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Attitude of IT Engineers and Technicians application of Cloud Computing in hotels: The perspective of IT Engineers and Technicians in Five- star Hotels within hotels

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Abstract

Modern hotels need trends and technologies to enhance their performance and set them apart. Among these advancements, cloud computing is a tool to improve hotel operations. This research aims to explore the role of cloud computing in enhancing the performance in Egyptian hotels from the perspective of IT engineers and technicians in five-star hotels. The current research is based on the distribution of questionnaires to a representative sample of engineers and technicians in five-star hotels in Greater Cairo; 145 questionnaires were distributed, 139 questionnaires were retrieved, and 137 were valid for statistical analysis by Statistical Package for the Social Sciences (SPSS) version 27.0 program. Research findings highlighted a correlation between the implementation of cloud computing and the dimensions of hotel performance. Also, there were differences among the perceptions of the implementation of cloud computing in five-star hotels with regard to some demographic data. The research recommends that Egyptian hotels cooperate with cloud service providers by providing training courses for employees on how to adapt to hotel cloud computing applications.

Keywords:
Cloud Computing; Hotel Performance; Five-star Hotels.

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موقف مهندسي وفنيي تكنولوجيا المعلومات من تطبيق الحوسبة السحابية في الفنادق: وجهة نظر مهندسي وفنيي تكنولوجيا المعلومات في الفنادق ذات الخمس نجوم داخل الفنادق.

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قسم الدراسات الفندقية – كلية السياحة والفنادق – جامعة المنصورة

الملخص

تحتاج الفنادق الحديثة إلى الاتجاهات والتقنيات لتحسين أدائها وتميزها، ومن بين هذه التطورات، تعد الحوسبة السحابية أداة لتحسين عمليات الفنادق. يهدف هذا البحث إلى استكشاف دور الحوسبة السحابية في تحسين الأداء في الفنادق المصرية من وجهة نظر مهندسي وفنيي تكنولوجيا المعلومات في الفنادق ذات الخمس نجوم. يعتمد البحث الحالي على توزيع الاستبيانات على عينة ممثلة من المهندسين والفنيين في الفنادق ذات الخمس نجوم في القاهرة الكبرى؛ تم توزيع ١٤٥ استبياناً، واسترجاع ١٣٩ استبياناً، وكانت ١٣٧ منها صالحة للتحليل الإحصائي بواسطة برنامج الحزمة الإحصائية للعلوم الاجتماعية (SPSS) الإصدار ٢٧.٠. أبرزت نتائج البحث وجود علاقة بين تطبيق الحوسبة السحابية وأبعاد أداء الفنادق. كما كانت هناك اختلافات بين تصورات تطبيق الحوسبة السحابية في الفنادق ذات الخمس نجوم فيما يتعلق ببعض البيانات الديموغرافية. يوصي البحث بضرورة تعاون الفنادق المصرية مع مقدمي الخدمات السحابية من خلال توفير دورات تدريبية للموظفين حول كيفية التكيف مع تطبيقات الحوسبة السحابية في الفنادق.

الكلمات المفتاحية:

الحوسبة السحابية، الأداء الفندقي، فنادق الخمس نجوم.

1. Introduction

Recent years have seen a lot of interest in cloud computing because of its affordable and superior services **(Khoda Parast et al., 2022)** and because it offers flexibility, scalability, dependability, sustainability, and affordability **(Vasiljeva et al., 2017)**. With the help of cloud computing technology, people and organizations can store data, distribute it to the intended audience of users, and retrieve it as needed. By offering flexible, affordable, and high-quality services, it significantly enhances people's data sharing, retrieval, and storage capabilities **(Bera et al., 2023)**. The old methods of computing are no longer used because the cloud computing platform just requires the user to open a specific network link **(Wang et al., 2021)**. So, it's simply accessible through a certain webpage and signing into a user account, and users can build clusters on demand through the cloud platform anytime, anywhere, compared to self-built clusters, which overcomes the limitations of space and hardware facilities and results in cost savings and increased efficiency **(Ma et al., 2021)**. Additionally, it can fundamentally re-engineer and rebuild the operations of the organization to enable the provision of excellent information services, which has the potential to greatly boost staff productivity **(Onwubiko and Nnamdi Okorie, 2021)**. Cloud services enable external users to flexibly rent the necessary scale of computing resources that meet their needs, avoid purchasing costly hardware equipment, and fully utilize the flexibility of cloud computing configuration, which will surpass the current constraints of hardware and software resources **(Feng et al., 2022)**.

The Egyptian government, through the Ministry of Communications and Information Technology (MCIT) and the IT Industry Development Agency (ITIDA), has taken an active role in developing ICT capabilities within the country and positioning ICT as a cornerstone of economic development and foreign investment. According to **the Egyptian Government Cloud (EG-Cloud) Strategy and Egypt National Artificial Intelligence (EN-AI) Strategy**, cloud computing has emerged as a major change in the economics and sustainability of information and communications technologies. It is considered one of the most innovative technological models for developing and exploiting environmental infrastructure resources in the world. Therefore, the Ministry of Communications and Information Technology announced the National Strategy for the Communications and Information Technology

Sector, which aims to create a basic general vision for achieving a digital economy using information and communications technology to achieve prosperity, freedom, and social justice for all. This is in line with Egypt's Vision 2030. The cloud computing strategy falls within the focus of the infrastructure to support the comprehensive implementation of this strategy (**Ministry of ICT, 2015; 2021**).

Modern hotels need trends and technologies that can enhance their performance and set them apart from others. Among these advancements, cloud computing stands out as a tool to improve hotel operations. However, it is worth noting that while cloud computing has been widely adopted by hotels, its utilization as an emerging service in hotels remains limited (**Mansour et al., 2020**). This dynamic and uncertain environment necessitates enhancing hotel performance via modern technology strategy and practice, not only for present success but also for future competitive advantage (**Presutti et al., 2020**). A study (**Musab et al., 2014**) found that hotels do not apply cloud computing because they do not have the knowledge, or they are not sure of the cost because of the change from one system to another. A study (**Sallehudin et al., 2018**) has shown that the operational effectiveness of cloud implementation is at a lower level. In a study (**Ayoobkhan, and Kaldeen, 2020**), The results of the data analysis revealed in this study that cloud computing adoption levels are still low among star hotels, and security concerns, top management support, cost savings, competitive pressure, and relative advantages are having a significant impact on cloud computing adoption in the hotel sector. A research (**Zohry and Hammad, 2022**) revealed that there is no application of cloud computing in tourism and hotels establishments in Egypt, in addition to the poor acquaintance of its accurate meaning in these establishments. Consequently, studying hotel performance as well as the best technological methods and approaches is vital to enhancing hotel performance. Therefore, this research aims to explore the implementation of cloud computing in five-star hotels, which impacts improved hotel performance.

