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Strategic Planning, Leadership, Resource Management, and Quality Assurance as Drivers of Institutional Performance in Higher Education: The Mediating Role of Academic Quality

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ARTICLE INFO	ABSTRACT
Submission: May 16, 2026 Revised: May 30, 2026 Accepted: June 14, 2026 Available Online: June 26, 2026 Keywords: Strategic Planning; Leadership; Resource Management; Quality Assurance; Academic Quality; Institutional Performance; Higher Education Corresponding author: Gulzar Mehar Ali Email: gulzarmehar005@gmail.com	Higher education institutions are increasingly pressured to enhance academic quality while improving institutional performance amid resource constraints, regulatory accountability, and rising stakeholder expectations. This study investigates the effects of strategic planning, leadership, resource management, and quality assurance on academic quality, as well as the specific indirect effects of these institutional capabilities on institutional performance via academic quality. Drawing on the Resource-Based View, a quantitative cross-sectional design was implemented with 350 academic and administrative personnel from public and private higher education institutions. Data were collected using a structured questionnaire assessing six reflective constructs and analyzed using partial least squares structural equation modeling (PLS-SEM). The measurement model demonstrated satisfactory indicator reliability, internal consistency, convergent validity, and discriminant validity. The structural model accounted for 62.4% of the variance in academic quality and 51.8% of the variance in institutional performance. Strategic planning ($\beta = 0.214$, $p < 0.001$), leadership ($\beta = 0.267$, $p < 0.001$), resource management ($\beta = 0.158$, $p = 0.001$), and quality assurance ($\beta = 0.301$, $p < 0.001$) were positively associated with academic quality. Academic quality, in turn, showed a strong positive relationship with institutional performance ($\beta = 0.720$, $p < 0.001$). Significant specific indirect effects were observed for strategic planning ($\beta = 0.154$, $p < 0.001$), leadership ($\beta = 0.192$, $p < 0.001$), resource management ($\beta = 0.114$, $p = 0.002$), and quality assurance ($\beta = 0.217$, $p < 0.001$) on institutional performance through academic quality. Quality assurance was identified as the strongest antecedent of academic quality and produced the largest indirect effect on institutional performance. These findings highlight academic quality as a key explanatory mechanism linking institutional management capabilities to

broader institutional performance and emphasize the importance of integrating strategic planning, leadership, resource allocation, and quality assurance to support academic improvement.

Introduction

Higher education institutions (HEIs) face an increasingly complex environment marked by heightened stakeholder expectations, intensified competition, resource limitations, technological advancements, regulatory oversight, and escalating demands for demonstrable educational quality. Universities are now assessed not only on their teaching and qualification-awarding functions but also on their effectiveness in research, student development, knowledge creation, societal engagement, governance, and responsible resource utilization. As a result, institutional performance has evolved into a multidimensional construct that includes academic effectiveness, research productivity, organizational efficiency, stakeholder satisfaction, institutional reputation, and the attainment of strategic objectives. The growing reliance on performance indicators in higher education underscores the shift toward evidence-based management and accountability. However, excessive or poorly designed performance measurement systems may impose administrative burdens and lead to unintended organizational consequences (Sarrico, 2022).

In this context, strategic planning serves as a critical organizational mechanism that enables universities to establish priorities, allocate resources, respond to environmental changes, and coordinate activities toward long-term objectives. Unlike routine administrative planning, strategic planning requires a comprehensive assessment of internal capabilities and the external environment, the formulation of priorities, the translation of strategic objectives into actionable steps, and the evaluation of progress against defined outcomes. Empirical research in higher education demonstrates that strategic planning is positively associated with institutional performance, particularly when planning processes are integrated with implementation and resource management systems rather than remaining symbolic (Garad et al., 2025). Comparative studies across universities in five European countries further indicate that the effectiveness of strategic planning is influenced by the characteristics of the planning process, stakeholder involvement, institutional context, and the institution's capacity to address implementation challenges (Menon, 2026). These findings suggest that the mere existence of a strategic plan does not ensure superior institutional outcomes; its value is contingent upon the organizational capabilities that translate strategic priorities into academic and administrative practices.

Leadership is a central determinant of institutional effectiveness, as universities rely on academic and administrative leaders to articulate direction, motivate staff, coordinate activities, manage change, and foster environments conducive to teaching and research. Leadership in higher education differs from traditional hierarchical management due to the presence of professional autonomy, decentralized academic structures, diverse stakeholder groups, and competing priorities. As a result, leadership effectiveness depends not only on formal authority but also on communication, intellectual stimulation, participation, organizational support, and the ability to align individual academic efforts with institutional objectives. Recent empirical studies show that transformational leadership positively affects lecturer performance and organizational engagement, highlighting the significance of leadership practices in achieving desirable academic and organizational outcomes (Angela et al., 2025). Thus, effective leadership functions as an institutional capability that transforms strategic priorities into coordinated academic action and improved performance.

Resource management is equally essential, as the achievement of strategic objectives depends on the effective allocation and utilization of financial, human, technological, infrastructural, and academic resources. Universities, often operating under resource constraints, must continually decide how to distribute limited resources among teaching, research, infrastructure, student services, faculty development, and administrative functions. Research in higher education demonstrates that resource allocation is directly linked to institutional performance indicators such as research outputs, patents, and knowledge-transfer outcomes (Yang et al., 2019). Recent studies further show that resource management is significantly associated with university financial performance, underscoring that the effectiveness of institutional resources relies not only on their availability but also on systematic management and deployment (Lasmiatun et al., 2025). Therefore, resource management serves as an operational link between strategic intentions and the institutional capacity to deliver high-quality academic activities.

In addition to strategic planning, leadership, and resource management, quality assurance has become a fundamental aspect of contemporary higher education governance. Quality assurance involves systematic processes through which institutions set

academic standards, evaluate programs, monitor teaching and learning, assess institutional operations, address stakeholder expectations, and foster continuous improvement. The increasing scholarly focus on quality assurance reflects its growing strategic significance; for example, a bibliometric analysis of 321 publications from 1993 to 2022 revealed significant growth in quality-assurance research and a heightened emphasis on institutional quality practices and societal impact (Khuram et al., 2023). However, quality assurance systems are not inherently effective. A systematic literature review by Pushpakumara et al. (2023) identified institution-related, process-related, and stakeholder-related challenges that can hinder the implementation and effectiveness of quality assurance mechanisms in HEIs. This distinction is crucial, as quality assurance may become primarily compliance-driven unless institutional mechanisms convert formal standards into meaningful improvements in academic activities.

The significance of these management practices is especially pronounced in developing higher education systems, where universities often face concurrent pressures to expand access, enhance academic standards, strengthen governance, and compete in increasingly internationalized educational contexts. For instance, in Pakistan, the Higher Education Commission introduced the Pakistan Precepts, Standards and Guidelines for Quality Assurance in Higher Education (PSG-2023), signaling a shift toward a more comprehensive quality assurance and enhancement framework (Higher Education Commission [HEC], 2023). These developments highlight the increasing policy emphasis on strategic governance and academic quality. However, formal institutional arrangements alone may not be sufficient to achieve sustained performance improvements unless universities also possess complementary managerial capabilities that translate strategic direction, leadership, resources, and quality systems into improved academic outcomes.

Despite the expanding literature, a significant research gap persists. Most existing studies have examined strategic planning, leadership, resource management, or quality assurance as independent predictors of organizational or academic outcomes. For instance, research has identified links between strategic planning and institutional performance (Garad et al., 2025), leadership and lecturer performance (Angela et al., 2025), resource management and financial performance (Lasmiatun et al., 2025), and quality-management systems and institutional outcomes. This fragmented approach, however, offers limited insight into how these complementary organizational capabilities function collectively within HEIs. Recent findings on quality assurance systems suggest that management support, infrastructure, and stakeholder engagement influence the effectiveness of quality assurance and, consequently, institutional outcomes in teaching, research, and societal impact (Díaz-Cabrera et al., 2025). These observations underscore the necessity of examining institutional performance from an integrated management perspective.

A more significant gap involves understanding the mechanisms by which these organizational practices influence institutional performance. Much of the current literature focuses on direct relationships between managerial practices and performance outcomes, with less attention given to the academic mechanisms linking organizational management to institutional effectiveness. This omission is theoretically important, as strategic planning, leadership, resource allocation, and quality assurance are unlikely to enhance performance solely through their administrative existence. Their impact is more likely realized when they strengthen core academic functions such as teaching standards, curriculum effectiveness, faculty competence, assessment practices, learning processes, and ongoing academic improvement. In this context, academic quality may serve as the transmission mechanism through which managerial capabilities are transformed into superior institutional outcomes. This perspective aligns with the resource-based view, which posits that sustainable organizational performance depends on the effective configuration and deployment of institutional resources and capabilities rather than mere possession. Recent research in higher education adopting the Resource-Based View similarly highlights the significance of organizational capabilities and intellectual resources in explaining institutional performance (Khan et al., 2026).

This study analyzes the relationships among Strategic Planning, Leadership, Resource Management, Quality Assurance, Academic Quality, and Institutional Performance in higher education institutions. It investigates the effects of Strategic Planning, Leadership, Resource Management, and Quality Assurance on Academic Quality, as well as the impact of Academic Quality on Institutional Performance. Additionally, the study explores the indirect effects of Strategic Planning, Leadership, Resource Management, and Quality Assurance on Institutional Performance mediated by Academic Quality. By integrating these relationships within a unified framework, the study demonstrates how institutional management capabilities enhance overall institutional performance through improvements in academic quality.

