic priorities) [16].

In military academy contexts, organizational performance reflects the effectiveness and efficiency with which institutions achieve their educational mission. This includes the quality of officer education, attainment of training standards, graduation rates, academic achievement, physical readiness, and the sufficiency of support systems for cadet development [17]. High-performing military academies consistently produce officers equipped with the knowledge, skills, and leadership capabilities required for contemporary defense challenges.

Empirical research consistently demonstrates strong positive relationships between strategic agility and organizational performance across diverse contexts. Herzallah and Abd Alwahab [18] found that strategic agility significantly enhanced organizational excellence in Palestinian public sector organizations by enabling rapid adaptation to resource constraints and shifting stakeholder demands. Their study revealed that agile organizations outperformed less agile counterparts on multiple performance dimensions, including service quality, efficiency, and stakeholder satisfaction. Similarly, Bassey et al. [19] demonstrated that strategic agility directly improves organizational performance in manufacturing firms by enabling swift responses to market changes and competitive pressures.

The agility-performance relationship is particularly pronounced in dynamic environments characterized by uncertainty and rapid change [15]. Military academies operate in precisely such environments, facing evolving defense doctrines, emerging technologies, shifting geopolitical threats, and changing societal expectations regarding military professionalism. Academies that can quickly sense these changes, make timely strategic adjustments, and reallocate

resources accordingly are better positioned to maintain educational relevance and produce officers prepared for contemporary operational demands.

From a theoretical perspective, Dynamic Capabilities Theory explains the agility-performance linkage by positioning agility as a higher-order capability that orchestrates lower-order resources and capabilities [10]. Strategic agility enables organizations to continuously realign their resource base with environmental demands, preventing the resource rigidity and strategic inertia that often plague established institutions. In military academies, strategic agility prevents the ossification of curricula, training methods, and organizational structures, ensuring that educational processes remain aligned with evolving defense requirements.

In Global South military contexts, strategic agility may be especially critical for organizational performance due to resource constraints and environmental volatility. Academies lacking abundant resources cannot buffer themselves from environmental shocks through slack resources or extensive redundancies. Instead, they must rely on strategic agility to navigate uncertainty and capitalize on limited windows of opportunity. The ability to rapidly sense changes in defense priorities, swiftly adjust training programs, and efficiently reallocate scarce resources becomes a crucial determinant of institutional effectiveness.

Moreover, strategic agility enables military academies to address the generational divide between Generation X instructors and Generation Z cadets. Agile academies can rapidly experiment with new pedagogical approaches, assess their effectiveness, and scale successful innovations across the institution. This iterative adaptation process is essential for developing educational models that engage digitally-native cadets while maintaining the rigor and discipline essential for military professionalism. Based on this theoretical and empirical foundation, we propose:

H3: Strategic agility positively influences organizational performance in military academies.

2.4. The Mediating Role of Strategic Agility

While leadership ambidexterity and digital culture represent valuable organizational resources, part of their influence on performance may operate through the dynamic capability of strategic agility alongside direct pathways. This mediating relationship reflects the fundamental distinction between possessing valuable resources and effectively mobilizing those resources to achieve organizational outcomes.

The Resource-Based View acknowledges that resources alone do not guarantee competitive advantage; resources must be deployed through organizational capabilities to generate value [9]. Dynamic Capabilities Theory extends this logic by emphasizing that in dynamic environments, the capability to sense, seize, and transform is more critical than static resource endowments [10]. Leadership ambidexterity and digital culture, while valuable, represent relatively static attributes of the organization. Strategic agility, conversely, represents the active process through which these attributes are converted into performance outcomes.

Empirical research increasingly shows that indirect pathways can complement direct relationships between leadership, culture, and performance. Zhou et al. [11] found that digital leadership influenced organizational performance primarily through the mediating mechanism of strategic agility rather than through direct effects. Their findings suggest that leadership behaviors create conditions enabling agility, which then drives performance improvements. Similarly, Bicen et al. [12] demonstrated that digital culture's influence on business model innovation and performance was mediated by organizational agility, indicating that cultural attributes must be activated through dynamic capabilities to generate organizational benefits.

The mediating role of strategic agility is theoretically grounded in the process view of organizational adaptation. Leadership ambidexterity creates psychological and structural conditions that enable rapid sensing, decision-making, and resource reconfiguration. However, these enabling conditions translate into performance gains only when they catalyze actual strategic agility behaviors. Similarly, digital culture provides the information infrastructure, collaborative platforms, and technological capabilities that could support agility, but their performance impact

depends on whether organizations actually leverage these affordances to sense environmental changes and respond swiftly.

In military academy contexts, the mediating role of strategic agility is particularly salient. Ambidextrous leadership may influence institutional outcomes directly, while also enabling the academy to become more agile in sensing changes in defense requirements, experimenting with new training approaches, and scaling effective innovations. This agility, in turn, ensures that educational programs remain relevant and effective, ultimately driving performance improvements.

Digital culture may influence organizational performance directly and also enables strategic agility by facilitating information flow, enabling collaborative problem-solving, and supporting rapid experimentation and learning. Military academies with strong digital cultures can more quickly identify emerging educational needs, mobilize distributed expertise to address those needs, and implement solutions at scale. This agility mediates the relationship between digital culture and performance outcomes.

The mediating role of strategic agility is especially pronounced in resource-constrained Global South contexts. When resources are limited, the efficiency with which existing resources are mobilized becomes paramount. Strategic agility represents the organizational capability that maximizes value extraction from leadership capabilities and digital culture. Academies that effectively convert these resources into agile behaviors can achieve performance levels disproportionate to their resource endowments, whereas academies that fail to activate strategic agility leave potential value unrealized. Based on this theoretical and empirical foundation, we propose:

H4a: Strategic agility mediates the relationship between leadership ambidexterity and organizational performance in military academies.

H4b: Strategic agility mediates the relationship between digital culture and organizational performance in military academies.

The hypothesized relationships are depicted in Figure 1, which illustrates the conceptual model guiding this investigation.

