

The Impact of Adopting Cloud Computing on Improving Knowledge Management Processes among Faculty Members at Mascara University

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Abstract:

This study examines the impact of cloud computing adoption on knowledge management processes among faculty members at Mascara University. A descriptive-analytical approach was employed, and data were collected via a questionnaire from a sample of 100 faculty members and analyzed using SPSS v26. The results indicate a high level of cloud computing adoption and a positive, statistically significant effect on knowledge management processes, particularly in facilitating information flow, enhancing collaboration, and supporting academic and administrative performance. The study recommends expanding cloud computing implementation in universities and aligning its strategies with institutional objectives to ensure sustainable outcomes.

Keywords: cloud computing; Knowledge Management; Knowledge Transfer; Knowledge Sharing; Knowledge Transformation.

Jel Classification Codes : M15, O33, D83

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1. INTRODUCTION

Most higher education institutions have begun to recognize the importance of knowledge management and its vital role in improving university performance and ensuring sustainability within a competitive educational environment. Knowledge derived from multiple sources has thus become a strategic asset enabling universities to achieve differentiation and academic excellence compared to other institutions.

Based on this recognition of the value of knowledge, universities have started to develop their own knowledge management initiative strategies, which include activities such as information discovery, mapping, collection, filtering, the development of new knowledge, the transformation of individual knowledge resources, and the enhancement of information value to convert it into effective knowledge. Knowledge management is therefore a dynamic process that can be viewed from two interrelated perspectives: the business dimension on the one hand, and the technological dimension on the other (Aksoy, 2024)

To achieve effective implementation of knowledge management in higher education institutions, knowledge management initiatives must be aligned with the university's academic and organizational objectives, in addition to leveraging advanced technologies that are rapidly evolving. (Sveiby, 1997) indicated that knowledge management approaches are based on three main dimensions: people, processes, and technology.

The contemporary era relies heavily on technology, whose benefits clearly outweigh its drawbacks. Higher education institutions seek to adopt the latest technologies to meet the requirements of modern education, ranging from admission procedures and recruitment management to staff performance evaluation, teaching workload allocation, and the provision of distance learning. While knowledge creation and sharing were traditionally considered the primary objectives of higher education, continuous technological advancement has transformed educational methods and goals, which now also encompass the promotion of economic development and the fostering of an entrepreneurial spirit within the university's mission (Schmitz & et al, 2014).

Higher education institutions, particularly universities, appear to constitute an appropriate environment for the application of knowledge management practices, as knowledge management can contribute to enhancing the professional development of faculty members, increasing the efficiency of scientific research. and improving the quality of education (Al-Rasheed & al, 2014). Moreover, knowledge management assists universities in improving the quality of knowledge-based decision-making and in enhancing institutional success in terms of academic performance and social values.

Cloud computing is considered one of the most recent and widely adopted technologies at present, and many higher education institutions have begun to shift toward leveraging its advantages. Among its most notable benefits are high computing capacity, reduced infrastructure and maintenance costs, as well as the provision of flexible, on-demand storage capacity. (Gartner, 2009) described cloud computing as an environment in which data are stored and processed outside the user's devices, with data being transmitted through cloud-based infrastructure. (Stergiou & Psannis, 2017)

From this perspective, the main research question is formulated as follows:

What is the impact of adopting cloud computing on knowledge management processes among faculty members at Mascara University?

-Main Hypothesis:

There is a statistically significant effect of adopting cloud computing on knowledge management processes among faculty members at Mascara University.

-Sub-Hypotheses:

- There is a statistically significant effect of cloud computing on the knowledge transfer dimension among faculty members at Mascara University.

- There is a statistically significant effect of cloud computing on the knowledge sharing dimension among faculty members at Mascara University.
- There is a statistically significant effect of cloud computing on the knowledge Transformation dimension among faculty members at Mascara University.

-Importance of the Study:

The importance of this study lies in highlighting the vital role of cloud computing in enhancing the application of knowledge management within higher education institutions, as this technology represents an innovative means of supporting knowledge processes (collection, sharing, and Transformation) more effectively.