This study contributes to the higher education management literature in several ways. Theoretically, it integrates four complementary institutional capabilities within a single framework and positions academic quality as the mechanism linking organizational management to institutional performance. Empirically, it facilitates the simultaneous estimation of direct and

indirect relationships, thereby clarifying not only whether strategic planning, leadership, resource management, and quality assurance affect performance, but also how these effects are mediated by academic quality. Methodologically, the use of partial least squares structural equation modeling (PLS-SEM) enables concurrent evaluation of the measurement properties of multidimensional constructs and the hypothesized structural relationships. Practically, the framework can guide university leaders, academic administrators, quality enhancement units, and higher education policymakers in determining whether performance improvement requires greater emphasis on planning, leadership, resource deployment, quality assurance, or, more importantly, the integration of these capabilities around academic quality enhancement. Thus, the study conceptualizes academic quality not only as an institutional outcome but also as a strategic organizational mechanism through which managerial capabilities can generate broader and more sustainable institutional performance.

Literature Review

Theoretical Foundation

The relationship between organizational capabilities and institutional performance can be theoretically explained through the Resource-Based View (RBV), which proposes that differences in organizational performance arise from the possession, development, and effective deployment of strategically valuable resources and capabilities. Barney (1991) argued that resources capable of producing sustained competitive advantage should possess value and, under stronger conditions, rarity, imperfect imitability, and limited substitutability. Although originally developed within strategic management, the RBV provides a useful theoretical lens for higher education because universities similarly depend on combinations of tangible and intangible resources, including human expertise, leadership capability, organizational routines, financial resources, technological infrastructure, institutional knowledge, and management systems. From this perspective, resources alone do not ensure superior performance; their strategic configuration and effective utilization determine the extent to which they generate organizational value (Barney, 1991).

Within the context of this study, strategic planning, leadership, resource management, and quality assurance are identified as interrelated organizational capabilities that enable higher education institutions to coordinate resources and activities. Strategic planning establishes institutional direction, leadership mobilizes organizational actors toward strategic priorities, resource management ensures efficient deployment of institutional assets, and quality assurance provides mechanisms for monitoring and continuously improving academic processes. Within the conceptual framework, these capabilities are positioned as antecedents of Academic Quality, while Academic Quality is positioned as the intervening construct linking institutional management capabilities with Institutional Performance. This distinction is significant because universities' core productive activities include teaching, learning, research, curriculum development, and knowledge creation. Thus, academic quality can be conceptualized as an intermediate organizational capability that translates managerial resources and practices into broader institutional outcomes.

Strategic Planning

Strategic planning is a systematic organizational process through which institutions establish long-term priorities, assess internal and external conditions, formulate strategic objectives, determine implementation mechanisms, allocate resources, and monitor progress toward desired outcomes. In higher education, strategic planning is especially important as universities must respond to evolving student expectations, technological advancements, government regulations, competition, internationalization, financial constraints, and shifting labor-market requirements. As such, strategic planning serves as an institutional mechanism for aligning academic and administrative activities with broader organizational objectives.

The significance of strategic planning in universities extends beyond the preparation of formal strategic documents. Dooris et al. (2004) emphasized that effective strategic planning in higher education requires an integrated and participatory process that connects institutional priorities with decision-making and implementation. Strategic planning can therefore contribute to institutional transformation when it is embedded in organizational processes rather than treated as a periodic administrative requirement. More recent evidence strengthens this argument. Endo et al. (2025), through a systematic literature review of research published between 2020 and 2024, identified strategic planning as an important mechanism for strengthening educational performance, particularly when planning frameworks are comprehensive, adaptable, and aligned with institutional circumstances.

Recent cross-national evidence demonstrates that the effectiveness of strategic planning depends significantly on the processes by which strategies are formulated and implemented. Menon (2026), in a study of higher education institutions across five European countries, found that stakeholder participation, planning process characteristics, institutional conditions, and implementation challenges influence the perceived effectiveness of strategic planning. This evidence indicates that strategic planning should not be understood solely as the existence of strategic goals. Instead, its performance effects depend on the clear articulation, communication, resourcing, implementation, and evaluation of institutional priorities. Within this framework, effective strategic planning enhances both academic quality and overall institutional performance.

Leadership

Leadership is a fundamental organizational capability in higher education, as strategic priorities and institutional policies require coordinated human implementation. University leaders influence organizational direction, faculty motivation, decision-making processes, organizational culture, innovation, resource utilization, and institutional commitment to academic standards. Effective leadership in universities is complex due to the presence of professional academic communities characterized by significant autonomy, disciplinary diversity, decentralized decision-making, and multiple stakeholder interests.

Transformational leadership provides a particularly relevant explanation of leadership effectiveness within educational institutions. Such leadership emphasizes vision, intellectual stimulation, individualized consideration, motivation, and organizational transformation. Within universities, these characteristics can encourage academic personnel to move beyond routine role requirements and contribute more actively to teaching improvement, innovation, research productivity, and institutional development. Hafeez and Bidari (2022) concluded that transformational leadership can positively influence organizational performance in educational settings by establishing direction, motivating organizational members, and creating environments conducive to teachers and students.

Recent research in higher education further underscores the importance of leadership for institutional effectiveness. Aziz et al. (2024) found that transformational leadership practices can shape institutional performance through vision, motivation, organizational commitment, and values-oriented management. Leadership may influence performance through both direct organizational mechanisms and indirect academic mechanisms. Leaders determine the extent to which strategic priorities receive organizational support, faculty members are encouraged to improve academic practices, resources are appropriately deployed, and quality improvement is embedded within institutional culture. In this framework, Leadership is conceptualized as an antecedent of Academic Quality, with its relationship with Institutional Performance examined indirectly through Academic Quality.

Resource Management

Resource management involves the systematic acquisition, allocation, utilization, monitoring, and optimization of institutional resources to achieve organizational objectives. In higher education, these resources encompass financial capital, academic and administrative personnel, technological infrastructure, physical facilities, research resources, information systems, laboratories, libraries, and institutional knowledge. Effective resource management is especially important as universities typically operate under resource constraints while facing growing expectations related to teaching quality, research productivity, digital transformation, student services, and societal engagement.

The RBV suggests that institutional performance depends not only on the quantity of resources available but also on the organization's ability to configure and deploy them effectively. This argument is highly applicable to universities because institutions with similar levels of funding may achieve considerably different academic and organizational outcomes depending on their resource-allocation practices. Yang et al. (2019), examining performance-based resource allocation among 64 major Chinese universities, demonstrated the importance of connecting resource allocation with multidimensional institutional performance, including publications, patents, and knowledge-transfer revenue. Their findings reinforce the proposition that systematic resource allocation can serve as a mechanism for stimulating institutional outputs.

Resource management can also directly influence academic quality. Adequate faculty deployment, professional development, learning technologies, library resources, laboratories, research infrastructure, and financial support establish the conditions necessary for effective teaching and scholarly activity. In contrast, inefficient resource allocation can constrain academic programs

even when strategic plans and capable leadership are present. In this study, resource management is conceptualized as a strategic capability that transforms institutional inputs into academic and organizational outputs.

Quality Assurance

Quality assurance encompasses the policies, procedures, standards, monitoring systems, evaluation practices, and continuous-improvement mechanisms used to ensure that educational processes and outcomes meet predetermined academic and institutional expectations. In higher education, quality assurance includes curriculum evaluation, program review, teaching assessment, institutional self-evaluation, accreditation, student feedback, academic auditing, learning-outcome assessment, and continuous improvement. As a result, quality assurance has evolved from a primarily administrative or accreditation-oriented function to an essential component of institutional governance. Sarrico (2022) observed that quality management and performance measurement have become deeply embedded in contemporary higher education systems. Performance indicators and quality-management mechanisms can facilitate accountability, organizational learning, and institutional improvement, although poorly designed measurement systems may also create administrative burden and unintended behavioral consequences. This observation demonstrates that the effectiveness of quality assurance depends not merely on the existence of evaluation procedures but on whether the information generated through these procedures contributes to meaningful academic improvement.

The growing strategic importance of quality assurance is further demonstrated by Khuram et al. (2023), whose bibliometric analysis of 321 publications on quality assurance in higher education from 1993 to 2022 revealed increasing scholarly attention to quality-assurance practices and highlighted the evolving relationship between quality systems and broader institutional and societal outcomes. Quality assurance is thus understood as an institutional capability that promotes systematic evaluation, evidence-based decision-making, accountability, and continuous academic improvement.

Recent empirical evidence provides even more direct support for its relationship with institutional performance. Serrano et al. (2026) found that quality assurance contributes to higher education institutional performance, while also identifying differences between public and private institutions. Their findings suggest that the effects of quality assurance may depend partly on institutional context. Quality assurance consequently influences institutional performance both directly and indirectly by strengthening academic quality.

Academic Quality

Academic quality refers to the effectiveness and standard of an institution's core educational and scholarly processes. In this study, academic quality encompasses the perceived quality of teaching, curriculum relevance and coherence, academic standards, faculty competence, assessment practices, student learning processes, and mechanisms supporting continuous academic improvement. Academic quality is distinct from broader institutional performance. While institutional performance includes outcomes such as strategic-goal achievement, research productivity, operational effectiveness, reputation, stakeholder satisfaction, and institutional development, academic quality specifically addresses the quality of core academic activities.

This conceptual distinction is essential for establishing academic quality as a mediator. Quality assurance, for example, represents the organizational systems through which quality is monitored and improved, whereas academic quality represents the condition or effectiveness of academic processes generated partly through those systems. Khuram et al. (2023) demonstrated that quality assurance research increasingly extends beyond procedural compliance toward broader institutional and societal impact, indicating that quality-management mechanisms can contribute to outcomes beyond formal accreditation.

