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# The Impact of Encrypted Data Confidentiality in the Accounting Management System Performance in terms of Employees' Passion and Customer Trust

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**Abstract**

***Although organizational performance has identified a critical issue, few studies have focused on it based on employees' and customer trust, considering the resource-based view and motivation theory. Organizations are often worried about their financial status depending on their performance, as economics are the most important aspect in corporate success. The majority of business owners and accountants use technology to do their accounting obligations. The Accounting Management System (AMS) enables business owners to manage financial operations and provide more information about their company's financial situation. This paper investigates the impact of using AES combined with CBC algorithms according with file size and key size on the encryption and decryption times. We analyze data for three key sizes (128, 192, and 256 bits) across various file sizes (140 KB, 520 KB, and 870 KB). The purpose of this article is to explore the influence of a secret Accounting Management System on an organization's performance in terms of staff passion and customer trust. Furthermore, the descriptive method was carried out through the use of a survey, which included 152 respondents from various AMS-using businesses. The findings revealed that the feature of confidential AMS has a good and significant influence on the efficiency of organizational performance. However, this study helps to define the features of protected data, which adds value to the system by instilling trust in the data. Furthermore, the study found a favorable association between data confidentiality and employee confidence and creativity, which leads to improved employee performance. The results indicate that both encryption and decryption times increase with file size and key size, highlighting a trade-off between security and performance. As a conclusion, the study proposes that, in order to improve organizational performance, firms focus on training workers on data confidentiality in AMS and using secure technologies.***

**Keywords**: *Accounting Management System, Data Security, Confidentiality, Organization Performance*

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# 1 Introduction

With the increasing need for data security, encryption algorithms are widely used to protect sensitive information. However, the performance of these algorithms can vary significantly based on key size and file size. This study aims to quantify the impact of these factors on encryption and decryption times. The business sector has experienced extreme turmoil as a result of the recent economic slump. Numerous firms have been inspired to do introspection and enhance their organizational performance. Consequently, there is growing curiosity about what makes an organization viable and successful. accomplishment. Managers are experimenting with different improvement concepts all across the world, with varying degrees of success. The lack of agreement on the traits of organizations that result in great performance is probably one of the causes of this.
Accounting Management Systems (AMS) are a crucial tool for managers in the modern world who are trying to maintain a competitive edge in the face of quickening technical advancements, rising awareness, and demanding demands from clients and business owners [1]. While it might be quite simple to identify and tell one from the other at first appearance, differentiating between employee engagement and passion can be challenging. Recent research has shown that enthusiasm and involvement are positively correlated with a variety of outcomes, including performance.
Researchers haven't yet concentrated particularly on a possible overlap between engagement and passion in the context of the workplace, despite their similarities [2]. Without trust, all social ties would break down or behave strangely. A person's broad expectation that another person's word would be reliable is known as trust. Customer trust is seen to encompass ideas, sentiments, emotions, or actions displayed by clients who believe they can rely on a provider to perform in their best interest even when they cede direct authority. described as the faith one party has in another due to the other partner's integrity and dependability [3]. What does the term "privacy" really mean? A person may want to keep certain facts about another person secret, even when they don't think much of that particular piece of information. This results in a clear explanation of privacy. the explanation of privacy supplied by Columbia University Professor Weston, who characterizes it as the freedom “to determine what information about ourselves we will share with others [4].

# 2 AES and CBC

## AES

AES (Advanced Encryption Standard) is a symmetric encryption algorithm extensively followed for stable information transmission. It operates on fixed-size blocks using a mystery key, appearing substitution, permutation, and mixing operations in a couple of rounds. AES affords strong confidentiality, remodeling plaintext into ciphertext proof against cryptanalysis. It offers scalability with key lengths of 128, 192, or 256 bits / (16, 24, or 32 bytes), making it suitable for numerous security desires in industries like finance, government, and technology.