The study also contributes to providing new insights into the impact of digital transformation on improving the academic and organizational work environment within universities, thereby enabling concerned stakeholders to adopt technological strategies that contribute to the development of academic and research performance and the achievement of institutional objectives.

-Objectives of the Study

1. To identify the level of cloud technology adoption by faculty members at Mascara University in performing their academic and administrative tasks.
2. To determine the impact of cloud computing on knowledge management processes in higher education institutions.
3. To assess the contribution of cloud computing to supporting knowledge-based decision-making within universities.
4. To examine how cloud computing is used to improve academic and job performance.
5. To provide recommendations for improving the academic work environment through the effective integration of cloud technology.

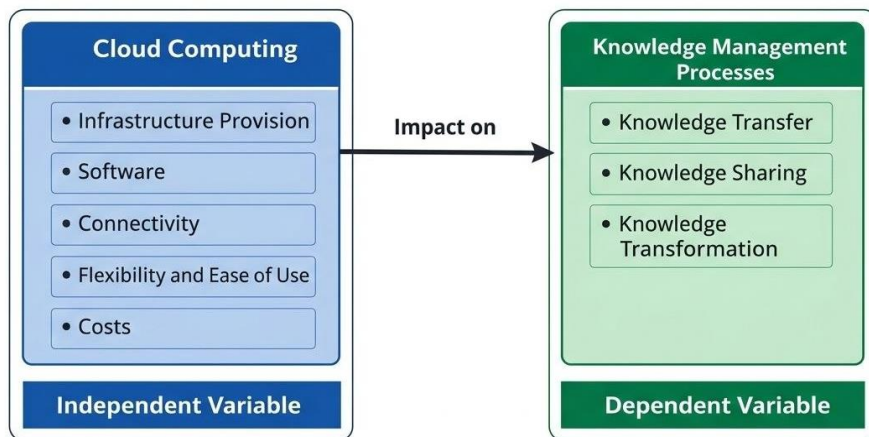
-Research Methodology:

This study adopts the descriptive-analytical approach, as it is the most appropriate method for analyzing the relationship between the

variables under investigation, namely the adoption of cloud technology as the independent variable and knowledge management processes as the dependent variable.

Study Model: The study model is illustrated in the following figure

Fig.1. Study Model



Source: Prepared by the researchers based on previous studies

2. Theoretical Framework:

2.1 The Concept of Cloud Computing

With the rapid technological developments witnessed worldwide, cloud technology has emerged as one of the most prominent innovations that has brought about a qualitative transformation in the way institutions manage their technological resources. Cloud technology has become a fundamental component of many daily activities at both the individual and institutional levels, due to the advantages it offers in terms of flexibility, efficiency, and cost reduction.

Technology dates back to the very beginning of human history, as humans have been creators of tools and innovations that were essential for their survival on Earth. It is therefore not surprising that cultures and civilizations are often identified through the tools they produced. However, while tool-making is not exclusive to humans, what distinguishes technology is that it is the product of human creativity. (Ian McNeil, 1990, p. 18)

In simple terms, the cloud refers to the use of the Internet to deliver computing services. It is called "cloud" because the cloud is a symbol of the Internet. It is defined as a technology that provides services for storing data and files on cloud servers, enabling users to access them via the Internet from anywhere and at any time without needing to understand the technical details of how the service operates (Ali, 2015).

Cloud computing represents a natural extension of the technological evolution witnessed globally, as it relies on transferring processing and storage operations from local devices to flexible virtual environments, thereby transforming users' devices into interfaces for accessing cloud services. This technology is characterized by flexibility, efficiency, and fast responsiveness, in addition to reducing costs and enhancing the optimal use of resources.

Simply put, this technology transfers processing and storage operations from local devices to cloud servers, making programs and services available over the network. In this system, the user's device becomes an interface for accessing data and services stored in the cloud, allowing them to manage and store files from any Internet-connected device (Hazza, 2022, p. 892).

