Impact of Artificial Intelligence Adoption and Leadership Styles on Strategic Planning Effectiveness in the Philippine Techno Firms

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ABSTRACT

This quantitative, descriptive-correlational study examined the impact of artificial intelligence (AI) adoption and leadership styles on strategic planning effectiveness among technology firms in the Philippines. Guided by frameworks from Biloslavo et al. (2024), Gichuki et al. (2024), and Phillips and Moutinho (2000), the study explored how leadership behaviors mediate the relationship between AI integration and effective planning. A total of 105 executives and managers participated in the survey, using a validated questionnaire with a reliability range of .71 to .91 across three scales. Descriptive statistics revealed very high levels of AI adoption ($M = 6.40$, $SD = 0.79$) and strategic planning effectiveness ($M = 6.30$, $SD = 0.79$), and a high level of leadership styles ($M = 5.64$, $SD = 0.61$). Pearson's correlation showed significant positive relationships among the three variables, while multiple regression confirmed that AI adoption and leadership styles collectively explained 72% of the variance in strategic planning effectiveness ($R^2 = .72$, $p < .001$). Mediation analysis further indicated that leadership styles significantly mediated the relationship between AI adoption and strategic planning outcomes ($\beta = 0.31$, $p < .001$). The findings underscore the importance of aligning AI initiatives with effective leadership to achieve sustainable organizational planning. The study recommends enhancing leadership development programs to strengthen digital integration strategies and maximize the benefits of AI in strategic management.

Keywords: artificial intelligence adoption, leadership styles, strategic planning effectiveness, mediation, technology firms

INTRODUCTION

Strategic planning remains one of the most critical organizational processes for ensuring long-term success, particularly in the technology sector where change is constant and rapid. In recent years, artificial intelligence (AI) has emerged as a transformative force that reshapes how organizations design, execute, and monitor strategies. By providing predictive insights, data analytics, and decision-support capabilities, AI offers organizations opportunities to improve efficiency and strategic foresight. However, technology alone cannot ensure planning success. Effective leadership remains essential in guiding how technological tools are adopted, implemented, and aligned with organizational vision. Leadership, as a behavioral and relational construct, determines whether AI serves merely as an operational tool or as a strategic driver of innovation.

Previous studies have recognized that AI adoption contributes to better strategic decision-making, organizational responsiveness, and innovation capacity. Biloslavo et al. (2024) proposed that AI enhances strategic planning by helping organizations navigate VUCA (Volatility, Uncertainty, Complexity, and Ambiguity) environments. In parallel, leadership has long been acknowledged as a critical determinant of organizational success. Transformational leaders motivate and inspire innovation, while transactional leaders ensure accountability and structure. Gichuki et al. (2024) found that leadership styles directly influence the implementation and monitoring of strategic plans. Similarly, Phillips and Moutinho (2000) introduced the Strategic Planning Index (SPI), which measures the effectiveness of strategic planning based on goal clarity, stakeholder involvement, and outcome

sustainability. Collectively, these studies establish that both technology and leadership are key drivers of strategic performance.

Despite this growing body of evidence, few studies have examined how AI adoption and leadership styles interact to influence strategic planning effectiveness, particularly within technology firms in the Philippines. Most international research focuses on Western or highly industrialized contexts, leaving a gap in understanding how developing economies integrate human leadership and digital transformation in strategic management. Additionally, while prior studies have assessed the individual effects of AI and leadership on organizational performance, there is limited empirical evidence on the combined and mediating effects of leadership styles in the relationship between AI adoption and strategic planning effectiveness. This conceptual gap prevents organizations from fully understanding how to synchronize technological initiatives with leadership practices to achieve sustainable strategic outcomes.

To address this gap, the present study investigates the impact of AI adoption and leadership styles on strategic planning effectiveness in technology firms in the Philippines. It also examines whether leadership styles mediate the relationship between AI adoption and planning outcomes. By integrating theories of technology adoption and leadership, the study contributes to a more holistic understanding of how human and technological factors work together to drive organizational strategy. The results aim to help technology firms identify how leadership can optimize AI utilization in planning processes, ensuring that digital transformation efforts translate into measurable strategic success.

This study is grounded in three interrelated theoretical perspectives. The framework by Biloslavo et al. (2024) highlights how AI enhances strategic planning processes by enabling predictive analytics and informed decision-making in uncertain environments. Gichuki et al. (2024), drawing from Bass's (1985) Transformational–Transactional Leadership Theory, emphasized that leadership behaviors, whether inspiring and visionary or task-oriented and corrective, significantly influence strategic outcomes. Finally, Phillips and Moutinho (2000) developed the Strategic Planning Index (SPI), which provides a basis for assessing the effectiveness of planning systems through clarity, alignment, and sustainability. Together, these frameworks guide this study's model by positioning leadership as a mediating factor that translates AI adoption into effective strategic planning outcomes.