The relationship is also supported by emerging evidence concerning quality-assurance strategies and academic outcomes. Angulo (2026), in a systematic review of higher education research, reported that institutional self-evaluation, external accreditation, continuous improvement, and quality-management standards were associated with improvements in academic indicators such as student retention, pass rates, and satisfaction. However, the review also demonstrated that these effects vary according to institutional context and implementation conditions. This variation suggests that management practices do not mechanically produce academic quality; their effectiveness depends on institutional capacity, implementation, stakeholder engagement, and organizational commitment.

Academic quality can be understood as the operational manifestation of effective university management. Strategic plans prioritize teaching and research excellence, leaders establish an academic vision and motivate faculty, resource-management systems provide the necessary human, technological, and financial inputs, and quality-assurance mechanisms monitor academic standards. The combined effectiveness of these organizational capabilities is reflected in stronger academic quality.

Institutional Performance

Institutional performance refers to the extent to which a higher education institution effectively achieves its strategic, academic, research, operational, and stakeholder-oriented objectives. Unlike financial performance in commercial organizations, university performance is inherently multidimensional. It may include teaching effectiveness, research productivity, student outcomes, institutional reputation, organizational efficiency, innovation, stakeholder satisfaction, societal contribution, and the achievement of strategic goals.

Performance measurement in higher education has consequently evolved toward multidimensional approaches. Sarrico (2022) noted that performance indicators increasingly influence university management and quality systems, while also cautioning against reducing complex institutional activities to narrow performance measures. Similarly, Yang et al. (2019) demonstrated that university performance can be evaluated through multiple outputs, including scientific publications, patents, and knowledge-transfer activities. These perspectives support the use of a broad institutional-performance construct rather than reliance on a single financial or academic indicator.

This study views institutional performance as the ultimate organizational outcome resulting from the interaction of managerial capabilities and academic processes. Strategic planning establishes direction, leadership mobilizes organizational actors, resource management provides and coordinates institutional inputs, quality assurance monitors standards and improvement, and academic quality represents the effectiveness of core educational processes. Institutional performance emerges from the coordinated functioning of these capabilities rather than from any single management practice.

Academic Quality as a Mediating Mechanism

The intervening role of Academic Quality constitutes the central explanatory mechanism of the study framework. Existing evidence supports relationships between strategic planning and educational performance (Endo et al., 2025; Menon, 2026), leadership and organizational performance (Hafeez & Bidari, 2022), resource allocation and university outputs (Yang et al., 2019), and quality assurance and institutional performance (Serrano et al., 2026). Academic Quality provides a theoretically plausible explanatory mechanism. Strategic Planning can improve institutional outcomes when strategic priorities strengthen academic programs and standards. Strategic planning can improve performance when strategic priorities strengthen academic programs and standards. Leadership contributes to institutional effectiveness when leaders create conditions that improve teaching, research, faculty performance, and academic innovation. Resource management contributes when financial, human, technological, and infrastructural resources enhance the effectiveness of academic processes. Similarly, quality assurance contributes when monitoring and evaluation result in substantive improvements in curriculum, teaching, assessment, and learning rather than merely satisfying external compliance requirements.

The conceptual framework explains a sequential organizational process in which institutional management capabilities strengthen academic quality, which subsequently contributes to institutional performance. Academic quality therefore serves as an intervening mechanism linking strategic planning, leadership, resource management, and quality assurance with institutional performance. The framework specifically examines how these four management capabilities contribute to institutional performance through improvements in academic quality. This perspective provides a theoretically grounded explanation of how institutional management practices are translated into broader organizational outcomes through the effectiveness of core academic processes.

Hypothesis

H1: Strategic planning has a positive and significant effect on academic quality in higher education institutions.

H2: Leadership has a positive and significant effect on academic quality in higher education institutions.

H3: Resource management has a positive and significant effect on academic quality in higher education institutions.

H4: Quality assurance has a positive and significant effect on academic quality in higher education institutions.

H5: Academic quality has a positive and significant effect on institutional performance in higher education institutions.

H6: Strategic Planning has a positive and significant indirect effect on Institutional Performance through Academic Quality.

H7: Leadership has a positive and significant indirect effect on Institutional Performance through Academic Quality.

H8: Resource Management has a positive and significant indirect effect on Institutional Performance through Academic Quality.

H9: Quality Assurance has a positive and significant indirect effect on Institutional Performance through Academic Quality.

Methodology

Research Design

A quantitative cross-sectional survey design was utilized to investigate the relationships among Strategic Planning, Leadership, Resource Management, Quality Assurance, Academic Quality, and Institutional Performance within higher education institutions. The research was based on the positivist paradigm and adopted a deductive approach. Strategic Planning, Leadership, Resource Management, and Quality Assurance were analyzed as antecedents of Academic Quality, whereas Academic Quality was considered an antecedent of Institutional Performance. The study also assessed the specific indirect effects of the four institutional management capabilities on Institutional Performance via Academic Quality. All constructs were measured at a single time point using a structured questionnaire.

Population and Unit of Analysis

The target population comprised academic and administrative personnel employed in public and private higher education institutions. Eligible academic respondents included lecturers, assistant professors, associate professors, professors, heads of departments, and academic or program coordinators. Administrative respondents included personnel involved in academic administration, institutional planning, quality assurance, and resource-related management functions.

These respondent groups were selected due to their professional responsibilities and institutional experience, which ensured adequate exposure to the organizational practices under investigation, including strategic planning, leadership, resource management, quality assurance, academic processes, and institutional performance. Students were excluded because several constructs required knowledge of internal organizational and managerial processes that are not directly observable from the student perspective.

The unit of observation was the individual academic or administrative employee. The constructs measured respondents' perceptions of organizational practices and outcomes within their respective institutions.

Sampling Technique and Sample Size

A purposive sampling approach was used to recruit respondents with relevant knowledge of institutional academic and management practices. Participants were required to be currently employed by a higher education institution and to possess sufficient professional experience to evaluate the organizational practices examined in the study. Following data screening and application of the predefined eligibility and completeness criteria, 350 valid responses were retained for the final analysis. The final sample provided an adequate basis for estimating the specified PLS-SEM model and testing the hypothesized structural relationships.

Instrument Development and Measurement

Data collection used a structured questionnaire comprising established multi-item measures adapted from the relevant literature and contextualized for higher education. Adaptations were limited primarily to terminology and institutional context to preserve the substantive meaning of the original measures.

The questionnaire consisted of two sections. The first section collected demographic and professional information, including gender, age, institutional sector, designation, educational qualification, and professional experience. The second section measured the six latent constructs: strategic planning, leadership, resource management, quality assurance, academic quality, and institutional performance.

All construct items were measured using a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). Each construct was measured with five indicators, yielding a measurement instrument comprising 30 substantive items.

Strategic planning captured the extent to which institutions established clear priorities, engaged in systematic long-term planning, aligned organizational activities with strategic objectives, implemented strategic initiatives, and monitored progress. Leadership reflected institutional vision, communication, employee support, participative decision-making, motivation, and commitment to organizational improvement. Resource management assessed the effective allocation and utilization of financial, human, technological, infrastructural, and academic resources. Quality assurance represented institutional mechanisms for academic monitoring, curriculum and program review, teaching evaluation, assessment standards, feedback, and continuous improvement.

Academic quality was conceptualized as the effectiveness of core academic processes, including teaching quality, curriculum standards, faculty competence, assessment practices, learning processes, and maintenance of academic standards. Institutional performance represented broader organizational outcomes, including achievement of institutional objectives, academic and research effectiveness, organizational efficiency, stakeholder responsiveness, and institutional development.

Conceptual separation between academic quality and institutional performance was emphasized. Academic quality referred to the quality of core educational processes, while institutional performance encompassed broader organizational outcomes. This distinction was empirically evaluated through discriminant validity assessment.

Pilot Testing and Data Collection

Before the main survey, the questionnaire was reviewed by experts to assess content relevance, clarity, wording, and contextual appropriateness. A pilot study was conducted with 30 respondents whose characteristics were comparable to those of the target population. The pilot study identified ambiguous wording, assessed comprehensibility, and evaluated the preliminary reliability of the measurement scales. Necessary refinements were implemented before full-scale data collection, and pilot respondents were excluded from the final analytical sample.

The finalized questionnaire was distributed to eligible academic and administrative personnel using electronic and direct distribution methods, depending on institutional accessibility. Respondents were informed of the research purpose, voluntary participation, confidentiality of responses, and their right to discontinue participation. Only completed questionnaires that met the predetermined data-quality requirements were included in the analysis.

Data Screening and Preliminary Analysis

Data were coded, screened, and analyzed preliminarily using IBM SPSS Statistics. The screening process assessed response completeness, missing data, data-entry errors, unusual response patterns, and potential outliers. Frequencies and percentages described respondents' demographic and professional characteristics, while means and standard deviations summarized responses to the study constructs.

As predictor, mediator, and outcome variables were collected from the same respondents using a single questionnaire, procedural measures were implemented to mitigate potential common method bias. These measures included respondent anonymity, neutral wording, clear instructions, and appropriate separation of construct measures within the questionnaire.

PLS-SEM Analysis

Hypothesized relationships were analyzed using partial least squares structural equation modeling (PLS-SEM) in SmartPLS. PLS-SEM was selected due to the presence of multiple latent constructs, the need for simultaneous estimation of several structural relationships, prediction of endogenous constructs, and assessment of specific indirect effects. The analysis proceeded sequentially, beginning with assessment of the measurement model and followed by evaluation of the structural model.

Measurement Model Assessment

Given that the constructs were specified reflectively, measurement quality was assessed using indicator reliability, internal consistency reliability, convergent validity, and discriminant validity.

