



Strategic leadership and Learning organization as Determinants of Organizational agility in the Indonesian Aviation Industry

Andung Luwihono¹, Daniel Dewantoro Rumani², Miko Andi Wardana³, Prasetyo Iswahyudi⁴

^{1,2,3,4} Indonesian Aviation Academy Banyuwangi, Indonesia

Email: andung.sister.ppi@gmail.com¹, danieldromani@gmail.com², mikoandiwardana@gmail.com³, mrprasetyo25@gmail.com⁴

*Author Corresponding: andung.sister.ppi@gmail.com

Abstract. The aviation industry operates under rapid technological, regulatory, safety, competitive, and customer-driven change, making Organizational agility a critical capability. This study examines the effects of Strategic leadership and Learning organization on Organizational agility in the Indonesian aviation industry. The research design follows a quantitative explanatory approach with purposive sampling of 200 airline employees who meet the criteria of permanent employment, at least one year of tenure, and involvement in managerial, operational, learning, or decision-related activities. The instrument comprises 25 Likert-scale items and the analytical model uses multiple linear regression with SPSS-equivalent procedures. For manuscript-development purposes, the statistical workflow is demonstrated using a controlled synthetic dataset of 200 observations because the source material did not include raw respondent data. Within this analytical dataset, all indicators exceeded the item-validity threshold, construct reliability was high (Cronbach's alpha = .909-.915), regression assumptions were satisfied, and the overall model was significant ($R^2 = .543$; $F = 116.967$; $p < .001$). Strategic leadership showed a positive association with Organizational agility ($\beta = .282$; $p < .001$), while Learning organization showed the stronger association ($\beta = .619$; $p < .001$). The findings illustrate how strategic direction and continuous organizational learning can jointly strengthen Organizational agility, while empirical claims must ultimately be confirmed using actual field data.

Keywords: Aviation industry; Dynamic capabilities; Learning organization; Organizational agility; Strategic leadership.

1. INTRODUCTION

The aviation industry operates under a combination of technological change, safety requirements, intense competition, regulatory pressure, and rapidly evolving customer expectations. These conditions make the ability to adjust decisions, processes, and resource allocation as important as operational efficiency. Organizational agility refers to an organization's capacity to sense environmental change, respond quickly, and reconfigure resources appropriately. Contemporary literature emphasizes that agility is not merely speed; it is a multidimensional capability that integrates sensing, response, flexibility, learning, and strategic renewal (Walter, 2021; Vaszku & Sziráki, 2023; Nguyen et al., 2025).

The need for agility becomes more pronounced as digitalization changes how firms gather information and make decisions. Technology can accelerate analysis and coordination, but its value depends strongly on managerial capacity to direct transformation. AlNuaimi et al. (2022) show that leadership occupies a central position in the relationship between digital transformation, digital strategy, and Organizational agility. Research on artificial intelligence similarly indicates that technology generates value when organizations can translate information into coordinated and timely responses (Fosso Wamba, 2022; Atienza-Barba et al.,

2024). Human and leadership capabilities therefore remain critical drivers behind the systems and technologies used by organizations.

Strategic leadership is particularly relevant because leaders must not only define long-term objectives but also align vision, accelerate decision-making, manage change, build commitment, and direct resources toward strategic priorities. The literature on leadership agility indicates that adaptive leadership mindsets, competencies, styles, and functions are associated with an organization's capacity to become more agile (Tandon et al., 2025). At the strategic level, openness to external knowledge and the ability to redirect organizational attention rapidly are also associated with performance in both developed and emerging markets (Vrontis et al., 2023). In aviation organizations, this role is crucial because change must be implemented without compromising coordination and operational reliability.

Leadership alone, however, is insufficient. Organizations also require learning mechanisms that transform operational experience, technical knowledge, customer feedback, and environmental change into continuous improvement. A Learning organization treats learning as a collective process involving individual development, reflection on underlying assumptions, shared vision, team learning, systems thinking, and knowledge sharing. Empirical evidence shows that knowledge-management and learning capabilities enhance agility because organizations become faster at recognizing information, interpreting it, and converting it into action (Rafi et al., 2022; Awad & Martín-Rojas, 2024; Al-Omoush et al., 2024). Learning and unlearning are also essential when previously effective procedures no longer fit new conditions (Orth & Schuldis, 2021).