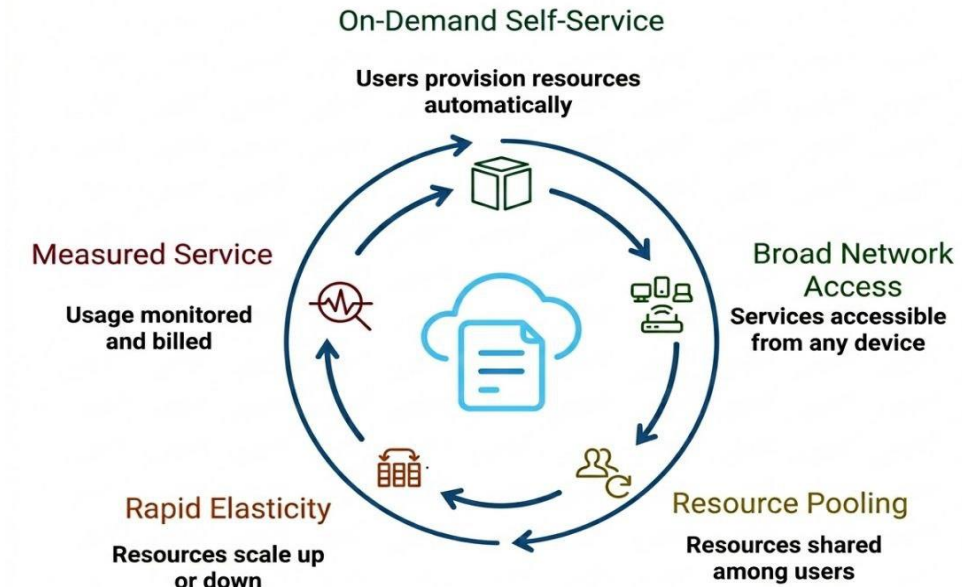
The National Institute of Standards and Technology (**NIST**) defines cloud computing as: "a model for enabling convenient, on-demand network access to a shared pool of configurable computing resources (such as networks, servers, storage media, applications, and services) that can be rapidly provisioned and released with minimal management effort or service provider interaction" (Mell & Grance Timothy, 2025).

Consequently, cloud computing is a modern technological model that relies on the use of the Internet to provide a variety of computing resources and services, such as storage, processing, applications, and networking, through remote servers managed by service providers. This allows users to access these resources on-demand from anywhere and at any time, without the need to own or manage the underlying technical infrastructure locally.

According to the National Institute of Standards and Technology (NIST), cloud computing is characterized by five essential features: (Mell

& Grance Timothy, 2025):

Fig.2. Five Essential Characteristics of Cloud Computing



Source: (Mell & Grance Timothy, 2025)

- **On-Demand Self-Service**: Users can provision or release computing resources automatically without human interaction.
- **Broad Network Access**: Cloud services are accessible over the network from any internet-enabled device.
- **Resource Pooling**: Provider resources are pooled and dynamically allocated among multiple users as needed.
- **Rapid Elasticity**: Resources can be quickly scaled up or down in response to changing demand.
- **Measured Service**: Resource usage is monitored and billed based on actual consumption.

According to (Pradip, Giri, Chatterjee, & Biswa, 2019, p. 896), cloud computing is based on five core dimensions that make it distinctive and appealing to organizations: (Gherrab & Benoussad , 2024, p. 73)

- **Infrastructure**: Computing resources are provided through public, private, or hybrid cloud environments, allowing organizations to transfer

part or all of their IT infrastructure from local data centers to cloud platforms managed by service providers. These resources include processing power, storage, networking, and other hardware and software components offered at lower costs.

-**Software:** Applications are delivered online through the cloud as a modern model for software distribution. Users can access and use software without owning it, paying only for actual usage.

-**Connectivity:** Cloud services offer integrated communication solutions that manage the software required for services such as voice over the internet, instant messaging, video conferencing, chat, voicemail, and web-based collaboration.

- **Flexibility and ease of use:** Cloud servers provide extensive capacity that can be accessed anytime and from anywhere, enhancing workplace flexibility. Users can easily access their data through various internet-enabled devices such as smartphones, laptops, and tablets.

