

Effects of Strategic Information Systems Capabilities on Competitive Advantage in Iraqi Private Universities: The Mediating Role of Organizational Learning and the Moderating Role of Knowledge Management

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ABSTRACT

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This study develops a strategic information system (SIS) framework to enhance the competitive advantage of Iraqi private universities by integrating organizational learning (OL) and knowledge management (KM). Using a cross-sectional, quantitative design, data were collected from 312 faculty members, IT managers, and administrative leaders across 14 private universities. Constructs (SIS capabilities, OL, KM, and competitive advantage) were measured via a structured questionnaire on a five-point Likert scale and analyzed in SmartPLS (measurement + structural models).

Results show SIS capabilities have a significant direct effect on competitive advantage and an indirect effect through OL (partial mediation). KM moderates the SIS–competitiveness relationship, amplifying SIS impact when KM practices are strong. The model explains 68.4% of the variance in competitiveness ($R^2 = 0.684$), with acceptable fit (SRMR = 0.061) and strong predictive relevance ($Q^2 = 0.482$).

Theoretically, the study extends the Resource-Based View and Dynamic Capabilities by demonstrating how SIS, OL, and KM jointly configure institutional competitiveness. Practically, it offers guidance for Iraqi private universities on aligning SIS with learning mechanisms and knowledge governance to improve performance, innovation, and sustainability in an increasingly digital higher-education context.



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تأثير قدرات نظم المعلومات الاستراتيجية على الميزة التنافسية في الجامعات العراقية الاهلية :الدور الوسيط للتعلم التنظيمي والدور المعدل لإدارة المعرفة



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المستخلص:

تهدف هذه الدراسة إلى تطوير إطار عمل لنظام معلومات استراتيجي (SIS) لتعزيز الميزة التنافسية للجامعات العراقية الأهلية من خلال دمج التعلم التنظيمي (OL) وإدارة المعرفة (KM)، حيث تم جمع البيانات في تصميم كمي مقطعي من 312 فردًا من أعضاء هيئة التدريس ومديري تكنولوجيا المعلومات والقادة الإداريين في 14 جامعة أهلية، وتم تحليلها عبر SmartPLS. وتُظهر النتائج أن قدرات نظام المعلومات الاستراتيجية لها تأثير مباشر كبير على الميزة التنافسية، وتأثير غير مباشر من خلال التعلم التنظيمي (وساطة جزئية)، بينما تؤدي إدارة المعرفة دورًا معدلاً يضخم تأثير نظام المعلومات الاستراتيجية على التنافسية عندما تكون ممارساتها قوية. يفسر النموذج 68.4% من التباين في التنافسية ($R^2 = 0.684$)، ويوسع هذا البحث نظريًا المنظور المستند إلى الموارد والقدرات الديناميكية عبر إظهار التأثير المشترك لنظام المعلومات الاستراتيجية والتعلم التنظيمي وإدارة المعرفة في تكوين التنافسية المؤسسية. ومن الناحية العملية، يوفر البحث دليلًا إرشاديًا للجامعات الأهلية العراقية للاستفادة من دمج نظام المعلومات الاستراتيجية مع البات التعلم وحوكمة المعرفة لتحسين الاداء والابتكار والاستدامة في سياق تعليم عالي رقمي متزايد.

الكلمات المفتاحية:

الميزة التنافسية، التعليم العالي، ادارة المعرفة، التعلم التنظيمي، نظم المعلومات الاستراتيجية.

Introduction

With the current knowledge-based economy, institutions of higher learning are increasingly being pressured to consolidate their competitive standing. Strategic information systems (SIS) have emerged as key enablers of performance through provision of evidence-based decision making, operational efficiency and better services. In addition to a supporting tool, SIS is now being used as a strategic resource and combines data analytics, enterprise resource planning (ERP), learning management systems (LMS) and business intelligence to enhance academic quality, streamline administration, and increase stakeholder satisfaction.. (Cristache et al., 2025: 12)

SIS implementation is changing the higher education landscape throughout the world. Top colleges are becoming more dependent on data-driven understanding to

streamline academic initiatives, enhance academic efficiency, and develop innovation. These systems allow the HEIs to process large volumes of institutional data in order to assess market forces as well as to synchronize the strategic agenda with the emerging trends in technology. Through a combination of financial, academic and research systems into one platform, SIS enables informed decision-making, effective resource allocation and better competitiveness at both national and international levels. (Fahey, 2021: 24)