2. Literature Review

2.1. Cloud Computing

In **2011, NIST**, the US National Institute of Standards and Technology, defined cloud computing as "a model for enabling ubiquitous, convenient, on-demand network access to a shared pool of configurable computing resources (such as networks, servers, storage, applications,

and services) that can be rapidly provisioned and released with minimal management effort or service provider interaction (**Mell, 2011**). According to **Jamsa (2022)**, it is defined as the abstraction of web-based computers, resources, and services that system developers can utilize to implement complex web-based systems. According to **Rahman et al. (2022)**, it is referred to as a model that provides consumers with various on-demand services and network access to shared databases of physical resources such as computation and storage. **Eddermoug et al. (2023)**, also referred to it as one of the key enablers for productivity that offers a comfortable way to obtain high-quality applications with hosting, delivery, and storage services through the Internet.

Most hotels have seen an improvement in hotel performance because of recent information technology (IT) improvements. It has changed from being a key node to a value-based operation, which has allowed for more competition and sophistication. Hotels have been significantly impacted by the information technology industry's rapid expansion, particularly in the areas of electronic services and cloud computing. By lowering stress and enhancing performance, creative techniques are also enhancing quality (**Velpula and Pamula, 2022**). Although still in the early stages of adoption, cloud computing services are growing in popularity among hotel institutions (**Lin et al., 2021**), they help hotels reduce costs, enhance internal and customer services, and consolidate, scale, and distribute IT resources (**Wang et al., 2020**).

Cloud computing implementation in five-star hotels faces several challenges. One major challenge is the lack of knowledge and uncertainty about the cost of transitioning from one system to another, which hinders adoption (**Stankova and Kaleychev 2023**). Another challenge is the divided opinions among hoteliers, with some considering cloud technology unnecessary and others recognizing its benefits in improving daily operations and guest interaction (**Alsaied, 2022**). These challenges highlight the need for education and awareness about the advantages and effective usage of cloud technology in the hotel industry (**Vella et al., 2018**).

2.2.   Hotel Performance

Hotel performance is the outcome and accomplishment of staff members inside a hotel concerning their roles and responsibilities (**Hawkes, 2023**). Numerous aspects, including competence, motivation, job happiness, quality of work life, and organizational commitment, can impact it

(Widyabakti et al., 2022; Sirna et al., 2023). Employee performance is critical to the organization's growth and success **(Sainaghi et al., 2019)**. In strategic management procedures, performance assessment is essential because it makes goal alignment and outcome demonstration possible. Overall, hotel performance is a multidimensional concept encompassing various aspects of employee behavior, motivation, and the organization's overall functioning. Performance evaluation has grown to be an important tool for creating business strategies, and it helps hotels decide where they fit in the competitive tourism market **(Badshah et al., 2020)**. Hotels can improve their performance through performance measurement to provide the best possible services for their guests.

3. **Methodology**

To determine the role of cloud computing in enhancing the performance in Egyptian hotels, the research uses a quantitative research method in the form of survey questionnaires directed to the engineers and technicians of the IT departments of five-star hotels, which represent the research sample; they ranged them between 7 to10 throughout the day. Therefore, 5 questionnaires were distributed to each hotel under study; with a total of 145 questionnaires distributed, 139 questionnaires were retrieved. Of these, 137 questionnaires were valid for statistical analysis. According to **the Egyptian Hotel Association ("EHA") (2024)**, there are 29 five-star hotels in Greater Cairo, 19 five-star hotels in Cairo City, and 10 five-star hotels in Giza. 29 hotels were selected as a population for the current study, which represents 100% of the five-star hotels in Greater Cairo, to carry out the field study.

To achieve the objectives, the SPSS V. 27.0 program was used to analyze the valid forms, the statistical techniques used in data analysis include Cronbach alpha to assess the reliability, frequencies, percentages, means, standard deviation, spearman test to test correlation among variables, and regression.

Study variables were measured based on previous studies to ensure data validity. The questionnaire of IT engineers and technicians in five-star hotels consisted of two parts, as following **Table 1**:

Table 1: the scale of the study for the Questionnaire of IT Engineers and Technicians Form.

Variables	Dimensions	No. Items	Source of the Scale
Cloud Computing	Infrastructure	5	Dwivedi and Mustafee, 2010; Kumar et al., 2018; Zohry and Hammad, 2022
	Software	5	Musab et al., 2014; Yurtlu, 2021; Zohry and Hammad, 2022
	Communication	5	Musab et al., 2014; Zohry and Hammad, 2022
	Flexibility and Ease of use	5	
	Costs	4	
	Security	4	Cody et al., 2008; Jain and Premkumar, 2010
Hotel Performance	Hotel financial performance	3	Armbrust et al., 2010; BAJENARU, 2010
	Hotel operational performance	6	Johnson and Diman, 2017; Vella et al., 2018
	Hotel human performance	4	Johnson and Diman, 2017; Zaki and Saad, 2018; Zohry and Hammad, 2022
	Hotel environmental performance	4	Musab et al., 2014; Vella et al., 2018; Zohry and Hammad, 2022

Cronbach Alpha reliability for variables and the tests indicated that the reliability coefficients for variables were above 0.92. It is above the threshold of .7 as stated by **Pallant (2007)**. This shows that the instrument is reliable for being used. From the results in **Table 2**, it is concluded that the alpha coefficiency of the dimensions of the questionnaire was higher than 0.70, indicating the reliability of the dimensions of the questionnaire used in the study an acceptable degree, indicating the validity of the questionnaires for using in the study, and giving very honest results. The results were as shown in table 1 as follow:

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Table 2: Alpha Cronbach's Test for Respondents Questionnaires Dimensions

Dimensions	Number of Statements	Alpha
Implementation of cloud computing in five-star hotels.	28	.732
The impact of a cloud computing implementation on hotel performance (financial, operational, human, and environmental).	17	.749
Alpha Cronbach's test for all Dimensions.	**45**	**.762**

4. Results and Discussions

4.1. Demographic Data

Table 3: Demographic Data of respondent.

Demographic Data	Attribute	Statistics	
		Freq.	**%**
Gender	Male	135	98.5
	Female	2	1.5
Total		**137**	**100**
Age	Less than 25 years	---	---
	From 25 to less than 40 years	127	92.7
	From 40 years to less than 50 years	10	7.3
	From 50 years and over	---	---
Total		**137**	**100**
Educational level	Bachelor	129	94.2
	Diploma (Postgraduate)	3	2.2
	Master	5	3.6
	Ph.D.	---	---
Total		**137**	**100**
Years of Experience	Less than 5 years	128	93.4
	From 5 – Less than 10 years	7	5.1
	10 years and over	2	1.5
Total		**137**	**100**

This section includes four questions. These questions aim to recognize the demographic data. The results are shown in **Table 3**. The results indicate that of the 137 respondents, only **2** were females **1.5%**, while

most respondents were males, **135 (99.2%)**. According to age group, among the 137 respondents, **92.7%** belong to the age group 25 to less than 40 years; this was followed by the age group 40 years to less than 50 years **7.3%**. Concerning the educational level, it could be noticed that only **3** were Diploma (Postgraduate) **(2.2%)**, **5** were Master's degrees **(3.6%)** and many of the respondents were High education, which was **129 (94.2%)**. The results also show that years of experience in the same position as the majority of the respondents, it can be noted that only **2** had more than 10 years of experience **(1.5%)**, **7** had 5 to 10 years of experience **(5.1%)**, and many of the sample members had less than 5 years of experience, as their number reached **128 (93.4%)**.