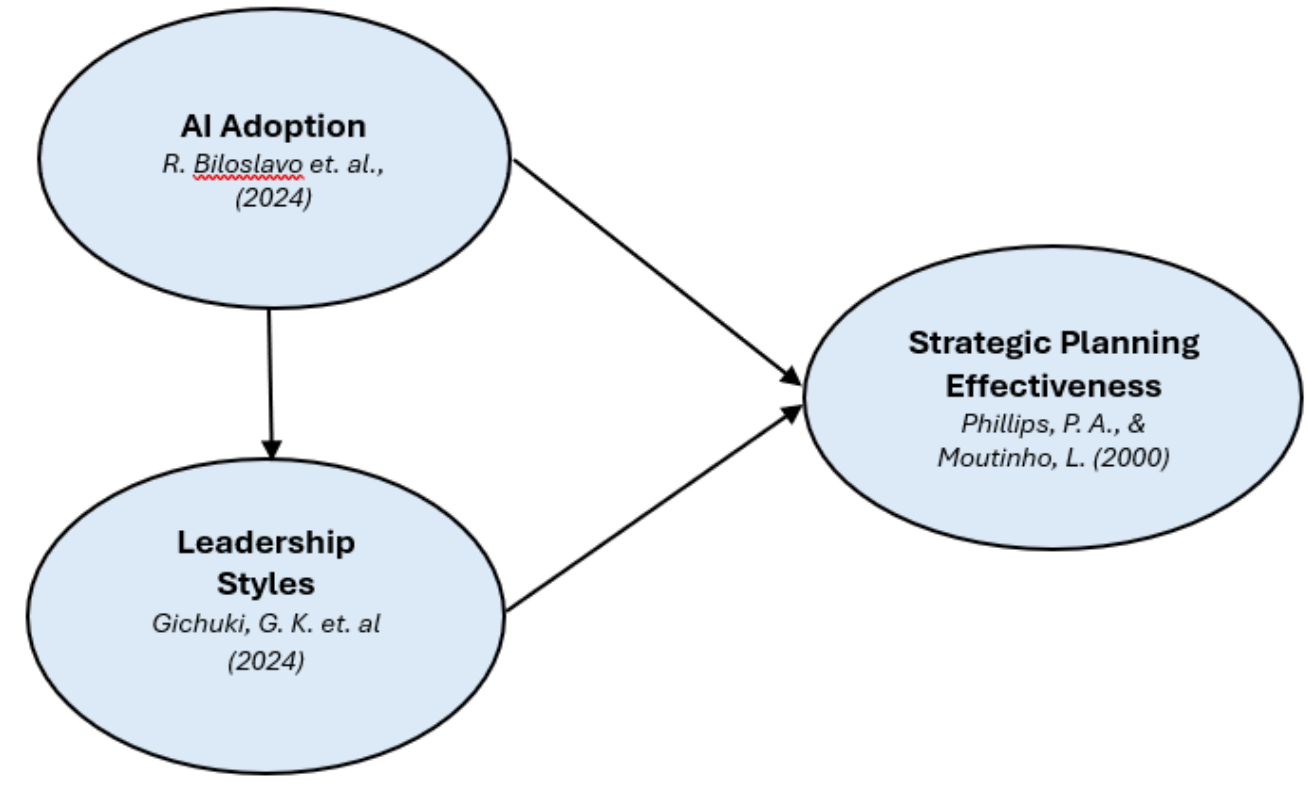

Fig. 1. **Conceptual Framework of the Study**

As illustrated in Figure 1, AI adoption and leadership styles both influence strategic planning effectiveness. Leadership styles are also hypothesized to mediate the relationship between AI adoption and strategic planning effectiveness, highlighting the role of leadership in converting technological capabilities into practical, strategic gains.

Statement of the Problem

This study aims to determine the impact of AI adoption and leadership styles on strategic planning effectiveness among technology firms in the Philippines. Specifically, it seeks to answer the following questions:

1. What is the level of AI adoption, leadership styles, and strategic planning effectiveness in technology firms?
2. Is there a significant relationship among AI adoption, leadership styles, and strategic planning effectiveness?
3. To what extent do AI adoption and leadership styles predict strategic planning effectiveness?
4. Does leadership style mediate the relationship between AI adoption and strategic planning effectiveness?
5. Based on the results, what recommendations can be proposed to align AI adoption strategies with leadership practices to maximize strategic planning outcomes?

Hypotheses of the Study

The following null hypotheses were tested at the .05 level of significance:

H_{01}: There is no significant relationship among AI adoption, leadership styles, and strategic planning effectiveness.

H_{02}: AI adoption and leadership styles do not significantly predict strategic planning effectiveness.

H_{03}: Leadership styles do not significantly mediate the relationship between AI adoption and strategic planning effectiveness.

Significance of Study

This study provides both theoretical and practical value. Theoretically, it contributes to the expanding field of digital-era leadership by linking AI adoption frameworks with leadership and strategic planning theories. Practically, it offers insights for technology firms seeking to align leadership practices with AI-driven initiatives. For executives and managers, the findings can guide leadership training and digital integration programs that enhance planning effectiveness.

For educational institutions, this study serves as a resource for developing courses and training modules that merge leadership development with technology management. Lastly, for future researchers, the study provides an empirical foundation for further exploration of leadership–technology interactions in other sectors or contexts.

Scope and Limitations

This study was conducted among 105 managers and executives from technology firms in the Philippines. It focused on three main variables: AI adoption, leadership styles, and strategic planning effectiveness. The data were collected through a self-administered questionnaire, which may be subject to response bias. The study did not include other factors such as organizational culture, firm size, or market dynamics, which may also influence strategic planning outcomes. Moreover, the research employed a cross-sectional design, limiting the ability to draw causal inferences. Despite these limitations, the study offers valuable insights into how leadership and technology jointly affect strategic planning in technology firms and provides a foundation for future longitudinal and comparative research.

METHODOLOGIES

Research Design

This study employed a quantitative, descriptive–correlational design to examine the influence of artificial intelligence (AI) adoption and leadership styles on strategic planning effectiveness among technology firms in the Philippines. This design was appropriate because it enabled the measurement of both the relationships and predictive effects among variables using statistical analyses such as Pearson correlation, multiple linear regression, and mediation testing. The design allowed for the identification of significant associations and predictive patterns that explain how AI adoption and leadership styles contribute to strategic planning effectiveness.