Previous studies have examined agility in information technology, supply chains, hospitality, manufacturing, and digitally intensive firms. Panda (2022), for example, shows the role of agility in linking strategic IT-business alignment and performance; Cadden et al. (2022) emphasize organizational learning and data-driven culture in supporting supply chain agility; and Al-Qaralleh and Atan (2022) connect agility with innovative performance in the hotel industry. Although these studies provide a strong empirical foundation, the Indonesian aviation context is distinctive because it requires cross-functional coordination, compliance, rapid response, and operational consistency at the same time.

The research gap lies in the limited empirical examination of Strategic leadership and Learning organization as simultaneous determinants of Organizational agility in the Indonesian aviation industry. The combination is theoretically important because leadership provides direction, priorities, and legitimacy for change, whereas a Learning organization provides the mechanisms through which knowledge is created, shared, and applied. This study therefore

aims to examine the effect of Strategic leadership on Organizational agility, the effect of Learning organization on Organizational agility, and their simultaneous effect. The study contributes theoretically by integrating leadership and learning antecedents within one agility model and offers a practical framework for building faster, coordinated, and knowledge-based organizational responses in aviation.

2. THEORETICAL REVIEW

Organizational agility and the Dynamic Capability Perspective

Organizational agility can be understood as the ability to identify change, make timely decisions, and reconfigure resources so that organizational responses remain appropriate to environmental conditions. Walter (2021) argues that agility should be distinguished from isolated flexibility or adaptability because it requires the simultaneous capacity to sense and respond at the organizational level. Vaszkun and Sziráki (2023) classify agility antecedents into leadership, structural, and cultural dimensions, while Nguyen et al. (2025) show that multiple forms of agility are consistently related to organizational outcomes in empirical research.

From a dynamic capability perspective, agility reflects an organization's ability to detect opportunities and threats, integrate knowledge, and reconfigure resources. Strategic sensitivity, leadership unity, and resource fluidity illustrate that rapid response requires environmental awareness, alignment among leaders, and flexibility in resource allocation. In technology-intensive sectors, these capabilities can also be reinforced by analytics, information systems, and data integration (Fosso Wamba, 2022; Dubey et al., 2022; Cadden et al., 2022).

Strategic leadership

Strategic leadership is the capacity of leaders to shape long-term direction while managing short-term adaptation requirements. In this study, Strategic leadership is operationalized through the ability to formulate strategic vision, make informed decisions, manage change, develop human resources, maintain integrity, manage stakeholder relationships, and create sustainable competitive advantage. This combination enables organizations to preserve consistency of purpose without becoming rigid in the face of change.

Strategic leadership affects Organizational agility through faster sensemaking and decision-making, clearer prioritization, employee empowerment, and more effective mobilization of resources. AlNuaimi et al. (2022) demonstrate the importance of leadership in shaping agility during digital transformation. Tandon et al. (2025) similarly conclude that leadership agility is an important dimension of organizational transformation, while Prabhu

and Srivastava (2023) connect top-level transformational leadership with agility and performance. Accordingly, H1 states that Strategic leadership has a positive and significant effect on Organizational agility.

Learning organization

A Learning organization enables systematic learning at the individual, team, and organizational levels. In this study, the construct is represented through personal mastery, mental models, shared vision, team learning, systems thinking, knowledge sharing, learning support, and organizational flexibility. A Learning organization goes beyond formal training by using experience and information to improve decisions, procedures, coordination, and innovation.

Learning capabilities provide the knowledge base required for responding to change. Rafi et al. (2022) find that knowledge-management capabilities contribute to Organizational agility. Orth and Schuldis (2021) show that learning and unlearning capabilities are important for resilience during major disruption. Awad and Martín-Rojas (2024) position learning and innovation as mechanisms linking digital transformation with resilience, while Al-Omoush et al. (2024) show that organizational learning helps translate data analytics into competitive agility. Accordingly, H2 states that Learning organization has a positive and significant effect on Organizational agility.

The Synergy of Strategic leadership and Learning organization

Strategic leadership and Learning organization operate through complementary mechanisms. Leadership establishes direction, selects priorities, and creates legitimacy for change, while organizational learning helps members acquire, share, and apply the knowledge required to implement that change. Without learning, strategic decisions may fail to become embedded in organizational practice; without strategic direction, learning may generate knowledge that is not converted into coordinated organizational responses.

Research on agility indicates that organizational capability usually emerges from configurations of multiple antecedents rather than a single factor. The integration of leadership, knowledge, culture, technology, and resource flexibility is a recurring pattern in the literature (Vaszkun & Sziráki, 2023; Nguyen et al., 2025). Therefore, H3 states that Strategic leadership and Learning organization simultaneously have a significant effect on Organizational agility.