Indicator reliability was evaluated using standardized outer loadings. Loadings of 0.708 or above were considered desirable. Indicators with loadings between 0.40 and 0.70 were considered for removal only when their exclusion improved construct reliability or convergent validity and was theoretically defensible.

Internal consistency reliability was assessed using Cronbach's alpha, rho_A, and composite reliability, with values between 0.70 and 0.95 considered satisfactory. Convergent validity was evaluated using the average variance extracted (AVE), with values of at least 0.50 indicating that a construct explained more than half of the variance in its indicators.

Discriminant validity was evaluated primarily using the heterotrait-monotrait ratio (HTMT). HTMT values below 0.85 were interpreted as evidence of satisfactory discriminant validity, while values below 0.90 were considered acceptable for conceptually related constructs. Special attention was given to distinguishing academic quality from institutional performance, as these constructs are theoretically related but conceptually distinct.

Structural Model Assessment

After confirming satisfactory measurement properties, the structural model was assessed for collinearity, explanatory power, effect sizes, predictive relevance, and statistical significance of the hypothesized relationships.

Potential collinearity among predictor constructs was assessed using the variance inflation factor (VIF). The model's explanatory power was evaluated using the coefficient of determination (R^2) for academic quality and institutional performance. Effect sizes (f^2) were calculated to determine the relative contribution of exogenous constructs to the explained variance of endogenous constructs, and Q^2 values were used to assess predictive relevance where applicable.

Statistical significance was assessed using a nonparametric bootstrapping procedure with 5,000 resamples. Standardized path coefficients (β), standard errors, t-values, p-values, and bootstrapped confidence intervals were reported. Relationships were considered statistically significant at $p < 0.05$.

The structural model examined five primary direct relationships:

H1: Strategic Planning → Academic Quality

H2: Leadership → Academic Quality

H3: Resource Management → Academic Quality

H4: Quality Assurance → Academic Quality

H5: Academic Quality → Institutional Performance

Academic quality served as the endogenous intervening construct predicted by the four institutional management capabilities, whereas institutional performance represented the ultimate endogenous outcome.

Assessment of Indirect Effects

The indirect effects of strategic planning, leadership, resource management, and quality assurance on institutional performance through academic quality were examined using bootstrapping. Four specific indirect effects were estimated:

H6: Strategic Planning → Academic Quality → Institutional Performance

H7: Leadership → Academic Quality → Institutional Performance

H8: Resource Management → Academic Quality → Institutional Performance

H9: Quality Assurance → Academic Quality → Institutional Performance

The specific indirect effects of Strategic Planning, Leadership, Resource Management, and Quality Assurance on Institutional Performance through Academic Quality were assessed using bootstrapping with 5,000 resamples. An indirect effect was considered statistically significant when the bootstrapped 95% confidence interval excluded zero and the corresponding p-value was below 0.05.

Given the specified structural model, the analysis focused on hypothesized indirect pathways through academic quality. Claims regarding full or partial mediation were not made, as the parsimonious structural model did not include direct paths from strategic planning, leadership, resource management, and quality assurance to institutional performance.

Ethical Considerations

Ethical principles pertinent to social science research were upheld throughout the study. Participation was voluntary, and respondents received information regarding the study's purpose before completing the questionnaire. Informed consent was obtained from all participants, and both confidentiality and anonymity were ensured during the research process. No personally identifiable information was collected, and all responses were analyzed and reported in aggregate. Participants were informed of their right to decline participation or withdraw from the study at any time without penalty. The data collected were used solely for academic and research purposes.

Results

Demographic Profile of Respondents

The demographic and professional characteristics of the respondents were summarized using frequencies and percentages. The analysis included gender, age, institutional sector, position, educational qualification, and professional experience, providing an overview of the sample composition and respondent characteristics.

Table 1

Demographic Profile of Respondents (N = 350)

Variable	Category	Frequency (n)	Percentage (%)
Gender	Male	202	57.7
	Female	148	42.3
Total		350	100.0
Age	20–30 years	96	27.4
	31–40 years	137	39.1

Variable	Category	Frequency (n)	Percentage (%)
Total	41–50 years	82	23.4
	Above 50 years	35	10.0
	Total	350	100.0
Institution Type	Public	204	58.3
	Private	146	41.7
	Total	350	100.0
Position	Academic Staff	247	70.6
	Administrative Staff	103	29.4
	Total	350	100.0
Qualification	Master's	74	21.1
	MPhil/MS	161	46.0
	PhD	115	32.9
	Total	350	100.0
Experience	Less than 5 years	91	26.0
	5–10 years	146	41.7
	More than 10 years	113	32.3
	Total	350	100.0

Percentage distribution of respondents across demographic and professional characteristics.

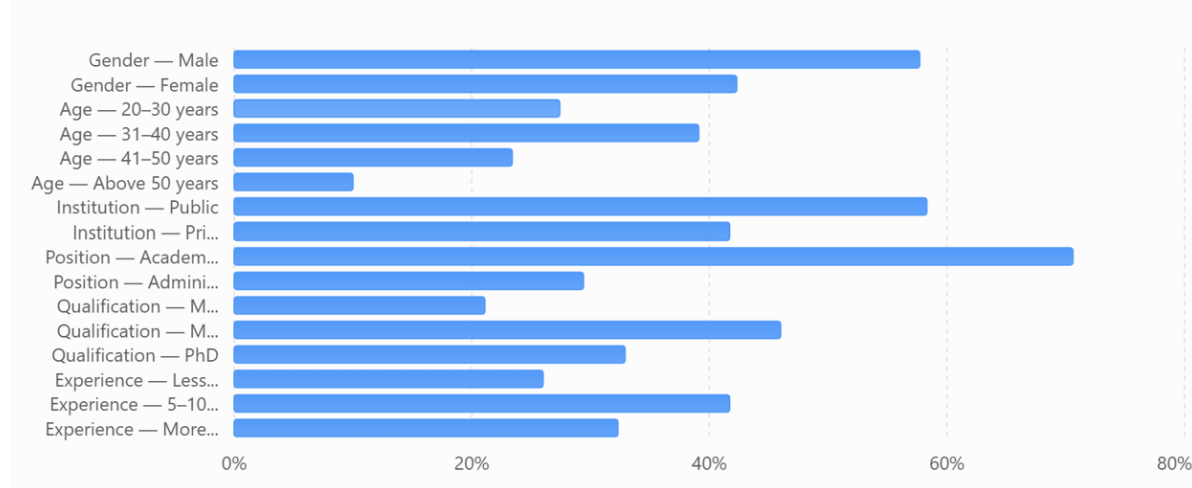


Figure 1 Demographic Profile of Respondents

Analysis of Demographic Profile

Table 1 summarizes the demographic characteristics of the 350 respondents. Males comprised 57.7% of the sample, while females accounted for 42.3%. The predominant age group was 31–40 years (39.1%). A majority of respondents (58.3%) were affiliated with public-sector institutions. Academic staff made up 70.6% of the sample. With respect to qualifications, MPhil/MS holders constituted the largest group (46.0%), followed by PhD holders (32.9%). In terms of professional experience, 41.7% of respondents reported 5–10 years of experience. The sample thus reflects a range of demographic, educational, and professional backgrounds.

Descriptive Statistical Analysis

Descriptive statistics were computed for Strategic Planning, Leadership, Resource Management, Quality Assurance, Academic Quality, and Institutional Performance. Means and standard deviations summarized the central tendency and variability of respondents' perceptions for each construct.

Table 2

Descriptive Statistics of Study Constructs (N = 350)

Construct	Code	Mean	Standard Deviation	Minimum	Maximum
Strategic Planning	SP	3.89	0.67	1.80	5.00
Leadership	LD	4.02	0.63	2.00	5.00
Resource Management	RM	3.71	0.72	1.60	5.00
Quality Assurance	QA	3.94	0.65	1.80	5.00
Academic Quality	AQ	4.07	0.61	2.00	5.00
Institutional Performance	IP	3.98	0.64	1.80	5.00

Note. SP = Strategic Planning; LD = Leadership; RM = Resource Management; QA = Quality Assurance; AQ = Academic Quality; IP = Institutional Performance. Constructs were measured on a five-point Likert scale ranging from 1 = strongly disagree to 5 = strongly agree.

Mean scores and standard deviations for the six study constructs (hypothetical N = 350).

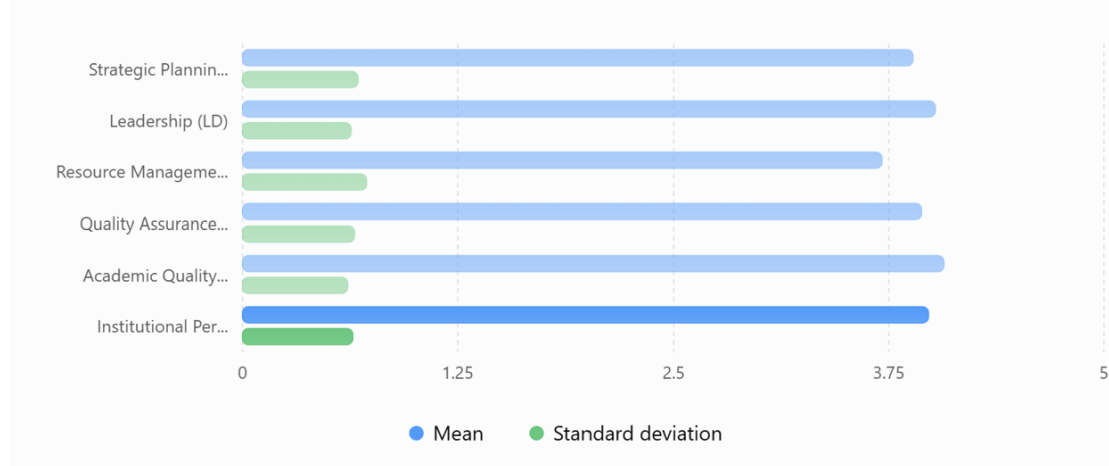


Figure 2 Descriptive Statistics of Study Constructs

Analysis of Descriptive Statistics

Table 2 displays the descriptive statistics for the six study constructs. Mean scores ranged from 3.71 to 4.07, reflecting generally positive perceptions among respondents. Academic Quality exhibited the highest mean ($M = 4.07$, $SD = 0.61$), followed by Leadership ($M = 4.02$, $SD = 0.63$) and Institutional Performance ($M = 3.98$, $SD = 0.64$). Resource Management had the lowest mean ($M = 3.71$, $SD = 0.72$). The standard deviations suggest moderate variability in responses across the constructs.

