

Cloud Computing and Document Management in a BPO Services Company Located in Magdalena del Mar District (Lima-Peru), 2021

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ABSTRACT

As the 21st century continues to bring about technological changes, organizations have undergone radical transformations and have had to implement technological tools to continue to compete in the market. In the wake of these changes, cloud computing emerged as an instrument to optimize business management. The main purpose of this research was to determine the relationship between cloud computing and document management in a BPO services company. The research's variables were subdivided into three dimensions for a better understanding. The research followed a quantitative approach, correlational scope and used a non-experimental cross-sectional correlational-causal design. The sample was comprised of 45 employees of the company working in the departments of Human Resources, Innovation Management and IT Management, who were provided with an 18-item Likert scale questionnaire. Following the processing and analysis of the information, a direct and significant correlation was determined between cloud computing and document management ($p < .05$), as a Spearman correlation coefficient of .596 was obtained.

Keywords: cloud computing; document management; document management processes; organizational policies; organizational objectives.

INTRODUCTION

The present situation of companies in the post-pandemic context continues to be very uncertain, for many of them are facing severe economic, organizational, technological and corporate crises, in addition to other issues that are severely shaking the Peruvian and world economy. Most of them, including large corporations and small companies, were affected by the COVID-19 pandemic. Several of them were reinvented and others were technically restructured; the changes have been far-reaching in all senses, many of which have accelerated digitalization, as it contributes to development, competitiveness, productivity and conservation of resources. Reyes (2020) maintains that the crisis organizations are facing in Peru can be regarded as a moment of reconstruction; that is, a starting point for a business to rebuild itself based on integrity, ethics and total transparency.

In this respect, Rincón (2021) emphasizes that the current situation compels companies to seek new sales strategies and more creative ways to continue operating. As the future of Peru and global trade has changed, thousands of small and medium enterprises have ventured into the world of digital services to stay in the market and remain financially viable during the pandemic.

The BPO services company under study provides collection services to a variety of private companies. BPO companies are not immune to the current economic climate and their financial ratios have dropped significantly since the onset of the COVID-19 pandemic as many entities have withdrawn their outsourced portfolios. As a result, many contracts were not renewed and

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several people lost their jobs as the workforce was reduced to almost 30% compared to pre-pandemic levels. The company's Senior Management reacted quickly to this situation and turned to technological restructuring, with a strong emphasis on digitalization and process automation, which allowed them to stay in the market and reinvent themselves using new strategies according to the situation.

Internationally, studies by Ramírez (2019) and Goyes (2020) demonstrated that the optimization of processes is justified by the application of cloud computing methods, as well as by bringing many benefits of going paperless, thus allowing the incorporation of new electronic systems into the organization and contributing to the care and protection of the environment. Likewise, Sánchez (2021) concludes that cloud computing is a disruptive innovation that can be used in multiple ways by users, owing to its accessibility and efficient technological infrastructure.

At the national level, Bayona and Meneses (2020) stated that a document management system (DMS) allows the automation of processes, thus achieving a more continuous and versatile analysis, taking into account the needs of users. Meanwhile, Vilchez and Villegas (2020) concluded that cloud computing is a technological technique that holds a very important place in Peru and that its implementation is booming, thus it is becoming a tactical element to optimize document management in the companies of the future.

In light of the above, the purpose of the research was to determine the relationship between cloud computing and document management in the company under study. For a proper analysis, variable 1 (cloud computing) was subdivided into three dimensions: productivity, information systems and information security; while variable 2 (document management) was also broken down into three dimensions: document management processes, organizational policies and organizational objectives. The specific objectives were to analyze the relationship between variable 1 and each of the dimensions of variable 2.

At a theoretical level, this research is justifiable, because it seeks to contribute to the scientific knowledge in Business Sciences. At a practical level, because it aims to be useful for companies in similar fields, which can adopt and apply the cloud computing methodology to optimize their DMS, and because it aims to be useful for the academic community as a precedent for future research. And at a methodological level, because a Likert scale questionnaire that underwent psychometric evaluations

of validity and reliability was elaborated. The main limitation of the study was that only people working at the Lima headquarters were surveyed for data collection.