- **Costs:** Cloud computing is quicker and easier to implement, which reduces initial setup expenses. It also lowers maintenance and upgrade costs compared to traditional software that requires expensive licensing, resulting in a significant reduction in overall IT expenditures.

2.2 Uses of Cloud Computing in Higher Education Institutions:

Recently, many universities that were primarily focused on teaching have transformed into research-oriented institutions, where information technology facilities have become an essential part of their academic and scientific operations. With technological advancements, many educational services have begun to shift from the traditional model to a cloud-based model (Mukthar & Rajappan, 2021, p. 10)

With the expectation that cloud computing applications will become widespread in the near future, educational institutions can adopt these applications to facilitate team collaboration, utilize web services, perform data backup, and access enterprise applications and personal productivity tools (Dineva, 2012)

Cloud computing is an effective tool in the field of education for a wide range of purposes. In fact, it allows some academic institutions to

leverage global Internet resources for data analysis and storage, in addition to supporting financial activities, procurement, risk management, and institutional administration.

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Cloud technology provides multiple services that support educational processes through collaboration and communication tools, which facilitate interaction between students and faculty members. For example, Microsoft Live @edu offers a suite of tools such as Microsoft Outlook Live and Windows Live SkyDrive, allowing for data storage and providing an interactive learning environment for students and instructors. Educational institutions can also register for this service free of charge to access comprehensive academic tools. (Lakshminarayanan, Kumar, & Raju, 2013)

On the other hand, Google Apps for Education provides a suite of cloud-based tools such as Gmail, Google Docs, and Google Calendar, which enable students and instructors to collaborate effectively, thereby enhancing productivity and fostering innovation within educational institutions. These tools also allow institutions to customize user interfaces to align with their organizational identity, further enriching the digital learning experience. (Gulati, 2011, p. 107)

Amazon Web Services (AWS) offers a range of solutions that support computing, storage, and research operations. Services such as Amazon EC2 and Elastic MapReduce provide opportunities for analyzing large volumes of data, while tools like Auto Scaling and Elastic Load Balancing help educational institutions optimize performance by dynamically increasing or decreasing cloud capacities according to academic and research needs (Azeez, 2009, p. 2)

With these cloud services, educational institutions can enhance their ability to utilize global resources effectively, contributing to improved education quality and the expansion of academic research.

2.3 The Concept of Knowledge Management and Its Processes:

Knowledge is regarded as one of the newest factors of production and

is recognized as a crucial resource for wealth creation in the economy, as well as a fundamental source of competitive advantage in knowledge-based organizations. Acquiring and harnessing knowledge from internal or external sources is considered more important than obtaining physical assets, and leveraging it in a way that exceeds competitors' expectations has become more significant than utilizing the organization's other resources.

According to (Al-Maghrab & El-Fateh , 2019, p. 09) knowledge is defined as "information or facts that a person possesses about something." Knowledge is characterized by its cumulative nature, organization, causal inquiry, comprehensiveness, certainty, accuracy, and abstraction (Muslim, 2015, pp. 27-28)

Knowledge management is defined as "a set of strategies aimed at creating, identifying, collecting, organizing, and enhancing core skills, information, and knowledge, with the goal of enabling individuals and teams to perform organizational tasks optimally" (Amer & Al-Nasser, 2022, p. 32).

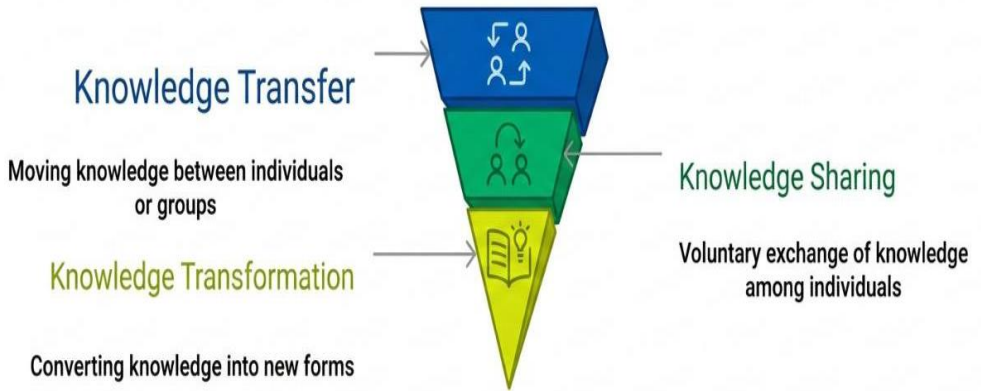
It is also viewed as a process that encompasses the identification, acquisition, storage, retrieval, distribution, and application of intellectual assets, whether explicit or tacit, to maximize benefits for individuals, organizations, and society (Al-Housh, 2020, p. 50).