Assessment of the Measurement Model

The reflective measurement model was evaluated for indicator reliability, internal consistency reliability, convergent validity, and discriminant validity. Outer loadings were initially examined to assess the reliability of individual indicators.

Table 3

Measurement Model: Indicator Outer Loadings (N = 350)

Construct	Item	Outer Loading	Indicator Reliability (λ^2)	Assessment
Strategic Planning (SP)	SP1	0.821	0.674	Retained
	SP2	0.846	0.716	Retained
	SP3	0.793	0.629	Retained
	SP4	0.862	0.743	Retained

Construct	Item	Outer Loading	Indicator Reliability (λ^2)	Assessment
Leadership (LD)	SP5	0.815	0.664	Retained
	LD1	0.854	0.729	Retained
	LD2	0.879	0.773	Retained
	LD3	0.824	0.679	Retained
	LD4	0.867	0.752	Retained
Resource Management (RM)	LD5	0.836	0.699	Retained
	RM1	0.784	0.615	Retained
	RM2	0.829	0.687	Retained
	RM3	0.812	0.659	Retained
	RM4	0.851	0.724	Retained
Quality Assurance (QA)	RM5	0.776	0.602	Retained
	QA1	0.838	0.702	Retained
	QA2	0.872	0.760	Retained
	QA3	0.816	0.666	Retained
	QA4	0.858	0.736	Retained
Academic Quality (AQ)	QA5	0.827	0.684	Retained
	AQ1	0.881	0.776	Retained
	AQ2	0.846	0.716	Retained
	AQ3	0.894	0.799	Retained
	AQ4	0.859	0.738	Retained
Institutional Performance (IP)	AQ5	0.833	0.694	Retained
	IP1	0.873	0.762	Retained

Construct	Item	Outer Loading	Indicator Reliability (λ^2)	Assessment
	IP2	0.901	0.812	Retained
	IP3	0.856	0.733	Retained
	IP4	0.884	0.781	Retained
	IP5	0.842	0.709	Retained

Note. λ^2 represents indicator reliability obtained by squaring the standardized outer loading. SP = Strategic Planning; LD = Leadership; RM = Resource Management; QA = Quality Assurance; AQ = Academic Quality; IP = Institutional Performance.

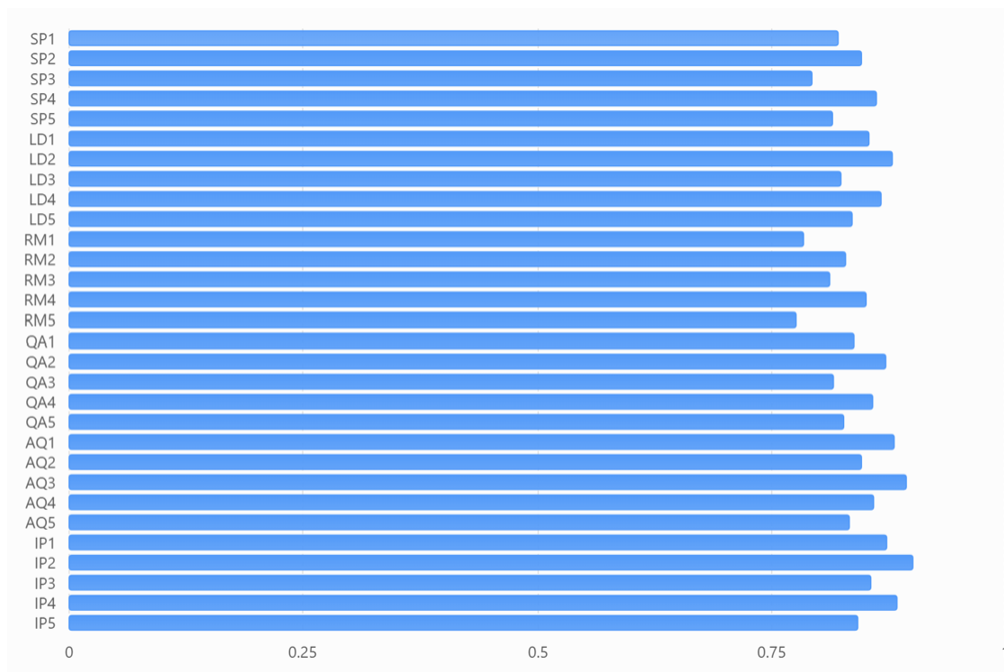


Figure 3 Measurement Model: Indicator Outer Loadings

Interpretation of Indicator Reliability Results

Table 3 shows that all 30 indicators achieved satisfactory reliability. Outer loadings ranged from 0.776 to 0.901, exceeding the recommended threshold of 0.708. IP2 recorded the highest loading ($\lambda = 0.901$), while RM5 recorded the lowest ($\lambda = 0.776$). Indicator reliability (λ^2) ranged from 0.602 to 0.812, confirming that each indicator explained an adequate proportion of variance in its respective construct. Therefore, all indicators were retained for subsequent measurement-model assessment.

Table 4

Construct Reliability and Convergent Validity (N = 350)

Construct	Cronbach's Alpha (α)	rho_A	Composite Reliability (CR)	AVE	Assessment
Strategic Planning (SP)	0.886	0.889	0.916	0.685	Satisfactory
Leadership (LD)	0.907	0.910	0.931	0.726	Satisfactory
Resource Management (RM)	0.871	0.875	0.906	0.657	Satisfactory
Quality Assurance (QA)	0.899	0.902	0.925	0.710	Satisfactory
Academic Quality (AQ)	0.914	0.917	0.936	0.745	Satisfactory
Institutional Performance (IP)	0.921	0.923	0.941	0.759	Satisfactory

Note. α = Cronbach's alpha; rho_A = Dijkstra-Henseler's reliability coefficient; CR = composite reliability; AVE = average variance extracted. Recommended criteria: α , rho_A, and CR $\geq$ 0.70; AVE $\geq$ 0.50.

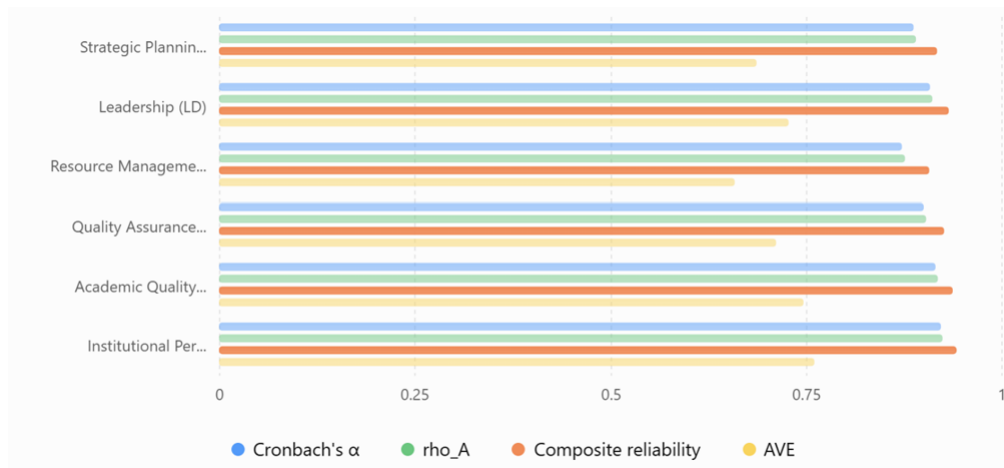


Figure 4 Construct Reliability and Convergent Validity

Interpretation of Measurement Model Results

Table 4 demonstrates satisfactory reliability and convergent validity across all six constructs. Cronbach's alpha values ranged from 0.871 to 0.921, rho_A from 0.875 to 0.923, and composite reliability from 0.906 to 0.941, all exceeding the recommended threshold of 0.70. AVE values ranged from 0.657 to 0.759, exceeding the minimum criterion of 0.50 and confirming convergent validity. Institutional Performance recorded the highest AVE (0.759), whereas Resource Management recorded the lowest (0.657). Overall, the results establish satisfactory internal consistency reliability and convergent validity, supporting further assessment of discriminant validity.

Discriminant Validity

Discriminant validity was assessed using the heterotrait-monotrait (HTMT) ratio to determine whether the six constructs were empirically distinct.

Table 5

Discriminant Validity Using the Heterotrait–Monotrait Ratio (HTMT) (N = 350)

Construct	SP	LD	RM	QA	AQ	IP
Strategic Planning (SP)	—					
Leadership (LD)	0.612	—				
Resource Management (RM)	0.548	0.586	—			
Quality Assurance (QA)	0.634	0.621	0.573	—		
Academic Quality (AQ)	0.681	0.724	0.647	0.756	—	
Institutional Performance (IP)	0.598	0.659	0.574	0.688	0.812	—

Note. SP = Strategic Planning; LD = Leadership; RM = Resource Management; QA = Quality Assurance; AQ = Academic Quality; IP = Institutional Performance. The conservative HTMT criterion of < 0.85 was applied.