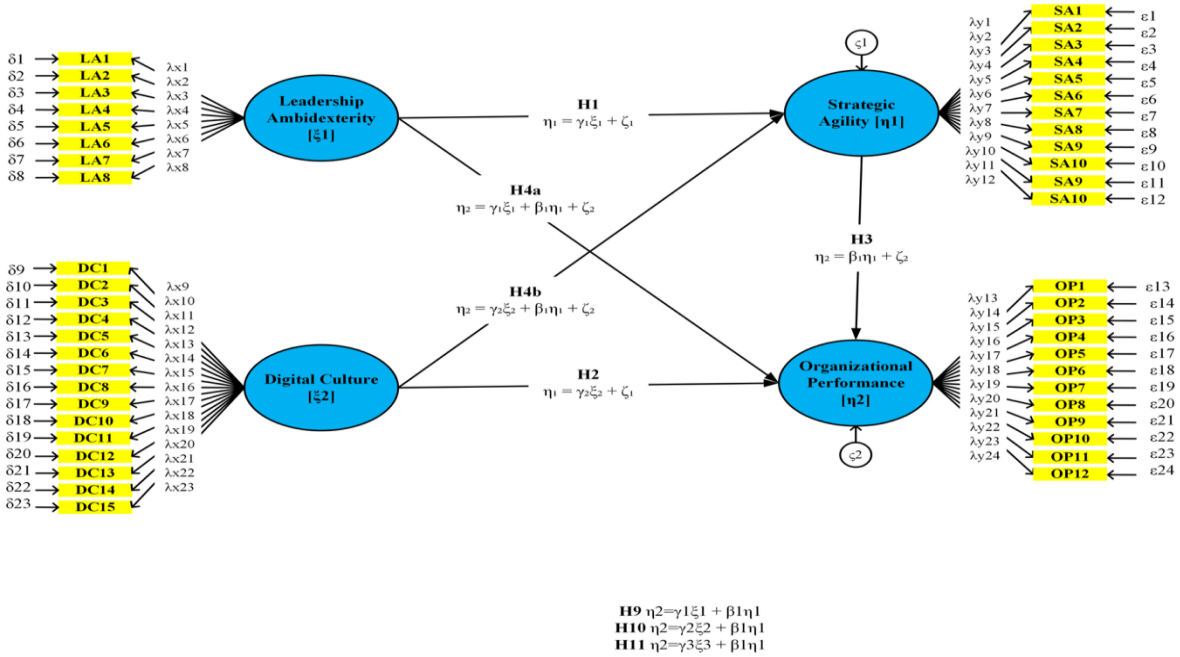


Figure 1. Conceptual model and hypothesized relationships.

3. Materials and Methods

3.1. Research Design

This study employs a quantitative research approach grounded in the positivist paradigm to investigate the relationships between leadership ambidexterity, digital culture, strategic agility, and organizational performance in Indonesian military academies. The positivist perspective enables objective measurement and empirical testing of hypothesized relationships with statistical rigor [20, 21], which is essential for identifying generalizable patterns across a substantial sample of military instructors.

The research design examines both direct and mediated pathways as depicted in the conceptual model (Figure 1). Two exogenous variables, leadership ambidexterity (ξ_1) and digital culture (ξ_2), are hypothesized to influence strategic agility (η_1), which subsequently affects organizational performance (η_2). Strategic agility functions as both an endogenous variable and a mediating mechanism linking the exogenous predictors to organizational performance. The analytical framework employs a single comprehensive structural model to test all hypothesized relationships. The structural equations are specified as follows:

Equation 1. Determinants of Strategic Agility

$$\eta_1 = \gamma_1\xi_1 + \gamma_2\xi_2 + \zeta_1$$

Where η_1 represents Strategic Agility as the endogenous mediating variable, ξ_1 denotes Leadership Ambidexterity, and ξ_2 represents Digital Culture. The path coefficients γ_1 and γ_2 estimate the effects of leadership ambidexterity (H1) and digital culture (H2) on strategic agility, respectively. The term ζ_1 represents the structural error for strategic agility.

Equation 2. Determinants of Organizational Performance

$$\eta_2 = \beta_1\eta_1 + \gamma_3\xi_1 + \gamma_4\xi_2 + \zeta_2$$

Here, η_2 represents organizational performance; β_1 estimates the effect of strategic agility; and γ_3 and γ_4 estimate the supplementary direct effects of leadership ambidexterity and digital culture, respectively. The term ζ_2 represents the structural error for organizational performance.

Mediation Effects

The indirect (mediated) effects of leadership ambidexterity and digital culture on organizational performance through strategic agility are calculated as the product of path coefficients:

H4a (Leadership Ambidexterity → Strategic Agility → Organizational Performance): $\gamma_1 \times \beta_1$

H4b (Digital Culture → Strategic Agility → Organizational Performance): $\gamma_2 \times \beta_1$

Specific indirect effects were evaluated through bootstrapped confidence intervals [23]. Because the estimated structural model also included direct paths from both exogenous constructs to organizational performance, mediation was interpreted as partial when both direct and indirect effects were significant.

Data were collected through a structured survey instrument administered to instructors across three Indonesian military academies. All constructs were measured using validated scales derived from established empirical literature [24], ensuring reliability and validity. Partial Least Squares Structural Equation Modeling (PLS-SEM) was employed for hypothesis testing due to its capacity to accommodate complex relationships, its minimal distributional assumptions, and its suitability for theory development and prediction [25]. The PLS-SEM approach is particularly appropriate for this study given the focus on prediction and theory building in an understudied Global South military education context.

3.2. Sample and Data Collection

The unit of analysis comprises instructors at three Indonesian military academies: the Army Academy (Akmil), Naval Academy (AAL), and Air Force Academy (AAU). Instructors were selected as the focal analytical unit because they play critical roles in leadership development, digital transformation implementation, and organizational adaptation. Their perspectives are essential for understanding how leadership practices and organizational culture influence institutional agility and performance.

The total population consists of 2,498 instructors distributed across the three academies: 2,132 at Akmil, 131 at AAL, and 235 at AAU. This well-defined population provides a comprehensive foundation for sampling that reflects diverse academic environments and instructor characteristics. The instructors possess varied educational backgrounds ranging from diplomas to doctorates, and their diverse expertise and experience enrich the analytical depth of the study.