Participants

A total of 105 employees from various technology firms in the Philippines participated in the study. Participants were selected through purposive sampling, focusing on individuals who were directly involved in leadership, decision-making, and strategic planning activities within their organizations. Among the respondents, 63 were male (60%) and 42 were female (40%). In terms of age, 16 respondents (15.2%) were between 20 and 29 years old, 47 (44.8%) were between 30 and 39, 33 (31.4%) were between 40 and 50, and 9 (8.6%) were aged 50 years and above. Regarding their position in the organization, 70 respondents (66.7%) were managers and 35 (33.3%) were executives. As for work experience, 17 participants (16.2%) had less than five years, 33 (31.4%) had between five and ten years, 31 (29.5%) had between eleven and fifteen years, and 24 (22.9%) had more than sixteen years of experience. Participation was voluntary, and informed consent was obtained from all respondents. Confidentiality and anonymity were maintained throughout the process.

Research Instrument

The study used a structured, researcher-developed questionnaire as the main data-gathering tool. The instrument consisted of three main parts corresponding to the variables under investigation: (1) AI adoption, (2) leadership styles, and (3) strategic planning effectiveness. Each part contained ten items rated on a 7-point Likert scale ranging from 1 (Strongly Disagree) to 7 (Strongly Agree). Part 1 measured AI adoption within the organization, including the extent of AI integration, utilization, and readiness for digital transformation. Part 2 focused on leadership styles, covering transformational and transactional dimensions that reflect vision-setting, empowerment, and performance feedback. Part 3 assessed strategic planning effectiveness in terms of clarity of objectives, stakeholder involvement, and implementation outcomes.

The instrument underwent expert validation to ensure content accuracy, relevance, and clarity. Reliability analysis using Cronbach's alpha yielded coefficients ranging from .71 to .91, indicating acceptable to excellent internal consistency. Specifically, Part 1 (AI Adoption) obtained a Cronbach's alpha of .91, Part 2 (Leadership Styles) yielded .71, and Part 3 (Strategic Planning Effectiveness) obtained .91. Based on George and Mallery's (2019) reliability classification, these values are considered acceptable to excellent, confirming that the instrument was both valid and reliable for use in this study.

Data Gathering Procedure

Before the conduct of the study, the researcher obtained approval from the institutional ethics review board and secured permission from participating technology firms. After approval, the questionnaire was distributed electronically via email using a secure online survey platform. Participants were informed about the study's objectives, voluntary nature, and confidentiality provisions. The data collection process lasted for two weeks, and responses were automatically recorded in a spreadsheet. The researcher reviewed all entries to ensure completeness and accuracy before proceeding with statistical analysis. All participants were assured that their responses would remain confidential and would be used solely for academic purposes. Data were securely stored and handled in accordance with institutional data protection policies.

Data Analysis

The collected data were processed using descriptive and inferential statistics. Weighted mean and standard deviation were computed to determine the levels of AI adoption, leadership styles, and strategic planning effectiveness. The data were interpreted using the following range of mean scores: 1.00–1.85 (Very Low), 1.86–2.71 (Low), 2.72–3.57 (Somewhat Low), 3.58–4.43 (Neutral), 4.44–5.29 (Somewhat High), 5.30–6.15 (High), and 6.16–7.00 (Very High). Pearson's correlation coefficient (r) was used to determine the relationships among variables, while multiple linear regression analysis examined the extent to which AI adoption and leadership styles predicted strategic planning effectiveness. Mediation analysis was conducted to test whether leadership styles served as a mediating variable between AI adoption and strategic planning effectiveness. All statistical analyses were performed using JASP version 0.18, with the level of significance set at .05. Before performing the regression analysis, the assumptions of normality, linearity, homoscedasticity, independence of errors, and absence of multicollinearity were tested and satisfied, confirming the appropriateness of the data for inferential analysis.

Ethical Considerations

The study adhered to ethical standards in research involving human participants. Informed consent was obtained from all respondents, and participation was strictly voluntary. Participants were assured that there were no risks or penalties for nonparticipation, and they could withdraw at any point. No identifying information was collected, and all responses were treated with confidentiality. The study complied with institutional and ethical guidelines to ensure integrity, transparency, and the protection of participant welfare.

RESULTS AND DISCUSSION

This section shows the results of the statistical analyses conducted to determine the impact of Artificial Intelligence (AI) adoption and leadership styles on the strategic planning effectiveness of the selected technological firms. The findings are arranged according to the study's research questions, starting with the descriptive results on the level of each variable, followed by inferential analysis exploring relationships, effects, and the mediating role of leadership styles.

Level of AI Adoption, Leadership Styles, and Strategic Planning Effectiveness

This aims to determine the level of AI adoption, leadership styles (transformational and transactional), and strategic planning effectiveness among selected participants from technology firms. Descriptive statistics, specifically weighted mean and standard deviation, were used to determine the level and consistency of responses. These measures enable the ranking of items within each construct to identify areas of strength as well as aspects that may enrich or improve organizational practice. The subsequent tables present the findings for each variable.

Table 1 Descriptive Statistics on AI Adoption on Strategic Planning Effectiveness

Statements	Mean	SD	Interpretation
1. My organization actively integrates AI technologies into core business processes.	6.63	0.82	Very High
2. AI tools are widely used in my organization's daily operations.	6.58	0.86	Very High
3. My organization continuously invests in upgrading AI systems and tools.	6.52	0.91	Very High
4. AI has improved the quality of strategic decisions in my organization.	6.37	0.95	Very High
5. AI enables my organization to make decisions faster and more efficiently.	6.48	0.95	Very High
6. The use of AI has enhanced my ability to predict market trends and changes.	6.60	0.86	Very High
7. High implementation costs make AI adoption difficult for my	6.35	1.22	Very High

organization.			
8. Lack of skilled staff limits the effective use of AI in my organization.	6.14	1.26	High
9. Data privacy and security concerns restrict AI implementation in my organization.	6.20	1.32	Very High
10. My organization struggles to integrate AI with existing legacy systems.	6.12	1.34	High
Overall	6.40	0.79	Very High

Note. Interpretation is based on the following scale: 1.00–1.85 (Very Low), 1.86–2.71 (Low), 2.72–3.57 (Moderately Low), 3.58–4.43 (Moderate), 4.44–5.29 (Moderately High), 5.30–6.15 (High), and 6.16–7.00 (Very High).