4.2.   The implementation of cloud computing in Five-star Hotels

Table 4: The infrastructure of cloud computing in Five-star Hotels

Statements		5-Point Likert – Scale					Statistics		
		1	**2**	**3**	**4**	**5**	**Mean**	**SD**	**R**
1. The hotel's cloud computing implementation helps maintain databases in the event of any natural disasters or accidents, whether technical or fire related.	**Freq.**	3	5	17	38	74	4.28	.968	2
	%	2.2	3.6	12.4	27.7	54.0			
2. The hotel's cloud computing implementation provides high flexibility in expanding storage capabilities.	**Freq.**	1	5	16	42	73	4.32	.874	1
	%	0.7	3.6	11.7	30.7	53.3			

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3. Adopting cloud computing reduces the technical pressure on hotel equipment.	**Freq.**	7	32	39	24	35	3.35	1.234	5
	%	5.1	23.4	28.5	17.5	25.5			
4. The hotel's cloud computing implementation eliminates its concern for the characteristics and capabilities of the servers used (the service provider's jurisdiction).	**Freq.**	11	23	16	24	63	3.77	1.389	3
	%	8.0	16.8	11.7	17.5	46.0			
5. The hotel cloud computing implementation controls the database storage capacity without technical barriers.	**Freq.**	11	23	14	73	16	3.44	1.143	4
	%	8.0	16.8	10.2	53.3	11.7			
General Gross and Standard Deviation							3.83	.794	-

N.B: 1="Strongly Disagree", 2=" Disagree, 3="Neutral", 4="Agree, 5=
"Strongly Agree", SD, "Standard Deviation". R=Ranking

According to the results shown in **Table 4**, the respondents strongly agreed with the two statements about the infrastructure of cloud computing in five-star hotels, which were as follows: "The hotel's cloud

computing implementation provides high flexibility in expanding storage capabilities **(Mean = 4.32)**". "The hotel's cloud computing implementation helps maintain databases in the event of any natural disasters or accidents, whether technical or fire related **(Mean = 4.28)**". This result agreed with what was mentioned by **Chang (2015),** who mentioned cloud computing makes it easier for managers to back up their data and access it quickly in case of an emergency or unexpected outage. The respondents agreed with the two statements about the infrastructure of cloud computing in five-star hotels, which were as follows: "The hotel's cloud computing implementation eliminates its concern for the characteristics and capabilities of the servers used (the service provider's jurisdiction) **(Mean = 3.77)**". "The hotel cloud computing implementation controls the database storage capacity without technical barriers **(Mean = 3.44)**". This result agrees with what was mentioned by the author **(He, 2021)**, who stated that management can control data through a cloud-based accounting information system, facilitating centralized data collection based on big data. The respondents were neutral on the one statement about the infrastructure of cloud computing in five-star hotels, which was as follows: "Adopting cloud computing reduces the technical pressure on hotel equipment **(mean = 3.35)**." The general gross of respondents about the infrastructure of cloud computing in five-star hotels was average **(Mean = 3.83; SD =.794)**".

Table 5: The Software of cloud computing in Five-star Hotels

Statements		5-Point Likert – Scale					Statistics		
		1	**2**	**3**	**4**	**5**	**Mean**	**SD**	**R**
1. The implementation of cloud computing provides the opportunity to rely on entities specialized in developing the software	**Freq.**	4	2	21	40	70	4.24	.967	1
	%	2.9	1.5	15.3	29.2	51.1			

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used and keeping pace with new software.									
2. The flexibility of operating systems and cloud software allows the hotel to deal with all traditional operating systems.	**Freq.**	4	4	85	22	22	3.39	.894	5
	%	2.9	2.9	62.0	16.1	16.1			
3. Cloud computing implementation allows the hotel to benefit from the programming expertise of the cloud service provider (or cloud service provider companies).	**Freq.**	3	10	22	60	42	3.93	.979	3
	%	2.2	7.3	16.1	43.8	30.7			
4. The hotel cloud computing	**Freq.**	3	3	19	65	47	4.09	.873	2
	%	2.2	2.2	13.9	47.4	34.3			

implementation provides software as per the business requirements.								
5. The hotel's cloud computing implementation eliminates the need for software maintenance and training.	**Freq.**	3	11	22	74	27		
	%	2.2	8.0	16.1	54.0	19.7	3.81	.920	4
General Gross and Standard Deviation								-

N.B: 1="Strongly Disagree", 2=" Disagree, 3="Neutral", 4="Agree, 5= "Strongly Agree", SD, "Standard Deviation". R=Ranking

According to the results shown in **Table 5**, the respondents strongly agreed with the one statement about the Software of cloud computing in Five-star Hotels, which was as follows: The implementation of cloud computing provides the opportunity to rely on entities specialized in developing the software used and keeping pace with new software (**Mean = 4.24**). The respondents agreed on the three statements about the Software of cloud computing in Five-star Hotels, which were as follows: The hotel cloud computing implementation provides software as per the business requirements (**Mean = 4.09**). Cloud computing implementation allows the hotel to benefit from the programming expertise of the cloud service provider (or cloud service provider companies) (**Mean = 3.93**). The hotel's cloud computing implementation eliminates the need for software maintenance and training (**Mean = 3.81**). For cloud service providers, building the cloud computing platform is crucial as it enables users to use the services without having to focus on how they are provided (**Chen et al., 2022**). The respondents were neutral on the one statement about the Software of cloud computing in Five-star Hotels,

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which was as follows: The flexibility of operating systems and cloud software allows the hotel to deal with all traditional operating systems **(mean = 3.39)**. The general gross of respondents about the Software of cloud computing in five-star hotels was average **(Mean = 3.89; SD =.531)**.

