

RESEARCH TITLE

Development of a Computerized Audit System for Small and Medium Size Sudanese Companies

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Abstract

The emergence and proliferation of companies have led to a tremendous increase in production, marketing, and financial operations in Sudan over the past twenty years, creating a need for the use of advanced techniques in processing financial data. Computers are used in auditing by auditors to expedite the completion of audit work, requiring auditors to have a sufficient understanding of the accounting system. Auditing practices in Sudan differ from international auditing standards, necessitating the development of a computerized auditing system to enhance the work. In this paper, the auditing process has been completed electronically through a computerized system for use in Sudan, taking into account the specific local auditing procedures and the limited computer and human resources of small companies.

Key Words: Audit; CAATTs; Blockchain.

تطوير نظام تدقيق محوسب للشركات الصغيرة والمتوسطة السودانية

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المستخلص

أدى ظهور وانتشار الشركات إلى زيادة هائلة في عمليات الإنتاج والتسويق والعمليات المالية في السودان خلال العشرين عامًا الماضية ، مما أوجد الحاجة إلى استخدام تقنيات عالية في معالجة البيانات المالية. يستخدم الكمبيوتر في المراجعة من قبل المراجعين من أجل الإسراع بإكمال أعمال المراجعة ، الأمر الذي يتطلب من المدقق الحصول على فهم كاف للنظام المحاسبي . يختلف التدقيق السائد في السودان عن أنظمة التدقيق الدولية، وهذا يتطلب تطوير نظام تدقيق محوسب لتطوير العمل. في هذه الورقة تم استكمال عملية التدقيق إلكترونياً ، من خلال نظام محوسب للاستخدام في السودان ومراعي إجراءات التدقيق المحلية الخاصة والامكانيات الحاسوبية والبشرية المحدودة للشركات الصغيرة.

1. Introduction

In 1999, the Board of Directors of the Institute of Internal Auditors (IIA) redefined internal auditing and stated its objectives as follows:

Internal auditing is an independent, objective assurance and consulting activity that adds value to and improves the operations of organization. It helps in accomplishing the organization objective by bringing a systematic, disciplined approach to evaluate and improve the effectiveness of risk management, control and governance processes [1].

Internal auditors are employed by organizations such as banks, hospitals, city governments and industrial companies or work for Certified Public Accountant (CPA) firms that provide internal audit services. Internal auditors often perform operational audits. Operational auditing refers to the study of business operations for the purpose of making recommendations about the efficient and effective use of resources, effective achievement of business objectives and compliance with company policies. The goal of operational auditing is to help managers discharge their management responsibilities and improve profitability. Internal auditors also perform audits of financial reports for internal use or limited external distribution (e.g. reports to regulatory agencies) much like external auditors audit financial statements distributed to outside users. The services provided by internal auditors include (1) reviews of internal control systems to ensure compliance with company policies, plans and procedures. (2) Compliance with laws and regulations (3) appraisals of the economy and efficiency of operations and (4) reviews of effectiveness in achieving program results in comparison to established objectives and goals [1].

The recent decades in the information and communication world have been characterized by the upgrading of the use of computers and IT applications in the delivery of various businesses. Blockchain technology is already being talked about as one of the megatrends for the next years. Researchers and organizations are starting to understand the potential benefits of this technology and are exploring how it can disrupt the world we live in with a diverse range of applications. But the truth is the ability to move Blockchain from concept to adoption and production has been minimal yet. When it comes to auditing, Blockchain solutions could have important benefits by reducing the workload of the auditors, helping in minimizing fraud and optimizing the existing processes [2].

2. Background and related Work

Prior research, as evidenced by studies [3] [4] [5] [6] [7] [8], primarily concentrated on assessing the impact of information technology usage on the audit process, specifically employing Computerized Audit methods within large firms. Furthermore, certain earlier investigations [9][10][11][12] have highlighted that the application of advanced Computer-Assisted Audit Tools and Techniques (CAATTs) was more prevalent in Big-4 firms in comparison to medium and small-sized firms. Conversely, other studies have pointed out that despite the potential benefits of CAATTs in enhancing audit efficiency and cost reduction, their adoption remains limited in developing nations.