However, the strategic use of SIS in the developing countries is inconsistent and small. To Iraqi private universities, the adoption of SIS is an untapped potential to deal with old issues, enhance the standard of academics and institutional performance. Well executed SIS can go a long way towards helping universities to cope with technology shocks, improve the delivery process, and become competitive players in a global knowledge economy increasingly becoming dynamic. (Gkrimpizi et al., 2023: 746) , The main issue that this study will focus on is the translation of SIS capabilities into competitive advantage in institutions of higher learning. We anchor competitiveness on quality of decisions made, academic and administrative outcomes, innovativeness, and market placement in the Iraqi market within the field of the private university.

Challenges Facing Iraqi Private Universities

There are significant obstacles to the successful integration of SIS in Iraqi non-state universities. The major problems are the old IT infrastructure, small bandwidth, and exposure to the recent cloud solutions. In the absence of these pillars, the implementation of interoperable scalable SIS platforms by universities is hampered. Moreover, hierarchical and fragmented decision-making cultures slow down the work of cross-departmental collaboration and prevent the alignment of SIS initiatives with the institutional strategy. (Hair & Alamer, 2022: 27)

Moreover, the institutional cultures within most of the Iraqi privates universities are still unreachable to the digital transformation. Decision making is in most cases hierarchical and fragmented and does not facilitate cross-departmental cooperation and thus slows down technology adoption. This is also a lack of strategic alignment of SIS initiatives and overall organizational goals. Although SIS solutions are occasionally implemented in order to mechanize administration, they are not often implemented in a long-term institutional planning to become more competitive. (Hart & Rodgers, 2024: 73)

The other urgent issue is the lack of assimilation of knowledge management (KM) practice and implementation of SIS. Most of the Iraqi private universities have no systematic systems of capturing, storing, and putting institutional knowledge to effective use. As a result, research, teaching, and administrative data are not exploited with knowledge that can be very valuable in the area of strategic potential of SIS. Additionally, there is a lack of IT professionals and knowledge management specialists, who will be able to tailor SIS to the specifications of the Iraqi universities. (Teece, 2007: 726)

The issue of finances is as well a major obstacle, with most of the privative universities having limited budgets and external funding opportunities. Consequently, investment in innovative SIS-platforms, employee training, and long-term IT development are most of the times not prioritized. All these issues taken together prevent the fully development of competitive benefits of Iraqi private universities that SIS can provide and restrain their competitiveness both domestically and internationally. (Antonopoulou et al., 2023: 3)

Problem Statement

Although Strategic Information Systems have the potential that it has been proven to be able to help institutions in gaining competitiveness, the adoption of technologies is still fragmented, knowledge management practices are not well integrated, and organizational learning processes are not well established in Iraqi private universities. These gaps have led to lack of leveraging on the insights that have been gathered, inappropriate decision making processes and poor competitiveness relative to the regional and international competitors. In the absence of a single system that can connect SIS to organizational learning and KM, Iraqi private universities will be at the mercy of falling behind in attaining sustainable growth, academic excellence and market relevance.

3.3. Objectives and Research Questions

Objective

To develop a strategic information system framework that enhances competitive advantage in Iraqi private universities by leveraging organizational learning and knowledge management.

Research Questions

1. How does SIS contribute to competitive advantage in Iraqi private universities?
2. What is the role of organizational learning in leveraging SIS capabilities?
3. How does knowledge management moderate the relationship between SIS and competitiveness?

5. Hypotheses and Proposed Research Model

Grounded in the RBV and Dynamic Capabilities perspectives, we posit the following relationships:

- **H1:** SIS capabilities → Competitive Advantage (CA) (**positive**)
- **H2:** SIS capabilities → Organizational Learning (OL) (**positive**)
- **H3:** OL → CA (**positive**)
- **H4:** Knowledge Management (KM) → CA (**positive**)
- **H5:** **KM moderates** the relationship between SIS capabilities and CA, such that the relationship is **stronger** at higher levels of KM.

3.4. Significance of the Study

The research has a significant scholarly and practical value.