AI adoption is this study is anchored on the framework of R. Biloslavo et al. (2024), highlighting the integration of Artificial Intelligence (AI) into organizational planning and decision-making. The focus is measuring how technology firms based on participants' perception utilizes AI in their strategic processes. The results show that AI adoption is at a very high level with 6.40 overall weighted mean score (SD = 0.79), proof that respondents have strong agreement that AI is a key aid in organizational decision-making and planning.

The highest-favored statement is "My organization actively integrates AI technologies into core business processes" (M = 6.63, SD = 0.82), followed by "The use of AI has enhanced my ability to predict market trends and changes" (M = 6.60, SD = 0.86) and "AI tools are widely used in my organization's daily operations" (M = 6.58, SD = 0.86), showing that firms actively engage with AI tools and predictive analytics. "AI enables my organization to make decisions faster and more efficiently" (M = 6.48, SD = 0.95) and "My organization continuously invests in upgrading AI systems and tools" (M = 6.52, SD = 0.91) further demonstrate the proactive use of AI for operational efficiency.

Despite having high ratings, there are statements considered as potential area of focus since it is below the overall mean score including "High implementation costs make AI adoption difficult for my organization" (M = 6.35, SD = 1.22), "Data privacy and security concerns restrict AI implementation in my organization" (M = 6.20, SD = 1.32), "Lack of skilled staff limits the effective use of AI in my organization" (M = 6.14, SD = 1.26), and "My organization struggles to integrate AI with existing legacy systems" (M = 6.12, SD = 1.34).

To conclude, the findings show that technology firms per respondents actively immersed AI into their core operations and strategic planning. Their strengths rest in the determined commitment to using AI for decision-making and forecasting, while their potential area for enrichment involves improving employee capabilities and addressing system compatibility challenges to sustain long-term AI effectiveness such as costs, data privacy, security, having the skill and its integration to legacy systems.

Table 2 Descriptive Statistics on Leadership Strategies

Statements	**Mean**	**SD**	**Interpretation**
1. My supervisor specifies the importance of having a strong sense of vision.	6.36	1.06	Very High
2. My supervisor emphasizes the importance of having a collective sense of mission.	6.56	0.94	Very High
3. My supervisor articulates a compelling vision of the future.	6.32	1.08	Very High
4. My supervisor treats others as individuals rather than just as members of a group.	6.30	1.00	Very High
5. My supervisor seeks differing perspectives when solving problems	6.41	1.02	Very High
6. My supervisor makes clear what one can expect to receive when performance goals are achieved.	6.42	0.98	Very High
7. My supervisor expresses satisfaction when others meet expectations.	6.58	0.86	Very High
8. My supervisor focuses attention on irregularities, mistakes, and deviations from standards.	6.08	1.31	High
9. My supervisor waits for things to go wrong before taking action.	2.74	1.59	Low

10. My supervisor is a firm believer in ""if it ain't broke, don't fix it."	2.64	1.56	Low
Overall	5.64	0.61	High

Note. Interpretation is based on the following scale: 1.00–1.85 (Very Low), 1.86–2.71 (Low), 2.72–3.57 (Moderately Low), 3.58–4.43 (Moderate), 4.44–5.29 (Moderately High), 5.30–6.15 (High), and 6.16–7.00 (Very High).

This section was based on the framework of Gichuki et al. (2024), which described transformational and transactional leadership as essential factors influencing the implementation of strategic plans. The results revealed that leadership styles were rated at a high level (M = 5.64, SD = 0.61), indicating that both transformational and transactional leadership practices were evident among supervisors in technology firms. The highest mean rating was obtained for "My supervisor emphasizes the importance of having a collective sense of mission" (M = 6.56, SD = 0.94), followed by "My supervisor expresses satisfaction when others meet expectations" (M = 6.58, SD = 0.86) and "My supervisor seeks differing perspectives when solving problems" (M = 6.41, SD = 1.02), all of which reflect a leadership environment that values collaboration, recognition, and inclusiveness.

Slightly lower yet still high scores were observed for "My supervisor focuses attention on irregularities, mistakes, and deviations from standards" (M = 6.08, SD = 1.31), suggesting the presence of structured performance monitoring typical of transactional leadership. The lowest-rated statements were "My supervisor waits for things to go wrong before taking action" (M = 2.74, SD = 1.59) and "My supervisor is a firm believer in 'if it ain't broke, don't fix it'" (M = 2.64, SD = 1.56), indicating that reactive and passive leadership behaviors were least practiced. Overall, the findings suggest that technology firms demonstrate a strong orientation toward transformational leadership, which is viewed as a strength in promoting engagement and strategic alignment. The potential area for enrichment lies in further balancing transactional mechanisms with proactive strategies to strengthen accountability and continuous improvement in strategic planning.

Table 3 Descriptive Statistics on Strategic Planning Effectiveness

Statements	**Mean**	**SD**	**Interpretation**
1. My organization's strategic planning process clearly defines priorities and objectives.	6.23	1.21	Very High
2. The planning steps (environmental scan, objectives, strategy selection) were well structured.	6.15	0.98	High
3. Top management visibly supported and championed the strategic planning process.	6.17	1.15	Very High
4. Key stakeholders (middle managers, frontline staff) were meaningfully involved in planning.	6.31	1.07	Very High
5. My organization allocated sufficient resources (budget, people, time) to implement the plan.	6.17	1.16	Very High
6. Training and capacity-building were provided to support implementation.	6.18	1.05	Very High
7. Since adopting the plan, my organization's performance on key indicators has improved	6.36	0.96	Very High
8. The strategic plan led to better alignment of daily activities with long-term goals.	6.45	0.98	Very High
9. Overall, the strategic planning process was effective.	6.48	0.96	Very High
10. The benefits of the plan are likely to be sustained over the next 2–3 years	6.45	1.02	Very High
Overall	6.30	0.79	Very High

Note. Interpretation is based on the following scale: 1.00–1.85 (Very Low), 1.86–2.71 (Low), 2.72–3.57 (Moderately Low), 3.58–4.43 (Moderate), 4.44–5.29 (Moderately High), 5.30–6.15 (High), and 6.16–7.00 (Very High).