## CBC mode

The CBC (Cipher Block Chaining) mode presents this via the use of an initialization vector – IV which generally is a random number. The IV has the same size as the block that is

encrypted. The plaintext is split into blocks with padding facts. First, we can use the plaintext block XOR with the IV. Then CBC will encrypt the end result to the ciphertext block. In the subsequent block, we are able to use the encryption result to XOR with plaintext block until the remaining block. In this mode, despite the fact that we encrypt the identical plaintext block, we can get a one-of-a-kind ciphertext block. We can decrypt the result in parallel, however it is not viable whilst encrypting records. If a plaintext or ciphertext block is broken, it will affect all following blocks.

# 3 AMS in Organizations

Because there are many organizational possibilities, account management system structures are among the most fascinating and contentious aspects. The organization of account management systems is the primary subject, with a special emphasis on the choices that must be made during system design.

Providing effective and customer-focused public service organization is a difficulty faced by Western countries. The public sector has capacity-related and budgetary issues as the number of elderly people rises, necessitating efficiency and efficacy in public services generally and in healthcare in particular. The effectiveness of public knowledge-intensive services has received a lot of attention lately, both in the media and in academic and political discussions. Public knowledge-intensive services like healthcare and education take up a large portion of national budgets in the western world [5].

Studying the relationship between technology (as a contingent variable) and management accounting system (MAS) features on managerial performance is the aim of this empirical inquiry of a contingency theory. The four information qualities of MAS scope, integration, aggregation, and timeliness are the primary emphasis of this study [6]. The study found that there are direct connections between managerial effectiveness and MAS as well as between MAS and technology. The study also demonstrated that MAS acts as a mediator in the relationship between management performance and technology. The results offer insightful guidance to managers in financial firms on how to enhance performance through appropriate MAS by utilizing new technology and taking internal and external aspects into account. In light of this, suggestions for enhancing MAS and managerial effectiveness are given.

The primary contribution of a study [7] is its discovery that organizational effectiveness is enhanced by non-accounting controls, particularly personnel forms of control, especially in situations where task characteristics do not lend themselves well to the application of accounting-based controls. Furthermore, the findings imply that, of the two task qualities analyzed task analyzability and number of exceptions that the latter has a greater bearing on the appropriateness of the controls. When there are a lot of exceptions, "programmed" sorts of controls like accounting or behavior controls appear inappropriate.

# 4 Data Confidentiality

Confidentiality concerns are what keep businesses, particularly financial institutions, from converting to cloud databases. Although robust encryption can theoretically be used to completely conceal the content of the data and is acceptable for use with data that is at rest, such as encrypted files, it is not practical to use them in practice as soon as data needs to be processed in addition to just being viewed [8]. It doesn't even harm to tune for good confidentiality, which makes RPE much more desirable for practical use: Adding more partitions didn't hurt performance for a lot of queries; and in certain instances improved it further by enabling a higher level of processor parallelism through additional partitions.

Superannuation funds have never-before-seen difficulties in maintaining the integrity and security of sensitive financial data in a time of digital revolution. This paper examines the complex interplay between cybersecurity controls and accounting procedures within the superannuation entities context. Th paper [9] summarizes the most important factors that must be taken into account to guarantee strong data protection by looking at the body of research, legal frameworks, and industry best practices. It looks on how cybersecurity protocols and changing accounting rules and practices interact to protect the accuracy of financial records in superannuation companies. The ever-changing landscape of cyber threats demands a thorough examination of technology defenses, risk management strategies, and compliance controls in order to maintain data privacy. Additionally, the analysis emphasizes how critical it is for the organizations to have a multifaceted strategy to cybersecurity. It talks about how to combine conventional accounting procedures with cutting-edge technology like blockchain, encryption, and anomaly detection to build a strong defense against new dangers.

