

Impact of computerization on Internal Control over Cash in Municipal Councils in Tanzania: A Case of Iringa Municipal Council

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Abstract

Computerization of accounting systems is a relatively recent innovation. However, due to its advantage of processing a large volume of data at a high speed such as sorting, rearranging and performing arithmetic calculations with high accuracy, computerization or automated accounting has considerably replaced manual systems in many municipal councils in Tanzania. Nevertheless, despite the existence of the information system controls, computerization equally increases the chance of manipulation and computer fraud and errors taking place without detection. The purpose of this study was to find out how computerized of accounting systems has impacted the internal control over cash in municipal council. The sample size consisted of 37 respondents drawn from a population of 152 employees of the above mentioned organization. The sampling unit consisted of computer administrators, computer technicians, computer operators, accountants, cashiers, and the municipal Treasurer. To analyze data, the researcher used the frequency counts, percentages, and the Pattern Matching method. The findings indicated that the computerisation of the accounting system enhanced the control over cash. However, it was found that the accountant's incompetence in computerised accounting environment was still a challenge.

Keywords: Computerisation, Internal Control, Cash.

1. Introduction and Background of the Research problem

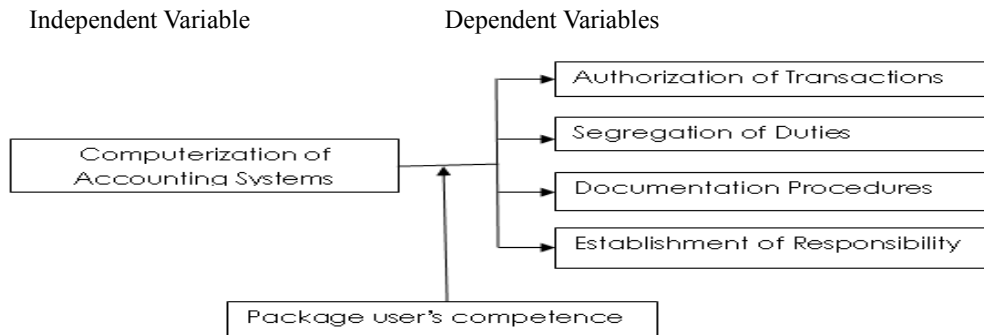
Although the origin of the profession of accounting is sometimes traced to ancient business entities, this artistic process of identifying, measuring and communicating economic information to permit informed judgments and decisions by users of information was later adopted by governmental agencies. Leon E., H. (2001) argues that about that time, attention was focused on the scandalous practices in the financial administration of many cities. Governmental accounting has continued to evolve over the last years. Indeed, significant changes in the basic state and local governmental financial reporting model are on the not- too-distant horizons (Doak J.T, 1995). Later on, with the increasing scrutiny and accountability to which local governments were subjected to, they decided to introduce the computer-based accounting systems, which are enhanced by the zonal Local Government Reform Program (LGRP). Computerization of accounting systems is a relatively recent innovation. However, due to its advantage of processing a large volume of data at a high speed: sorting, rearranging, and performing arithmetic calculations with high accuracy computerization or automated accounting has considerably replaced manual systems in most of municipal councils in Tanzania. Nevertheless, despite the existence of the information system controls, Brink and Cashin (2000) argue that computerization equally increases the chance of manipulation and computer fraud and errors taking place without detection. An unintentional error can occur and by the design of computer processing even the small errors, e.g. in a program, can result to material misstatements because they can continue systematically for a long period without discovery. Moreover, the mitigation of the segregation of duties, lack of traditional authorization, deletion of evidence documents, and some other computerization related shortcomings, but to name few, may affect in one way or another the effectiveness of the internal control of cash in organizations in general and the local governments in particular where the need for this study.

2. Statement of the research problem and Objective

On one hand, computer systems enhance the reliability of financial information. They process transactions uniformly and reduce the human error that may occur in a manual system. On the other hand, defects in programs can result to material misstatements because they can continue systematically for a long period without discovery. This is also entertained by the fact that few people are involved in data processing. Therefore, the purpose of this study was to find out the impact the computerized accounting system has on internal control over cash since Iringa Municipal Council has also introduced and currently operates in a computerized environment.

3. Conceptual Framework

Reinchel and Ramey (1987) define a conceptual framework as a set of broad ideas and principles taken from relevant fields of inquiry and used to structure a subsequent presentation. The problem under study can be conceptualized as follows:



4. Research hypotheses

The study was based on the following hypotheses:

H0₁: Computerization of accounting system mitigates the traditional authorization of transactions.