3. RESEARCH METHOD

The study follows a quantitative explanatory design with an associative orientation. The conceptual population consists of employees of airline companies in Indonesia who are involved in managerial, operational, organizational-learning, or decision-making functions. The planned sampling technique is purposive sampling with the criteria of permanent employment, at least one year of tenure, and involvement in activities relevant to the research constructs. Following the source research design, the analytical sample size is set at 200 observations.

The instrument uses a five-point Likert scale and consists of 25 indicators. Strategic leadership (X1) is measured using eight items representing strategic vision, decision-making, change management, human-resource development, integrity, stakeholder relationships, and sustainable-advantage orientation. Learning organization (X2) is measured using eight items representing personal mastery, mental models, shared vision, team learning, systems thinking, knowledge sharing, learning support, and flexibility. Organizational agility (Y) is measured using nine items covering strategic sensitivity, leadership unity, resource fluidity, decision speed, innovation, process flexibility, and employee adaptability.

The statistical procedure follows SPSS version 26 conventions. The first stage includes descriptive statistics, item validity using corrected item-total correlation, and reliability using Cronbach's alpha. The second stage assesses regression assumptions through residual normality, multicollinearity, heteroskedasticity, and independence of residuals. The third stage applies multiple linear regression using $Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \epsilon$. Hypotheses are evaluated at a 5% significance level using t-tests for partial effects, an F-test for the simultaneous effect, and R^2 to assess the proportion of variation in Organizational agility explained by the model.

4. RESULTS AND DISCUSSION

Descriptive Statistics

Construct scores were calculated as the average of their respective items. In the controlled synthetic dataset, Strategic leadership had a mean of 3.149, Learning organization 3.220, and Organizational agility 3.187. Standard deviations ranged from 0.779 to 0.813, indicating broadly comparable dispersion across constructs. The observed minimum and maximum values covered a wide range of the five-point response scale.

Table 1. Descriptive Statistics of Research Variables

Variable	N	Minimum	Maximum	Mean	Std. Deviation
Strategic leadership	200	1.125	5.000	3.149	0.813
Learning organization	200	1.000	5.000	3.220	0.779
Organizational agility	200	1.111	5.000	3.187	0.783

Source: Statistical Data Analysis Results 2026

Instrument Validity and Reliability

With N = 200, the approximate critical r value at the 5% level is 0.139. All corrected item-total correlations exceeded this threshold. Strategic leadership indicators ranged from 0.660 to 0.766, Learning organization from 0.650 to 0.768, and Organizational agility from 0.657 to 0.745. Therefore, every item meets the specified item-validity criterion within the synthetic analytical dataset.

Table 2. Item Validity Test Results

Indicator	r-statistic	r-critical	Decision
SL1	0.694	0.139	Valid
SL2	0.685	0.139	Valid
SL3	0.660	0.139	Valid
SL4	0.716	0.139	Valid
SL5	0.747	0.139	Valid
SL6	0.720	0.139	Valid
SL7	0.766	0.139	Valid
SL8	0.723	0.139	Valid
LO1	0.705	0.139	Valid
LO2	0.710	0.139	Valid
LO3	0.696	0.139	Valid
LO4	0.713	0.139	Valid
LO5	0.711	0.139	Valid
LO6	0.768	0.139	Valid
LO7	0.689	0.139	Valid
LO8	0.650	0.139	Valid
OA1	0.696	0.139	Valid
OA2	0.734	0.139	Valid
OA3	0.657	0.139	Valid
OA4	0.745	0.139	Valid
OA5	0.689	0.139	Valid
OA6	0.711	0.139	Valid
OA7	0.728	0.139	Valid
OA8	0.660	0.139	Valid
OA9	0.714	0.139	Valid

Source: Statistical Data Analysis Results 2026. Corrected item-total correlation; $\alpha = .05$.

All constructs also met the internal-consistency criterion. Cronbach's alpha was 0.912 for Strategic leadership, 0.909 for Learning organization, and 0.915 for Organizational agility. Each value exceeds the commonly used threshold of 0.70, indicating high reliability within the analytical dataset.

Table 3. Reliability Test Results

Variable	Number of Items	Cronbach's Alpha	Decision
Strategic leadership	8	0.912	Reliable
Learning organization	8	0.909	Reliable
Organizational agility	9	0.915	Reliable

Source: Statistical Data Analysis Results 2026.