Thus, knowledge management consists of a set of administrative processes and activities that organizations should employ in decision-making. It allows for the effective utilization of the knowledge and ideas held by all employees to solve problems encountered during task execution, while simultaneously supporting the achievement of both individual and organizational objectives.

Based on the concept of knowledge management, it is evident that it is not limited to the mere storage of knowledge; rather, it relies on a set of processes that ensure its circulation and utilization within the organization. Knowledge transfer, knowledge sharing, and knowledge conversion are among the most important processes that contribute to the flow of knowledge and its transformation into added value, particularly in universities that depend on knowledge interaction among faculty members.

These processes are as follows:

Fig.3. Knowledge Management Processes



Source: (Nonaka, 1994)

-Knowledge Transfer: Knowledge transfer refers to the process of moving knowledge from an individual or group to another individual or group within the organization, whether it is explicit, documented knowledge or tacit knowledge derived from experience and practice, with the aim of using it to improve performance and support decision-making. Davenport and (Davenport & Prusak, 1998, p. 13) define knowledge transfer as "the process through which knowledge is communicated and shared among individuals or organizational units, ensuring its understanding and use in the appropriate context."

-Knowledge Sharing: Knowledge sharing refers to the process through which knowledge, experiences, and information are voluntarily and interactively exchanged among individuals, allowing knowledge to flow in two or more directions within the organization. (Nonaka & Takeuchi, 1995) define it as "a social process through which tacit and explicit knowledge is exchanged among individuals, contributing to the creation of new knowledge." (Wang, 2012, p. 8902) also considers knowledge sharing as the cornerstone for building an organizational culture that supports learning and innovation.

-Knowledge Transformation: Knowledge Transformation refers to the process through which knowledge is transformed from one form to another, such as converting tacit knowledge into explicit knowledge, or combining explicit knowledge to create new, actionable knowledge. (Nonaka, 1994, p. 20) introduced this concept within the SECI model, defining knowledge conversion as "a continuous and dynamic process through which knowledge is transformed across its different dimensions, allowing for the creation of new knowledge and its practical application."

3. Practical Framework

After establishing the theoretical foundation, which covered the essential concepts of cloud computing adoption and knowledge management, this practical section applies these concepts to the real-world context of faculty members at Mascara University. It aims to assess the impact of cloud computing adoption on knowledge management processes by collecting field data and analyzing it using appropriate statistical tools and methods, in order to test the study's hypotheses and reach precise scientific conclusions.

3.1 Study Sample and Research Instrumentation

-Study Population and Sample

The study population consists of faculty members working at Mascara University during the academic year **2025-2026**. Due to the difficulty of studying the entire population, a random sample of **(100 individuals)** was selected using a simple random sampling method from various faculties and disciplines, aiming to ensure comprehensive representation of the study population.

-Study Instrument:

To achieve the objectives of the study and collect data related to its variables, an electronic questionnaire was used as the main instrument. The questionnaire was specifically designed to include questions measuring the dimensions of cloud computing adoption and knowledge management processes, in addition to questions related to the demographic characteristics of the sample members. The questionnaire comprised a total of 35 items. A five-point Likert scale was employed to accurately assess the

respondents attitudes and opinions, while the data were analyzed using SPSS version 26 to statistically process the results and extract indicators that support testing the study's hypotheses.