H0₂: The reduction of human involvement, hence responsibility, in processing transactions in a computerized environment causes data entry errors to go undiscovered.

H0₃: Computerization of accounting system decreases the degree of segregation of duties as well as the traditional approval of transactions.

H0₄: Incompetence of accountants in computer accounting programs hinders the effectiveness of Internal control over cash.

5. Theoretical and Empirical Literature Survey

Electric Data Processing (EDP) has revolutionized the accounting and control methods of many concerns in recent years. Consequently, accounting methods have had to be altered to accommodate this new technology. A very wide literature has been developed concerning the advantages and shortcomings of computerization of the accounting system (Boockholdt, J.L., 2002). The electric data processing systems take longer and are more difficult to install. Also, inefficient installation can cause problems including accounting chaos. Although computers have created some challenging problems for professional accounts, they have also broadened their horizons and expanded the range and value of the tasks with unprecedented speed and output accuracy. Posting transactions is a cumbersome job in the manual system. With the computer, it is fast and automatic, requiring the user to simply select the proper command. However, every coin has two sides. As it was also argued by Romney E. (2004), in computerized environment, many errors and frauds go undetected: perpetrators are able to commit a fraud and leave little or no evidence. The Federal Bureau of Investigation (FBI) estimates that only 1% of all computers crime is detected, other estimates are between 5% and 25%. As early as 2007, Times magazine, a U.S.A magazine, labeled computer fraud as a "growth industry". Some of the reasons attributed to the steady growth of computer fraud include:

- a. Growing number of competent computer users.
- b. Easier access to remote computers through both public and private network.
- c. The belief of many companies that "it will not happen to us".

Romney E. (2001) went further saying that using a computer; perpetrators are able to steal more, in much less time, and with less much effort. Therefore, computer fraud is much more, in much less time, and with less much effort. Therefore, computer fraud is much more difficult to detect than other types of fraud. Computer fraud is large and growing.

The National Center for Computer Crime Data (NCCCD) concluded that the costs of computer crime exceed \$ 555 millions and that the average computer fraud loss is \$ 109,000. NCCCD is a research institute which studies and reports on means to facilitate the prevention, detection, investigation, and prosecution of computer crime (Becker, 1980). Organizations that track computer fraud estimate that it nets perpetrators \$ 300 million to 9 billion

per year. However, no one knows for sure exactly how much companies lose to computer fraud. According to Ernest and Whinney (2002) study, between 50% and 90% of companies have lost for a computer fraud. The Bank Administration Institute has calculated that U.S. Banks lose over \$ 1 billion a year because of information system abuse.

5.1 Internal control over cash

While Welsch J. (1999) defines internal control as a set of those policies and procedures of the organization designed primarily to safe guard the assets of the enterprise, Millichamp (2002) defines internal control as a whole system of controls, financial and otherwise, established by management in order to carry on the business of the enterprise in orderly and efficient manner, ensure adherence to management policies, safeguard its assets and secure as far as possible the completeness and accuracy of the records. A good system of internal control for cash should provide procedures for protecting both cash receipts and cash disbursements.

5.2 Importance of effective internal control over cash

Meigs (1981) argues that the importance of internal control is to protect assets of the entity leading to its efficiency operation. The need to control cash is very important in all organizations. Cash is easy to conceal and transfer. So it is important for any organization to address this problem through the internal control system. It is then required to adhere to the internal control procedures for the purpose of protecting the organization assets, especially cash, and ensure compliance with laws and company policies.

5.3 Internal control over cash receipts

Gupta (1989) observes that cash needs to be jealously controlled for a business or an organization to thrive. Internal control over cash receipts ensures that all cash receipts are deposited in the bank and that the company's accounting record is correct. Many originations receive cash over the counter and through the mail. Each source of receipts calls for its own security measures.

5.4 Cash received over the counter

The point –of- sale of goods or services terminal (cash register) offers effective management control over the cash receipts. First, the terminal should be positioned so that customers can see the amount the cashier enters in the computer; the customer will help prevent the sales clerk from overcharging and pocketing the excess. Also, the organization policy should require issuance of a receipt to make sure each receipt is recorded by the cash register.

5.5 Cash receipts by Mail

According to Skousen R. (2004), all incoming mail should be opened by a mail room employee. This person should compare the amount of the check received with the attached remittance advice. If no advice was sent, the mailroom employee should prepare one and enter the amount of each receipt on a control tape. At the end of the day, this control tape is given to a responsible official, such as the controller, for verification. All cash receipts should be given to the cashier who combines them with any cash received over the counter and prepares the bank deposit. The mail employee forwards the remittance advice to the accounting department. These provide the data for entries in the cash book and posting to customers' accounts in the accounts receivable ledger. In many organizations, customers send their checks directly to an address that is essentially a bank account. The internal control over the cash is enhanced because the organization personnel do not handle the cash.