Academically, it is a contribution to the literature because it introduces Strategic Information Systems, organizational learning and knowledge management in a single system, which fills a gap in the research in academia in developing economies. It builds upon the theoretical background of the Resource-Based View (RBV) and the Dynamic Capabilities Theory in describing how universities can strategically use SIS to become competitively long-term.

Practically, the findings will inform practical recommendations that can be implemented by the Iraqi private universities that will lead them to successful SIS implementation strategies that will be in tandem with the organizational learning and KM practices. The study will also guide policymakers, university administrators and IT leaders to come up with evidence-based digital transformation strategies. In the long-term, this study will lead to the empowerment of the institutional performance of the Iraqi universities, recruitment and retention of bright students and professionals, and the realization of the sustainable competitive advantage in the ever more globalized world of higher education. Previous literature connects the use of data-driven strategy and SIS abilities with the performance and competitiveness in HEIs and companies

(e.g., Hart and Rodgers, 2024; Benitez et al., 2018; Mikalef et al., 2019), which makes the study justified.

Research Methodology

The methodological framework listed in this chapter will be used to build and test a strategic information system (SIS) model, which will target the competitive advantage in the context of the Iraqi private universities by incorporating the roles of organizational learning (OL), and knowledge management (KM). The data that was to be analyzed was gathered through conducting a cross-sectional survey, which was quantitative and involved academic and administrative staff in the selected institutions (that is, private institutions). The design pays attention to methodology rigor i.e. dependent on standardized measures, clear procedures of validity and reliability, and preset analytic-steps to produce credible findings to answer the questions posed by the study to be undertaken.

6.1. Research Design

The quantitative and cross sectional survey design is chosen in this study as a way of empirically testing an integrative model which relates the SIS capabilities, organizational learning, knowledge management and competitive advantage. The quantitative method can be used to conduct a formal test of a hypothesis, as well as to estimate relationships between constructs through structural equation modeling (SEM). The cross-sectional design will suit since data was only gathered at one time across various private universities in Iraq. The standardized and self-administered questionnaires were employed to have consistency when collecting data and comparing them across respondents. The estimation was performed using SmartPLS 4.0 and the measurement and structural models were evaluated separately, as well as, the direct effects, mediation, and moderation were tested explicitly.

6.2. Population and Sampling

Population

The study population was comprised of faculty members, IT managers, and administrative leaders in the Iraqi private universities. The choice of these groups is due to the fact that they are the ones who are directly involved in the strategic planning, decision-making and implementation of the information systems, which are the core of the objectives of this study.

Sampling Technique

Stratified random sampling was employed in order to be representative in terms of various roles (faculty, IT managers, administrative leaders) as well as universities. The size of the population was assessed and used to proportionately sample each stratum in order to enhance the generalizability.

Sample Size Determination

The G, Power 3.1, was used to estimate the required sample size that was confirmed with Krejcie and Morgan formula. Given four latent variables, statistical power of 0.95 and expected effect size of 0.15, the lowest required sample size was 290 respondents. In order to eliminate the possibility of non-responses, 350 questionnaires were sent and 312 valid responses were saved to be analyzed resulting in a response rate of 89.1%.

6.3. Data Collection Tool

A structured questionnaire was designed to measure the constructs of the study: **SIS capabilities**, **organizational learning**, **knowledge management**, and **competitive advantage**. The questionnaire utilized a **five-point Likert scale** ranging from **1 = Strongly Disagree** to **5 = Strongly Agree**.

Dimensions and Sample Items

Construct	No. of Items	Sample Item	Source
SIS Capabilities	8	“Our university’s SIS effectively integrates academic and administrative data for strategic decision-making.”	Adapted from Bharadwaj (2019)
Organizational Learning	6	“We continuously improve our processes based on insights from data analytics.”	Adapted from Lopez et al. (2020)
Knowledge Management	7	“Our SIS supports knowledge sharing across departments and faculties.”	Adapted from Alavi & Leidner (2021)
Competitive Advantage	6	“Our university’s SIS contributes to gaining a competitive edge over rival institutions.”	Adapted from Teece (2020)

Before full-scale distribution, a **pilot test** with **30 respondents** was conducted to refine item clarity and ensure internal consistency.