The study of Phillips and Moutinho (2000) guided the measure of strategic planning effectiveness in this study where the focus was in terms of clarity, stakeholder participation, management support, and alignment of activities with long-term goals.

With a mean score of 6.30 (SD = 0.79), it can be deduced that there is a very high level of strategic planning effectiveness revealing that respondents see the planning processes of their organizations as highly effective and well implemented. The highest mean rating was obtained for "Overall, the strategic planning process was effective" (M = 6.48, SD = 0.96), followed by "The strategic plan led to better alignment of daily activities with long-term goals" (M = 6.45, SD = 0.98) and "The benefits of the plan are likely to be sustained over the next 2–3 years" (M = 6.45, SD = 1.02), showing that respondents believed the strategic plan produced lasting organizational benefits.

Though scores are described as high, least endorsed statements were "The planning steps (environmental scan, objectives, strategy selection) were well structured" (M = 6.15, SD = 0.98) and "My organization's strategic planning process clearly defines priorities and objectives" (M = 6.23, SD = 1.21), implying minor need for further enhancement in the planning structure and goal setting. Overall, the results show that strategic planning in technology firms is done effectively and supported by top management, stakeholder participation, and capacity-building efforts.

The strength of these organizations are in the strong alignment of activities with long-term goals and sustained benefits of planning, while the potential area for enrichment involves enhancing the systematic structuring of planning steps to maintain consistent clarity and focus in future cycles.

Relationship Between AI Adoption, Leadership Styles, and Strategic Planning Effectiveness

Pearson Product–Moment Correlation Coefficient was used to determine the relationship among main variables specifically to test the following null hypotheses were tested: There is no significant relationship between AI adoption and strategic planning effectiveness (HO1.1), and There is no significant relationship between leadership styles and strategic planning effectiveness (HO1.2). This is despite the non-normality result of the Shapiro–Wilk test (W = 0.58, p < .001) since data is robust with large samples (N = 105) and scatterplots showed linear relationships among variables as indicated in the appendix for statistical tables and figures. Correlation results were interpreted based on direction, strength which includes very weak (0.00–0.19), weak (0.20–0.39), moderate (0.40–0.59), strong (0.60–0.79), and very strong (0.80–1.00), and significance, with relationships considered significant at p < .05.

Table 4 Correlation of AI Adoption and Leadership Styles with Strategic Planning

Variable	**r-value**	**p-value**	**Interpretation**
AI Adoption	0.78	< .01	Significant, Positive, and Very Strong Relationship
Leadership Styles	0.82	< .01	Significant, Positive, and Very Strong Relationship

The results revealed that both AI adoption and leadership styles have significant, positive, and very strong relationships with strategic planning effectiveness. AI adoption showed a very strong positive correlation (r = .78, p < .01), showing that the higher levels of AI integration, the higher the effectiveness in strategic planning, and vice versa.

Leadership styles scores demonstrated a higher and very strong positive correlation (r = .82, p < .01), revealing that effective leadership practices enhance the success of strategic planning initiatives. These results led to the rejection of both null hypotheses (HO1.1 and HO1.2), affirming that AI adoption and leadership styles are significantly related to strategic planning effectiveness. However, it should be noted that correlation does not imply causation; these findings only establish statistical associations rather than direct cause-and-effect relationships.

In terms of shared variance as determined by , AI adoption accounted for approximately 60.8% of the variability in strategic planning effectiveness ($r^2 = 0.78^2 = 0.608$), while leadership styles explained about 67.2% ($r^2 = 0.82^2$

= 0.672). These results underscore the importance of both technological adoption and leadership approaches as mutually reinforcing factors that contribute to successful strategic planning within technology firms.

Impact of AI Adoption and Leadership Styles on Strategic Planning Effectiveness

A multiple linear regression was performed to determine how AI adoption and leadership styles influence the effectiveness of strategic planning. This method was appropriate because it assesses both the individual and combined predictive effects of multiple independent variables on a single continuous dependent variable. Assumption testing confirmed the suitability of the data for regression analysis. Scatterplots verified linearity, while the histogram and Q–Q plot indicated that residuals were normally distributed, with data points closely following the diagonal line.

The Durbin–Watson statistic (1.61) confirmed the independence of errors, and residual plots showed a consistent spread, satisfying homoscedasticity. With Variance Inflation Factors (VIFs) below 5, the highest being 1.85, multicollinearity was not a concern. The results of all assumption tests supported the appropriateness of using the regression model to examine the predictive influence of AI adoption and leadership styles on strategic planning effectiveness.

The interpretation of the regression results considered the statistical significance ($p < .05$) of each predictor, the standardized beta coefficients (β) to assess their relative influence and direction, and the coefficient of determination (R^2 and adjusted R^2) to determine how much variance in strategic planning effectiveness was explained. The assumption diagnostics confirmed model validity, while practical significance was evaluated by comparing β values to identify which variable exerted a stronger predictive effect.

