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## The Evolution of Heis Sustainability Model – A Contemporary Approach

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### Abstract

*The objective of this research was to investigate and elucidate the function of knowledge management and leadership style in enhancing innovation competitive advantage and fostering sustainable performance. There aren't many studies on this subject in the higher education sector, and the majority of empirical study has been done in the service industry. Therefore, it is necessary to reevaluate if the Job Demands-Resources Model, the Resource-Based View theory, and the Knowledge-Based View theory were created to comprehend Iraqi universities. This quantitative study involved 495 respondents from 35 public universities in Iraq, and the data were analysed using SmartPLS software. The results showed that knowledge management and leadership style significantly influenced innovation competitive advantage, and sustainable performance. As a mediator variable, innovation competitive advantage is a body of knowledge that this research theoretically sheds light on. Therefore, there is a need for research on this topic because Iraq has not experienced stability during the wars it has been exposed to in recent periods. Yet, it also possesses innovative minds capable of contributing to the sustainability of the educational sector.*

**Keywords:** Sustainable Performance, Innovation, Competitive Advantage, Higher Education, Iraq

### Introduction

Universities' sustainable performance plays a significant role in the social development of knowledge-based economy and a strategic function in national welfare. The relevance of HEIs is based on their ability to influence a wide range of interest groups (students, communities, and society in general). Therefore, the sustainable performance of these institutions is a key interest area for all countries. Since the 20th century, there has been a transformation of the global economy, heralding a shift from dependence on tangible economic drivers to knowledge-driven intangible resources (Bakhtiar, Haider, & Adnan, 2017). Academics and end-users, regulators, investors, businesses, managers, and governments are all affected by this enormous shift (Ghath, Al-Gharaibeh, & Al-Naseri, 2023; Ramirez & Gordillo, 2014). In a world where knowledge is critical, an organization's long-term competitive advantage is determined by its long-term performance, acknowledgment of the value of intellectual capital, and acceptance of the principles of intellectual resources. Every one of these components is essential in the economy, but they are especially important in higher education institutions (HEIs) worldwide, especially in emerging nations like Iraq (Hamadamin & Atan, 2019).

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Organizations worldwide are today facing a common problem as a result of the quick changes in the business environment (Balzer, 2020). Businesses need to improve their performance to gain sustainable competitive advantages in order to thrive in the fiercely competitive environment of today (Kang & Na, 2020; Mitroulis & Kitsios, 2017). As a result, in many organizations, building many innovative talents is a reasonable and natural reaction (Asbari et al., 2020). To keep up with ever changing and expanding client expectations, businesses must improve the performance of what they innovate on a regular basis. Different forms of innovations can be combined to always remain on level with, if not ahead of, competitors' performance. Understanding the aspects that influence an organization's performance is essential for improving it successfully (Al Dalaien, Ibrahim, & Aburumman, 2020).

The advantage of innovation competitiveness is one of the greatest assets treasured by any serious organisation which desires to have higher performance and increased productivity (Ali et al., 2023). Employees' speed and strength of innovation can affect their sustainable performance which, in turn, can affect the business (profits), goodwill, and reputation of the organisation (Asadi et al., 2020).

Globally, higher education institutions are becoming increasingly conscious of the concerns surrounding sustainable development and the role they play. Numerous studies have been conducted in recent years to assess the impact of higher education performance on sustainability (El Said, 2021), and, despite differences, the promotion of sustainability and the deep commitment in preparing students to better understand the global environment remain as many higher education institutions' goals.

Knowledge Management (KM), and leadership have been used for improving the sustainable performance of many organisations (Ghaith et al., 2023; Iqbal, Ahmad, Nasim, & Khan, 2020; Shahzad, Qu, Zafar, Rehman, & Islam, 2020; Syed, Li, Junaid, & Ziaullah, 2020). According to Sheng, Chang, Teo, and Lin (2013), research on innovation competitive advantage is more productive, leads to higher levels of customer satisfaction and loyalty, and increases the likelihood that an organization will succeed in the service industry. Al-Husseini and Elbeltagi (2015), investigated the relationship between information sharing and innovation in Iraqi public higher education institutions. The findings indicate that information sharing is critical for fostering innovation in the context of higher education. Knowledge is widely considered as the most valuable resource for competitive advantage and a critical component of innovation. Knowledge sharing (KS) is widely regarded as a necessary component of sustainable performance in higher education environments and as a critical factor in increasing institutions' creativity. Therefore, this study aimed to investigate the effect of knowledge management (KM), leadership characteristics, staff commitment characteristics, employee engagement characteristics, innovation competitive advantage and sustainable performance in Iraq Higher Education Institution. The study will further analyse the mediation effects of innovation competitive advantage simultaneously on sustainable performance.