Table 6: The Communication of cloud computing in Five-star Hotels

Statements		5-Point Likert – Scale					Statistics		
		1	**2**	**3**	**4**	**5**	**Mean**	**SD**	**R**
1. The hotel's cloud computing implementation provides data processing services (memory, storage, and networking).	**Freq.**	8	22	70	20	17	3.12	1.015	5
	%	5.8	16.1	51.1	14.6	12.4			
2. The hotel cloud computing implementation provides always-on connectivity services.	**Freq.**	3	4	14	77	39	4.06	.838	4
	%	2.2	2.9	10.2	56.2	28.5			
3. The application of cloud computing ensures effective communication and reduces the pressure on	**Freq.**	3	2	11	39	82	4.42	.872	1
	%	2.2	1.5	8.0	28.5	59.9			

the hotel's IT department.								
4. Cloud computing implementation helps the hotel support teamwork and business teams.	**Freq.**	2	3	3	89	40	4.18	.709	2
	%	1.5	2.2	2.2	65.0	29.2			
5. A hotel cloud computing implementation ensures that information and reports arrive manner promptly.	**Freq.**	3	6	21	47	60	4.13	.976	3
	%	2.2	4.4	15.3	34.8	43.8			
General Gross and Standard Deviation							3.98	.456	-

N.B: 1="Strongly Disagree", 2=" Disagree, 3="Neutral", 4="Agree, 5= "Strongly Agree", SD, "Standard Deviation". R=Ranking

According to the results shown in **Table 6**, the respondents strongly agreed with the one statement about the communication of cloud computing in five-star hotels, which was as follows: The application of cloud computing ensures effective communication and reduces the pressure on the hotel's IT department (**mean = 4.42**). The respondents agreed on the three statements about the Communication of cloud computing in Five-star Hotels, which were as follows: Cloud computing implementation helps the hotel support teamwork and business teams (**mean = 4.18**). A hotel cloud computing implementation ensures that information and reports arrive manner promptly (**mean = 4.13**). This result agreed with what was mentioned by **Wang et al. (2020),** who

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mentioned cloud computing can improve accessibility and flexibility by allowing employees to access applications and data from anywhere with an internet connection. The hotel cloud computing implementation provides always-on connectivity services **(mean = 4.06)**. The respondents were neutral on the one statement about the Communication of cloud computing in Five-star Hotels, which was as follows: The hotel's cloud computing implementation provides data processing services (memory, storage, and networking) **(mean = 3.12)**. This result was neutral; on the other side **(Tibor et al., 2015)** mentioned Using any device with an internet connection, hotel workers may view and manage guest data using a cloud-based PMS from any location at any time. To guarantee that all data is safe and current, it also offers real-time updates and automatic backups. The general gross of respondents about the Communication of cloud computing in five-star hotels was average **(Mean = 3.98; SD =.456)**.

Table 7: The Flexibility and ease of use of cloud computing in Five-star Hotels

Statements		5-Point Likert - Scale					Statistics		
		1	**2**	**3**	**4**	**5**	**Mean**	**SD**	**R**
1. The cloud computing implementation allows the hotel to choose priority applications according to budgets with ease.	**Freq.**	3	4	7	40	83	4.43	.889	2
	%	2.2	2.9	5.1	29.2	60.6			
2. The hotel's cloud computing implementation provides high flexibility for Internet browsers.	**Freq.**	1	6	20	37	73	4.28	.921	4
	%	0.7	4.4	14.6	27.0	53.3			

3. The cloud computing implementation helps the hotel access applications at any time, place, or device and easily expand them.	Freq.	2	4	12	40	79			
	%	1.5	2.9	8.8	29.2	57.7	4.39	.877	3
4. The cloud computing implementation allows the hotel flexibility to change according to the goals and required work.	Freq.	8	16	67	32	14			
	%	5.8	11.7	48.9	23.4	10.2	3.20	.979	5
5. A cloud computing implementation allows the hotel to perform tasks remotely and access databases at any time and place.	Freq.	6	5	6	18	102			
	%	4.4	3.6	4.4	13.1	74.5	4.50	1.044	1
General Gross and Standard Deviation							4.15	.485	-

N.B: 1="Strongly Disagree", 2=" Disagree, 3="Neutral", 4="Agree, 5= "Strongly Agree", SD, "Standard Deviation". R=Ranking

According to the results shown in **Table 7**, the respondents strongly agreed with the four statements about flexibility and ease of use of cloud

computing in five-star hotels, which were as follows: A cloud computing implementation allows the hotel to perform tasks remotely and access databases at any time and place **(Mean = 4.50)**. The cloud computing implementation allows the hotel to choose priority applications according to budgets with ease **(Mean = 4.43)**. The cloud computing implementation helps the hotel access applications at any time, place, or device and easily expand them **(Mean = 4.39)**. This result agreed with what was mentioned by **López-Blanco et al. (2022)**, who mentioned that depending on demand, cloud computing enables hotels to scale up or down their IT infrastructure as necessary. This makes it simpler for hotels to handle abrupt increases in demand, such as during peak travel seasons. The hotel's cloud computing implementation provides high flexibility for Internet browsers **(Mean = 4.28)**. This result agreed with what was mentioned by **López-Blanco et al. (2022)**, who mentioned that cloud-based systems can be accessed from anywhere, at any time, using any device with an internet connection. This makes it easier for hotel staff to manage operations and for guests to access information and services. The respondents are neutral on the one statement about Flexibility and ease of use of cloud computing in Five-star Hotels, which was as follows: The cloud computing implementation allows the hotel flexibility to change according to the goals and required work **(mean = 3.20)**. The results of this study align with **Rath et al. (2021)**, namely the demands of implementing cloud computing in business organizations in their information systems, requiring users to be more professional and competent. With the development of companies that have become larger, the implementation of the old business system is not flexible enough to adapt to possible changes and irregularities between business and information systems within the company's organization **(Rath et al. 2021)**. The general gross of respondents about Flexibility and ease of use of cloud computing in five-star hotels was average **(Mean = 4.15; SD =.485)**.

Table 8: Savings gained from the implementation of Cloud Computing in Five-star Hotels

Statements		5-Point Likert - Scale					Statistics		
		1	**2**	**3**	**4**	**5**	**Mean**	**SD**	**R**
1. Cloud computing implementation helps the hotel reduce capital	**Freq.**	11	28	67	23	8	2.92	.963	3

	expenditures and ongoing operational expenses by paying for the cloud service used.	%	8.0	20.4	48.9	16.8	5.8		
2.	Implementing hotel computing reduces the cost of acquiring hardware, servers, and software.	Freq.	1	4	8	32	92	4.53	.796	1
		%	0.7	2.9	5.8	23.4	67.2		
3.	Implementing hotel cloud computing reduces the cost of human error, loyalty, and dependence on a qualified and capable few.	Freq.	12	75	24	15	11	2.55	1.064	4
		%	8.8	54.7	17.5	10.9	8.0		
4.	Implementing cloud computing for the hotel reduces the cost of training the human element.	Freq.	4	17	79	21	19	3.27	.928	2
		%	2.9	10.2	57.7	15.3	13.9		
General Gross and Standard Deviation								3.31	.582	-

N.B: 1="Strongly Disagree", 2=" Disagree, 3="Neutral", 4="Agree, 5= "Strongly Agree", SD, "Standard Deviation". R=Ranking

According to the results shown in **Table 8**, the respondents strongly agreed with the one statement about the costs of cloud computing in Five-star Hotels, which was as follows: Implementing hotel computing reduces the cost of acquiring hardware, servers, and software (**Mean = 4.53**). The respondents agreed on the two statements about the costs of cloud computing in Five-star Hotels, which were as follows: Implementing cloud computing for the hotel reduces the cost of training the human element (**Mean = 3.27**). Cloud computing implementation helps the hotel reduce capital expenditures and ongoing operational expenses by paying for the cloud service used (**Mean = 2.92**). The respondents disagreed with the one statement about the costs of cloud computing in Five-star Hotels, which was as follows: Implementing hotel cloud computing reduces the cost of human error, loyalty, and

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dependence on a qualified and capable few (**Mean = 2.55**). This is what agreed with **Mittal (2023)**, who reviewed that cloud-based PMS works on a subscription basis, in contrast to on-premises solutions that demand a large initial investment and ongoing maintenance expenditures. This lowers startup costs and makes it possible for hotels to expand without difficulty. The cloud-based PMS may easily scale to meet growing demand without requiring significant hardware modifications as the hotel grows. The general gross of respondents about the costs of cloud computing in five-star hotels was average (**Mean = 3.31; SD =.582**)".