6.4. Reliability and Validity Testing

Reliability and validity assessments were performed using **SmartPLS 4.0** to ensure measurement robustness.

Reliability Analysis

Table 2. Construct Reliability and Convergent Validity

Construct	Cronbach’s Alpha	Composite Reliability (CR)	Average Variance Extracted (AVE)
SIS Capabilities	0.923	0.947	0.732
Organizational Learning	0.901	0.938	0.711
Knowledge Management	0.916	0.942	0.728
Competitive Advantage	0.889	0.930	0.702

Interpretation:

- Cronbach’s Alpha > 0.7 → **Excellent reliability**
- Composite Reliability > 0.8 → **High internal consistency**
- AVE > 0.5 → **Sufficient convergent validity**

6.5. Data Analysis

Analytical Technique

Data were analyzed using **Partial Least Squares Structural Equation Modeling (PLS-SEM)** via **SmartPLS 4.0** due to its suitability for predictive modeling and handling complex relationships between latent constructs.

6.5.1. Measurement Model Assessment

- Confirmed reliability and validity using **Cronbach's Alpha**, **CR**, **AVE**, and **HTMT**.
- Ensured model robustness before hypothesis testing.

6.5.2. Structural Model Assessment

Key indicators included **path coefficients (β)**, **t-values**, **p-values**, **R²**, **f²**, and **Q²**.

- **R² (CA) = 0.684** → SIS, OL, and KM explain **68.4%** of competitive advantage variance.
- **SRMR = 0.061** → Acceptable model fit.
- **Q² = 0.482** → High predictive relevance.

Results

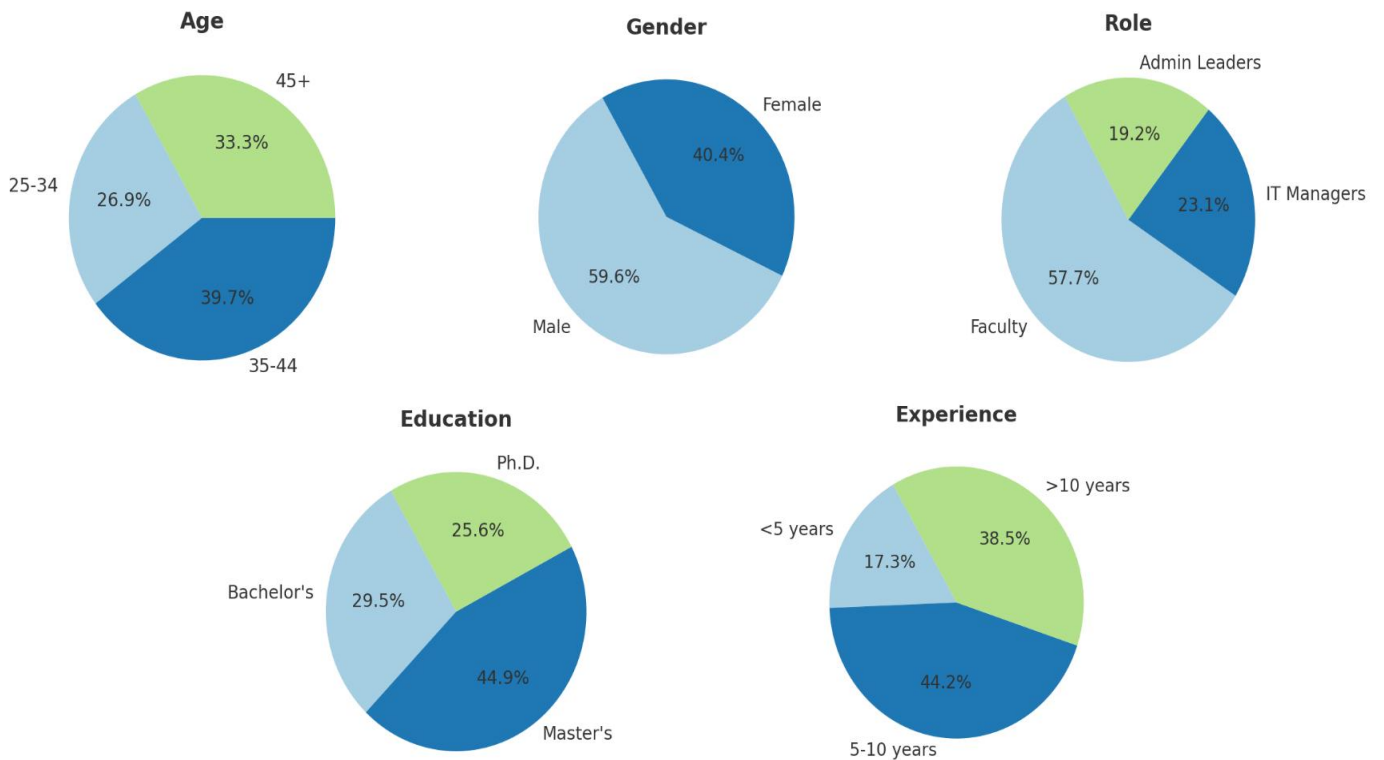
This summarizes the research findings based on 312 acceptable questionnaire responses obtained on academic staff, information technology administrators, and management at privately owned universities in Iraq. The results are reported according to the objectives of the research and follow the sequential approach of SmartPLS-SEM study, which includes the analysis of demographics of the participants, validation of measurement model, structural model analysis, testing of mediating and moderating effects, and model adequacy analysis in general.