## **Literature Review**

A multitude of methods exist for measuring sustainable performance, and each organization can use relevant developed measurements to its operations. Although sustainable performance is a common backdrop for many different types of businesses, there are important strategic variations, such as operations in service sectors. Because this study focuses on long-term performance in higher education, it is necessary to identify and select acceptable measures of

long-term performance in higher education (Enas, Addin al-sharari, Ghaith, Al-Ghalabi, & Hamdan, 2022; Parvez & Agrawal, 2019).

Using the sustainability indicators of the ranked indices, the analysis aimed to identify the common shared sustainability indicators among the universities, their variations, and their potential future contributions to government initiatives and research productivity (Enas et al., 2022). The authors argue that universities ought to prioritize the efficacy and efficiency of government-funded research, the stability of investments, and heightened efforts to leverage global initiatives that facilitate outstanding educational programs and comprehensive internationalization. In spite of this, the authors raised concerns and cautions regarding the indicators used, the institutions under investigation, and the range of characteristics compared when comparing ranking indices of this kind.

Marqués-Sánchez et al. (2019), examined university students' network behaviour following a cooperative interdisciplinary educational intervention (in which students from various undergraduate programmes participated), as well as the relationship between network behaviour and academic performance, resilience, and engagement (Ghaith et al., 2023; Isa et al., 2023). Understanding how the university framework addresses social reality through collaborative work between different faculties, according to the authors, is a beneficial technique to develop creative and sustainable teaching–learning solutions.

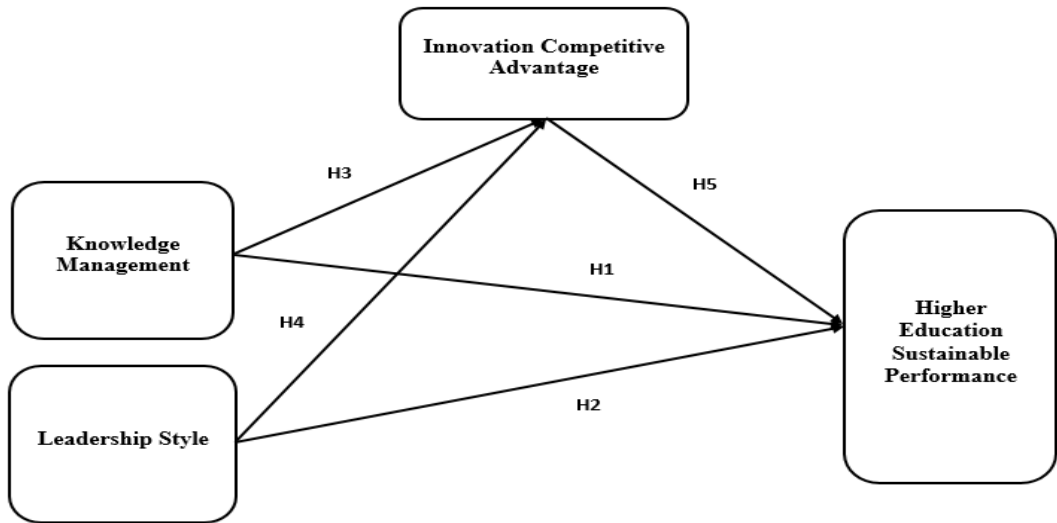
A number of researchers contend, however, that despite the comprehensive examination of the influence of knowledge management on organizational performance, there is still a dearth of empirical data in the literature regarding the connection between knowledge management practices and organizational performance (Ghaith et al., 2023; Sahibzada, Jianfeng, Latif, Shah, & Sahibzada, 2023; Singh, Gupta, Busso, & Kamboj, 2021). For other past researchers (Alam, 2022; Olan et al., 2022), knowledge management is a business practice that still remains in development despite it being an effective tool to generate a competitive advantage that benefits organisational performance.

In recent years, the effect of leadership on long-term performance in higher education has gained popularity as a research area. Several studies show that long-term performance in higher education is significantly improved by leadership. Due to the openness, complexity, and difficulties that many projects present, leadership is encouraged. Thus, this style of servant leadership is believed to be particularly well-suited for long-term success. In many instances, sustained performance in higher education has been associated with different leadership styles in different contexts (Jamali, Bhutto, Khaskhely, & Sethar, 2022). In the educational context, scholars assert that a lack of effective leadership impairs the success and implementation of sustainability policies and regulations (Abdullah et al., 2023).

Given the close connections between knowledge and innovation, one could expect that an organization's knowledge processes would lead to the formation of the innovation process (Bouncken, Kraus, & Roig-Tierno, 2021; Ghaith, 2020). In the meantime, gathering, sharing, and using both new and old information are all parts of the innovation process (Migdadi, 2021; Ode & Ayavoo, 2020).