Moreover, preceding studies have suggested that in the United Kingdom and the United States, the primary advantage of audit automation is perceived to be the enhancement of audit quality. Additionally, some studies have underscored that auditors continually seek information regarding potential technological methodologies employed in the audit process. It's important to note that the present study is centered on the utilization of computerized audit techniques within small firms in Sudan.

3. Methodology

This section delves into the methodology used for developing and implementing the proposed system.

3.1 Characteristics of Audit Systems

- Audit systems facilitate delegation of work, based on the capabilities of audit staff.

- Audit systems acts as evidence for the audit work being performed and specifies the work to be done by the audit staff, the manner and time limit for completion of the work.

3.2 Data Collection

The proposed system has been designed and implemented in a real-world setting. Specifically, Wafra Pharma Pharmaceutical Laboratories in Sudan were chosen as the site for data collection and the application of the Computerized Audit System

3.3 System Description

The proposed system streamlines the tasks of internal auditors by providing them with easier access to information, allowing them to verify its accuracy, and simplifying the report-writing process. Furthermore, the system aids in obtaining adequate, pertinent, and valuable evidence from IT applications or databases in alignment with the audit objectives.

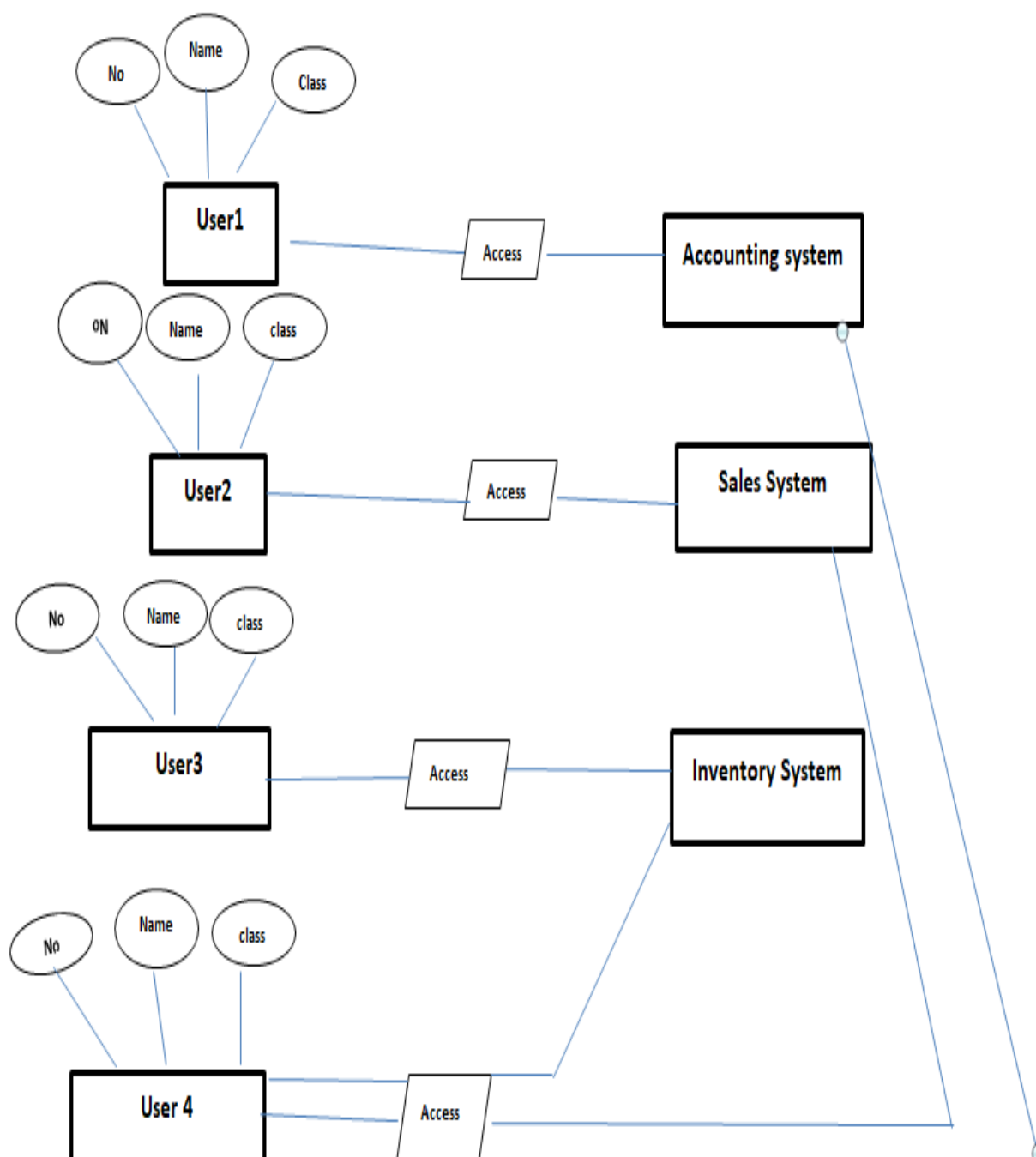


Figure 1 User Permissions

Figure 1 outlines the system permissions as follows:

- The first user is an accountant with the authority to access the accounting system and input restrictions.
- The second user has access to the sales system for entering invoices.
- The third user has access to the inventory system.
- The fourth user, who is the auditor, has the authority to access the accounting system to review restrictions and verify their validity. Additionally, they have access to the sales system to validate invoices and to the inventory system to verify inventory status. However, it's important to note that the auditor does not have modification rights; their role is limited to preparing reports expressing their professional opinions.