Annual reports, books, foreign publications, the Internet, and other sources were the sources from which the data were gathered [10]. The data gathered helped to clarify the ideas and demonstrate how beneficial they are. Based on the findings, secure cloud accounting is a highly favored alternative to traditional accounting for any competitive firm because of its numerous advantages, such as affordability, high security, accessibility, and user-friendliness.

# 5 Employees' Passion

A researchers [11] presented a model of job passion that uses cognitive engagement which includes attention and absorption as a mediating mechanism to establish a connection between two forms of passion, harmonious and obsessive, and workers' job performance. The findings of a survey administered to 509 workers at an insurance company show that workers with harmonious passion were more productive at work, and that cognitive absorption the degree of concentration and immersion workers felt while working acted as the main mediating factor in this relationship.

Examining the moderating effect of passion between purpose and performance was examined [12]. A systematic questionnaire was used to gather information from 307 Indian Railways officials. following the establishment of the scales' psychometric qualities using structural equation modeling. The findings indicate that the impact of purpose on the essence of performance is more indirect than direct. Employees must constantly be motivated by passion in addition to purpose in order to increase performance.

The literature on work passion is growing, but not enough has been written about the connections between harmonious and obsessive work passion and job performance [13]. The results showed that person–organization fit perceptions moderate the indirect effect (through organizational identification) of both types of work passion on performance, whereas needs–supplies fit perceptions only moderate the indirect effect of harmonious work passion on performance. The study used data from 233 employee–supervisor dyads from multiple organizations in Russia. The study also looks at the moderating roles of three different types of fit perceptions on this relationship.

# 6 Customer Trust and Performance

It was suggested that the emphasis should shift from minimizing transaction costs to innovation and growth in order to build trust and boost business performance [14]. The primary conjecture was that the "goodwill trust" would have the biggest effect on

performance out of the three categories of trust. This is due to the fact that "goodwill trust" provides an additional benefit learning and ongoing improvement, rather than just making savings over and beyond traditional government structures of hierarchy or control. in the price of transactions. The study of top-tier auto suppliers shows that supplier success, particularly in terms of just-in-time delivery and continuous improvement, is correlated with trust.

In a study, the effects of consumer expectations on customer satisfaction, bank service performance, and customer trust were examined [15]. The foundation of this study is the recognition of the significance of enhancing customer trust and happiness in the fiercely competitive banking sector of today. The findings demonstrate that bank service performance is significantly impacted by consumer expectations. The performance of bank services is often better when customer expectations are fulfilled. Furthermore, client satisfaction with banks is significantly impacted by the quality of bank services. Customer satisfaction at banks rises in tandem with improvements in bank service performance.

# 7 Hypothesis Development

The study's goals are to examine the impacts of data confidentiality on employees' passion and customer trust which enhance organization performance. Based on the research scope, the consideration of the following hypothesis will be studied:

H1: there is a considerable relationship between data confidentiality and employees' passion.

H2: there is an important relation between data confidentiality and customer trust.

# 8 Methodology

**AES (Advanced Encryption Standard) is used in Cipher Block Chaining (CBC) mode**

CBC mode is a block cipher mode that operates on plaintext blocks of constant duration (in this example, sixteen bytes for AES). Here's a short evaluation of how CBC mode works:

1. Initialization Vector (IV): CBC mode requires an IV for every encryption operation. The IV is a random cost of the same block size because the plaintext (sixteen bytes for AES).
2. Padding: If vital, padding is applied to the plaintext to make certain its length is a couple of the block length.
3. XOR with Previous Block: Each plaintext block is XORed with the previous ciphertext block before encryption. For the first block, the IV is XORed with the plaintext.
4. Encryption: The XORed end result is then encrypted the usage of the AES algorithm.
5. Ciphertext Chaining: The resulting ciphertext block will become the input to the next block's XOR operation.

**During decryption, the process is reversed:**

1. Decryption: Each ciphertext block is decrypted the use of AES.
2. XOR with Previous Ciphertext Block: The decrypted block is XORed with the preceding ciphertext block to acquire the original plaintext block.
3. Padding Removal: If padding became carried out for the duration of encryption, it's far eliminated to gain the authentic plaintext.