5.6 Internal control over cash payments by check

Payment by check is an important control over cash disbursements. First, the check acts as a source document. Secondly, to be valid, the check must be signed by an authorized official, so each payment by check draws the attention of management. Before signing, the manager should study the evidence supporting the payment. According to ACCA audit framework (1997), supervision over check payments are as follows:

- a. Cheques should be in sequential order,
- b. unused check should be held in a secure place,
- c. and the person preparing cheques should have no responsibility over purchases.

An employee of an organization handling cash responsibilities should ensure that all funds received for have been properly deposited and recorded (Boudreau, 1991).

5.7 Control over approval of payment in case of purchases

According to Hermanson, R.H. (2003), before approving the disbursement, the controller and the treasurer should examine a sample of transactions to determine that the accounting department has performed the following control steps;

- a. The invoice is compared with a copy of the purchase order and purchases request to ensure that the organization pays cash only for the goods it ordered.
- b. The invoice is compared with the received report to ensure that cash is paid only for the goods that were actually received.
- c. The mathematical accuracy of the invoice is proved.

Parkerson(1990) highlights that authorization to initiate or approve transactions should be limited to specific personnel.

5.8 Controlling petty cash disbursements

It would be uneconomical and time- consuming for an organization to write separate checks for an executive's taxi fare, a box of pencils needed right away or the delivery of a special message across town as observed by Eduardo W. (1998). Therefore, organizations keep a small amount of cash in hand to pay for such minor amounts. This amount is called petty cash. For each petty cash disbursement, the custodian prepares a petty cash ticket. Control is established by recording on the petty cash ticket, the date and purpose of the disbursement, the name of the person who received the cash, the account to be debited, and the amount of the disbursement. Maintaining the petty cash account is characteristic of an imprest system. Referring to Pany K. (1997), the control feature of an imprest system is that it clearly identifies the amount for which the custodian is responsible.

5.9 Supervision and cash management

According to Johnson (2005), management of organizations should regularly supervise any cash transfers or any financial product to ensure that cash is safely and accurately transferred from one place or branch to another. Bee et al, (2003), asserts that cash balancing should be performed for each transfer and proper reconciliation done immediately. Differences detected in the reconciliation process are always indicators of errors or irregularities which should be formally documented and corrective action taken. Performing cash reconciliation is an important

To put it in a nutshell, since cash is almost always the most enticing asset for potential thieves and embezzlers, internal controls have to be far more elaborate for cash than for, say, the paper clips and desks on the premises. Moreover, telecommunication specialists are responsible for maintaining and enhancing computer networks and network connections in an organization. They monitor the network for indications of problems, including attempts to improperly access computer system via the network. System programmers are responsible for troubleshooting the operating system or systems in use, upgrading it when new software releases are provided by the vendor, and working with application system programs when the applications interact with the operating system in a nonstandard or problematical way. The system programmers are normally responsible for the proper functioning of the security features built into or added to operating systems.

5.9 Limitations of the internal control system over cash

Despite the above internal control principles, most Internal Control measures can be overcome. Systems designed to thwart an individual employee's fraud can be beaten by two or more employees working as a team- colluding –to defraud the organization. Boudreau (1991) said that all organizations should at all time have trained staff to handle cash. This will provide checks and balances. An employee of an organization with cash handling responsibilities should ensure that all funds are receipted for and have been properly deposited and recorded. Stevenson (1998), agrees with Boudreau and asserts that any financial institution to thrive, management must regularly provide timely feedback to rectify any financial challenges at hand.

6. Methodology

The research design adopted was qualitative. The study population consisted of 152 employees of Iringa Municipal Council. From the population, a sample of 37 respondents using a purposive sampling method was drawn. The sampling unit consisted of computer administrators, computer technicians, computer operators, accountants, cashiers, and the municipal Treasurer for they are the right respondents in the sense that they are the only employees in the organization who had the knowledge and understanding of the research problem in hand. The primary data was collected through questionnaires, observation and interview; and secondary data was collected using existing literature and journal article. Frequency counts, percentages and pattern matching method were used to present results.