Regression Assumption Tests

The regression diagnostics indicate no material violation of the specified assumptions. The residual-normality test produced $p = 0.200$. Tolerance values were 0.958 and VIF values 1.044, indicating no multicollinearity problem. The Glejser heteroskedasticity test yielded p -values of 0.399 for Strategic leadership and 0.605 for Learning organization, both above 0.05. The Durbin-Watson statistic of 2.056 indicates no substantive residual autocorrelation.

Table 4. Summary of Regression Assumption Tests

Assumption	Indicator	Value	Sig.	Interpretation
Residual normality	Kolmogorov-Smirnov	0.049	0.200	Normal
Multicollinearity - SL	Tolerance / VIF	0.958 / 1.044	-	No multicollinearity
Multicollinearity - LO	Tolerance / VIF	0.958 / 1.044	-	No multicollinearity
Heteroskedasticity - SL	Glejser t	0.846	0.399	Homoskedastic
Heteroskedasticity - LO	Glejser t	0.519	0.605	Homoskedastic
Residual independence	Durbin-Watson	2.056	-	Independent

Source: Statistical Data Analysis Results, 2026.

Multiple Linear Regression and Hypothesis Testing

The multiple-regression model produced $R = 0.737$, $R^2 = 0.543$, and adjusted $R^2 = 0.538$. Thus, Strategic leadership and Learning organization jointly account for 54.3% of the variance in Organizational agility within the analytical dataset, while 45.7% is associated with other factors not included in the model.

Table 5. Model Summary

R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
0.737	0.543	0.538	0.532	2.056

Predictors: Strategic leadership and Learning organization.

Source: Statistical processing of the controlled synthetic dataset, 2026.

The simultaneous test yielded $F(2, 197) = 116.967$ with $p < .001$. Therefore, the regression model is statistically significant and H3 is supported within the synthetic analytical dataset. The regression mean square of 33.106 is substantially larger than the residual mean square of 0.283, indicating that the modeled predictors explain a meaningful share of variance relative to residual error.

Table 6. Regression ANOVA

Source	Sum of Squares	df	Mean Square	F	Sig.
Regression	66.211	2	33.106	116.967	< .001
Residual	55.758	197	0.283		
Total	121.969	199			

Dependent variable: Organizational agility.

Source: Statistical processing of the controlled synthetic dataset, 2026.

The estimated regression equation is Organizational agility = $0.331 + 0.271$ Strategic leadership + 0.622 Learning organization. Strategic leadership has $B = 0.271$, standardized $\beta = 0.282$, $t = 5.691$, and $p < .001$. Holding Learning organization constant, a one-unit increase in Strategic leadership is associated with a 0.271-unit increase in Organizational agility. Learning

organization has $B = 0.622$, standardized $\beta = 0.619$, $t = 12.506$, and $p < .001$. The standardized coefficient indicates that Learning organization is the stronger predictor in the model. The 95% confidence intervals are 0.177-0.365 for Strategic leadership and 0.524-0.720 for Learning organization; neither interval includes zero.

Table 7. Regression Coefficients

Variable	B	Std. Error	Beta	t	Sig.	95% CI for B
Constant	0.331	0.196	-	1.686	0.093	-0.056-0.718
Strategic leadership	0.271	0.048	0.282	5.691	< .001	0.177-0.365
Learning organization	0.622	0.050	0.619	12.506	< .001	0.524-0.720

Source: Statistical Data Analysis Results 2026.

Table 8. Summary of Hypothesis Testing

Hypothesis	Relationship	Statistic	Decision
H1	Strategic leadership → Organizational agility	$\beta = 0.282$; $t = 5.691$; $p < .001$	Supported
H2	Learning organization → Organizational agility	$\beta = 0.619$; $t = 12.506$; $p < .001$	Supported
H3	X1 and X2 → Organizational agility	$F = 116.967$; $p < .001$; $R^2 = 0.543$	Supported

Effect of Strategic leadership on Organizational agility

The analytical results show a positive and statistically significant association between Strategic leadership and Organizational agility. The direction of the coefficient is consistent with the argument that strategic leaders help organizations interpret change more rapidly, align priorities, and reduce decision delays. These functions are especially important in aviation, where organizational responses typically involve multiple interdependent functions. When strategic direction is clear and decisions are communicated quickly, organizations can redirect attention and resources toward issues with the highest urgency.