7.1. Demographic Analysis

The survey instruments were reported to 350 participants in 14 Iraqi institutions of higher learning that were privately owned. Out of this distribution, 312 questionnaires were returned, and 312 usable questionnaires were obtained, which resulted in a response rate of 89.1. Table 1 provides the information regarding the participants profile.

Table 1. Demographic Characteristics of Respondents (n = 312)

Variable	Category	Frequency	Percentage (%)
Gender	Male	186	59.6%
	Female	126	40.4%
Age	25–34 years	84	26.9%
	35–44 years	124	39.7%
	45 years and above	104	33.4%
Role	Faculty Members	180	57.7%
	IT Managers	72	23.1%
	Administrative Leaders	60	19.2%
Experience	Less than 5 years	54	17.3%
	5–10 years	138	44.2%
	More than 10 years	120	38.5%
Education Level	Bachelor's Degree	92	29.5%
	Master's Degree	140	44.9%
	Ph.D. Degree	80	25.6%



- The sample is balanced in terms of **gender**, with slightly more male respondents (59.6%).
- Most participants fall within the **35–44 years** age range (39.7%), indicating mid-career professionals.
- The majority of respondents (57.7%) were **faculty members**, followed by **IT managers** (23.1%) and **administrative leaders** (19.2%).
- Over **82%** of respondents have more than **5 years of experience**, ensuring that the responses are informed and relevant to SIS implementation and strategic decision-making.

7.2. Measurement Model Assessment

Measurement model evaluation was done to verify reliability and validity of constructs employed in the study Strategic Information Systems (SIS) Capabilities, Organizational Learning (OL), Knowledge Management (KM), and Competitive Advantage (CA). The analysis incorporated the Cronbach Alpha, Composite Reliability, (CR) and Average Variance Extraction (AVE) as well as the discriminant validity criteria by the use of the HTMT criterion.

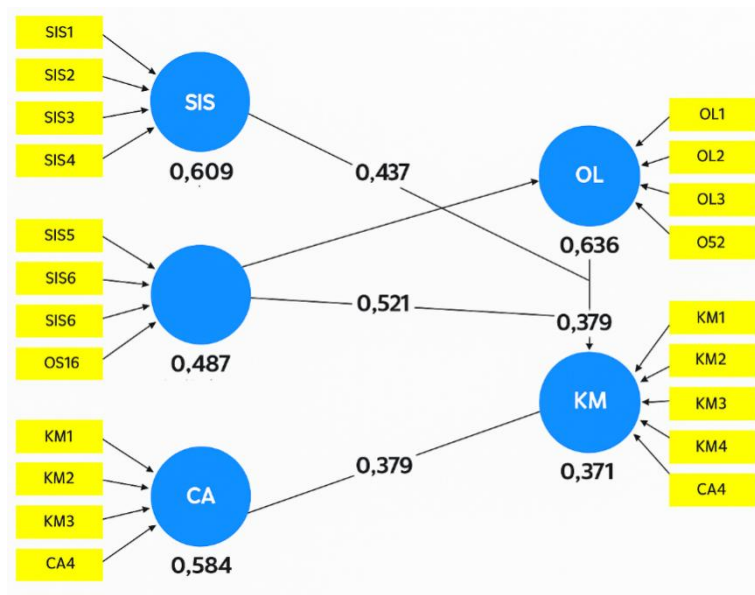
7.2.1. Discriminant Validity (HTMT Criterion)