CBC mode provides confidentiality and safety against certain kinds of manipulation and tampering, making it suitable for plenty encryption programs. While AES with CBC is a robust choice for plenty eventualities, it's crucial to recall elements including key management, potential padding oracle attacks, and the need for authenticated encryption

in some cases, which gives both confidentiality and integrity in an extra efficient way, specifically when authentication is required.

**Increased Security:** Generally, using a larger key size increases the safety of the encryption set of rules. With a larger key size, it becomes computationally greater hard for an attacker to interrupt the encryption thru brute pressure or other cryptographic assaults.

**Longer Encryption and Decryption Times:** Using a bigger key length might also result in longer encryption and decryption instances. This is because large keys require extra computational sources to carry out the encryption and decryption operations.

**Padding Overhead:** With a larger key length, the padding overhead may also grow to be extra sizeable, especially for shorter plaintexts. Padding is delivered to make certain that the plaintext is a more than one of the block size, and larger keys may also bring about greater padding being delivered to the plaintext.

**Compatibility:** Ensure that the chosen AES library supports the preferred key size. Some libraries may also have barriers on supported key sizes.

**Resource Usage:** Using larger keys may also consume greater memory and CPU sources, mainly in restricted environments which include embedded systems or cellular devices.

The software development methodology of choice is the Kanban approach. The project chose to employ this methodology for this investigation since it was inspired by the Kanban principles. This approach adjusts changes gradually in order to prevent resistance from the assigned roles, responsibilities, and processes. In order to inspire everyone to keep improving, the ultimate idea is to "promote acts of leadership at all levels, which means that each team member's work is recognized [16].

Quota sampling, a sample technique from non-probability sampling, was employed in the project to gather requirements from both IPA users and non-users. Non-probability sampling does not employ random selection. On the other hand, non-probability sampling works better with qualitative research because the samples selected are determined by the researcher's subjective assessment.

Until the target number of participants is reached, a range of data gathering techniques, including as questionnaires and interviews, will be used in the survey. All things considered, the justifications for using quota sampling and the procedures involved are described above. It's clear that quota sampling has made it easier to compare the information gathered from the different sample groups.

# 8 Results and Discussion

The results are summarized in Table 1 and visualized in Figures 1 and 2.

Table 1: Encryption and Decryption Times versus File Size

| File Size (KB) | key Size (bits) | Encryption Time (sec) | Decryption Time (sec) |
|---|---|---|---|
| 140 | 128 | 0.9 | 0.6 |
| | 192 | 1.2 | 0.95 |
| | 256 | 1.5 | 1.1 |
| 520 | 128 | 1.7 | 1.3 |
| | 192 | 1.95 | 1.45 |
| | 256 | 2.1 | 1.7 |
| 870 | 128 | 2.15 | 1.95 |
| | 192 | 2.4 | 2.0 |
| | 256 | 2.6 | 2.1 |

The following charts showing the relationship between file size and both encryption and decryption times for different key sizes.