The sample size was determined using the Taro Yamane formula with a 5% margin of error [26]: $n = N / (1 + N \times d^2)$, where n represents the sample size, N is the total population (2,498), and d is the margin of error (0.05). The calculation yields $n = 2,498 / (1 + 2,498 \times 0.0025) = 2,498 / 7.245 \approx 345$ respondents. Stratified random sampling was employed to ensure proportional representation from each academy. Sample allocation corresponds to each institution's proportion of the total population: Akmil received 294 respondents (85.2%), AAL received 18 respondents (5.2%), and AAU received 33 respondents (9.6%). Within each academy, further stratification by rank and department ensured representation of diverse experiences and qualifications, thereby enhancing the reliability and generalizability of findings.

The research specifically focuses on the officer level, as all graduates from these three academies are commissioned as officers in the Indonesian Armed Forces. This focus aligns with Upper Echelons Theory [27], which posits that organizational outcomes and leadership patterns are predominantly shaped by those in top management and decision-making positions. In the military organizational structure, officers occupy the highest tier and are developed through undergraduate-level education at the academies, whereas enlisted personnel receive training at diploma-level institutions. By targeting instructors at officer academies, the study captures the influence and strategic perspectives of those responsible for shaping institutional leadership, digital culture, and innovation, ensuring that findings are relevant to the uppermost leadership echelons and the future trajectory of the Indonesian military.

The final sample of 345 instructors exhibited diverse demographic and professional characteristics. Males comprised 84.3% of respondents (n = 291), reflecting the gender composition typical of military institutions. Officers constituted the majority of respondents (83.8%, n = 289), consistent with the study's focus on leadership-level personnel. Educational attainment was high, with 52.2% holding master's degrees (n = 180) and 9.6% holding doctorates (n = 33), indicating a highly qualified teaching workforce. The age distribution revealed an experienced cohort, with 53.9% of respondents aged 50 years or older (n = 186), though 45.8% reported less than five years of instructional experience (n = 158), suggesting recent role transitions for many respondents.

Institutional representation reflected the Army Academy's larger organizational footprint, with 85.2% of respondents from Akmil (n = 294), 5.2% from AAL (n = 18), and 9.6% from AAU (n = 33). Regarding digital transformation, only 39.1% of respondents indicated that digital culture had been fully implemented at their institutions (n = 135), revealing ongoing challenges and opportunities in technology adoption. Priority areas for digital culture implementation included Education and Training (40.3%, n = 139), Operations and Combat Training (22.3%, n = 77), and Information and Communication Technology (16.8%, n = 58), underscoring the centrality of the instructional mission in digital initiatives.

Leadership style preferences revealed important patterns. Leadership ambidexterity emerged as the most favored style (35.4%, n = 122), followed by transformational leadership (30.1%, n = 104) and democratic leadership (11.9%, n = 41), indicating growing receptivity toward balanced leadership approaches. Near-consensus existed regarding the need for innovation (96.2% affirmative responses, n = 332). When asked to identify key factors for improving organizational performance, respondents most frequently cited grit (45.8%, n = 158), followed by

leadership ambidexterity (24.3%, n = 84), digital culture (13.9%, n = 48), and disruptive innovation (13.0%, n = 45), providing valuable contextual insights for interpreting structural model results.

3.3. Measurement Instruments

All constructs were operationalized using multi-item scales adapted from validated instruments in prior research. Items were translated into Bahasa Indonesia and contextually adapted for the military academy setting following established translation-back-translation procedures [28]. All items employed five-point Likert scales ranging from 1 (strongly disagree) to 5 (strongly agree).

Leadership ambidexterity was measured using an 11-item scale adapted from Slåtten et al. [13], capturing leaders' capacity to employ both opening behaviors (encouraging exploration and innovation) and closing behaviors (ensuring control and goal achievement). The scale comprises two dimensions: opening leadership (6 items) reflects encouragement of diverse approaches to tasks, experimentation, independent thinking, acceptance of others' ideas, normalization of mistakes, and learning from errors; closing leadership (5 items) reflects goal monitoring, implementation of corrective action, establishment of clear rules, regulation enforcement, and execution of plans according to schedule.

Digital culture was assessed using a 19-item scale adapted from Junaedi et al. [8] and Nguyen and Thanh Hoai [14], measuring organizational attitudes, behaviors, and practices regarding digital technology use. The scale encompasses four dimensions: organizational culture (8 items) includes inclusive decision-making, cross-role cooperation, agreement on work methods, process consistency, responsiveness to stakeholder input, adaptability, goal clarity, and shared future vision; digital transformation (5 items) includes process digitization, data collection, digital connectivity, interaction facilitation, and information accessibility; human capability (3 items) encompasses support for digital skills development, proficiency with digital tools, and acceptance of digital work environments; innovation capability (3 items) includes digitality as a facilitator for new ideas, support for solution development, and enablement of new programs.

Strategic agility was measured using a 15-item scale adapted from Doz and Kosonen [16] and Reed [29], assessing organizational capacity to rapidly sense and respond to environmental changes through bold decisions and resource reconfiguration. The scale comprises three dimensions: strategic sensitivity (5 items) includes future anticipation, experimentation, quality of internal dialogue, inclusive planning, and openness to external practices; leadership unity (5 items) includes management team interdependency, quick bold decision-making, open dialogue, transparency about motives, and inclusive leadership style; resource fluidity (5 items) includes capability reconfiguration speed, resource redeployment, alignment of strategy to structure, personnel rotation, and system flexibility.

Organizational performance was assessed using a 17-item scale adapted from Virca and Rusu [17], measuring the effectiveness and efficiency of implementing the institutional mission, goals, and objectives in military education. The scale encompasses three dimensions: management processes (4 items) include mission clarity, strategic planning effectiveness, resource allocation efficiency, and strategy implementation; main processes (7 items) include graduate quality, educational management effectiveness, achievement of training requirements, graduation rates, academic achievement, physical training outcomes, and participation in military competitions; support processes (6 items) include financial adequacy, accommodation quality, human resource management effectiveness, access to medical and psychological assistance, equipment quality and sufficiency, and security implementation.

3.4. Data Analysis

Data analysis was conducted using Partial Least Squares Structural Equation Modeling (PLS-SEM) via SmartPLS 4.0 software [30], which is particularly appropriate for this study due to its capacity to handle complex models with multiple constructs, its minimal sample size requirements relative to covariance-based SEM, its robustness to non-normal data distributions, and its focus on prediction and theory development [25].