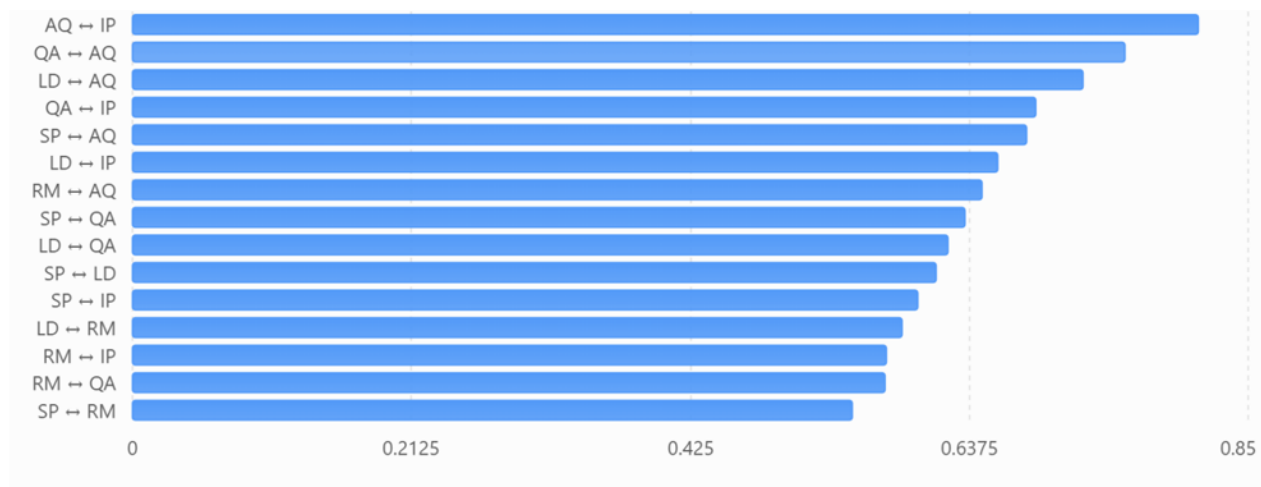


Figure 5 Discriminant Validity Using the Heterotrait–Monotrait Ratio

Analysis of Discriminant Validity Results

Table 5 reports the HTMT assessment of discriminant validity. The HTMT values ranged from 0.548 to 0.812, with all coefficients remaining below the conservative threshold of 0.85. The highest value occurred between Academic Quality and Institutional Performance (HTMT = 0.812), and the lowest between Strategic Planning and Resource Management (HTMT = 0.548). These

findings indicate satisfactory discriminant validity among all six constructs, thereby supporting further structural model assessment.

Evaluation of the Structural Model

Before hypothesis testing, collinearity among the predictor constructs was assessed using variance inflation factor (VIF) values. The explanatory and predictive capabilities of the model were then evaluated using R^2 and Q^2 values.

Table 6

Structural Model Assessment: Collinearity, Explanatory Power, and Predictive Relevance (N = 350)

Assessment	Construct / Relationship	Value	Interpretation
Collinearity (VIF)	SP → AQ	1.72	No critical collinearity
	LD → AQ	1.89	No critical collinearity
	RM → AQ	1.54	No critical collinearity
	QA → AQ	1.96	No critical collinearity
	AQ → IP	1.00	No critical collinearity
Explanatory Power (R^2)	Academic Quality (AQ)	0.624	Moderate–substantial
	Institutional Performance (IP)	0.518	Moderate
Predictive Relevance (Q^2)	Academic Quality (AQ)	0.421	Predictive relevance established
	Institutional Performance (IP)	0.376	Predictive relevance established

Note. SP = Strategic Planning; LD = Leadership; RM = Resource Management; QA = Quality Assurance; AQ = Academic Quality; IP = Institutional Performance; VIF = variance inflation factor; R^2 = coefficient of determination; Q^2 = predictive relevance.

Comparison of R^2 and Q^2 for the endogenous constructs Academic Quality and Institutional Performance (N = 350).



Figure 6 Structural Model Assessment: Collinearity, Explanatory Power, and Predictive Relevance

Interpretation of Results

Table 6 provides an assessment of collinearity, explanatory power, and predictive relevance. The variance inflation factor (VIF) values for the predictors of Academic Quality ranged from 1.54 to 1.96, and Academic Quality recorded a VIF of 1.00 for Institutional Performance, indicating the absence of multicollinearity. Strategic Planning, Leadership, Resource Management, and Quality Assurance together accounted for 62.4% of the variance in Academic Quality ($R^2 = 0.624$). In turn, Academic Quality explained 51.8% of the variance in Institutional Performance ($R^2 = 0.518$). The Q^2 values for Academic Quality (0.421) and Institutional Performance (0.376) exceeded zero, confirming predictive relevance. These results indicate that the structural model possesses satisfactory explanatory and predictive capabilities.

Direct Effects and Hypothesis Testing

The direct relationships were evaluated using bootstrapping with 5,000 resamples. Statistical significance was determined based on standardized path coefficients (β), t-values, p-values, and bootstrapped confidence intervals.

Table 7

Direct Structural Relationships and Hypothesis Testing (N = 350)

Hypothesis	Structural Relationship	β	SE	t-value	p-value	95% CI	Decision
H1	SP $\rightarrow$ AQ	0.214	0.052	4.115	<0.001	[0.112, 0.315]	Supported
H2	LD $\rightarrow$ AQ	0.267	0.055	4.855	<0.001	[0.159, 0.374]	Supported
H3	RM $\rightarrow$ AQ	0.158	0.049	3.224	0.001	[0.062, 0.254]	Supported
H4	QA $\rightarrow$ AQ	0.301	0.054	5.574	<0.001	[0.195, 0.407]	Supported

Hypothesis	Structural Relationship	β	SE	t-value	p-value	95% CI	Decision
H5	AQ $\rightarrow$ IP	0.720	0.037	19.459	<0.001	[0.647, 0.792]	Supported

Note. SP = Strategic Planning; LD = Leadership; RM = Resource Management; QA = Quality Assurance; AQ = Academic Quality; IP = Institutional Performance; β = standardized path coefficient; SE = standard error; CI = bootstrapped confidence interval. Statistical significance was evaluated at $p < 0.05$ using 5,000 bootstrap resamples.

Standardized path coefficients for H1–H5 (N = 350). All direct relationships are statistically significant and supported.

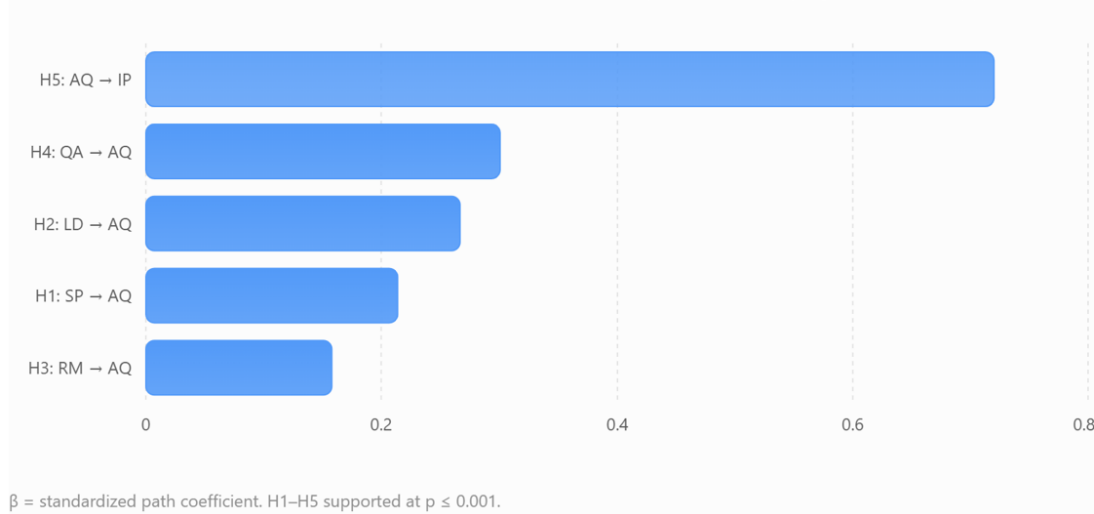


Figure 7 Direct Structural Relationships and Hypothesis Testing

Interpretation of Structural Relationships

Table 7 displays the direct structural relationships among the study constructs. All five hypothesized relationships were both positive and statistically significant. Quality Assurance exerted the strongest influence on Academic Quality ($\beta = 0.301$, $t = 5.574$, $p < 0.001$), followed by Leadership ($\beta = 0.267$, $t = 4.855$, $p < 0.001$), Strategic Planning ($\beta = 0.214$, $t = 4.115$, $p < 0.001$), and Resource Management ($\beta = 0.158$, $t = 3.224$, $p = 0.001$), thereby supporting H1 through H4. Academic Quality exhibited a strong positive effect on Institutional Performance ($\beta = 0.720$, $t = 19.459$, $p < 0.001$), supporting H5. Additionally, all bootstrapped 95% confidence intervals excluded zero, further confirming the statistical significance of these structural relationships.

Assessment of Effect Sizes

Effect sizes (f^2) were evaluated to determine the relative contribution of each predictor to the explained variance in its respective endogenous construct.