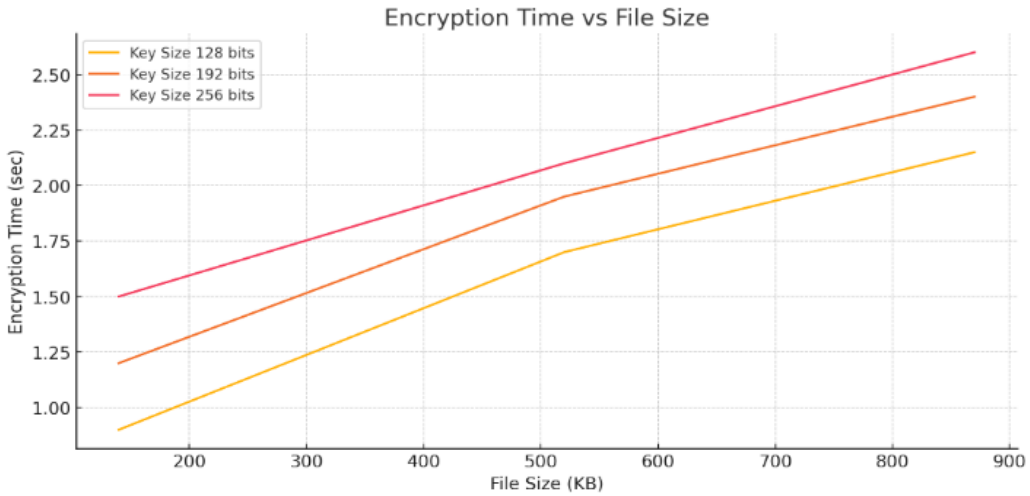


Figure 1 The Encryption Time Versus File Size

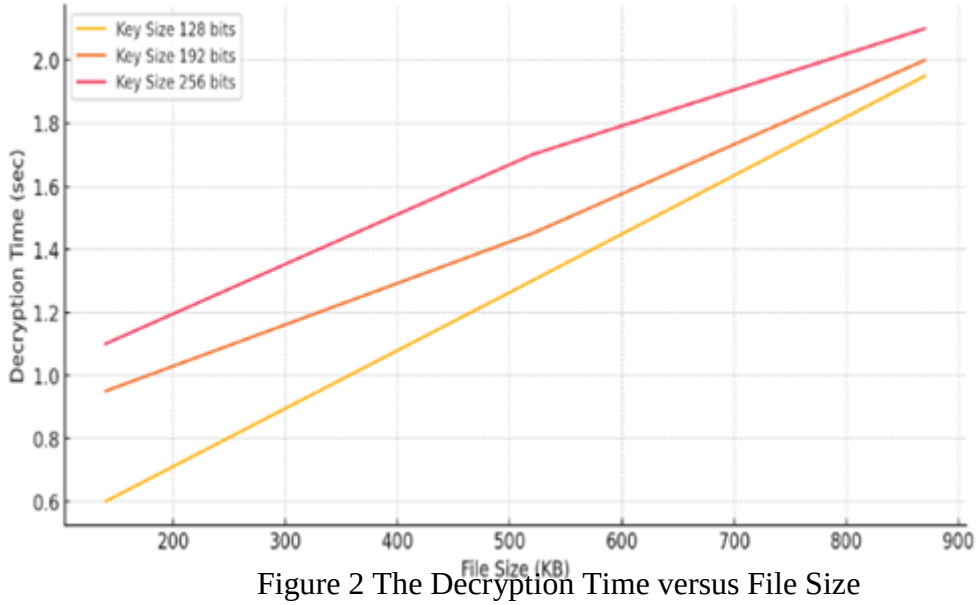


Figure 2 The Decryption Time versus File Size

The plots show the relationship between document size and the time required for encryption and decryption the usage of special key sizes (128, 192, and 256 bits). In both plots, as the document size will increase, the encryption and decryption times additionally growth. For every document size, the time taken for encryption and decryption increases with the important thing length. The 128-bit key constantly consequences in the shortest instances, even as the 256-bit key takes the longest. This fashion is evident in each encryption and decryption tactics, indicating that large key sizes, even as more steady, require greater processing time.

The data shows a clear trend: both encryption and decryption times increase with file size and key size. For instance, with a 140 KB file, the encryption time increases from 0.9 seconds for a 128-bit key to 1.5 seconds for a 256-bit key. Similarly, decryption time increases from 0.6 seconds to 1.1 seconds for the same file size and key size range. This pattern is consistent across all file sizes tested.

The results suggest a trade-off between security and performance. While larger key sizes provide stronger encryption, they also require more time to process. This has practical

implications for applications where processing time is critical, such as real-time data encryption.