The analysis followed a two-stage process: first, the measurement model was evaluated to ensure reliability and validity of all constructs through assessment of indicator reliability (outer loadings > 0.70), internal consistency reliability (Cronbach's alpha and composite reliability > 0.70), convergent validity (average variance extracted [AVE] > 0.50), and discriminant validity (heterotrait-monotrait ratio [HTMT] < 0.90); second, the structural model was evaluated to test hypothesized relationships through examination of path coefficients and their statistical significance (determined via bootstrapping with 5,000 resamples), coefficient of determination (R^2) for endogenous variables, predictive relevance (Q^2) via blindfolding procedures, and effect sizes (f^2) for all paths, with significance threshold set at $p < 0.05$.

Mediation effects (H4a and H4b) were assessed from the specific indirect effects, calculated as $\gamma_1 \times \beta_1$ and $\gamma_2 \times \beta_1$. Statistical significance was determined using 5,000 bootstrap resamples and 95% confidence intervals; an indirect effect was considered significant when its confidence interval excluded zero [23, 25].

4. Results

4.1. Measurement Model Evaluation

The measurement model was evaluated to ensure the reliability and validity of all constructs before testing the structural relationships. Following Hair et al. [25], we assessed indicator reliability, internal consistency reliability, convergent validity, and discriminant validity. Table 1 presents the complete results of the measurement model evaluation.

Table 1. Construct Reliability and Validity Evaluation

Variable	Item	Indicators	Outer Loading	Cronbach's Alpha	rho_a	rho_c	AVE
Leadership Ambidexterity, Slåtten et al. [13]	LA1	Allows different ways of accomplishing tasks	0.511	0.939	0.951	0.950	0.661
	LA2	Encourages experimentation with new ideas	0.847				
	LA3	Gives opportunity to think or act independently	0.605				
	LA4	Gives room for others' ideas	0.828				
	LA6	Encourages learning from mistakes	0.808				
	LA7	Monitors and controls goal attainment	0.880				
	LA8	Establishes clear or shared work rules	0.885				
	LA9	Takes corrective action if there are training issues	0.895				
	LA10	Controls adherence to rules or regulations	0.903				
	LA11	Executes plans or programs according to schedule	0.866				

Variable	Item	Indicators	Outer Loading	Cronbach's Alpha	rho_a	rho_c	AVE
Digital Culture, Junaedi et al. [8]; Nguyen and Thanh Hoai [14]	DC1	Input in decision making	0.514	0.952	0.957	0.957	0.555
	DC2	Cooperation across roles	0.790				
	DC3	High agreement on working methods	0.711				
	DC5	Input from cadets or instructors brings change	0.505				
	DC6	Responsiveness to change	0.727				
	DC7	Clarity of long term goals	0.818				
	DC8	Agreement on future direction	0.807				
	DC9	Digitalization of processes	0.695				
	DC10	Data collection from activities	0.759				
	DC11	Digital connectivity of organizational units	0.778				
	DC12	Digital interaction facilitation	0.803				
	DC13	Access to important information	0.739				
	DC14	Support for digital skills development	0.829				
	DC15	Employees' ability to use digital tools	0.714				
	DC16	Acceptance of digital work environment	0.746				
	DC17	Digitality facilitates new ideas	0.774				
	DC18	Digitality supports new solution development	0.801				
	DC19	Digitality supports new programs	0.800				
Strategic Agility, Reed [29]; Doz and Kosonen [16]	SA1	Anticipates the future	0.848	0.962	0.965	0.966	0.657
	SA2	Experiments for future preparation	0.805				
	SA3	Holds high quality internal dialogue	0.812				
	SA4	Involvement in strategic planning	0.746				

Variable	Item	Indicators	Outer Loading	Cronbach's Alpha	rho_a	rho_c	AVE
	SA5	Adopts new practices from other organizations	0.745				
	SA6	Top management team mutual dependency	0.854				
	SA7	Makes bold decisions quickly	0.831				
	SA8	Practices open dialogue in leadership	0.888				
	SA9	Reveals underlying motives in leadership	0.894				
	SA10	Inclusive leadership style	0.805				
	SA11	Reconfigures capabilities quickly	0.819				
	SA12	Redeploys resources rapidly	0.713				
	SA13	Aligns strategy with structure	0.856				
	SA14	Rotates personnel across roles	0.711				
	SA15	System flexibility for change	0.802				
Organizational Performance of the TNI Academy, Virca and Rusu [17]	OP1	Clarity of mission	0.760	0.964	0.967	0.968	0.640
	OP2	Effectiveness of strategic planning	0.876				
	OP3	Resource allocation efficiency	0.822				
	OP4	Implementation of strategies	0.885				
	OP5	Quality of graduate profile	0.884				
	OP6	Relevance of educational management	0.870				
	OP7	Achievement of training requirements	0.859				
	OP8	Academic achievement of cadets	0.766				
	OP9	Adequacy of financial support	0.672				
	OP10	Quality of accommodation	0.740				
	OP11	Effectiveness of human resource management	0.798				
	OP12	Quality of equipment	0.752				
	OP13	Graduation rate	0.767				

Variable	Item	Indicators	Outer Loading	Cronbach's Alpha	rho_a	rho_c	AVE
	OP14	Physical and sports training outcomes	0.836				
	OP15	Participation and achievement in military training and competitions	0.771				
	OP16	Access to psychological and medical assistance	0.742				
	OP17	Implementation of security and protection measures	0.763				

Note: *DC4 and LA5 were removed because their outer loadings did not meet the required threshold. CA = Cronbach's alpha; AVE = average variance extracted. Several theoretically important retained indicators had loadings below 0.70, while construct-level reliability and AVE remained acceptable.*

Indicator reliability was assessed through outer loadings, with 0.70 used as the preferred benchmark [25]. Most indicators met or exceeded this value. LA1 (0.511), LA3 (0.605), DC1 (0.514), DC5 (0.505), and DC9 (0.695) were retained because construct-level reliability and AVE remained acceptable and the indicators preserved important content coverage. DC4 and LA5 were removed because their loadings did not meet the required threshold.

Internal consistency reliability was evaluated using Cronbach's alpha, composite reliability rho_a, and composite reliability rho_c. All constructs demonstrated excellent internal consistency, with Cronbach's alpha values ranging from 0.939 to 0.964, composite reliability rho_a values from 0.951 to 0.967, and composite reliability rho_c values from 0.950 to 0.968. All values substantially exceeded the recommended threshold of 0.70 [25], indicating strong internal consistency across all constructs.