Table 9: The Security of cloud computing in Five-star Hotels

Statements		5-Point Likert - Scale					Statistics		
		1	**2**	**3**	**4**	**5**	**Mean**	**SD**	**R**
1. The hotel's cloud computing implementation provides backup technology to solve the problems of corruption and data loss in case of any disaster that occurs.	**Freq.**	1	6	16	35	79	4.35	.904	2
	%	0.7	4.4	11.7	25.5	57.7			
2. The hotel computing implementation ensures that certain information is encrypted, and that data is available and unavailable (privileging).	**Freq.**	2	6	16	65	48	4.10	.877	4
	%	1.5	4.4	11.7	47.4	35.0			
3. Hotel cloud computing implementation provides high data security if security conditions are applied.	**Freq.**	1	2	13	35	86	4.48	.787	1
	%	0.7	1.5	9.5	25.5	62.8			
4. The hotel's cloud computing implementation ensures data recovery in case of any problems.	**Freq.**	2	6	11	45	73	4.32	.907	3
	%	1.5	4.4	8.0	32.8	53.3			
General Gross and Standard Deviation							**4.31**	**.533**	**-**

N.B: 1="Strongly Disagree", 2=" Disagree, 3="Neutral", 4="Agree, 5= "Strongly Agree", SD, "Standard Deviation". R=Ranking

According to the results shown in **Table 9**, the respondents strongly agreed with the three statements about the Security of cloud computing in five-star hotels, which were as follows: Hotel cloud computing implementation provides high data security if security conditions are applied (**Mean = 4.48**).". According to (**Eddermoug et al., 2023**) that intrusion detection systems (IDSs) and intrusion prevention systems (IPSs) are the most widely adopted systems to protect a network by detecting and preventing various malicious attacks and warning the administrator to take the necessary precautions in cloud computing. The hotel's cloud computing implementation provides backup technology to solve the problems of corruption and data loss in case of any disaster that occurs (**Mean = 4.35**). The hotel's cloud computing implementation ensures data recovery in case of any problems (**Mean = 4.32**). The respondents agreed with the one statement about the Security of cloud computing in five-star hotels, which was as follows: The hotel computing implementation ensures that certain information is encrypted, and that data is available and unavailable (privileging) (**Mean = 4.10**). The general gross of respondents about the Security of cloud computing in five-star hotels was average (**Mean = 4.31; SD =.533**).

2. The impact of implementing cloud computing on hotel performance in five-star hotels

Table 10: The impact of implementing cloud computing on hotel financial performance in five-star hotels

Statements		5-Point Likert – Scale					Statistics		
		1	**2**	**3**	**4**	**5**	**Mean**	**SD**	**R**
1. Improving the quality and efficiency of accounting operations by using advanced, integrated implementations available online.	**Freq.**	6	5	16	33	77	4.24	1.081	1
	%	4.4	3.6	11.7	24.1	56.2			
2. Cloud computing implementation helps the hotel increase annual revenue and	**Freq.**	5	7	14	65	46	4.02	.989	3
	%	3.6	5.1	10.2	47.4	33.6			

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profitability by providing innovative and customized services to customers and partners.									
3. Cloud computing implementation helps the hotel reduce annual operational costs by reducing energy and resource consumption.	**Freq.**	1	2	7	87	40	4.19	.659	2
	%	0.7	1.5	5.1	63.5	29.2			
General Gross and Standard Deviation							**4.15**	**.688**	**-**

N.B: 1="Strongly Disagree", 2=" Disagree, 3="Neutral", 4="Agree, 5= "Strongly Agree", SD, "Standard Deviation". R=Ranking

According to the results shown in **Table 10**, the respondents strongly agreed with the one statement about the impact of implementing cloud computing on hotel financial performance in five-star hotels, which was as follows: Improving the quality and efficiency of accounting operations by using advanced, integrated implementations available online **(Mean = 4.24)**. The respondents agreed with the two statements about the impact of implementing cloud computing on hotel financial performance in five-star hotels, which were as follows: Cloud computing implementation helps the hotel reduce annual operational costs by reducing energy and resource consumption **(Mean = 4.19)**. This result agreed with what was mentioned by **Syah et al. (2023)**, who mentioned that the involvement of cloud computing can help produce good-quality accounting information systems; it can produce accurate, precise, and informative information. Cloud computing implementation helps the hotel increase annual revenue and profitability by providing innovative and customized services to customers and partners **(Mean = 4.02)**. The general gross of respondents about the impact of implementing cloud computing on hotel financial performance in five-star hotels **(Mean = 4.15; SD =.688)**.

Table 11: The impact of implementing cloud computing on hotel operational performance in five-star hotels

Statements		5-Point Likert – Scale					Statistics		
		1	2	3	4	5	Mean	SD	R
1. The hotel's cloud computing implementation contributes to highly efficient technological management and benefits from its advantages by improving process and operation management and increasing their quality and efficiency.	Freq.	2	2	3	35	95	4.60	.742	2
	%	1.5	1.5	2.2	25.5	69.3			
2. The cloud computing implementation helps the hotel monitor spending on labor, resources, and supplies, improve operational efficiency, and analyze usage and financial data.	Freq.	2	1	1	34	99	4.66	.680	1
	%	1.5	0.7	0.7	24.8	72.3			
3. The cloud computing implementation enables the hotel to provide immediate support by providing immediate answers to customer inquiries and managing emergency situations.	Freq.	3	2	12	39	81	4.41	.879	4
	%	2.2	1.5	8.8	28.5	59.1			

4. The cloud computing implementation assists the hotel in optimally promoting the hotel that best meets the immediate needs and preferences of customers.	Freq.	1	3	11	96	26	4.04	.652	5
	%	0.7	2.2	8.0	70.1	19.0			
5. Cloud computing implementation helps the hotel make appropriate decisions regarding offering unique services at competitive prices.	Freq.	8	11	15	75	28	3.76	1.054	6
	%	5.8	8.0	10.9	54.7	20.4			
6. Cloud computing implementation helps the hotel update applications quickly, effectively, and at a lower cost, which leads to an improved customer experience.	Freq.	1	2	3	40	91	4.59	.681	3
	%	0.7	1.5	2.2	29.2	66.4			
General Gross and Standard Deviation							4.34	.426	-