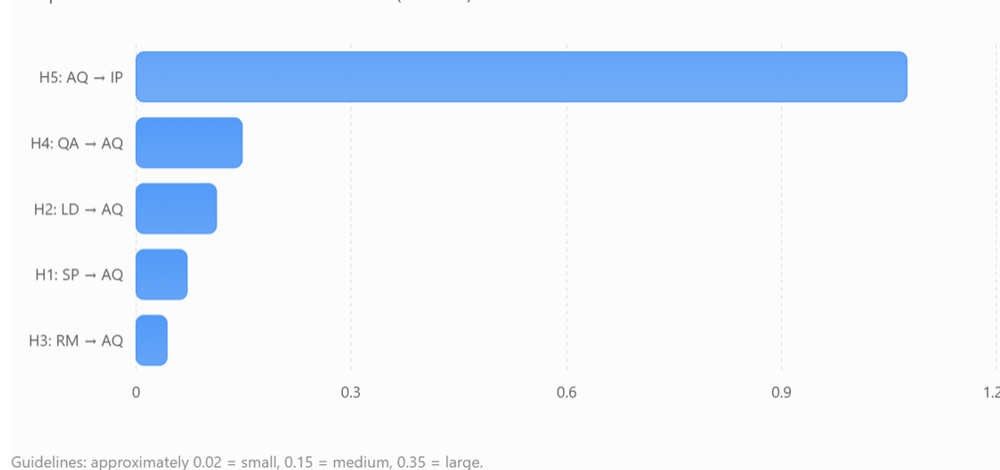
Table 8

Effect Size (f^2) Assessment (N = 350)

Hypothesis	Relationship	f^2	Effect Size
H1	Strategic Planning → Academic Quality	0.071	Small
H2	Leadership → Academic Quality	0.112	Small
H3	Resource Management → Academic Quality	0.043	Small
H4	Quality Assurance → Academic Quality	0.148	Small–Moderate
H5	Academic Quality → Institutional Performance	1.075	Large

Note. SP = Strategic Planning; LD = Leadership; RM = Resource Management; QA = Quality Assurance; AQ = Academic Quality; IP = Institutional Performance. As conventional guidelines, f^2 values of 0.02, 0.15, and 0.35 indicate small, medium, and large effects, respectively.

Comparison of structural effect sizes for H1–H5 (N = 350).

Figure 8 Effect Size (f^2) Assessment

Interpretation of Results

Table 8 reports the effect sizes for the direct relationships. Strategic Planning ($f^2 = 0.071$), Leadership ($f^2 = 0.112$), and Resource Management ($f^2 = 0.043$) exhibited small effects on Academic Quality. Among the four antecedents, Quality Assurance yielded the strongest effect ($f^2 = 0.148$), which is close to a medium effect size. Academic Quality exerted a large effect on Institutional Performance ($f^2 = 1.075$), underscoring its significant role in explaining Institutional Performance. In summary, Quality Assurance and Leadership contributed most substantially to Academic Quality, whereas Academic Quality was the primary explanatory factor for Institutional Performance.

Indirect Effects Mediated by Academic Quality

The indirect effects of Strategic Planning, Leadership, Resource Management, and Quality Assurance on Institutional Performance, mediated by Academic Quality, were evaluated using bootstrapping to assess the significance of these pathways.

Table 9

Specific Indirect Effects Through Academic Quality (N = 350)

Hypothesis	Indirect Relationship	β	SE	t-value	p-value	95% CI	Decision
H6	SP $\rightarrow$ AQ $\rightarrow$ IP	0.154	0.039	3.949	<0.001	[0.078, 0.230]	Supported
H7	LD $\rightarrow$ AQ $\rightarrow$ IP	0.192	0.041	4.683	<0.001	[0.112, 0.272]	Supported
H8	RM $\rightarrow$ AQ $\rightarrow$ IP	0.114	0.037	3.081	0.002	[0.042, 0.186]	Supported
H9	QA $\rightarrow$ AQ $\rightarrow$ IP	0.217	0.042	5.167	<0.001	[0.135, 0.299]	Supported

Note. SP = Strategic Planning; LD = Leadership; RM = Resource Management; QA = Quality Assurance; AQ = Academic Quality; IP = Institutional Performance; β = standardized specific indirect effect; SE = standard error; CI = bootstrapped 95% confidence interval. Statistical significance was evaluated using 5,000 bootstrap resamples at $p < 0.05$.

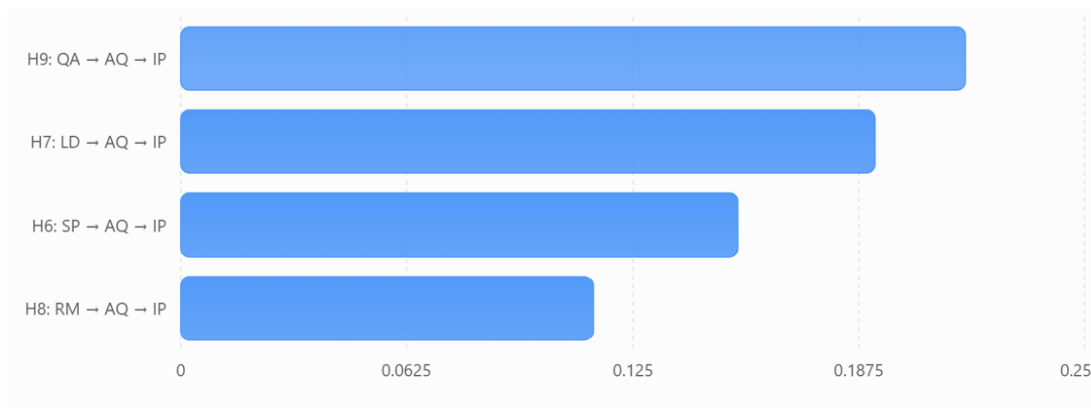


Figure 9 Specific Indirect Effects Through Academic Quality

Interpretation of Findings

Table 9 shows that all four specific indirect effects on Institutional Performance through Academic Quality were positive and statistically significant. Quality Assurance demonstrated the strongest indirect effect ($\beta = 0.217$, $t = 5.167$, $p < 0.001$), followed by Leadership ($\beta = 0.192$, $t = 4.683$, $p < 0.001$), Strategic Planning ($\beta = 0.154$, $t = 3.949$, $p < 0.001$), and Resource Management ($\beta = 0.114$, $t = 3.081$, $p = 0.002$). All bootstrapped 95% confidence intervals excluded zero, supporting H6–H9. The findings demonstrate significant indirect relationships between the four institutional management capabilities and Institutional Performance through Academic Quality.

Discussion

This study investigated the relationships among strategic planning, leadership, resource management, quality assurance, academic quality, and institutional performance in higher education institutions, with a particular focus on the indirect role of academic quality. The model demonstrated substantial explanatory power for academic quality ($R^2 = 0.624$) and moderate explanatory power for institutional performance ($R^2 = 0.518$). Notably, all five direct hypotheses and four specific indirect-effect hypotheses were supported. Collectively, these findings indicate that institutional performance is not determined solely by the presence of managerial structures and practices. Instead, strategic planning, leadership, resource management, and quality assurance contribute to institutional effectiveness by enhancing the quality of core academic processes. This interpretation aligns with the broader proposition that organizational capabilities generate value when effectively translated into substantive institutional activities.

Strategic planning exhibited a positive and statistically significant effect on academic quality ($\beta = 0.214$, $p < 0.001$), supporting H1. This result indicates that systematic institutional planning can enhance academic quality when strategic objectives are translated into priorities related to curriculum development, teaching standards, faculty development, research, and student learning. This finding is consistent with Endo et al. (2025), whose systematic review identified strategic planning as a key mechanism for improving educational performance and emphasized the importance of comprehensive and adaptable planning frameworks. Similarly, Menon et al. (2026) demonstrated, using evidence from higher education institutions in five European countries, that the effectiveness of strategic planning depends on the planning process, stakeholder involvement, institutional conditions, and implementation challenges. These findings reinforce the distinction between merely possessing a strategic plan and developing the institutional capacity to implement it effectively. In practice, strategic planning is most valuable when academic priorities are operationalized through measurable objectives, resource commitments, implementation responsibilities, and systematic monitoring.

Leadership also exhibited a significant positive effect on academic quality ($\beta = 0.267$, $p < 0.001$), supporting H2. Among the managerial capabilities assessed, leadership produced the second-largest effect on academic quality after quality assurance. This finding underscores the central role of institutional leaders in establishing academic expectations, communicating organizational priorities, motivating academic personnel, facilitating innovation, and fostering an environment conducive to continuous improvement. This result aligns with Hafeez and Bidari (2022), who concluded that transformational leadership enhances organizational performance in educational institutions through vision, motivation, and the creation of supportive learning environments. Aziz et al. (2024) further demonstrated the relevance of transformational leadership for institutional performance in higher education. These findings imply that academic quality cannot be sustained solely through formal policies and administrative procedures. Leadership is essential for translating institutional priorities into shared academic practices and for securing the commitment of faculty and administrative personnel to improvement initiatives.

Resource management had a positive and statistically significant effect on academic quality ($\beta = 0.158$, $p = 0.001$), supporting H3, although it represented the weakest direct effect among the four antecedents. This result remains theoretically significant because academic activities require appropriate combinations of human, financial, technological, infrastructural, and intellectual resources. Wang (2019) demonstrated that performance-based resource allocation in higher education is linked to multidimensional university outputs, including publications, patents, and knowledge-transfer outcomes. The relatively smaller coefficient for resource management in the present model suggests that resources alone do not guarantee academic quality. Their contribution depends on how effectively resources are aligned with strategic priorities, leadership decisions, and quality-improvement processes. Therefore, additional funding, infrastructure, technologies, or human resources may yield limited academic benefits if they are poorly allocated or disconnected from institutional priorities. This finding underscores the importance of strategic resource deployment rather than resource availability alone.