Convergent validity was assessed through average variance extracted (AVE), which measures the extent to which a construct converges to explain the variance of its indicators. AVE values ranged from 0.555 to 0.661, all exceeding the recommended threshold of 0.50 [31]. These results confirm that each construct explains more than half of the variance in its indicators, supporting adequate convergent validity. Leadership Ambidexterity demonstrated an AVE of 0.661, Digital Culture showed an AVE of 0.555, Strategic Agility exhibited an AVE of 0.657, and Organizational Performance achieved an AVE of 0.640.

Table 2. Discriminant Validity Evaluation

Construct	Digital Culture	Leadership Ambidexterity	Organizational Performance of the TNI Academy	Strategic Agility
Digital Culture	0.745			
Leadership Ambidexterity	0.709 / 0.735	0.813		
Organizational Performance of the TNI Academy	0.825 / 0.853	0.768 / 0.803	0.800	
Strategic Agility	0.828 / 0.858	0.723 / 0.754	0.854 / 0.878	0.811

Note: *Diagonal values are the square roots of AVE. Off-diagonal values are reported as Fornell–Larcker correlation / HTMT ratio.*

Discriminant validity was evaluated using the Fornell–Larcker criterion and the heterotrait–monotrait ratio (HTMT). As shown in Table 2, the square root of each construct's AVE exceeded its correlations with the remaining constructs, satisfying the Fornell–Larcker criterion [31].

The HTMT ratio provides a more stringent assessment of discriminant validity, with values below 0.90 indicating adequate discriminant validity [32]. All HTMT values ranged from 0.735 to 0.878, meeting the recommended threshold. The highest HTMT value (0.878) was observed between Strategic Agility and Organizational Performance, which is theoretically justified given their close conceptual relationship in the model. Overall, both the Fornell-Larcker criterion and HTMT ratios confirm adequate discriminant validity, indicating that each construct is sufficiently distinct from others in the model.

4.2. Structural Model and Hypothesis Testing

Following the satisfactory assessment of the measurement model, the structural model was evaluated to test the hypothesized relationships. The structural model assessment examined path coefficients, effect sizes, coefficients of determination (R^2), and predictive relevance (Q^2). Table 3 presents the complete hypothesis testing results.

Table 3. Hypothesis Testing Results

Hypothesis	Structural Relationship	Effect	β	t	p	95% CI Lower	95% CI Upper	f^2
H1	Leadership Ambidexterity → Strategic Agility	Direct effect	0.273	4.214	<0.001	0.147	0.399	0.134
H2	Digital Culture → Strategic Agility	Direct effect	0.635	10.131	<0.001	0.509	0.752	0.723
H3	Strategic Agility → Organizational Performance	Direct effect	0.436	8.271	<0.001	0.333	0.539	0.263
H4a	Leadership Ambidexterity → Strategic Agility → Organizational Performance	Indirect effect	0.119	3.631	<0.001	0.061	0.187	
H4b	Digital Culture → Strategic Agility → Organizational Performance	Indirect effect	0.276	6.494	<0.001	0.198	0.362	

Note: *A hypothesis is supported when the coefficient has the predicted sign, $t > 1.96$, $p < 0.05$, and the 95% confidence interval excludes zero. f^2 is reported for direct hypothesized paths. Supplementary direct paths used to assess partial mediation are displayed in Figure 2.*

The model demonstrates strong explanatory power. Strategic Agility achieved an R^2 of 0.723 (adjusted R^2 = 0.721), indicating that Leadership Ambidexterity and Digital Culture collectively explain 72.3% of its variance.

Organizational Performance achieved an R^2 of 0.800 (adjusted R^2 = 0.798), indicating that Leadership Ambidexterity, Digital Culture, and Strategic Agility collectively explain 80.0% of its variance [25].