N.B: 1="Strongly Disagree", 2=" Disagree, 3="Neutral", 4="Agree, 5= "Strongly Agree", SD, "Standard Deviation". R=Ranking

According to the results shown in **Table 11**, the respondents strongly agreed with the four statements about the impact of implementing cloud computing on hotel operational performance in five-star hotels, which were as follows: The cloud computing implementation helps the hotel monitor spending on labor, resources, and supplies, improve operational efficiency, and analyze usage and financial data **(Mean = 4.66)**. The hotel's cloud computing implementation contributes to highly efficient technological management and benefits from its advantages by improving process and operation management and increasing their quality and efficiency **(Mean = 4.60)**. Cloud computing implementation helps the hotel update applications quickly, effectively, and at a lower cost, which leads to an improved customer experience **(Mean = 4.59)**. The cloud computing implementation enables the hotel to provide

immediate support by providing immediate answers to customer inquiries and managing emergency situations **(Mean = 4.41)**. The respondents agreed with the two statements about the impact of implementing cloud computing on hotel operational performance in five-star hotels, which were as follows: The cloud computing implementation assists the hotel in optimally promoting the hotel that best meets the immediate needs and preferences of customers **(Mean = 4.04)**. This result agreed with what was mentioned by **Alotaibi et al. (2021)**, who mentioned that cloud-based hotel management systems are one effective way to improve customer satisfaction, where such systems provide hotels with the ability to personalize guest experiences and streamline their operations, resulting in more efficient services and higher levels of customer satisfaction. Cloud computing implementation helps the hotel make appropriate decisions regarding offering unique services at competitive prices **(Mean = 3.76)**. This result agreed with what according to **AWS (2022)**, cloud-based RMS evaluate data from several sources, including social media, weather forecasts, and online travel agents (OTAs), to deliver precise demand projections and pricing suggestions. The general gross of respondents about the impact of implementing cloud computing on hotel operational performance in five-star hotels was average **(Mean = 4.34; SD =.426)**.

Table 12: The impact of implementing cloud computing on hotel human performance in five-star hotels

Statements		5-Point Likert – Scale					Statistics		
		1	**2**	**3**	**4**	**5**	**Mean**	**SD**	**R**
1. The implementation of cloud computing helps speed up tasks.	**Freq.**	3	9	24	62	39	3.91	.959	4
	%	2.2	6.6	17.5	45.3	28.5			
2. The implementation of cloud computing contributes to saving effort and simplifying work.	**Freq.**	2	2	11	42	80	4.43	.821	2
	%	1.5	1.5	8.0	30.7	58.4			
3. The cloud software used contributes to reducing human error and obtaining a high level of performance.	**Freq.**	1	3	16	36	81	4.41	.836	3
	%	0.7	2.2	11.7	26.3	59.1			

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4. The implementation of cloud computing helps creativity and business development.	Freq.	2	4	7	38	86	4.47	.841	1
	%	1.5	2.9	5.1	27.7	62.8			
General Gross and Standard Deviation							**4.30**	**.593**	**-**

N.B: 1="Strongly Disagree", 2=" Disagree, 3="Neutral", 4="Agree, 5= "Strongly
Agree", SD, "Standard Deviation". R=Ranking

According to the results shown in **Table 12**, the respondents strongly
agreed with the four statements about the impact of implementing cloud
computing on hotel human performance in five-star hotels, which were as
follows: The implementation of cloud computing helps creativity and
business development (**Mean = 4.47**). The implementation of cloud
computing contributes to saving effort and simplifying work (**Mean =
4.43**). The cloud software used contributes to reducing human error and
obtaining a high level of performance (**Mean = 4.41**). The respondents
agreed with one statement about the impact of implementing cloud
computing on hotel human performance in five-star hotels, which was as
follows: The implementation of cloud computing helps speed up tasks
(**Mean = 3.91**). The general gross of respondents about the impact of
implementing cloud computing on hotel human performance in five-star
hotels was average (**Mean = 4.30; SD =.593**).

Table 13: The impact of implementing cloud computing on hotel
environmental performance in five-star hotels

Statements		5-Point Likert – Scale					Statistics		
		1	**2**	**3**	**4**	**5**	**Mean**	**SD**	**R**
1. The implementation of cloud computing enables efficient energy management.	**Freq.**	1	4	8	85	39	4.15	.713	1
	%	0.7	2.9	5.8	62.0	28.5			
2. The cloud computing implementation helps the hotel protect the environment by reducing its carbon footprint and reducing waste generated	**Freq.**	2	8	86	18	23	3.38	.884	3
	%	1.5	5.8	62.8	13.1	16.8			

by local devices.								
3. Cloud computing uses virtualization and server consolidation for sustainability.	**Freq.**	13	92	11	15	6		
	%	9.5	67.2	8.0	10.9	4.4	2.34	.949	4
4. Cloud computing uses energy-efficient data centers.	**Freq.**	7	12	29	65	24		
	%	5.1	8.8	21.2	47.4	17.5	3.64	1.035	2
General Gross and Standard Deviation							**3.37**	**.460**	**-**

N.B: 1="Strongly Disagree", 2=" Disagree, 3="Neutral", 4="Agree, 5= "Strongly Agree", SD, "Standard Deviation". R=Ranking

According to the results shown in **Table 13**, the respondents agreed with the two statements about the impact of implementing cloud computing on hotel environmental performance in five-star hotels, which were as follows: The implementation of cloud computing enables efficient energy management (**Mean = 4.15**). This result agreed with what was mentioned by **Elsedimy and Algarni (2021)**, who mentioned that green cloud middleware was offered as a client-oriented solution to enable managers to better control and configure their total access to cloud applications in the most energy-efficient manner. Cloud computing uses energy-efficient data centers (**Mean = 3.64**). The respondents were neutral on the one statement about the impact of implementing cloud computing on hotel environmental performance in five-star hotels, which was as follows: The cloud computing implementation helps the hotel protect the environment by reducing its carbon footprint and reducing waste generated by local devices (**Mean = 3.38**). This result was neutral; on the other side, according to **Evidence SAS (2023)**, cloud service providers are providing tools and services to assist users in monitoring and lowering CO2 emissions while also managing and optimizing cloud expenses. While the respondents disagreed on the one statement about the impact of implementing cloud computing on hotel environmental performance in five-star hotels, which was as follows: Cloud computing uses virtualization and server consolidation for sustainability (**Mean = 2.34**). The general gross of respondents about the impact of implementing cloud computing on hotel environmental performance in five-star hotels was average (**Mean = 3.37; SD =.460**).

3. The points of challenges facing five-star hotels in adopting cloud computing implementation.

Table 14: Technical challenges facing five-star hotels in adopting cloud computing implementation.