Table 5 Model Summary of the Regression on Strategic Planning Effectiveness

Model	R	R^2	Adjusted R^2	Std. Error of the Estimate	Durbin–Watson
1	0.85	0.72	0.72	0.42	1.61

Data analysis revealed that the model was statistically significant, $F(2, 102) = 131.68$, $p < .001$, signaling that AI adoption and leadership styles collectively predict strategic planning effectiveness. The model produced a strong multiple correlation ($R = .85$) and a high coefficient of determination ($R^2 = .72$), suggesting that approximately 72% of the variance in strategic planning effectiveness can be explained by the two predictors. The adjusted R^2 (.72) confirmed model stability, while the low standard error (0.42) indicated precise estimation.

Table 6 Analysis of Variance (ANOVA) for the Regression Model

Source	Sum of Squares	df	Mean Square	F	p
Regression	46.97	2	23.49	131.68	< .001
Residual	18.19	102	0.18		
Total	65.17	104			

The results of the Analysis of Variance (ANOVA) established that the overall regression model was statistically significant, $F(2, 102) = 131.68$, $p < .001$. This finding points out that AI adoption and leadership styles, when together, significantly predict strategic planning effectiveness. The significant F-value favors the overall strength and validity of the regression model, supporting that the predictors collectively make a meaningful contribution to explaining organizational performance in terms of strategic planning.

Table 7 Coefficients of the Predictors on Strategic Planning Effectiveness

Predictor	B	SE B	β	t	p	95% CI [LL, UL]	VIF
(Constant)	-0.06	0.4	—	-0.15	0.88	[-0.85, 0.73]	—
AI Adoption	0.47	0.07	0.47	6.57	< .001	[0.33, 0.61]	1.85

Leadership Styles	0.59	0.09	0.46	6.44	< .001	[0.41, 0.78]	1.85
Note. VIF = Variance Inflation Factor (< 5 indicates no multicollinearity). CI = Confidence Interval.							

Data analysis confirmed that both predictors contributed significantly to the model. AI adoption ($\beta = 0.47$, $t = 6.57$, $p < .001$) had a strong positive effect on strategic planning effectiveness, indicating that higher levels of AI integration are associated with greater planning success.

Similarly, leadership styles ($\beta = 0.46$, $t = 6.44$, $p < .001$) significantly predicted strategic planning effectiveness, showing that effective leadership enhances the quality of planning processes.

Comparing standardized coefficients revealed that AI adoption exerted a slightly stronger influence than leadership styles, though both variables were essential and mutually reinforcing.

The high R^2 value (.72) implies that these predictors together explain most of the variation in strategic planning effectiveness, leaving only 28% attributable to other factors.

Overall, the results confirmed that AI adoption and leadership styles significantly and positively predict strategic planning effectiveness. Organizations that effectively combine technological adoption with strong leadership are more likely to achieve coherent, adaptive, and data-driven strategic plans that enhance overall performance.

Mediating Role of Leadership Styles in the Relationship Between AI Adoption and Strategic Planning Effectiveness

To determine whether leadership styles mediate the relationship between AI adoption and strategic planning effectiveness, the following null hypothesis was tested: H_{03}: Leadership styles do not significantly mediate the relationship between AI adoption and strategic planning effectiveness. Mediation analysis was conducted using the maximum likelihood (ML) estimator and the Delta method for computing standard errors and confidence intervals.

Table 8 Parameter Estimates for Direct, Indirect, and Total Effects

Effect Type	Path	Estimate	SE	z	p	95% CI [LL, UL]	Interpretation
Direct Effect	AI Adoption → Strategic Planning Effectiveness	0.47	0.07	6.67	< .001	[0.33, 0.61]	Significant
Indirect Effect	AI Adoption → Leadership Styles → Strategic Planning Effectiveness	0.31	0.06	5.38	< .001	[0.20, 0.43]	Significant
Total Effect	AI Adoption → Strategic Planning Effectiveness (with mediation)	0.78	0.06	12.74	< .001	[0.66, 0.90]	Significant

The results revealed that leadership styles significantly mediate the relationship between AI adoption and strategic planning effectiveness. The direct effect of AI adoption on strategic planning effectiveness remained positive and significant ($\beta = 0.47$, $z = 6.67$, $p < .001$), indicating that the integration of AI independently contributes to stronger strategic planning outcomes. In addition, the indirect effect of AI adoption through leadership styles was also significant ($\beta = 0.31$, $z = 5.38$, $p < .001$), showing that effective leadership practices serve as an important mechanism through which AI adoption enhances strategic planning effectiveness.

The total effect of AI adoption on strategic planning effectiveness ($\beta = 0.78$, $z = 12.74$, $p < .001$) exceeded the direct effect alone, confirming partial mediation. This suggests that while AI adoption directly improves planning outcomes, its impact is magnified when mediated by strong leadership. Specifically, leadership

behaviors such as articulating a clear vision, aligning organizational missions, and reinforcing performance expectations strengthen the connection between technological adoption and effective strategic implementation.