Quality assurance was the strongest antecedent of academic quality ($\beta = 0.301$, $p < 0.001$), supporting H4. This result is particularly significant because quality-assurance mechanisms directly address academic standards, curriculum evaluation, program review, assessment practices, teaching effectiveness, and continuous improvement. Khuram et al. (2023), through a bibliometric analysis of 321 publications, documented the increasing strategic importance of quality assurance in higher education and its growing connection with broader institutional and societal outcomes. However, the effectiveness of quality assurance should not be assumed. Pushpakumara et al. (2023) identified institution-related, process-related, and stakeholder-related challenges that can limit the effectiveness of quality-assurance systems. The present result suggests that quality assurance is most likely to enhance academic

quality when evaluation and monitoring lead to actual improvements rather than serving primarily as accreditation or documentation exercises.

The strongest structural relationship was observed between academic quality and institutional performance ($\beta = 0.720$, $p < 0.001$), supporting H5. Academic quality alone accounted for 51.8% of the variance in institutional performance within the specified model. This result underscores the strategic importance of universities' core academic functions. Institutional performance ultimately depends on whether managerial systems produce meaningful improvements in teaching, curriculum, faculty competence, assessment, learning processes, and academic standards. Lillis (2012) similarly emphasized the need to evaluate whether quality-assurance programs generate substantive improvements in institutional performance, rather than assuming that formal quality systems automatically yield beneficial outcomes. The strong relationship observed in the present model indicates that academic quality should not be viewed merely as one of many operational outcomes; rather, it constitutes a central pathway through which higher education institutions achieve broader organizational effectiveness.

The analysis of specific indirect effects represents an important contribution of the study. Strategic planning exhibited a significant indirect effect on institutional performance through academic quality ($\beta = 0.154$, $p < 0.001$), supporting H6. This finding suggests that strategic planning contributes to broader institutional outcomes when strategic priorities first enhance the quality of academic processes. The result supports the argument that effective strategic planning requires implementation, not merely formalized planning. Menon et al. (2026) identified stakeholder participation, planning processes, and implementation-related challenges as important factors influencing strategic-planning effectiveness in universities. The indirect relationship identified here provides a plausible explanation for how strategic planning generates organizational value: institutional strategy establishes direction, while academic quality serves as a mechanism for translating that direction into institutional performance.

Leadership also demonstrated a significant indirect effect on institutional performance through academic quality ($\beta = 0.192$, $p < 0.001$), supporting H7. This result indicates that leadership contributes to institutional effectiveness in part by strengthening academic processes. Leaders who articulate a coherent academic vision, support faculty development, facilitate participation, promote innovation, and reinforce academic standards create conditions in which academic quality can improve. Those improvements may subsequently lead to stronger institutional outcomes. This interpretation extends the understanding of the leadership-performance relationship by identifying academic quality as an intervening organizational mechanism, rather than assuming that leadership affects performance solely through a direct pathway.

Resource management exhibited the smallest but statistically significant indirect effect on institutional performance through academic quality ($\beta = 0.114$, $p = 0.002$), supporting H8. This finding further demonstrates that institutional resources become strategically meaningful when they contribute to improvements in core academic functions. The result aligns with evidence that resource-allocation decisions can influence higher education performance (Wang, 2019). However, the relatively modest indirect effect suggests that resource provision alone is insufficient. Universities may possess financial resources, infrastructure, technology, and qualified personnel, yet fail to achieve corresponding performance gains if these resources are not integrated with academic priorities and improvement processes. Effective resource management should therefore prioritize the alignment of resource allocation with measurable academic needs and strategic objectives.

Quality assurance demonstrated the strongest indirect effect on institutional performance through academic quality ($\beta = 0.217$, $p < 0.001$), supporting H9. This result suggests that the contribution of quality assurance to institutional effectiveness is particularly significant when quality mechanisms lead to substantive improvements in academic processes. Recent evidence supports this interpretation. Díaz-Cabrera et al. (2025) found that the effectiveness of quality-assurance systems in higher education is shaped by factors such as management support, infrastructure quality, and stakeholder engagement, and that effective quality-assurance systems contribute to institutional outcomes across teaching, research, and societal impact. Therefore, quality assurance should not be viewed solely as an external compliance requirement. When integrated into institutional decision-making and continuous improvement, it can serve as a strategic capability for strengthening academic quality and, consequently, broader institutional performance.

Collectively, the findings reveal a clear hierarchy among the four antecedents of academic quality. Quality assurance exhibited the strongest direct and indirect effects, followed by leadership, strategic planning, and resource management. This pattern suggests that higher education institutions may achieve stronger performance when strategic and managerial capabilities are focused on improving core academic activities. The findings also refine the Resource-Based View of higher education performance:

organizational resources and managerial capabilities do not automatically generate institutional outcomes; their value depends on the processes through which they are configured and translated into academically productive activities. Academic quality thus serves as a critical explanatory link between institutional management and organizational performance.

The findings have significant managerial implications. University administrators should avoid treating strategic planning, leadership development, resource allocation, and quality assurance as isolated administrative functions. Strategic plans should specify measurable academic priorities; leaders should foster environments that support academic improvement; resources should be allocated based on demonstrable academic needs; and quality-assurance information should directly inform curriculum, teaching, assessment, and program-development decisions. The strong role of quality assurance further suggests that institutions should move beyond documentation-oriented quality systems toward evidence-based continuous improvement. Additionally, the substantial contribution of leadership indicates that quality mechanisms require sustained managerial commitment to produce meaningful academic outcomes.

Overall, the findings support the central theoretical proposition of the study: academic quality serves as a critical mechanism linking institutional management capabilities with broader institutional performance. Strategic planning establishes direction, leadership mobilizes organizational actors, resource management provides essential institutional inputs, and quality assurance creates mechanisms for monitoring and improvement. However, these capabilities generate broader institutional value only when they contribute to stronger academic processes. This integrated interpretation moves beyond fragmented assessments of individual management practices and offers a more coherent explanation of how universities can translate managerial capabilities into institutional performance.

Conclusion

This study investigated the contributions of strategic planning, leadership, resource management, and quality assurance to institutional performance in higher education, focusing on the mediating role of academic quality. By integrating these management capabilities within a unified structural framework, the research aimed to advance beyond fragmented explanations of university performance and clarify the mechanisms by which managerial practices influence broader institutional outcomes. The results supported the framework, indicating that strategic planning, leadership, resource management, and quality assurance are positively associated with academic quality, which in turn demonstrates a strong positive relationship with institutional performance.

Among the four antecedents, quality assurance exerted the strongest influence on academic quality, followed by leadership, strategic planning, and resource management. These findings underscore that institutional performance relies not merely on the presence of managerial systems or organizational resources, but on their effectiveness in enhancing the university's core academic functions. Strategic planning offers direction for academic development, leadership enables the implementation of institutional priorities, resource management provides the necessary conditions for effective academic activities, and quality assurance establishes systematic mechanisms for monitoring and continuous improvement. Together, these capabilities foster an institutional environment conducive to strengthening academic quality.

A central contribution of this study is the identification of academic quality as an intervening mechanism. The significant indirect effects observed indicate that strategic planning, leadership, resource management, and quality assurance are associated with institutional performance through their impact on academic quality. Quality assurance demonstrated the strongest indirect effect, followed by leadership, strategic planning, and resource management. This pattern suggests that managerial capabilities are most impactful when they result in measurable improvements in teaching, curriculum, assessment, faculty competence, learning processes, and academic standards. Academic quality thus serves as a critical explanatory link between institutional management practices and broader organizational performance.

The findings yield important implications for higher education management. University leaders are encouraged to avoid treating strategic planning, leadership, resource allocation, and quality assurance as isolated administrative functions. Instead, these capabilities should be integrated around clearly defined academic objectives. Strategic plans should include measurable academic-quality targets; leadership development should prioritize academic improvement and organizational engagement; resource-allocation decisions should be based on demonstrable teaching, research, and learning needs; and quality-assurance mechanisms should be directly linked to evidence-based improvement rather than solely to regulatory compliance. Such integration enables institutions to translate managerial capabilities into sustainable academic and organizational outcomes.

The study further contributes to theory by positioning academic quality as the mechanism through which institutional capabilities generate performance outcomes. This perspective extends the resource-based view of higher education management by emphasizing that institutional resources and capabilities create value when effectively deployed in core academic processes. Consequently, institutional performance should be understood not simply as a direct result of managerial practices, but as an outcome of the processes that enhance academic effectiveness.

Several limitations should be acknowledged. The cross-sectional design restricts causal interpretation because the relationships among the study constructs were examined at a single point in time. Reliance on self-reported perceptual measures may introduce common method bias, and purposive sampling may limit the generalizability of the findings across diverse institutional and national contexts. Future research should utilize longitudinal designs, probability-based sampling where possible, and objective institutional performance indicators to enhance causal and external validity. Comparative studies across public and private institutions, geographic regions, or national higher education systems could further determine whether the relationships differ by institutional context. Additionally, future research may investigate other mechanisms, such as organizational culture, faculty engagement, digital capability, or institutional innovation.

In conclusion, Strategic Planning, Leadership, Resource Management, and Quality Assurance demonstrated significant positive relationships with Academic Quality, while Academic Quality had a strong positive relationship with Institutional Performance. Quality Assurance emerged as the strongest antecedent of Academic Quality, followed by Leadership, Strategic Planning, and Resource Management. The four management capabilities also demonstrated significant indirect effects on Institutional Performance through Academic Quality. These findings establish Academic Quality as an important intervening mechanism linking institutional management capabilities with broader organizational performance. Higher education institutions should therefore align strategic planning, leadership, resource allocation, and quality assurance practices with explicit academic-quality objectives to strengthen institutional performance.

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