Statements		5-Point Likert – Scale					Statistics		
		1	**2**	**3**	**4**	**5**	**Mean**	**SD**	**R**
1. Incompatibility and integration of current systems with cloud computing.	**Freq.**	3	8	98	14	14	3.20	.787	3
	%	2.2	5.8	71.5	10.2	10.2			
2. Fear of losing control over part of the operating processes (supplier control).	**Freq.**	1	6	21	37	72	4.26	.926	1
	%	0.7	4.4	15.3	27.0	52.6			
3. Poor quality of internet services and infrastructure.	**Freq.**	2	5	22	95	13	3.82	.709	2
	%	1.5	3.6	16.1	69.3	9.5			
4. Failure to guarantee the security of information and maintain the privacy of data when transferred and stored in the cloud.	**Freq.**	103	19	9	3	3	1.42	.881	5
	%	75.2	13.9	6.6	2.2	2.2			
5. Security and Reliability.	**Freq.**	98	20	10	5	4	1.52	.986	4
	%	71.5	14.6	7.3	3.6	2.9			
General Gross and Standard Deviation							**2.84**	**.384**	**-**

N.B: 1="Strongly Disagree", 2=" Disagree, 3="Neutral", 4="Agree, 5= "Strongly Agree", SD, "Standard Deviation". R=Ranking

According to the results shown in **Table 14**, the respondents strongly agreed with one statement about technical challenges facing five-star hotels in adopting cloud computing implementation, which was as follows: Fear of losing control over part of the operating processes (supplier control) **(Mean = 4.26)**. This is what agreed with **Mittal (2023)**, who reviewed that Even though cloud-based PMS suppliers use strict security protocols, some hotels might still be hesitant to store critical guest information off-site. Thorough examination of the selected

PMS provider's security procedures and adherence to industry standards are necessary to allay these worries. The respondents agreed on the one statement about technical challenges facing five-star hotels in adopting cloud computing implementation, which was as follows: Poor quality of internet services and infrastructure **(Mean = 3.82)**. Also, the respondents were neutral on the one statement about technical challenges facing five-star hotels in adopting cloud computing implementation, which was as follows: Incompatibility and integration of current systems with cloud computing **(Mean = 3.20)**. The respondents strongly disagreed with the two statements about technical challenges facing five-star hotels in adopting cloud computing implementation, which were as follows: Security and Reliability **(Mean = 1.52)**. Failure to guarantee the security of information and maintain the privacy of data when transferred and stored in the cloud **(Mean = 1.42)**. The general gross of respondents about technical challenges facing five-star hotels in adopting cloud computing implementation was average **(Mean = 2.84; SD =.384)**".

Table 15: Financial challenges facing five-star hotels in adopting cloud computing implementation.

Statements		5-Point Likert – Scale					Statistics		
		1	2	3	4	5	Mean	SD	R
1. High prices and a lack of pricing transparency by cloud computing service providers.	**Freq.**	107	18	5	5	2	1.37	.840	3
	%	78.1	13.1	3.6	3.6	1.5			
2. Lack of financial resources allocated to cloud computing infrastructure.	**Freq.**	3	10	102	12	10	3.12	.728	1
	%	2.2	7.3	74.5	8.8	7.3			
3. Additional costs include restructuring processes and procedures and providing the necessary training and support for employees to adapt to change.	**Freq.**	5	82	35	12	3	2.46	.795	2
	%	3.6	59.9	25.5	8.8	2.2			

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General Gross and Standard Deviation	2.84	.384	-

N.B: 1="Strongly Disagree", 2=" Disagree, 3="Neutral", 4="Agree, 5= "Strongly Agree", SD, "Standard Deviation". R=Ranking

According to the results shown in **Table 15**, the respondents neutral with one statement about financial challenges facing five-star hotels in adopting cloud computing implementation, which was as follows: Lack of financial resources allocated to cloud computing infrastructure **(Mean = 3.12)**. This result was neutral; on the other side **(Mittal, 2023)** mentioned although there may be initial costs involved in establishing new systems, cloud computing can result in long-term cost benefits. The financial resources to invest in cloud-based solutions must be available to hotels. The respondents disagreed with one statement about financial challenges facing five-star hotels in adopting cloud computing implementation, which was as follows: Additional costs include restructuring processes and procedures and providing the necessary training and support for employees to adapt to change (**Mean = 2.46**). This result does not agree with what was mentioned by **Mittal (2023)**, who stated many hotels have antiquated systems that might not work with cloud-based services. Because of this, integrating cloud-based services with current systems and procedures may be challenging. He too mentioned Employees may need to pick up new skills and procedures to implement cloud-based technologies. To ensure that personnel can use the new systems efficiently, hotels must give proper training. The respondents strongly disagreed with one statement about financial challenges facing five-star hotels in adopting cloud computing implementation, which was as follows: High prices and a lack of pricing transparency by cloud computing service providers (**Mean = 1.37**). The general gross of respondents about financial challenges facing five-star hotels in adopting cloud computing implementation was average (**Mean = 2.84; SD =.384**).

Table 16: Organizational challenges facing five-star hotels in adopting cloud computing implementation.

Statements		5-Point Likert – Scale					Statistics		
		1	2	3	4	5	Mean	SD	R
1. Lack of support and awareness from senior management for the transition to cloud computing.	**Freq.**	5	11	95	15	11	3.12	.805	2
	%	3.6	8.0	69.3	10.9	8.0			

2. The human resources department does not accept the application of cloud computing and is concerned about losing their jobs.	**Freq.**	3	14	83	22	15	3.23	.860	1
	%	2.2	10.2	60.6	16.1	10.9			
General Gross and Standard Deviation							3.17	.602	-

N.B: 1="Strongly Disagree", 2=" Disagree, 3="Neutral", 4="Agree, 5= "Strongly Agree", SD, "Standard Deviation". R=Ranking

According to the results shown in **Table 16**, the respondents were neutral on the two statements about Organizational challenges facing five-star hotels in adopting cloud computing implementation, which was as follows: The human resources department does not accept the application of cloud computing and is concerned about losing their jobs (**Mean = 3.23**). Lack of support and awareness from senior management for the transition to cloud computing (**Mean = 3.12**). The general gross of respondents about organizational challenges facing five-star hotels in adopting cloud computing implementation were average (**Mean = 3.17; SD =.602**).

Table 17: Legal challenges facing five-star hotels in adopting cloud computing implementation.