Cloud Computing

In recent years, digitization has been crucial for the development of corporations, as it offers them a range of possibilities to access new markets, not only locally, but also globally. For this reason, Delgado (2016) maintains that there is an acceleration of digital business due to the demand for information and the fact that customers require greater information capacity at their disposal, in view of the high digital competitive level. According to Ouda and Yas (2021), cloud computing has been on the rise since 2000, due to the fact that it allows data storage and requires an optimal technological infrastructure (promoting the shared use of hardware, software and other resources) that allows its operability in a simple, practical way and without requiring sophisticated technical knowledge (Khayer et al., 2021). In addition, it allows accessing and processing large volumes of information from anywhere in the world with as little as a secure and stable connection to the Internet (Alhomdy et al, 2021).

As Rodríguez and Reverté (2020) state, the main purpose of digitizing processes within a company is to increase efficiency, reduce data input and output times, reduce costs, update data and automate processes. The above will have a direct impact on information systems, as expressed by Gavilán (2019), who asserts that data is not only a powerful asset today, but also a crucial factor that must be addressed to ensure the continuity of the organization. However, cybersecurity must be taken into consideration before devising how to proceed with the digital transformation, since it is necessary to clarify objectives and cease the establishment of standards to implement this disruptive process.

Document Management

Document management must be aimed at those who will use it. For decades, companies have been handling large volumes of information and documents. Russo (2013) specifies that document management processes encompass a number of tasks aimed at establishing, renewing, logistics, consultation and classification of documentation, whether in physical or digital format, within the organization. It should also be noted that digitization has allowed organizations to express greater concern for the care of the environment and the efficient

use of resources, since they seek to reduce the use of paper (López, 2019; Salas-Canales, 2020).

According to the International Organization for Standardization (ISO, 2019; ISO, 2020), ISO 30300 and 30301 standards have a wide scope of action with respect to conventional document management systems. The main objective when implementing these standards in a company is to achieve the highest degree of transparency and improvement regarding the optimization of resources; it is worth mentioning that these two factors are essential for a good performance and a high degree of trust of the company and it is crucial to understand the difference between them. Thus, while ISO 30300 lays down the terms used to define the principles and processes of a document management system, ISO 30301 focuses on the aspects required to implement a good document management system more efficiently and effectively, defines the criteria to be used, the measurement methods, and even suggests methods for the proper estimation and implementation of document processes. In view of this situation, one might wonder why ISO 30300 and ISO 30301 standards should be implemented, and the answer is because somehow it forces companies to better analyze and continuously improve their document management processes in response to the needs of companies and users, thereby optimizing decision-making, time and efficiency. Moreover, ISO 30300 and 30301 standards demand that companies have qualified personnel to create, record and store the information to be executed, which implies an improvement in their document management to avoid the risk of losing relevant data and frequent errors in processing. In short, the improvements are not only at the document level, but also involve faster digital transactions and a better relationship with customers, suppliers and shareholders. Although implementation can be a great challenge for companies, the immediate advantages show that it is a very profitable investment in the short and medium term.

According to Moreno-Rodríguez (2018), the successful implementation of a document management system can become a source of competitive advantage because it has a direct impact on the correct processing of information and speeds up decision making. It is also important to include organizational policies, such as standards and lines of action, to implement mechanisms that promote organizational strategies and the achievement of goals; in addition, understanding the concept of these policies is essential to properly identify organizations, analyze the use of information and documents, and establish lines

of action. Regarding organizational goals, Roberts (2006) considers that companies succeed by seeking and sustaining the alignment between their policies, organizational design and operating environment. The organizational design approach proposes the development of a strategy for an organization to put it into practice in a specific context.

METHODOLOGY

Based on Hernández-Sampieri and Mendoza (2018), the study used a quantitative approach (using numerical data), a correlation rank (aims to determine the level of relationship between the variables studied) and a non-experimental cross-sectional causal correlational design (the variables are not manipulated, they are studied at a single moment in time to establish the association between the variables).