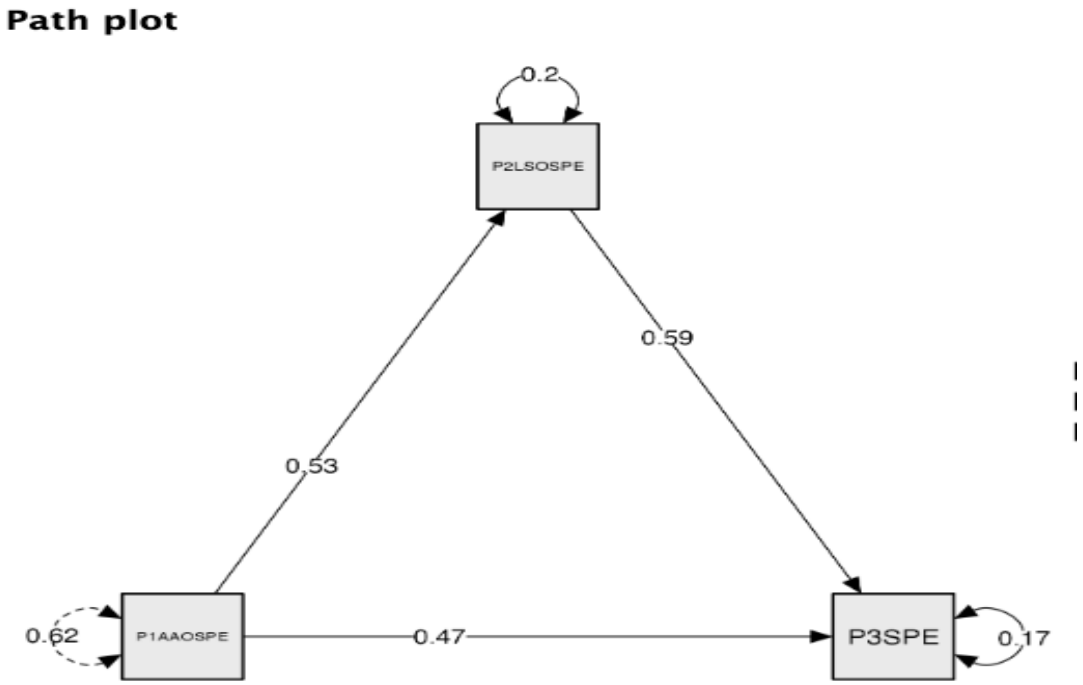

Figure 2. Path Plot

Figure 2 presents the overall path model illustrating how leadership styles mediate the relationship between AI adoption and strategic planning effectiveness. As shown, AI adoption exerts both a direct effect on strategic planning effectiveness ($\beta = 0.47$) and an indirect effect through leadership styles ($\beta = 0.53 \times 0.59 = 0.31$). This demonstrates that organizations adopting AI tend to enhance their leaders' strategic and collaborative behaviors, which in turn strengthen planning effectiveness. The coexistence of significant direct and indirect paths supports partial mediation, confirming that AI adoption contributes to effective strategic planning both independently and through the influence of leadership. Overall, the model highlights the synergistic relationship between technology and leadership, showing that technology-driven firms achieve stronger strategic outcomes when guided by capable and visionary leaders.

RECOMMENDATIONS

This section will present a table that would comprehensively address the study's statements of the problem, the results were synthesized to highlight the strengths, areas for enrichment, and their potential impact on recommendations for technology firms. This will be the basis for identifying priorities that will help create actionable strategies for aligning AI adoption with leadership practices to enhance strategic planning outcomes.

Table 8 Summary of Strengths, Areas for Enrichment, and Implications for Recommendations per SOP

Statement of the Problem (SOP)	Strengths Identified	Areas for Enrichment	Potential Impact on Recommendations
1.1 To determine the level of AI adoption in technology firms.	High overall mean (M = 6.40, SD = 0.79) reflects that AI is highly integrated into business processes and supports decision-making.	Slightly lower scores in "Lack of skilled staff limits effective use of AI" (M = 6.14, SD = 1.26) and "My organization struggles to integrate AI with legacy	Continue investing in AI capacity-building and system modernization but align these efforts with leadership direction to ensure meaningful integration and utilization.

		systems" (M = 6.12, SD = 1.34).	
1.2 To determine the level of leadership styles in technology firms.	High overall mean (M = 5.64, SD = 0.61) shows that leaders demonstrate transformational and transactional qualities conducive to performance.	Lowest positive item, "My supervisor focuses attention on irregularities, mistakes, and deviations from standards" (M = 6.08, SD = 1.31), indicates focus on monitoring rather than empowerment.	Prioritize leadership development as the top recommendation. Strengthen transformational leadership behaviors that foster innovation, empowerment, and collaboration, as leadership has the strongest correlation with strategic planning (r = .82).
1.3 To determine the level of strategic planning effectiveness in technology firms.	Very High mean (M = 6.30, SD = 0.79) confirms robust strategic planning systems supported by management.	Slightly lower means for "The planning steps were well structured" (M = 6.15, SD = 0.98) and "Training and capacity-building were provided" (M = 6.18, SD = 1.05).	Enhance planning procedures and capacity-building to sustain leadership-driven planning excellence and long-term strategic alignment.
2. To determine the relationship among AI adoption, leadership styles, and strategic planning effectiveness.	All relationships are positive and significant: AI–Leadership (r = .68), AI–Strategic Planning (r = .78), and Leadership–Strategic Planning (r = .82).	None; all correlations are strong.	Place leadership–strategic planning alignment as the core institutional priority, ensuring that leadership drives both AI adoption and planning effectiveness.
3. To assess the impact of AI adoption and leadership styles on strategic planning effectiveness.	Regression results (R = .85, R^2 = .72, p < .001) confirm both variables significantly predict planning effectiveness.	AI (β = 0.47) slightly stronger than leadership (β = 0.46), but both substantial.	Reinforce leadership adaptability and AI-supported decision-making to maintain a balanced, data-driven planning culture led by capable leaders.
4. To examine the mediating role of leadership styles between AI adoption and strategic planning effectiveness.	Leadership partially mediated the relationship (βindirect = 0.31, βtotal = 0.78, p < .001), confirming synergy.	Strengthen leaders' ability to translate AI insights into strategic action.	Elevate leadership development as the mediating catalyst, since effective leaders amplify the benefits of AI in achieving strategic planning excellence.