From their investigation on the relationship between relationship-based employee governance and open service innovation and the three types of leadership (paternalistic, authentic, and democratic), Ahmed, Naqshbandi, Kaur, and Ng (2018), came to the conclusion that the relationships are favorably influenced by the three types of leadership.

Figure 1 depicts the proposed research framework in this study, which provides a clear picture of the overall concept of the study.



**Figure 1:** Research Framework

In accordance with the prior literature, the following research hypotheses are proposed:

**H1:** *Knowledge management has significant effect on sustainable performance*

**H2:** *Leadership style has significant effect on sustainable performance*

**H3:** *Knowledge management has significant effect on innovation competitive advantage*

**H4:** *Leadership style has significant effect on innovation competitive advantage*

**H5:** *innovation competitive advantage has significant effect on sustainable performance*

**H6:** *Innovation competitive advantage mediate the relationship between knowledge management and sustainable performance*

**H7:** *Innovation competitive advantage mediate the relationship between leadership style and sustainable performance*

## Research Methodology

This study's quantitative research is being utilized to clarify the relationship between factors the researcher is unaware of. The ideal technique for gathering data about the research phenomenon is to conduct a questionnaire survey. As a result, the study takes a deductive approach, and quantitative research, in particular, encourages the deduction of the study's value-added feature. In order to create an original and authentic sampling frame, the researcher distributed questionnaires in the public universities spread out across five regions (North, Central, South, West, and East) in Iraq, and the researcher distributed 500 questionnaires. The researcher then analysed the first 495 questionnaires completed. As a result, in this investigation, the cluster with Probabilities Proportional to Size (PPS) technique be used. The 35 public universities chosen are organized into a cluster. Then, in each location, respondents be chosen at random. The current study aims to examine the direct relationships between

knowledge management, leadership style, and sustainable performance, employing a Partial Least Squares Structural Equations Modeling (PLS-SEM) technique, as well as the influence of innovation competitive advantage (as a mediator) on the correlations between the aforementioned IVs and the DV in the context of universities in Iraq.

### Data Analysis

The software SmartPLS (version 3.2.8) used as the primary analysis tool in this investigation. One of the most popular PLS-SEM software solutions is SmartPLS. Prior to the main analyses, the data were examined for missing values, outliers, normality, and multicollinearity. These analyses were performed to prepare the data for further analyses, which include the descriptive and structural equation modelling analysis, and all the results from these tests are acceptable.

The multicollinearity of the variables was examined by checking the tolerance and variation inflation factor (VIF). Table 1 depicts that leadership style recorded the highest VIF value at 1.605, as well as the tolerance value at 0.623. These values confirm that multicollinearity is not an issue in the data of this study. These values conform with the conditions proposed by Hair, Hult, Ringle, Sarstedt, and Thiele (2017) as the tolerance is greater than 0.20 and the VIF is less than five.

**Table 1:** Multicollinearity Analysis.

Variable	Collinearity Statistics	
	Tolerance	VIF
<b>Constructs</b>		
Knowledge Management	.699	1.430
Leadership Style	.623	1.605

a. Dependent Variable: Sustainable performance

Hair et al. (2017), suggested that factor loading less than 0.70 should be removed. The measurement model was assessed and it was found that some items has a low factor loading below 0.70. Based on the first-order measurement model assessment, items KC12 and KC14 from knowledge capabilities (KC) were removed as well as items ICA1, ICA5, ICA7 from innovation competitive advantage (ICA) and item SP9 from sustainable performance (SP) were all deleted. The assessment of measurement model has been conducted by examining the factor loading of the items.

The second-order measurement model was assessed by following the same steps reported in the first order. The loading of first order on second order should be greater than 0.70 to be considered acceptable. Similarly, the CA, CR and AVE should be greater than 0.70, 0.70, and 0.50 respectively. Table 4.16 presents the results of the second-order measurement model assessment.

**Table 2:** Results of the Second-Order Measurement Model Assessment.

Second Order	First order	Factor loading	CA	CR	AVE
KM	KC	0.711	0.966	0.97	0.525
	KCP	0.942			
	KS	0.905			
LS	TFL	0.731	0.954	0.955	0.521
	TSL	0.715			
	AL	0.868			
ICA	-	-	0.919	0.928	0.608
SP	-	-	0.935	0.937	0.688

**Note:** ICA: innovation competitive advantage, SP: Sustainable Performance, KM: knowledge management, LS: Leadership Style.

Table 3 presents the findings of the second-order discriminant validity. The diagonal values show that there are no problems with discriminant validity in the second-order variables because they are greater than the corresponding values in the row and column.