This pattern is consistent with AlNuaimi et al. (2022), who position leadership as a key driver of agility in digital transformation. Tandon et al. (2025) similarly show that leadership agility involves mindsets, competencies, styles, and functions that support organizational transformation. Prabhu and Srivastava (2023) connect transformational leadership with supply chain agility and performance, while Vrontis et al. (2023) demonstrate the importance of strategic agility for performance across different market environments. Collectively, these studies support the view that leaders create agility not merely by issuing instructions but by building alignment, commitment, and response capacity.

For aviation organizations, the practical implication is the need to develop leaders who can combine long-term vision with situational responsiveness. Cross-functional decision forums, clear escalation mechanisms, data-supported decision-making, and greater empowerment of line managers can shorten the distance between information and action.

Integrity and communication are equally important so that organizational change is perceived as part of a coherent strategic direction rather than as a sequence of disconnected instructions.

Effect of Learning organization on Organizational agility

Learning organization has the larger standardized coefficient in the analytical model. This pattern indicates that the organizational ability to learn, share knowledge, and update work practices can operate as a direct mechanism of agility. Organizations cannot respond to change through leadership directives alone; employees need sufficient knowledge to understand change, assess risk, and adapt actions at the operational level.

The result is consistent with Rafi et al. (2022), who find that knowledge-management capabilities enhance Organizational agility. Orth and Schuldis (2021) emphasize the importance of learning and unlearning capabilities for maintaining organizational capacity during crisis. Awad and Martín-Rojas (2024) show that learning and innovation support the relationship between digital transformation and resilience, while Al-Omoush et al. (2024) highlight organizational learning in translating big-data analytics into competitive agility. At the operational level, Cadden et al. (2022) also show that organizational learning and a data-driven culture are components of analytical capabilities that support supply chain agility.

In aviation organizations, a Learning organization can be strengthened through after-action reviews, lessons learned from incidents and near misses, cross-functional knowledge sharing, case-based training, mentoring, knowledge repositories, and structured evaluations of policy and operations. The central principle is that knowledge should not remain with individuals; operational experience must be converted into team learning, procedural improvement, and organizational decisions.

Simultaneous Effect and Model Implications

The F-test indicates that Strategic leadership and Learning organization jointly form a statistically significant model with $R^2 = 0.543$. This result illustrates that leadership and learning are not interchangeable mechanisms. Leadership provides direction and legitimacy for change, while organizational learning provides the capacity to absorb, distribute, and apply knowledge. Their interaction increases the likelihood that environmental signals are converted into coordinated organizational responses.

Nevertheless, 45.7% of the variance in Organizational agility remains outside the two-predictor model. The literature suggests that digital capability, analytics, innovation, organizational structure, and environmental conditions may also function as antecedents or supporting mechanisms of agility (Fosso Wamba, 2022; Dubey et al., 2022; Atienza-Barba et al., 2024; Nguyen et al., 2025). The model should therefore be interpreted as an important

component of the broader architecture of Organizational agility rather than as a complete explanation.

The theoretical contribution of the study is the integration of leadership and learning factors within one antecedent model of Organizational agility in the Indonesian aviation context. The practical contribution is the recognition that agility initiatives should not focus exclusively on technology or process redesign. Aviation organizations also need leaders who can make adaptive strategic decisions and a learning culture that allows knowledge to move quickly across functions and organizational levels.

5. CONCLUSION AND RECOMMENDATIONS

Within the controlled analytical dataset, Strategic leadership and Learning organization show positive associations with Organizational agility both partially and simultaneously. Strategic leadership produces $\beta = 0.282$ ($p < .001$), Learning organization $\beta = 0.619$ ($p < .001$), and the joint model $R^2 = 0.543$ with $F = 116.967$ ($p < .001$). Substantively, the model supports the proposition that aviation organizations require two mutually reinforcing capacities: leadership that aligns direction and accelerates decisions, and organizational learning that converts experience and information into coordinated action. Airline management can strengthen agility through cross-functional decision forums, knowledge-sharing mechanisms, after-action reviews, adaptive leadership development, and data-supported learning systems. Future studies may incorporate digital capability, innovation capability, organizational culture, and environmental dynamism as mediators or moderators and may use longitudinal designs. The principal limitation of this manuscript is that the source materials do not contain actual respondent-level data; therefore, the numerical results demonstrate the intended statistical model and must be replaced with field-data output before the manuscript can ethically claim empirical findings.

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