The recommendations in this study were formulated through a systematic process, beginning with an analysis of descriptive data and progressing toward inferential insights. Initial descriptive findings indicated that technology firms generally demonstrate strong performance in areas such as AI adoption, effective leadership, and strategic planning. Elevated overall mean scores suggest that these organizations are both technologically advanced and led by competent leadership. However, certain aspects warrant further improvement. For instance, relatively lower scores were recorded for variables tied to AI integration and workforce preparedness, implying that some staff may lack the necessary technical competencies to fully leverage AI capabilities. Within the leadership domain, the lowest mean score was associated with supervisors' emphasis on identifying irregularities and errors, pointing to a possible need for a leadership approach that balances oversight with innovation and empowerment. Similarly, strategic planning elements linked to structured processes and capacity development were rated slightly below average, suggesting the importance of enhancing training and

reinforcing alignment between strategy formulation and implementation. These patterns laid the groundwork for identifying areas of focus and helped shape the subsequent recommendations.

Inferential analyses provided deeper clarity on the priorities. Correlation analysis revealed positive and statistically significant relationships among AI implementation, leadership styles, and the effectiveness of strategic planning, with leadership displaying the strongest association with planning effectiveness ($r = .82$, $p < .01$). This implies that leadership plays a pivotal role in shaping organizational planning capabilities. Further regression analysis confirmed this trend, indicating that both AI usage and leadership styles significantly predict strategic planning success, accounting for 72% of its variance. These results underscore the synergistic impact of leadership and technology on strategic outcomes. Additionally, mediation analysis revealed that leadership styles partially mediate the relationship between AI adoption and strategic planning effectiveness. This finding reinforces the notion that leadership acts as a critical bridge in translating technological assets into strategic value.

Based on these insights, three key recommendations were established. First, enhancing leadership development should be prioritized. Given leadership's significant influence on planning processes and its mediating role in the AI–strategy relationship, organizations should invest in programs that foster visionary, empowering, and innovation-oriented leadership behaviors. Second, strengthening AI capability is essential. This involves addressing skill gaps, upgrading outdated systems, and promoting digital literacy to ensure AI tools are adopted and utilized effectively. Developing confidence and technical competence across organizational tiers will support data-driven decision-making. Third, reinforcing the integration of strategic processes is necessary. Establishing structured planning routines, delivering consistent training, and sustaining capacity-building efforts will help bridge the gap between planning and execution.

In conclusion, the progression from descriptive observations to inferential analysis illustrates that the effectiveness of strategic planning is maximized when leadership, technology, and organizational processes are well-aligned. At the center of this alignment is strong leadership, supported by competent teams and clearly defined planning frameworks. When leadership capabilities, AI proficiency, and strategic structures evolve in tandem, technology firms are better positioned to cultivate an adaptive, data-informed, and forward-thinking organizational culture, laying the foundation for sustained strategic success.

CONCLUSION

This study investigated how AI adoption and leadership styles influence strategic planning effectiveness among technology firms in the Philippines. The findings revealed that both AI adoption and leadership styles significantly and positively predicted strategic planning effectiveness. Leadership showed the strongest correlation with strategic planning ($r = .82$, $p < .01$) and also partially mediated the relationship between AI adoption and planning outcomes. These results manifest that while technology is important for data-driven decision-making, its effectiveness depends greatly on how leaders interpret, integrate, and act on AI insights.

The findings propose that leadership plays a dominant role in relating technological capability with organizational performance. The regression results ($R^2 = .72$) affirm that AI adoption and leadership styles collectively account for 72% of the variance in strategic planning effectiveness. The mediation analysis further manifests that leadership acts as a channel through which AI enhances strategic planning outcomes. This means that leadership behaviors such as articulating a clear vision, motivating employees, and fostering collaboration allow organizations to transform AI-generated insights into actionable strategies. In this sense, leadership serves not only as a facilitator of technological adoption but also as an essential element that ensures strategic alignment between human and digital resources.

The results of this study are consistent with previous research affirming that leadership and technology are mutually reinforcing in driving organizational success. Csaszar (2024) found that AI improves strategic decision-making when accompanied by managerial judgment and ethical leadership. Similarly, Mousa (2024) highlighted that well-structured strategic planning frameworks contribute to higher organizational performance in technology-based firms. Khuong (2022) also demonstrated that transformational and transactional leadership behaviors significantly affect firm performance and employee engagement. The present study aligns with these

findings and extends them by empirically showing that leadership serves as a mediating link between AI adoption and strategic outcomes, particularly in the Philippine technology sector.

Theoretically, this study contributes to the growing body of research on digital-era management by establishing leadership as a key variable that connects technological adoption with strategic planning effectiveness. It underscores that leadership development should be viewed not merely as a human resource initiative but as a strategic imperative in digital transformation.

Practically, the findings imply that technology firms should prioritize leadership training and capacity-building that emphasize vision-setting, empowerment, and innovation. Organizations should also invest in AI literacy and cross-functional learning to bridge the gap between technical implementation and strategic decision-making. When these initiatives are pursued together, firms can achieve greater adaptability, alignment, and long-term strategic success.

Although the results provide valuable insights, this study has several limitations. The use of a cross-sectional design limits the ability to infer causality among variables. The sample was also confined to technology firms within the Philippines, which may restrict the generalizability of findings to other industries or cultural contexts.

Moreover, the reliance on self-reported data could introduce response bias, although reliability and validity tests confirmed the instrument's internal consistency. Future research could address these limitations by employing longitudinal designs, including other sectors, and incorporating qualitative methods to capture deeper insights into leadership practices in technology-driven organizations.

In conclusion, this study reinforces that AI adoption and leadership styles are vital, interdependent factors that shape strategic planning effectiveness. Leadership amplifies the benefits of AI by transforming data into informed decisions and fostering an environment that supports innovation and collaboration. The findings highlight that sustainable strategic success depends not only on technological advancement but also on the presence of empowered, visionary, and adaptive leaders.

Future studies may explore other mediating or moderating variables such as organizational culture, digital maturity, or innovation climate to further explain how leadership and technology jointly drive strategic excellence in evolving digital ecosystems.

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