3.4 Entity Relation Diagram (ERD)

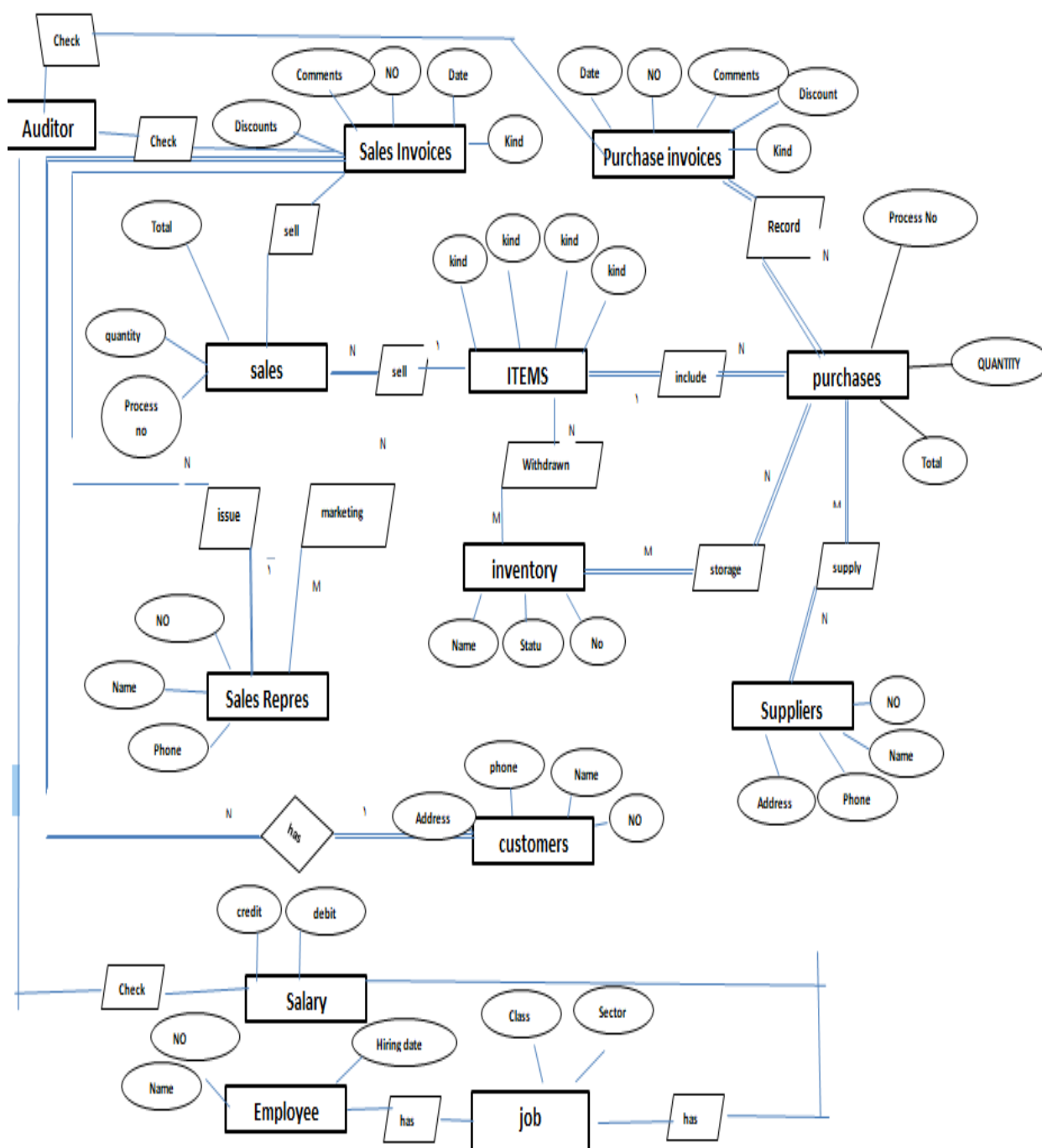


Figure 2 System Relations

Figure 2 illustrates the relationships between the entities and their interactions within the system.

4. Implementation and Results

This section outlines the transition from the theoretical framework and design phase to the practical implementation of Computerized Audit System.

4.1 System Objectives

- Enable auditors to access the Accounting System for the purpose of verifying accounting entries, depreciation calculations, and financial statements.
- Enable auditors to access the Sales System to review sales invoices and access sales reports.
- Enable auditors to access the Salary System to verify salary information by grade, department, and any applicable bonuses or discounts.
- Enable auditors to compose the final audit report.

4.2 Results

The screenshot displays the 'SYSTEM REPORTS' interface. At the top, there are two date input fields: '12-08-2020' and '01-08-2020', with a dropdown arrow between them and the text 'الفترة من' (Period from) to the right. Below the dates, there are two rows of report categories. The first row is for 'الحساب الرئيسي' (Main Account) and includes buttons for 'المدين' (Credit), 'الرصيد الإنتاجية' (Production Balance), 'الموقف' (Status), 'التقود' (Ledger), and 'الشيكات' (Checks). The second row is for 'الحساب الفرعي' (Sub-account) and includes buttons for 'مدين / ام دوران' (Credit / Am Duration), 'الرصيد الإنتاجية' (Production Balance), 'الرصيد' (Balance), 'الموقف' (Status), 'التقود' (Ledger), 'الشيكات' (Checks), and 'الشيكات تفصيلي' (Detailed Checks). Below these categories, there is a grid of report types:

قائمة الدخل	قائمة تكلفة المبيعات	الشركات والحساب الفرعي	الموقف المالي عام