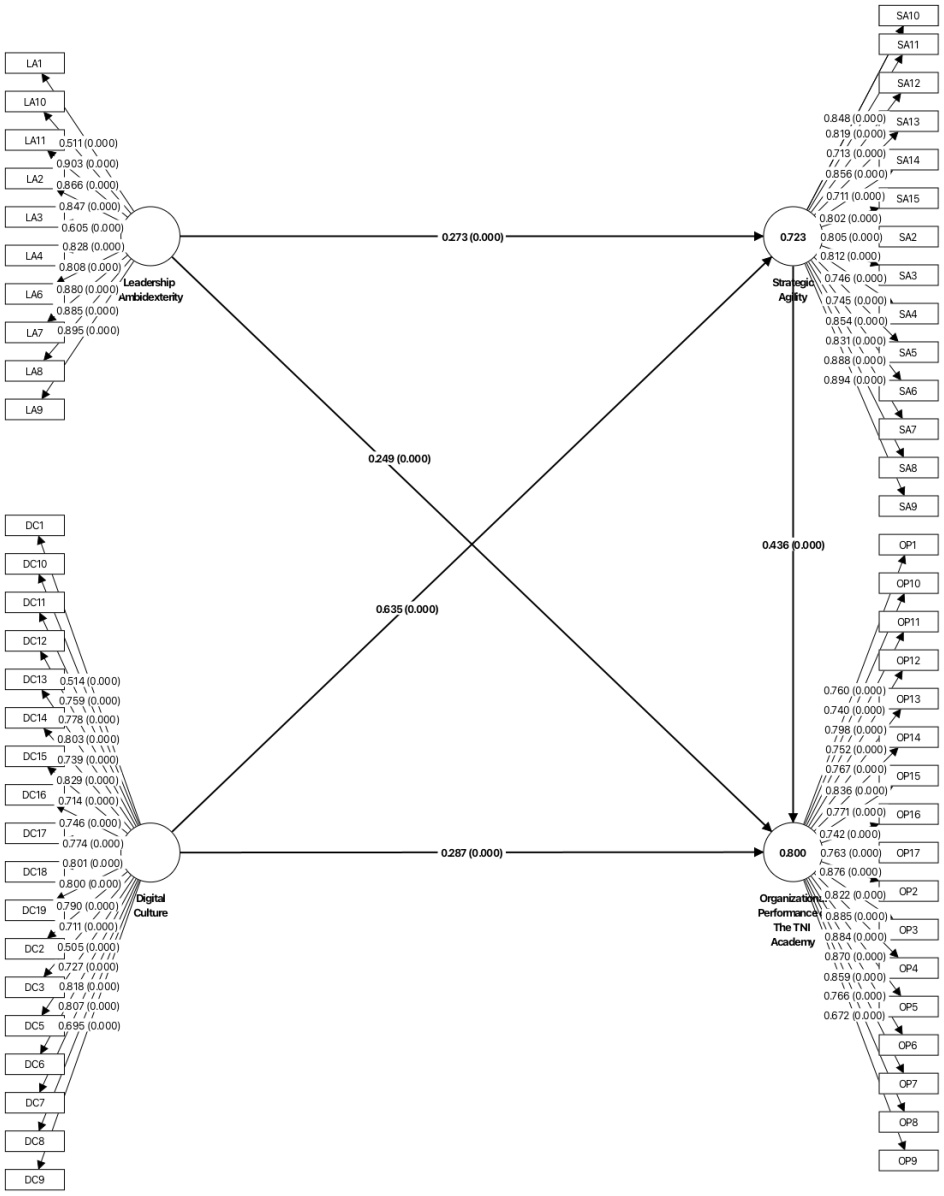


Figure 2. Structural model estimates and bootstrapping results. Dashed arrows denote supplementary direct paths used to assess partial mediation.

Predictive relevance was assessed through Stone-Geisser's Q^2 values calculated via blindfolding procedures. Strategic Agility exhibited a Q^2 of 0.464, and Organizational Performance showed a Q^2 of 0.502. Both values substantially exceed zero, confirming that the model has adequate predictive relevance [25]. The model fit was evaluated using the standardized root mean square residual (SRMR), which yielded a value of 0.061, well below the recommended threshold of 0.08 [33], indicating acceptable model fit.

Hypothesis 1 proposed that leadership ambidexterity positively influences strategic agility. This hypothesis was supported (β = 0.273, t = 4.214, $p < 0.001$, 95% CI [0.147, 0.399]). The positive and statistically significant path coefficient indicates that instructors who demonstrate greater ambidextrous leadership, balancing opening and closing behaviors, contribute to enhanced strategic agility in their institutions. The effect size (f^2 = 0.134) indicates a small to

medium effect according to established PLS-SEM effect-size guidelines [25], suggesting meaningful practical significance.

Hypothesis 2 proposed that digital culture positively influences strategic agility. This hypothesis was strongly supported ($\beta = 0.635$, $t = 10.131$, $p < 0.001$, 95% CI [0.509, 0.752]). Digital culture emerged as the strongest predictor of strategic agility in the model, with a large effect size ($f^2 = 0.723$) according to established PLS-SEM effect-size guidelines [25]. This finding indicates that military academies with stronger digital cultures, characterized by inclusive decision-making, digital transformation, human capability development, and innovation capability, exhibit substantially higher levels of strategic agility.

Hypothesis 3 proposed that strategic agility positively influences organizational performance. This hypothesis was supported ($\beta = 0.436$, $t = 8.271$, $p < 0.001$, 95% CI [0.333, 0.539]). The path coefficient demonstrates a strong positive relationship, with a medium to large effect size ($f^2 = 0.263$). This finding confirms that military academies exhibiting greater strategic agility, encompassing strategic sensitivity, leadership unity, and resource fluidity, achieve superior organizational performance across management processes, main educational processes, and support processes.

Hypothesis 4a proposed that strategic agility mediates the relationship between leadership ambidexterity and organizational performance. This hypothesis was supported through the indirect effect analysis ($\beta = 0.119$, $t = 3.631$, $p < 0.001$, 95% CI [0.061, 0.187]). The significant positive indirect effect indicates that leadership ambidexterity influences organizational performance through its effect on strategic agility. Specifically, ambidextrous leadership enhances strategic agility, which in turn improves organizational performance. The confidence interval does not include zero, confirming the statistical significance of the mediation effect.

Hypothesis 4b proposed that strategic agility mediates the relationship between digital culture and organizational performance. This hypothesis was strongly supported ($\beta = 0.276$, $t = 6.494$, $p < 0.001$, 95% CI [0.198, 0.362]). The indirect effect indicates that digital culture exerts a substantial influence on organizational performance through strategic agility. Digital culture enhances institutional agility, which subsequently drives performance improvements. The magnitude of this indirect effect ($\beta = 0.276$) is larger than that of leadership ambidexterity ($\beta = 0.119$), suggesting that digital culture operates as a particularly potent driver of performance through the agility mechanism.

The supplementary direct paths were also significant: leadership ambidexterity directly affected organizational performance ($\beta = 0.249$, $p < 0.001$), and digital culture directly affected organizational performance ($\beta = 0.287$, $p < 0.001$). Together with the significant indirect effects, these results indicate partial mediation through strategic agility.

Collectively, these findings provide strong empirical support for all five hypotheses. The results demonstrate that both leadership ambidexterity and digital culture function as critical antecedents of strategic agility in Indonesian military academies, and that strategic agility serves as a powerful mediating mechanism through which these organizational resources translate into enhanced performance outcomes. The model's high explanatory power ($R^2 = 0.800$ for organizational performance) and predictive relevance ($Q^2 = 0.502$) underscore the robustness of these relationships and the theoretical validity of the proposed framework.

5. Discussion

This study investigated how leadership ambidexterity and digital culture influence organizational performance in Indonesian military academies, with strategic agility serving as a mediating mechanism. Drawing on data from 345 instructors across three service academies, the findings provide robust empirical support for all hypothesized relationships and offer important theoretical and practical contributions to understanding organizational adaptation in Global South military education contexts.

The first hypothesis, proposing that leadership ambidexterity enhances strategic agility, received strong support. This finding aligns with prior research emphasizing the importance of balancing opening and closing leadership

behaviors in dynamic environments [6, 7]. The positive relationship carries particular significance in Indonesian military academy settings where traditional command-and-control approaches must coexist with contemporary demands for innovation and adaptability [13].

Our findings indicate that instructors who flexibly navigate the tension between encouraging innovation and ensuring operational discipline enable their institutions to develop the strategic sensitivity, leadership unity, and resource fluidity essential for organizational agility. This relationship may be especially pronounced in resource-constrained Global South contexts where strategic agility cannot be purchased through substantial investments but must instead emerge from effective mobilization of existing human capital [10]. Ambidextrous leaders create psychological safety for experimentation while maintaining performance standards, thereby maximizing value extraction from limited resources.