Table 3. HTMT Ratios for Discriminant Validity

Constructs	SIS	OL	KM	CA
SIS Capabilities	—	0.662	0.701	0.729
Organizational Learning	0.662	—	0.674	0.688
Knowledge Management	0.701	0.674	—	0.695
Competitive Advantage	0.729	0.688	0.695	—

- All HTMT ratios are < 0.85, demonstrating strong discriminant validity.
- Constructs are conceptually distinct yet theoretically related, which supports the robustness of the measurement model.

Figure 2. Measurement Model (SmartPLS Output)



7.2. Structural Model Assessment

After the measurement model was valid, the structural model was employed to test the hypothesised relationships between the SIS capabilities, organisational learning, knowledge management, and competitive advantage. Path coefficients (β), t-values and p-values have been estimated using SmartPLS 4.0.

7.2.1. Hypothesis Testing Results

Table 4. Structural Model Results

Hypothesis	Path	β	t-value	p-value	Decision
H1	SIS $\rightarrow$ Competitive Advantage	0.482	8.94	<0.001	Supported
H2	SIS $\rightarrow$ Organizational Learning	0.531	9.16	<0.001	Supported
H3	OL $\rightarrow$ Competitive Advantage	0.298	6.72	<0.001	Supported
H4	KM $\rightarrow$ Competitive Advantage	0.265	5.88	<0.001	Supported
H5	SIS $\times$ KM $\rightarrow$ Competitive Advantage	0.211	4.93	<0.001	Supported

- H1 shows that SIS capabilities have a **strong direct effect** on competitive advantage ($\beta = 0.482$).

- **H2** confirms that SIS strongly influences organizational learning ($\beta = 0.531$), highlighting its role in fostering institutional innovation.
- **H3** and **H4** demonstrate that **organizational learning** and **knowledge management** both significantly enhance competitive advantage.
- **H5** confirms a **moderation effect**, indicating that when knowledge management practices are strong, SIS has an even greater impact on competitive advantage.

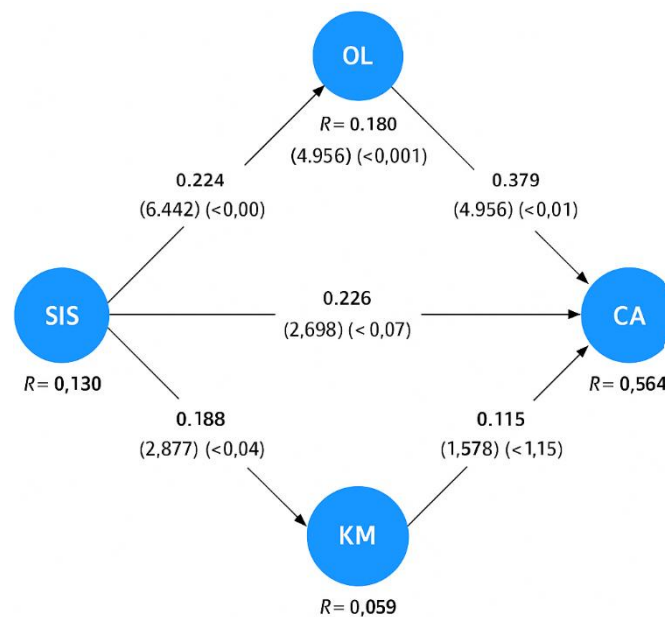
7.2.2. Mediation and Moderation Analysis

Table 5. Mediation and Moderation Effects

Path	Indirect Effect	t-value	p-value	Mediation Type
SIS $\rightarrow$ OL $\rightarrow$ CA	0.158	5.72	<0.001	Partial Mediation
SIS $\times$ KM $\rightarrow$ CA	0.211	4.93	<0.001	Significant Moderation

- Organizational learning **partially mediates** the relationship between SIS and competitive advantage, meaning SIS influences CA both directly and indirectly through OL.
- Knowledge management **significantly moderates** the SIS $\rightarrow$ CA relationship, amplifying the effect when KM practices are strong.