قائمة التجهيزات التقهبة	قائمة المركز المالي	الشركات والحساب النهائي	موقف الحساب الفرعية عام
مراجعة القهود	الرصيد الإنتاجية عام		

Figure 3 System Reports

5. Conclusion and Recommendations:

This section provides a concise summary and recommendations to enhance auditing practices and foster growth in the Sudanese business landscape.

5.1 Conclusion

The aim of this paper was to develop a Computerized Audit System for use in Sudan for small companies. This system has been developed according to the standards and meets the following objectives:

- Reducing the time and effort spent by the auditor in the traditional environment.
- Facilitating the tasks of the auditor.
- Providing a product with affordable cost.

The proposed system was implemented in a typical small sized Sudanese company and the results were confirmed by comparison to manual systems.

5.2 Recommendations:

- To organize continuous training courses for auditors with in specific time to enable auditors to follow developments in the field of E. audit so as to ease the process of auditing and control.
- Developing procedures and audit style in computer environment in order to be up to date.
- Continues maintenance of computer equipment and protection of programs will prevent break down which requires special procedures to ensure safety of computer and programs from all types of risk and theft.
- The need for accountants and auditors to focus on developing their skills and professional commitment and increasing learning and development to keep pace with modern technologies.
- The need for academics to go to more research and conferences to know Blockchain technology, and the effects of its application on other elements of the accounting environment.

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