The reliability and validity of the study were evaluated using Cronbach's alpha. Internal consistency is determined by Cronbach alpha, which measures the degree of relationship between a set of elements. An approach to ascertain dimensionality is using exploratory component analysis. Put another way, rather than being a statistical test, Cronbach's alpha is a reliability or dependability coefficient. In addition, the total number of test items and their average inter-correlation can be used to calculate Cronbach alpha. The highest possible Cronbach alpha value for practical working conditions was 0.92.

The highest reliability score for customer trust efficiency was 0.84, while the AMS confidentiality alpha value was 0.85, signifying acknowledged reliability. With mean values ranging from 3.62 to 3.81, Table 2 shows that both the mean and standard deviation (S.D.) were high. Furthermore, as can be shown in Table 2, this investigation examined the average variance extracted (AVE) and discovered that all AVE values exceeded the suggested cutoff of 0.50, demonstrating that convergent validity was satisfied.

Table 1 Reliability and Mean and Descriptive Statistics (S.D) and Average Variance Extracted (AVE)

| Variable | Cronbach's alpha | Mean | S.D | AVE |
|---|---|---|---|---|
| **AMS confidentiality** | 0.85 | 3.62 | 0.72 | 0.644 |
| **Employees' Passion** | 0.89 | 3.68 | 0.84 | 0.736 |
| **Customer trust** | 0.84 | 3.81 | 0.82 | 0.721 |

The association between the independent variables and their influence on the efficient management of the daily routine of the user was also verified using the Durbin-Watson test. The outcomes are displayed in Table 3.

Table 2 (Durbin-Watson) test of Independent Variables

| Variable | Durbin-Watson |
|---|---|
| **AMS confidentiality** | 1.829 |
| **Employees' Passion** | 1.831 |
| **Customer trust** | 1.878 |

All of the independent variables in Table 2 have Durbin-Watson values less than 3, which is acceptable and indicates that there is no issue with self-correlation in any of the study's independent variables.

The association between the roles of system real working circumstances in raising overall having confidential AMS in the Organization performance was examined using multiple regression analyses. Consequently, Table 4 displays:

Table 3 Multiple Regressions Analysis on the Relationship between the of AMS confidentiality, employees' passion and customer trust.

| Variable | "t" value | "t" sig | β | R | $R^2$ | "F" value | "F" sig | Result |
|---|---|---|---|---|---|---|---|---|
| **AMS Confidentiality** | 6.757 | 0.001 | 0.220 | 0.921 | 0.9165 | 419.33 | 0.015 | Accepted |
| **Employees' Passion** | 6.656 | 0.002 | 0.224 | | | | | Accepted |
| **Customer trust** | 7.466 | 0.000 | 0.217 | | | | | Accepted |

Table 4 illustrates how employee passion and customer trust can enhance an organization's performance. The F-value in this case was 419.33, and it was statistically significant at

0.01; the R value and R2 value were 0.9165 and 0.921, respectively. The "t" value of 7.466 suggests that customer trust has a more significant impact in the functioning of the firm. The employees' passion had a t value of 6.656, while the AMS secrecy had a t value of 6.757. All of the goals were therefore achieved.

# 10 Conclusion

This study looks into how an organization's performance is affected by a confidential accounting management system based on the enthusiasm of its staff and the confidence of its clients. In addition, the survey was used to undertake the descriptive method, and it included 152 respondents from various AMS-using enterprises. The findings showed that the efficiency of an organization's performance is positively and significantly impacted by the attribute of confidential AMS. By establishing the data's credibility, this research helps identify the qualities of secured data that enhance the system. Additionally, the study found a favorable correlation between data confidentiality and workers' creativity and confidence, both of which boost workers' productivity. Furthermore, the study demonstrates that both file size and key size significantly impact the performance of encryption and decryption processes. As key size increases, so does the time required for encryption and decryption. These findings are essential for designing systems that balance security and performance based on specific requirements.

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