The successful demonstration of leadership ambidexterity in hierarchical military settings challenges assumptions that such balanced leadership approaches are incompatible with command structures emphasizing authority and discipline. The evidence suggests that even within traditionally rigid institutional contexts, leaders can cultivate dual capabilities that foster both stability and adaptability [6]. This finding has important implications for leadership development programs in military academies, suggesting that explicit training in ambidextrous leadership behaviors may yield substantial returns in organizational agility.

The second hypothesis, proposing that digital culture enhances strategic agility, received exceptionally strong empirical support. Digital culture emerged as the most powerful predictor of strategic agility in the model, significantly extending prior research on digital culture in organizational contexts [8, 14]. This pattern suggests that while individual leadership behaviors matter, the broader organizational culture surrounding digital technology use, collaborative practices, and innovation capabilities plays an even more fundamental role in enabling institutional agility.

Organizations with strong digital cultures benefit from enhanced information flow, accelerated communication, collaborative platforms that transcend hierarchical boundaries, and shared digital competencies that enable rapid coordination during periods of change [12, 11]. The prominence of digital culture in this model carries profound implications for Global South military institutions where traditional approaches to organizational transformation often emphasize structural changes or leadership development while treating digital culture as a secondary concern contingent upon technological infrastructure investments.

Our findings challenge this prioritization, demonstrating that digital culture functions as a primary driver of organizational agility even when technological resources are limited. Unlike investments in cutting-edge technology that may be financially prohibitive, cultivation of digital mindsets, collaborative practices, and data-driven decision-making norms represents a more accessible pathway to agility enhancement in resource-constrained contexts [8]. The theoretical significance of this finding lies in demonstrating that digital culture operates not merely as a technological phenomenon but as a comprehensive organizational capability encompassing cultural values, behavioral norms, human competencies, and innovation processes.

In Indonesian military academies facing generational transitions from predominantly Generation X instructors to Generation Z cadets, digital culture serves as a bridging mechanism that aligns institutional practices with the technological fluency and collaborative expectations of younger personnel [5]. This alignment reduces friction and enhances adaptive capacity, enabling institutions to leverage generational diversity as an asset rather than viewing it as a challenge. The substantial variance in digital culture adoption across academies, combined with its powerful effect on strategic agility, suggests enormous untapped potential for performance improvement through systematic digital culture development.

The third hypothesis, proposing that strategic agility enhances organizational performance, was strongly supported. This finding aligns with extensive prior research demonstrating positive relationships between agility and performance across diverse organizational contexts [18, 19]. The robust relationship underscores the fundamental

importance of adaptive capabilities in dynamic environments where military academies face continuous pressure to adjust curricula, training methods, pedagogical approaches, and organizational structures.

Institutions that can quickly sense emerging requirements, make bold decisions regarding educational priorities, and fluidly reallocate resources to support new initiatives consistently outperform less agile counterparts across multiple performance dimensions [15]. This finding carries particular weight in resource-constrained contexts where performance improvements cannot be achieved through increased resource inputs. Strategic agility represents an organizational capability that enables institutions to maximize value creation from existing resources through superior sensing, decision-making, and resource reallocation processes [10].

For Indonesian military academies, the agility-performance relationship manifests across management processes, main educational processes, and support processes. Theoretically, this finding validates Dynamic Capabilities Theory's central proposition that in dynamic environments, the capability to sense, seize, and transform resources is more critical than static resource endowments [10]. The evidence demonstrates that strategic agility operates as a higher-order organizational capability that orchestrates lower-order resources and capabilities to generate performance outcomes.

The mediation hypotheses, proposing that strategic agility mediates the relationships between leadership ambidexterity and organizational performance, and between digital culture and organizational performance, both received strong empirical support. The direct effects were also significant. This pattern indicates partial mediation: strategic agility is an important, but not exclusive, mechanism through which leadership and digital-cultural resources translate into performance outcomes [22, 23].

This pattern aligns with the fundamental distinction in Resource-Based View and Dynamic Capabilities Theory between possessing valuable resources and effectively mobilizing those resources to achieve organizational objectives [9, 10]. Leadership ambidexterity and digital culture represent relatively static organizational attributes whose performance impact depends on whether these attributes catalyze dynamic capabilities such as strategic agility that enable rapid sensing and responding to environmental changes.

The mediation findings reconcile previously inconsistent results. Some studies identify direct relationships between leadership or culture and performance [7], whereas others emphasize mediation through dynamic capabilities [11, 12]. The present results support both perspectives by demonstrating simultaneous direct and indirect effects in military education contexts characterized by technological change and generational transition.

The magnitude of the indirect effects reveals that digital culture operates as a more potent driver of performance through the agility mechanism than leadership ambidexterity. This likely reflects that digital culture represents a more comprehensive organizational capability encompassing multiple dimensions of technological adoption, collaborative practices, human competencies, and innovation processes, whereas leadership ambidexterity reflects primarily individual-level leadership behaviors [8, 6].

These findings make several important theoretical contributions. First, we provide rare empirical evidence demonstrating how Resource-Based View and Dynamic Capabilities Theory operate in Global South military education contexts [9, 10]. Most theoretical development and empirical testing of these frameworks has occurred in Western corporate settings or Global North institutions with substantial resources. Our findings demonstrate that while the fundamental logic of RBV and DCT applies in resource-constrained contexts, the specific pathways and relative importance of different resources and capabilities may differ substantially.

Digital culture emerges as an especially critical resource in Global South settings precisely because it can be cultivated without massive technological infrastructure investments, representing a more accessible pathway to capability development than traditional resource accumulation strategies [8]. Second, we clarify the mediating role of strategic agility in translating organizational resources into performance outcomes. The strong empirical support for mediation resolves inconsistencies in prior literature and demonstrates that in dynamic environments characterized by

rapid change and resource scarcity, static resources must be activated through dynamic capabilities to generate value [11, 12].