A total of 45 employees participated in the study, mainly from the HR, Innovation Management and IT Management departments. Due to the small size of the population, all the population was used as sample. The survey technique was used for data collection, as it is the most widely used in the social sciences; an 18-item Likert scale questionnaire of five points (strongly agree, agree, neither agree nor disagree, disagree and strongly disagree).

Expert judgment was used for the psychometric evaluation of the instrument. Three professors from the School of Business Sciences of the Universidad Científica del Sur, who hold Master's degrees and have extensive experience in the subject, found the instrument to be optimal for application. Cronbach's alpha coefficient was used to determine the reliability of the instrument, obtaining .729 for the items of the cloud computing variable and .769 for those of the document management variable.

Descriptive and inferential statistics were used for data analysis. A normality test was carried out beforehand for inferential statistics to establish the statistical technique for hypothesis testing. Subsequently, the data were processed using IBM SPSS Statistics version 26.

RESULTS

Descriptive Statistics Results

- Age range: 68.9% of respondents were between 30 and younger, while 24.4% were between 31 and 40.

- Gender: 60% of respondents were male and the remainder were female. It should be noted that a third option (“I do not wish to answer”) was included in the instrument, but not selected by any of them.
- Level of education: 37.8% of respondents reported holding a *Bachiller* degree, while 28.9% reported having only technical education.
- Work experience: 48.9% of respondents reported having five years or less of work experience, while 28.9% reported having between 6 and 10 years.

Inferential Statistics Results

Normality Test

As the sample consisted of 45 participants, we used the Shapiro-Wilk test for each of the study variables. Plots of normal probability, known as Q-Q plots, were used for a better visualization of the analysis,

showing that the data collected did not correspond to a normal distribution (see Figure 1).

From the above, it is clear that the data are not normal and, therefore, a nonparametric test should be used to contrast the hypotheses. The Spearman’s Rho correlation coefficient technique was chosen for this purpose, as it makes it possible to determine the level of relationship between the variables. The foregoing is further reinforced by Hernández-Sampieri and Mendoza (2018), who argue that the Likert scale corresponds to an ordinal measurement and recommend the use of a nonparametric test. Regarding the understanding of the correlation coefficients obtained, the scale by Schober, Boer and Schwarte (2018), that classifies coefficient in five levels (insignificant, weak, moderate, strong and very strong), was used.

Hypothesis Testing

The proposed hypotheses are presented in Table 1.

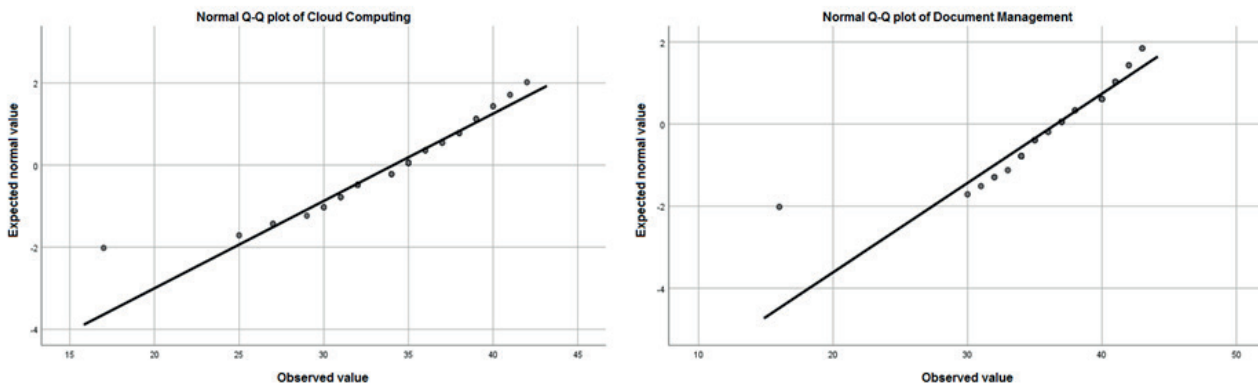


Figure 1. Non Normal Distribution of the Variables.

Source: Prepared by the authors.

Table 1. Research Hypotheses.