3.2 Validity and reliability of research variables

The reliability of the questionnaire was verified using Cronbach's alpha coefficient as follows:

Table 1. Cronbach's alpha coefficients

Variables	Number of questions	Alpha Cronbach
Cloud Computing Dimensions	22	0.737
Knowledge Management Processes	13	0.740
All previous themes	35	0.895

Source: Prepared by the researchers using SPSS-26

It is evident from the above table that the Cronbach's alpha coefficient for the questionnaire as a whole reached **(0.895)**for all **(35 items)** , which exceeds the minimum acceptable threshold of **(0.60)**. This indicates that the study instrument possesses a high degree of reliability and confirms its suitability for use in statistical analysis. Furthermore, the high stability coefficients suggest that if the questionnaire were distributed to another sample of the same size from the same population, the results would be expected to closely match those obtained from the initial sample.

3.3 Descriptive analysis of the sample's responses to the study variables

Table 2. Descriptive analysis of Cloud Computing

Dimensions	Mean	S. D	Level	Ranking
Infrastructure	3.92	0.596	High	03
Software	3.94	0.666	High	02
Connectivity	3.94	0.667	High	02
Flexibility and Ease of Use	4.04	0.631	High	01
Costs	3.64	0.824	High	04
Cloud Computing	3.89	0.565	High	

Source: Prepared by the researchers using SPSS-26

The results presented in the above table indicate that all dimensions of cloud computing scored at a high level, with the overall mean of the sample respondents' responses reaching **(3.89)**. This suggests a relatively high level of adoption of this technology within Mascara University. The highest-rated dimension was Flexibility and Ease of Use **(4.04)**, highlighting the institution's focus on user-friendly digital services. While all dimensions received high ratings, Costs **(3.64)** scored slightly lower, indicating an area that may require further attention. Overall, these results reflect the institution's commitment to providing a modern digital environment through adequate software, robust connectivity, and technical infrastructure, demonstrating awareness of the importance of cloud computing in supporting academic work and enhancing performance efficiency.

Table 3. Descriptive analysis of Knowledge Management Processes

Dimensions	Mean	S. D	Level	Ranking
Knowledge Transfer	4.26	0.599	High	01
Knowledge Sharing	3.59	0.734	High	03
Knowledge Transformation	3.63	0.821	High	02
Knowledge Management Processes	3.83	0.488	High	

Source: Prepared by the researchers using SPSS-26

The results presented in the above table indicate that the level of knowledge management processes among faculty members was high, with an overall mean of **(3.83)**. This reflects the reliance of universities on knowledge management practices in their academic and administrative activities.

The results showed that knowledge transfer recorded the highest mean **(4.26)**, indicating a greater focus on the flow of information and knowledge among stakeholders within the institution, whether in teaching or administrative work. In contrast, knowledge conversion and knowledge sharing scored relatively lower, with means of **(3.63)** and **(3.59)**, respectively. This suggests that, although these processes are present, they are more strongly influenced by human and organizational factors rather than being solely dependent on technological tools.

These findings align with previous studies in the higher education sector, which indicate that universities implement knowledge management processes at varying levels, with a dominance of processes related to knowledge transfer compared to more complex processes such as knowledge Transformation and sharing.

3.4 Hypothesis testing

- **Testing the main hypothesis:** This hypothesis states that:

" There is a statistically significant effect of cloud computing adoption on knowledge management processes among faculty members at Mascara University at a significance level of 0.05"

To test the main hypothesis, a simple linear regression analysis was conducted, and the outcomes are summarized in Table (04):

Table 4. Results of the simple regression analysis to test the main hypothesis

	B	T	Sig	F	R	R²
Constant	2.267	5.821	0.000	16.367	0.378	0.704
knowledge management processes	0.400	4.046	0.000			

Source: Prepared by the researchers using SPSS-26

The results of the regression analysis indicate that the value of the regression coefficient is (**B= 0.400**), which is positive, suggesting a direct relationship between cloud computing adoption and knowledge management processes. In other words, an increase in the level of cloud computing adoption leads to an improvement in knowledge management processes among faculty members,

The calculated **T-value** was (**4.046**), which is statistically significant at the level (**Sig = 0.00 < 0.05**), confirming the significance of the regression coefficient and indicating a real effect of cloud computing adoption on knowledge management processes.