Statements		**5-Point Likert – Scale**					**Statistics**		
		1	**2**	**3**	**4**	**5**	**Mean**	**SD**	**R**
1. Ambiguous laws and legislation are an obstacle to expanding the use of cloud computing.	**Freq.**	15	88	15	12	7	2.33	.963	2
	%	10.9	64.2	10.9	8.8	5.1			
2. The difficulty of publishing policies and intellectual property rights for cloud computing.	**Freq.**	6	14	101	10	6	2.97	.727	1
	%	4.4	10.2	73.7	7.3	4.4			
General Gross and Standard Deviation							2.64	.634	-

N.B: 1="Strongly Disagree", 2=" Disagree, 3="Neutral", 4="Agree, 5= "Strongly Agree", SD, "Standard Deviation". R=Ranking

According to the results shown in **Table 17**, the respondents were neutral on the one statement about the legal challenges facing five-star hotels in

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adopting cloud computing implementation, which was as follows: The difficulty of publishing policies and intellectual property rights for cloud computing (**Mean = 2.97**). While the respondents disagreed with the statement about the legal challenges facing five-star hotels in adopting cloud computing, which was as follows: Ambiguous laws and legislation are obstacles to expanding the use of cloud computing (**Mean = 2.33**). The general gross of respondents about legal challenges facing five-star hotels in adopting cloud computing implementation was average (**Mean = 2.64; SD =.634**).

4.3.   Testing Hypotheses of the Study

1.   Correlations among Study Variables

To test the correlations among study variables, the researchers choose correlation analysis (R), the coefficient of determination (R Square). Studying relationships among study variables is important to identify the degree of effectiveness for each factor on the other factors.

H.1: **There is a correlation between the implementation of cloud computing and the dimensions of hotel performance.**

Table 18: Correlation Coefficient H1

Nonparametric Test			Implementation of cloud computing	Hotel performance
Spearman	Implementation of cloud computing	Correlation Coefficient	1.000	0.048
		Sig. (2-tailed)	--	0.578
		N	137	137
	Hotel performance	Correlation Coefficient	0.048	1.000
		Sig. (2-tailed)	0.578	--
		N	137	137

Correlation is significant at the 0.05 level and less.

From the results in the previous **Table 18**, there is a positive correlation between the implementation of cloud computing and the hotel performance when the sig. (2-tailed) of Spearman is 0.578, which is a positive correlation. This result indicates that with the implementation of cloud computing in five-star hotels, the hotel's performance is improving. Thus, the first hypothesis, **H.1.**, could be accepted.

Table 19: The Simple Regression

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.146[a]	0.021	0.014	0.326

Through **Table 19**, we find that the R square has a value of 0.021 while the adjusted R square was 0.014, which indicates a decrease in the difference between them at a standard error of 0.326, as it emphasizes the quality and accuracy of the results, and accordingly we can say that the independent variable (the implementation of cloud computing in five-star hotels) explains 2.1% of the changes in the dependent variable, which is (the hotel performance).

2. Differences among Variables

To test the differences among study variables, Kruskal-Wallis's test was used to examine the differences among respondents regarding the other variables. The Kruskal-Wallis's test was used to compare three or more groups. The test was used at a significant level of 5%.

H.2: **There are differences among the viewpoints of the implementation of cloud computing in five-star hotels, according to some demographic data (the level of education- Years of Experience).**

H 2.1: **There are differences in the viewpoints of the investigated respondents towards the implementation of cloud computing in five-star hotels, referring to the level of education.**

Table 20: Differences among the viewpoints of the investigated respondents towards the implementation of cloud computing in five-star hotels, referring to the level of education.

Item	Categories	Ranks		Test Statistics		
		N	Mean Rank	(x2)	p.value	Sig
The implementation of Cloud Computing in five-star Hotels	Bachelor	129	68.29	2.51	.042	H.S
	Diploma (Postgraduate)	3	37.50			
	Master	5	106.30			
	Ph.D.	--	--			

*Significant at P≤ 0.05, N.S= Non-Significant, **H.S= High Significant, x2=Chi-Square

Regarding the educational level **table 20,** indicated that there was a significant difference among the respondents' answers about the

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implementation of cloud computing in five-star hotels **(P< 0.05)** in all statements. According to this result, hypothesis **2.1**, which states that there are significant differences on a 0.05 degree between the perceptions of the investigated respondents towards the implementation of cloud computing in five-star hotels referring to the level of education, could be accepted.

H. 2.2: **There are differences in the viewpoints of the investigated respondents towards the implementation of cloud Computing in five-star Hotels, referring to Years of Experience.**

Table 21: Differences among Respondents' Responses towards the investigated respondents towards the implementation of cloud computing in five-star Hotels, referring to Years of Experience

Item	Categories	Ranks		Test Statistics		
		N	Mean Rank	(x2)	P.value	Sig
the implementation of cloud Computing in five-star Hotels	Less than 5 years	128	67.23	1.99	0.137	N.S
	From 5 – Less than10 Years	7	96.43			
	10 years and over	40	86.25			

*Significant at P≤ 0.05, N.S= Non-Significant, **H.S= High Significant, x2=Chi-Square

The results in **Table 21** depicted that, regarding years of experience, there wasn't a significant difference among the respondents' answers about the investigation respondents towards the implementation of cloud computing in five-star Hotels, referring to Years of Experience **(P > 0.05)** in all statements. Concerning this result, it could be not accepting the hypothesis **2.2** that refers to there aren't significant differences of 0.05 degree between the respondents' responses towards the investigated respondents towards implementation of cloud Computing in five-star Hotels, referring to Years of Experience according could not be accepted.

5. Conclusion:

This research explored of the application of cloud computing and its impact on improving hotel performance in five-star hotels. The research attempted to find out the benefits of applying cloud computing in hotel operations, as the application of computing affects the financial performance of hotels by improving the quality and efficiency of accounting operations and reducing annual operational costs by reducing energy and resource consumption. The application of computing affects hotel operational performance through highly efficient technological

management and improving management of operations, as well as providing immediate support and emergency management. Computing also helps in automatically updating applications quickly, accurately, and at a lower cost. In addition to its impact on environmental hotel performance through effective energy management, reducing the carbon footprint, and being environmentally friendly. This does not ignore the existence of some challenges of applying cloud computing, as the research also found the high initial cost of applying cloud computing due to the additional cost of restructuring operations and employee training costs, in addition to the lack of a systematic policy in hotels to adopt the application of cloud computing and integrate it with employees to improve the level of service and the lack of compatibility and integration of the current systems of some hotels with cloud computing. Neutrality of human resources not accepting the application and worrying about losing their jobs. The research also explained the lack of a real implementation of the cloud computing concept for some hotels.

6. Implications:

According to the results extracted from the field study, the following recommendations can be suggested:

1. Government support should encourage organizations to adopt cloud computing and reap its benefits. This aligns with Egypt's Vision 2030, which is to achieve sustainable development and focus its efforts and investments on applying new technologies in various industries.

2. Activate courses with the Ministry's Cloud Computing Center to obtain the benefits of computing in hotels and cloud storage.

3. Egyptian hotels can cooperate with cloud service provider agents by providing training courses for employees on how to adapt to hotel cloud computing applications.

4. Restructuring and developing work in the relevant hotel departments in terms of infrastructure, programs, and cloud computing security.

5. Raising awareness by specialists in information and communication technology sciences on the correct application of the concept of cloud computing in hotels.

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