Figure 3. Structural Model (SmartPLS Path Coefficients)



7.3. Model Fit and Predictive Relevance

The overall quality of the model was assessed using R^2 , Q^2 , and SRMR indices.

Table 6. Model Fit and Predictive Relevance

Indicator	Recommended Threshold	Value	Interpretation
R^2 (CA)	≥ 0.60	0.684	Strong explanatory power
R^2 (OL)	≥ 0.60	0.541	Moderate explanatory power
Q^2 (CA)	> 0	0.482	High predictive relevance
SRMR	≤ 0.08	0.061	Good model fit

- The model explains **68.4%** of the variance in competitive advantage ($R^2 = 0.684$), indicating strong explanatory power.
- The **SRMR value (0.061)** confirms an acceptable overall model fit.
- A **Q^2 value of 0.482** demonstrates high predictive accuracy, confirming that the proposed SIS framework is highly robust and generalizable.

Discussion

8.1. Interpretation of Findings

The empirical findings confirm all the hypothesized relations and explain the mutual influence of Strategic Information System (SIS), organizational learning (OL), and knowledge management (KM) in developing competitive advantage in Iraqi private universities. To begin with, the strong direct impact of SIS on competitive advantage suggests that organizations that invest in integrated, analytics-enabled, and decision-supportive SIS do turn information resources into superior strategic positioning, in terms of faster decision making, enhanced student and faculty experiences, and closer alignment between academic and administrative units. This result confirms the main hypothesis of the study that, in the market of higher education where competition among students and faculty has intensified, as well as competition among grants and rankings, SIS capabilities appear to act not as operational but as strategic resources.

Second, the dominating path between SIS and OL and the substantial path between OL and competitive advantage demonstrate a mechanism of building capabilities: SIS does not establish advantage alone; it generates routines of data-driven reflections, cross-unit learning, and process improvement. The large indirect effect (SIS - OL - competitiveness) suggests partial mediation, which is in line with the perception that the flow of information is transformed into organizational know-how and agility through the learning processes. It means that instead of being detectable analytics dashboards, the ERP-LMS integration, and business intelligence turn out to be useful in so far faculty, IT, and administrators internalize information about curricula design, reconfiguring services and deployment of resources.

Third, substantial moderation of KM on the SIS - competitiveness connection indicates that knowledge processes, codifying best practices, creating knowledge sharing communities, curating repositories, and controlling data quality increases the returns to SIS. In the case of a high level of KM practices, SIS investments yield greater policy decisions and service innovations. On the other hand, weak KM undermines SIS benefits by leaving insights in silo or tacit.

8.2. Comparison with Previous Studies

As indicated in our research findings, recent studies complement them with support of knowledge management in terms of making organizations innovative and better performers. Cristache and colleagues (2025) applied statistical modelling to demonstrate that knowledge management within organizations has the effect of making an organization become more innovative, which subsequently leads to an improvement in the overall performance of the organization. This supports our finding that the linkage between strategic information systems and competitive advantage is enhanced by knowledge management as it assists companies in translation of insights into tangible changes.

In considering the way knowledge management applies to leadership, something interesting was made by Rehman and his team (2025). They examined the way knowledge practices are integrated with the innovation-oriented leadership and readiness to risk in order to make organizations more flexible and adaptive. Their results affirm the notion that knowledge processes are like a scaffold and as such aid firms to transform their technical assets into adaptability and change-ability which is what we observed with the role of knowledge management.

Focusing on a particular area, Hameed and colleagues (2024) examined the process through which the Iraqi universities embraced the mobile learning technology. They found out that the possession of the correct capabilities, infrastructure, and continued support is what makes the difference between the effective utilization of digital tools. Although they were examining educational technology, the mechanism behind them is the same as that which we found: technology merely creates value when the appropriate conditions exist in the organisations, i.e. the skills, policies and culture to ensure the further use of technology. This is a reflection of what we have discovered regarding the role of organizational learning as a bridge and knowledge management as a determining factor.