Additionally, the **F-test** results showed a calculated value of (**16.367**) at a significance level of (**Sig = 0.00**), indicating that the regression model as a whole is statistically significant and suitable for interpretation.

Regarding the correlation coefficient (**R = 0.378**), it indicates a moderate relationship between the study variables, while the coefficient of determination (**R² = 0.704**) suggests that cloud computing adoption explains **70.4%** of the variance in knowledge management processes, with the remaining variance attributed to other factors not included in the model

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Based on the above, the regression equation can be expressed as follows :
$$Y = 0.400X + 2.267$$

Where: **Y**: Knowledge Management Processes.

X: Cloud Computing.

Consequently, the null hypothesis is rejected, and the alternative hypothesis is accepted, confirming the existence of a statistically significant effect of cloud computing adoption on knowledge management processes among faculty members at Mascara University

- Testing the first hypothesis :

"This hypothesis states that "there is a statistically significant effect of cloud computing on the knowledge transfer process among faculty members at Mascara University at a significance level of 0.05"

To test the main hypothesis, a simple linear regression analysis was conducted, and the outcomes are summarized in Table (05):

Table .5 Results of the simple regression analysis to test the first hypothesis

	B	T	Sig	F	R	R²
Constant	2.942	7.358	0.000	11.081	0.319	0.102
knowledge transfer process	0.338	3.329	0.001			

Source: Prepared by the researchers using SPSS-26

The results of the regression analysis indicate that the value of the regression coefficient is (**B= 0.338**), which is positive, suggesting a direct relationship between cloud computing adoption and the knowledge transfer dimension. In other words, an increase in the level of cloud computing adoption leads to an improvement in knowledge transfer among faculty members.

The calculated **T-value** was (**3.329**), which is statistically significant at (**Sig = 0.001 < 0.05**), confirming the significance of the regression coefficient and indicating a real effect of cloud computing adoption on the knowledge transfer process.

Furthermore, the **F-test** results showed a calculated value of (**11.081**) at a significance level of (**Sig = 0.001**), indicating that the regression model as a whole is statistically significant and suitable for interpretation

Regarding the correlation coefficient (**R = 0.319**), it indicates a weak-to-moderate positive relationship between the study variables, while the coefficient of determination (**R² = 0.102**) suggests that cloud computing adoption explains **10.2%** of the variance in the knowledge transfer dimension.

Accordingly, the regression equation can be expressed as follows:

$$Y = 2.942 + 0.338 X$$

Where: **Y**: Knowledge Transfer

X: Cloud Computing.

Therefore, the null hypothesis is rejected, and the alternative hypothesis is accepted, confirming the existence of a statistically significant effect of cloud computing adoption on knowledge transfer among faculty members at Mascara University

- Testing the Second hypothesis :

"This hypothesis states that "there is a statistically significant effect of cloud computing on the Knowledge Sharing process among faculty members at Mascara University at a significance level of 0.05"

To test the main hypothesis, a simple linear regression analysis was conducted, and the outcomes are summarized in Table (06):

Table .6 Results of the simple regression analysis to test the Second hypothesis

	B	T	Sig	F	R	R²
Constant	1.860	8.835	0.000	13.043	0.343	0.117
Knowledge Sharing process	0.445	3.612	0.000			

Source: Prepared by the researchers using SPSS-26

The results of the regression analysis indicate that the value of the regression coefficient is (**B=0.445**), which is positive, suggesting a direct

relationship between cloud computing adoption and the knowledge sharing dimension. In other words, an increase in the level of cloud computing adoption leads to an improvement in knowledge sharing among faculty members.

The calculated **T-value** was (**3.612**), which is statistically significant at (**Sig = 0 < 0.05**), confirming the significance of the regression coefficient and indicating a real effect of cloud computing adoption on the knowledge sharing process.

Furthermore, the **F-test** results showed a calculated value of **13.043** at a significance level of (**Sig = 0.00**), indicating that the regression model as a whole is statistically significant and suitable for interpretation

Regarding the correlation coefficient (**R = 0.343**) it indicates a moderate relationship between the study variables, while the coefficient of determination (**R² = 0.117**) suggests that cloud computing adoption explains **11.7%** of the variance in the knowledge sharing dimension.