7. Data Analyzing

The data were analyzed using frequency counts, percentages and pattern matching analysis method to test the four null hypotheses which sought to measure whether computerisation of accounting systems hinders the effectiveness of internal control – segregation of duties, proper authorisation of transaction, documentation procedures, user competences - over cash, or not. In analyzing data, the researcher used Pattern Matching method. Such logic (Trochim, 1989) compares an empirically based pattern with a predicted one (or with several alternative predictions). If the patterns coincide, the results can help a case study to strengthen its internal validity. It is a form of theory that establishes a detailed set of predictions before research is conducted. This research was basically a qualitative one. It sought to find out the relationship between computerization of accounting system (independent variable) and internal control constituents (dependent variables).

8. Findings and Discussion of the Hypotheses

In the process of this study, the task was to prove or disapprove the assumptions put forward by the researcher before the study itself by matching them with actual findings. The following is the discussion on the hypotheses as a result of the opinions and comments of the respondents as well as the researcher observation.

H0₁: *The computerization of accounting system mitigates the traditional authorization of transactions:* Where the computerization of accounting system is well stabilized (see the table), the findings disapproved at 70.27% this hypothesis. In contrary, it enhances the traditional authorization of transactions. This is so because every individual is given his/ her confidential password which gives him/her specified rights to carry on specific authorized accounting operations up to some set limits. No employee can process a transaction without the authorization of the system administrator or the Municipal Treasurer through the password tool. In a nutshell, the computerization of accounting system does not mitigate the traditional authorization of transactions.

H0₂: *The reduction of human involvement in processing transactions in a computerized accounting environment may cause data entry errors to go undiscovered:* this hypothesis was accepted at 42.9% and rejected at 56.76%. Even though it has been rejected, the statistics show that there is a relationship between data entry errors and the number of people involved in that function. A number of respondents argued that since data entered in the computer are invisibly processed, and people involved are few, there is a high possibility of undiscovered human errors occurrence.

H0₃: *The computerization of accounting system decreases the degree of segregation of duties as well as the traditional system of approval of transactions:* with reference to the table (see appendices), this hypothesis was disapproved at 78.38%. Unless they reveal to each other their passwords, no employee can enter the computer system and does someone else's work for the computer control will not allow him/her to have access to such data. Through individual-based passwords, everyone is only limited to his/her assigned duty. Furthermore, no step can be skipped in the process of computerized accounting cycle. Thus, without approval of a transaction by an authorized staff through the password security no further related operation of the cycle will take place. Therefore, the segregation of duties is assured. Therefore, the computerization of accounting system does not decrease the degree of segregation of duties as well as the traditional approval of transactions unless the concerned individuals reveal to one another their passwords.

H0₄: *The competence of employees in computer accounting programs skills hinders the security of records keeping:* the findings have supported this hypothesis by 100%. All respondents agreed that there is a high level of incompetence in the computer accounting package used (Epicor) and this was found to be a big challenge.

9. Conclusion and Recommendations

In Iringa Municipal Council the computerization of accounting system has brought a considerable improvement on the internal control over cash disbursements which necessitates writing checks since such payments must be authorized and approved through the system. Even through the system is not yet well stabilized; the security on the access of unauthorized staff and the loss of data is assured through the use of passwords owned by computer users under individualized basis and back-up tapes. Through these passwords, the segregation of duties and responsibilities, the traditional authorization and the approval of payments are assured. Also, through the password system, the

computer indicates who carried on a given operation. In addition, daily, weekly, monthly or/and reports can be printed out and verified. Data tracing is made easy in computerized accounting than in manual accounting environment. However, the computerization of accounting system gains maximum importance when the internal control structure is effective. For this case, basing on the researcher observation and the views of most of the respondents, it is obvious that the Iringa Municipal Council internal control over cash is not effective in the sense that the petty cash funds system is not in place; daily receipts are not banked intact and consequently directly used for other daily expenses giving rise to the doubtful underbankings. No cash handling security is guaranteed and bank reconciliations are not done monthly. Hence, even the computerization of the accounting system cannot contribute effectively to the cash control. Therefore, management in general and the Finance Department in particular should take appropriate measures to meet the maximum possible objective of the internal control. Nevertheless, it gives hope that they are improving.

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Appendices

Table 3: Summary of Respondents' Responses

Research Hypothesis	Acceptance	Rejection	Acceptance	Rejection
H0 ₁ : Computerization of accounting system mitigates the traditional authorization of transactions	11	26	29.73%	70.27%
H0 ₂ : The reduction of human involvement, hence responsibility, in processing transactions in a computerized environment causes data entry errors to go undiscovered	16	21	43.24%	56.76%
H0 ₃ : Computerization of accounting system decreases the degree of segregation of duties as well as the traditional approval of transactions	8	29	21.62%	78.38%
H0 ₄ : Incompetence of accountants in computer accounting programs hinders the effectiveness of Internal control over cash	37	0	100.0%	0.00%

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