**Table 3:** Discriminant validity (Fornell-Larcker Criterion).

	ICA	KM	LS	SP
ICA	0.781			
KM	0.536	0.755		
LS	0.587	0.494	0.721	
SP	0.611	0.636	0.675	0.831

The direct effect and intermediary effect are two of the hypotheses tested in this study. As recommended by Hair et al. (2017), all of the hypotheses were assessed using 5,000 bootstrapping and a p-value of less than 0.05. First order and second order structural models were used to evaluate the structural model. Table 4 displays the results of tested hypotheses.

**Table 4:** Hypothesis Testing.

Hypothesis	Path	B	Std	T	P	Label
H1	KM -> SP	0.275	0.041	6.695	0.000	Supported
H2	LS -> SP	0.236	0.043	5.489	0.000	Supported
H3	KMC-> ICA	0.147	0.048	3.062	0.002	Supported
H4	LS -> ICA	0.136	0.039	3.535	0.000	Supported
H5	ICA → SP	0.357	0.043	8.281	0.000	Supported
H6	KM -> ICA -> SP	0.061	0.018	3.381	0.001	Supported
H7	LS -> ICA -> SP	0.049	0.015	3.177	0.001	Supported

Research revealed that sustained performance and innovation competitive advantage are positively impacted by knowledge management and leadership style. Positive effects were seen in the sustainable performance due to the innovation competitive advantage. It also acted as a mediator between leadership style and knowledge management's impact on sustainable performance.

## Discussion

According to the first hypothesis, knowledge management has a positive and significant impact on sustainable performance (H1). Table 4 illustrates that knowledge management has a positive, second-order effect on sustainable performance, with a p-value of less than 0.05 and a B=0.275. Thus, H1 is supported and the increase in the level of knowledge management will lead to an increase in the sustainable performance, and this result supported with previous studies (Jilani, Fan, Islam, & Uddin, 2020; Shahzad et al., 2020) . The effect of leadership style is positive and significant (B=0.236, T=5.489, P<0.05). This indicates that leadership style is a critical predictor of the sustainable performance. The increase in implementing leadership style will enhance the sustainable performance of higher education in Iraq. Thus, H2 is supported, this finding aligns with prior research (Piwowar-Sulej & Iqbal, 2023). The effect of knowledge management on innovation competitive advantage was proposed to be positive, H3: Knowledge management has significant effect on innovation competitive advantage, these results are consistent with earlier studies (Arsawan et al., 2022; Mundra, Gulati, & Vashisth, 2011). The fourth hypothesis of this study proposed that the effect of leadership style on innovation competitive advantage (ICA) is positive and significant. The effect of LS on ICA

was found positive and significant at  $B= 0.136$  and  $p$ -value is less than 0.05, the outcomes corroborate with findings from previous research (AlOwais, 2019; Wahyudi & Subanidja, 2022). This indicates that implementing leadership is critical for the innovation competitive advantage of higher educational institutions in Iraq. The statement of the hypothesis was “H5: Innovation competitive advantage has significant effect on sustainable performance”. The findings as shown in Table 4 indicate that the effect of innovation competitive advantage on sustainable performance is positive and significant at  $B=0.357$  and  $p$ -value less than 0.05. This result leads to a conclusion that the increase in the ICA will result in a positive increase in SP, previous studies have also substantiated this outcome (Arsawan et al., 2022; Cheah, Ho, & Li, 2018). As shown in Table 4, the mediation role of innovation competitive advantage occurred between KM and SP (H6). This indicates that innovation competitive advantage can partially mediate the effect of KM on sustainable performance. Part of the relationships between KM with SP can be explained via the innovation competitive advantage. The mediation is partial because the direct effect  $LS \rightarrow SP$  and the indirect effect  $LS \rightarrow ICA \rightarrow SP$  are significant. Therefore, H7 is supported and part of the relationship between LC and SP can be explained by the innovation competitive advantage.

## Conclusions

Overall, all of the study's hypotheses that were put forth have merit. According to the results, knowledge management and leadership style have a positive impact on both innovation competitive advantage and sustainable performance. Additionally, academics' perceptions of a university's contribution to sustainable performance are influenced by their perceptions of innovation competitive advantage, which is mediated by knowledge management and leadership style. Regarding this, the Job Demands-Resources Model (JD-R), Knowledge-Based View theory (KBV), and Resource-Based View theory (RBV) are based on the real advantages that academics provide and inspire through their connections, with the aim of enhancing and sustaining performance. However, building effective relationships can be difficult. In this regard, the current thesis makes a substantial contribution to the management literature by presenting a model that empirically investigates the perspectives of Iraqi academics regarding their interactions with university administration. Finally, it is advised that in order to investigate the moderating effects between the variables, future research include both the direct and indirect impacts between the variables. Subsequent research endeavours may concentrate on the moderating influence of organisational culture. This would provide further insight into the relationships between the variables.

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