Accordingly, the regression equation can be expressed as follows:

$$Y = 1.860 + 0.445 X$$

Where :**Y**: Knowledge Sharing

X: Cloud Computing

Therefore, the null hypothesis is rejected, and the alternative hypothesis is accepted, confirming a positive and statistically significant effect of cloud computing on the knowledge sharing dimension among faculty members at Mascara University.

- Testing the Third hypothesis :

"This hypothesis states that "there is a statistically significant effect of cloud computing on the Knowledge Transformation process among faculty members at Mascara University at a significance level of 0.05"

To test the main hypothesis, a simple linear regression analysis was conducted, and the outcomes are summarized in Table (07):

Table .7 Results of the simple regression analysis to test the Third hypothesis

	B	T	Sig	F	R	R²
Constant	1.988	3.611	0.000	8.816	0.287	0.083
Knowledge Transformation process	0.417	2.969	0.004			

Source: Prepared by the researchers using SPSS-26

The results of the regression analysis indicate that the value of the regression coefficient is (**B=0.417**), which is positive, suggesting a direct relationship between cloud computing adoption and the knowledge Transformation dimension. In other words, an increase in the level of cloud computing adoption leads to an improvement in the knowledge Transformation process among faculty members.

The calculated **T-value** was (**2.969**), which is statistically significant at (**Sig = 0.004 < 0.05**) confirming the significance of the regression coefficient and indicating a real effect of cloud computing adoption on knowledge Transformation.

Furthermore, the **F-test** results showed a calculated value of **8.816** at a significance level of (**Sig = 0.004**), indicating that the regression model as a whole is statistically significant and suitable for interpretation

Regarding the correlation coefficient (**R = 0.287**), it indicates a weak-to-moderate relationship between the study variables, while the coefficient of determination (**R²= 0.083**) suggests that cloud computing adoption explains **8.3%** of the variance in the knowledge Transformation dimension. Accordingly, the regression equation can be expressed as follows

$$Y = 1.988 + 0.417 X$$

Where: **Y:** Knowledge Transformation

X: Cloud Computing

Therefore, the null hypothesis is rejected, and the alternative hypothesis is accepted, confirming a positive and statistically significant effect of cloud computing on the knowledge Transformation process among faculty members at Mascara University.

4. CONCLUSION

This study concluded that cloud computing plays a pivotal role in supporting and enhancing knowledge management processes among faculty members at Mascara University. The study's findings indicated that the adoption of cloud computing positively contributes to knowledge transfer, sharing, and conversion, thereby improving academic and administrative performance within the institution. These results reflect that investing in cloud computing is no longer a secondary option but a strategic necessity for educational institutions seeking modernization and alignment with the demands of digital transformation.

study Results:

- ✓ The study revealed that the level of cloud computing adoption among faculty members is relatively high, reflecting a strategic orientation towards improving knowledge management processes within the university.
- ✓ The findings indicated that cloud computing has a positive and significant effect on knowledge transfer, as it facilitates access to academic information and resources among faculty members and enhances the organization and circulation of knowledge within the institution.
- ✓ The study also showed that cloud computing positively impacts knowledge sharing, reflecting strengthened collaboration and participation among faculty members and the development of a supportive knowledge environment for exchanging expertise and academic practices
- ✓ The results demonstrated a positive and significant effect of cloud computing on knowledge conversion, indicating the institution's capacity to transform acquired knowledge into practical applications that effectively support academic and administrative performance.

Recommendations:

- Encourage universities to adopt cloud computing more widely to support all knowledge management processes.

- Organize specialized training programs for faculty members on the use of cloud computing tools.
- Develop integrated information systems based on cloud computing to facilitate knowledge sharing and transform it into practical applications.
- Promote further research and future studies to examine the impact of cloud computing on other aspects of academic and administrative.
- Align cloud computing strategies with the university's overall objectives to ensure sustainable and effective outcomes.

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