Third, we challenge implicit Western-centric assumptions embedded in organizational theories by demonstrating how universal constructs manifest differently in non-Western institutional contexts. Leadership ambidexterity, often theorized in individualistic corporate cultures emphasizing autonomy and innovation, proves viable even in hierarchical collectivist military contexts emphasizing authority and discipline [6, 34]. Digital culture, frequently conceptualized as contingent upon technological infrastructure abundance, emerges as a powerful capability even in resource-constrained settings [8].

Fourth, we contribute to the underrepresented literature on military education by providing empirical evidence on organizational performance drivers in military academies. Most military education research focuses on pedagogical effectiveness or individual cadet outcomes rather than institutional-level organizational dynamics [17]. Our findings demonstrate that organizational capabilities such as strategic agility, cultivated through leadership practices and digital culture, fundamentally shape institutional performance across management, educational, and support processes.

The findings offer actionable insights for military academy leaders in Indonesia and across the Global South seeking to enhance institutional performance despite resource constraints. Military academies should prioritize digital culture development as a primary pathway to enhanced strategic agility and organizational performance [8]. Given the substantial effects observed, systematic efforts to cultivate digital mindsets, collaborative practices, data-driven decision-making, and innovation capabilities represent high-return investments that need not await massive technology infrastructure investments.

Leadership development programs should explicitly incorporate ambidextrous leadership training, emphasizing both opening behaviors and closing behaviors [6, 13]. Training programs should help instructors understand when to employ opening versus closing behaviors and develop the metacognitive awareness needed to flexibly alternate between these leadership modes based on situational demands. Military academies should implement agility-enhancing organizational processes and structures, including rapid environmental scanning mechanisms, cross-functional decision-making teams, and flexible resource allocation processes [15, 29].

Academy leaders should recognize generational transitions as opportunities rather than threats. The presence of predominantly Generation X instructors training Generation Z cadets creates challenges related to differing expectations, communication styles, and technological fluency [5]. However, systematic development of digital culture and ambidextrous leadership can transform this generational diversity into an organizational strength, with senior instructors providing wisdom and experience while younger cadets contribute technological fluency and innovative perspectives.

Several limitations should be acknowledged. First, this study employs a cross-sectional design that limits causal inference [25]. While theoretical logic and prior research support the hypothesized causal directions, the data do not permit definitive causal claims. Longitudinal research tracking changes in leadership ambidexterity, digital culture, strategic agility, and performance over time would provide stronger causal evidence and illuminate temporal dynamics.

Second, the study relies on instructor perceptions rather than objective performance measures. While instructor perspectives are valuable given their central role in military academy operations, future research incorporating objective performance indicators such as graduate placement rates, external training evaluations, or comparative institutional assessments would strengthen confidence in findings [24]. Third, the sample, while adequate for PLS-SEM analysis and representative of the three academies, is limited to Indonesian military institutions. Generalization to other Global South military academies or civilian educational institutions requires empirical verification through comparative research across multiple countries or institutional types.

Future research should explore several promising directions. Longitudinal studies tracking military academies' digital culture development, leadership evolution, and performance trajectories over multiple years would provide

insights into developmental pathways and temporal dynamics [25]. Qualitative case studies examining how specific military academies successfully cultivate digital culture or develop ambidextrous leadership could illuminate implementation strategies and contextual factors influencing success [20]. Comparative research across Global South nations could identify whether the observed patterns are specific to Indonesia or reflect broader dynamics in developing nation military institutions.

6. Conclusions

This study demonstrates that leadership ambidexterity and digital culture significantly enhance organizational performance in Indonesian military academies partly through the mediating mechanism of strategic agility. The findings provide empirical validation of Resource-Based View and Dynamic Capabilities Theory in Global South military education contexts, revealing that while these theoretical frameworks developed primarily in Western corporate settings retain explanatory power, the specific pathways and relative importance of resources and capabilities differ in resource-constrained institutional environments [9, 10].

Digital culture emerges as the dominant driver of strategic agility and, through this pathway, organizational performance, suggesting that systematic cultivation of digital mindsets, collaborative practices, and innovation capabilities represents a high-leverage intervention for military academies operating under financial and technological constraints [8]. Leadership ambidexterity, while demonstrating smaller effects than digital culture, nonetheless significantly contributes to institutional agility, indicating that leadership development programs emphasizing balanced opening and closing behaviors can meaningfully enhance organizational adaptive capacity [6].

The mediating role of strategic agility clarifies how organizational resources translate into performance outcomes. Leadership practices and cultural attributes, however valuable, generate further performance improvements when they catalyze dynamic capabilities enabling rapid environmental sensing, swift decision-making, and flexible resource reconfiguration [11, 12]. This finding resolves inconsistencies in prior literature and underscores strategic agility as a critical leverage point for organizational improvement in dynamic military education contexts.

The study's focus on Indonesian military academies addresses the underrepresentation of Global South contexts in organizational research and challenges implicit Western-centric assumptions embedded in management theories. The evidence demonstrates that leadership ambidexterity operates effectively even in hierarchical collectivist military contexts, that digital culture can be cultivated without extensive technological infrastructure, and that resource-constrained institutions can achieve high performance through strategic mobilization of intangible organizational capabilities [34, 8].

For practitioners, the research offers clear guidance: prioritize digital culture development across its four dimensions, invest in ambidextrous leadership training, implement agility-enhancing processes and structures, leverage generational diversity as an asset, and pursue inter-institutional collaboration to accelerate capability development [15, 5]. For scholars, the study opens pathways for continued investigation of organizational adaptation in resource-constrained contexts, comparative research across Global South military institutions, and longitudinal examination of digital culture development and agility evolution. By demonstrating how military academies in developing nations can build world-class organizational capabilities despite resource limitations, this research contributes to both theoretical understanding and practical improvement of military education in an era of rapid global change.

List of Abbreviations

AAL	Naval Academy
AAU	Air Force Academy
Akmil	Army Academy
AVE	Average Variance Extracted

HTMT	Heterotrait–Monotrait Ratio
PLS-SEM	Partial Least Squares Structural Equation Modeling
RBV	Resource-Based View
SRMR	Standardized Root Mean Square Residual
TNI	Indonesian National Armed Forces

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Author Contributions

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Conflict of Interest

The authors declare no conflict of interest.

Data Availability Statement

The data supporting the findings of this study are available from the corresponding author upon reasonable request. Owing to confidentiality agreements with the participating Indonesian Armed Forces military academies and the involvement of active-duty personnel, the raw survey data are not publicly available.

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