General Hypothesis	
There is a direct and significant relationship between cloud computing and document management in a BPO services company located in Magdalena del Mar District (Lima-Perú), 2021.	
Hipótesis específicas	
1.	There is a direct relationship between cloud computing and document management processes in a BPO services company located in Magdalena del Mar District (Lima-Perú), 2021.
2.	There is a positive relationship between cloud computing and organizational policies in a BPO service company located in Magdalena del Mar District (Lima-Perú), 2021.
3.	There is a favorable relationship between cloud computing and organizational goals in a BPO services company located in Magdalena del Mar District (Lima-Perú), 2021.

Source: Prepared by the authors.

As previously stated, Spearman's Rho was used to test the hypotheses, which made it possible to determine the different positive coefficients for this study (see Table 2).

DISCUSSION

The main objective of this study was to determine the relationship between cloud computing and document management in a BPO services company. The data analysis makes it possible to determine the degree of relationship between the mentioned variables. Cloud computing, which reported many benefits to Peruvian companies, was considered for this research as it was previously analyzed by Lizárraga and Pachas (2018) and Aguedo and Omar (2019).

The results obtained showed that there is a significant correlation between cloud computing and document management. This means that the perception of the employees of the company under study regarding the improvements in their document management system following the implementation of cloud computing is directly and favorably related to productivity and the improvement of their performance as a result of the accessibility and efficient operation of a better document system.

Such finding is supported by a similar study conducted by Vilchez and Villegas (2020), who also found favorable relationships between the use of cloud computing and supply chain management in Peru. They found a moderate association between cloud computing and document management; it should be noted that cloud computing and organizational policy obtained the lowest correlation coefficient, perhaps because the organization neglected the fact that it is essential to provide employees with a daily operations road map, ensure compliance with rules and regulations, optimize decision making and internal processes. All of the above is supported by Russo (2013), who states that this knowledge is key

to the effective use of information as it will enable the development of a good document management system (DMS).

The results drawn from the study will benefit:

- *Educational institutions.* It is extremely important that educational institutions are aware of the great changes brought about by globalization and that students and other members of educational institutions express interest in cloud computing methods to improve their document management; it also contributes to environmental sustainability.
- *Business field.* The findings of the study will enable national and international organizations to adopt and implement this approach so that they can experience the benefits of cloud computing for themselves and learn about the many benefits of a good document management system.
- *Teachers.* This research will enable teachers to educate their students on the advantages of implementing a document management system that will enhance the efficient flow of information and positively impact the environment through a zero-paper policy.
- *Post-secondary students.* This article seeks to be a reference so that university or institute students can carry out their plans implementing technological innovations that allow the development of different organizations, regardless of their size.

CONCLUSIONS

Upon analyzing the results of the research, it was determined that there is a moderate correlation between the main variables, cloud computing and document management; therefore, it is possible to apply these tools in different fields, especially in education

Tabla 2. Hypothesis Testing.

Type of Hypothesis	Variable 1	Variable 2	Spearman's Rho	Interpretation
General Hypothesis	Cloud computing	Document Management	.596	Moderate correlation
	Variable 1	Dimensions	Spearman's Rho	Interpretation
		Document management processes	.469	Moderate correlation
Specific Hypothesis	<i>Cloud computing</i>	Organizational policies	.384	Weak correlation
		Organizational objectives	.604	Moderate correlation

Note. Interpretation of correlation coefficients based on the scale by Schober et al. (2018).

Source: Prepared by the authors.

and business, as it reports several benefits that, when fully harnessed, allow for successful results.

Likewise, there is a moderate correlation between cloud computing and the documentary aspects and organizational objectives; however, there is only a weak relationship between cloud computing and organizational policies. Based on the above, it can be concluded that it is imperative for organizations to consider the technological aspect in their strategic planning (according to their own reality), as it results in a considerable reduction in costs, flexible operational processes and immediate responses to internal and external information requirements.

Finally, cloud computing is a technological tool that strengthens document management and provides it with new features, making it more efficient, breaking space-time barriers between a physical file and a digital file stored without any risk, encrypted and available 24 hours a day as a source of consultation for internal customers of the organization.

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