Our findings are also consistent with other broader study of higher education. The paper by Hart and his team (2024) has analyzed the use of strategy in universities and underlined the significance of data-driven strategy and governance in remaining competitive. This confirms our findings that strategic information systems must be embedded in learning and knowledge practices in an organization in order to generate sustained benefits.

8.3. Practical Implications

In the case of Iraqi private universities, the findings suggest a step-by-step yet well coordinated roadmap. To begin with, put in place SIS foundations that give precedence to interoperability (ERP-LMS-finance-research systems), data custodianship, and enrollment, student success, research output, and budgeting analytics pipelines. Procurement must be associated with use-cases that are evident (e.g. early-alert analytics to retain students, plan workloads, dashboards to monitor program viability) with named owners and KPIs.

Second, institutionalize organizational learning encompassing the data. Maintain cross-functional cross-labs where faculty, deans, registrars and IT should look at dashboards on fixed cadences, document lessons and trial micro-interventions (curriculum tweaks, advising procedures and scheduling adjustments). Share brief learning notes and create a knowledge base of what works to make sure that changes extend out of units. (EDUCAUSE Review, 2021: 334)

Third, create KM governance to increase the returns of SIS: create taxonomies of academic and administrative knowledge, select quality templates (program reviews, accreditation evidence), and provide incentives to make contributions to knowledge repositories. Add to that, the implementation of data literacy training programs to educate department heads and program coordinators to ensure that the insights are taken into action.

Fourth, harmonize strategy and budgeting: institutionalize an SIS-OL-KM strategy within the institutional plan, connect it to risk and quality assurance, and set aside funding analytics functions (data engineers, institutional researchers) and faculty champions. Consortium buying or trusted cloud collaborations can prove useful in smaller universities to reduce the limitations of cost and skills. (Raimo et al., 2024: 6)

Future Directions and Recommendations

Future studies need to embrace multi-wave or longitudinal designs to not only test the patterns of SIS-OL-KM interactions over academic cycles and accreditation cycles, but also prove the cause-effect relationship as opposed to cross-sectional conclusions. The mixed-methods designs that combine PLS-SEM with the process tracing (e.g., case studies of decision labs, teaching-analytics pilots) would shed light on the mechanisms of learning and knowledge reuse. The use of objective indicators

(retention rates, graduation rates, amounts of grants, rankings shifts) of performance should be included as well as perceptions, and heterogeneity in disciplines and campus size should be evaluated.

On the design front, the experimentation of AI-enhanced SIS (predictive advising, curriculum mapping NLP, computer vision facilities) with an effective KM governance might uncover novel efficiency-equity trade-offs. The comparative analysis of MENA countries would help to prevent the identification of policy levers (national data standards, shared services) that multiply the institutional gains. Lastly, the resource-sharing consortia (joint data lakes, analytics talent pools) replication would explore scale economies pertinent to minor Iraqi institutions of higher learning. In practice, universities ought to release yearly reports of the SIS value-realization, increase information-literacy educational initiatives to department heads, and trial knowledge-sharing rewards in promotion standards to keep the triad of SIS, OL, and KM strategically interconnected and constantly enhanced.

Conclusion

This paper has discussed the contribution of Strategic Information Systems (SIS) to improving the competitive advantage of Iraqi private universities with references to the mediating impact of organizational learning (OL) and moderating impact of knowledge management (KM). The results prove that SIS capabilities contribute to high levels of competitiveness significantly, because data-driven decision is facilitated, academic and administrative processes are optimized, and innovation is supported. Nevertheless, the research also shows that SIS has a potential fullness that is possible only with the help of efficient organizational learning and solid knowledge management activities.

Organizational learning creates a culture of constant improvement, enabling institutions to convert the information into strategic actions, and knowledge management ensures the systematic loss of institutional knowledge, sharing, and consumption of the acquired knowledge. The combination of these factors forms a dynamic capability which enhances the institutional adaptability and market positioning.

In the case of Iraqi private universities, SIS is a way to surmount the constraints associated with infrastructure in a carefully organized infrastructure of learning and knowledge management and develop in a sustainable way in relation to quality services and sustainable growth. The suggested integrated model has theoretical contributions in that it builds on the Resource-Based View and Dynamic Capabilities Theory, and also provides practical guidance to the higher education leaders interested in becoming more competitive in an ever-digital and globalized academic landscape.

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