

WEB-BASED SMART COMPLIANCE AUDITING USING ARTIFICIAL INTELLIGENCE: A PROACTIVE DECISIONS SUPPORT SYSTEM FOR FINANCIAL AUDITORS

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ABSTRACT

This research focused on the application of computer in auditing financial records with particular reference to artificial intelligence as a decision support aid for achieving specific, measurable, attainable, relevant, and timely auditing result. We proposed machine learning to automatically coding account entries. Data necessary for auditing process are accessed by the machine and it learning by themselves then generate result to support the auditor decision. The auditing report was generated by verifying variable required for auditing through fast iterative processing and intelligent algorithm to access compliances with the finance rules of the organization.

Keywords: Financial Auditors, Artificial Intelligence, Compliance Auditing, Decisions Support System, Financial Auditors, Smart.

INTRODUCTION

Use of computer cut across all professions. Account professional's i.e somebody that has skill and experience in establishing and maintaining accurate records for an individual or business

organization (Carol E. and David S. n.d). When accountant prepared the financial records for individual or business organization, there will be need to examine the records and confirmed that it obey the organization financial standard and global financial rules and regulation as the case may be from time to time (Miklos A. Vasarhelyi, Alex Kogan 2015). Auditors are saddled with the sole responsibility of auditing the financial records and made their reports known to the account owners. There are lot of exercise that needs to be carried out during the auditing process. Some of the exercise and decision hitherto can be fast-track through the use of computer application to save cost and time during auditing operation and other accounting processes (Odon L.C etal 2018).The focus of this work is to propose and design a prototype expert system based computer application for auditing a financial records and generate results with respect to the available financial rules. The result generated by the system will be used by the auditor to support their decision. Implementation of this application will go a long way to fast-track and enhancing auditing process.

Review Of Related Works

Daniel E. O'Learyt and Robert M. O' Keefe (1997). In their work entitled the impact of artificial intelligence in accounting work: Expert systems use in auditing and tax. It was opined that artificial intelligence systems allow auditor the ability to solve a broader range of problems and ability to perform more work within a short period with accuracy and reliability. That approach presents a basis for searching out expert systems applications that perform specific strategy tasks for the firm, for example, using expert systems to create barriers to entry and reduce risk.

Expert system can be used to create barriers to entry and reduce risk in auditing and accounting operation as opine by Daniel E. O'leary(2016), in research work entitled "value creation from expert systems: an economic approach with applications in accounting, auditing and finance". Also In the research work entitled Opportunities for Artificial Intelligence Development in the Accounting Domain: The Case for auditing it was opined that AI advance will be rewarding, particularly in auditing and assurance, consequently there should be synergy between the "accounting researchers and AI researchers to bridge the gap between the business and accounting domains and the computer science" Amelia A., Carol E., and Brad S. (2006).

Methodology & Design

In this research work we adopted the compliance rule spelt out in the financial manual of Academic staff Union of Polytechnic (ASUP), and our focus is limited to expenditure management and Budgeting. Summary of extracted rules:

- Comprehensive budgeting system should be maintain by the union.
- Payment procedure should be properly documented.
- Payment authorization and approval limit should comply with.
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Based on the extracted rules we generate a checklists as: Budgetary compliance; Approval limit compliances, DTA compliance, Documentation Compliance.

The system works by key-in the payment (n) made within the accounting period for auditing, $n \geq 1$. On every entry of n input into the system question will be generated by the system for auditor to provide

answer to base on the available financial documents before he/she. Response by the auditor will be processed by the system and report generated to support the auditor decision. Likely questions based on checklist are: who authorized the payment? Is voucher raised and sign? Is the payment budgeted for? Is the DTA compliance with the rules?

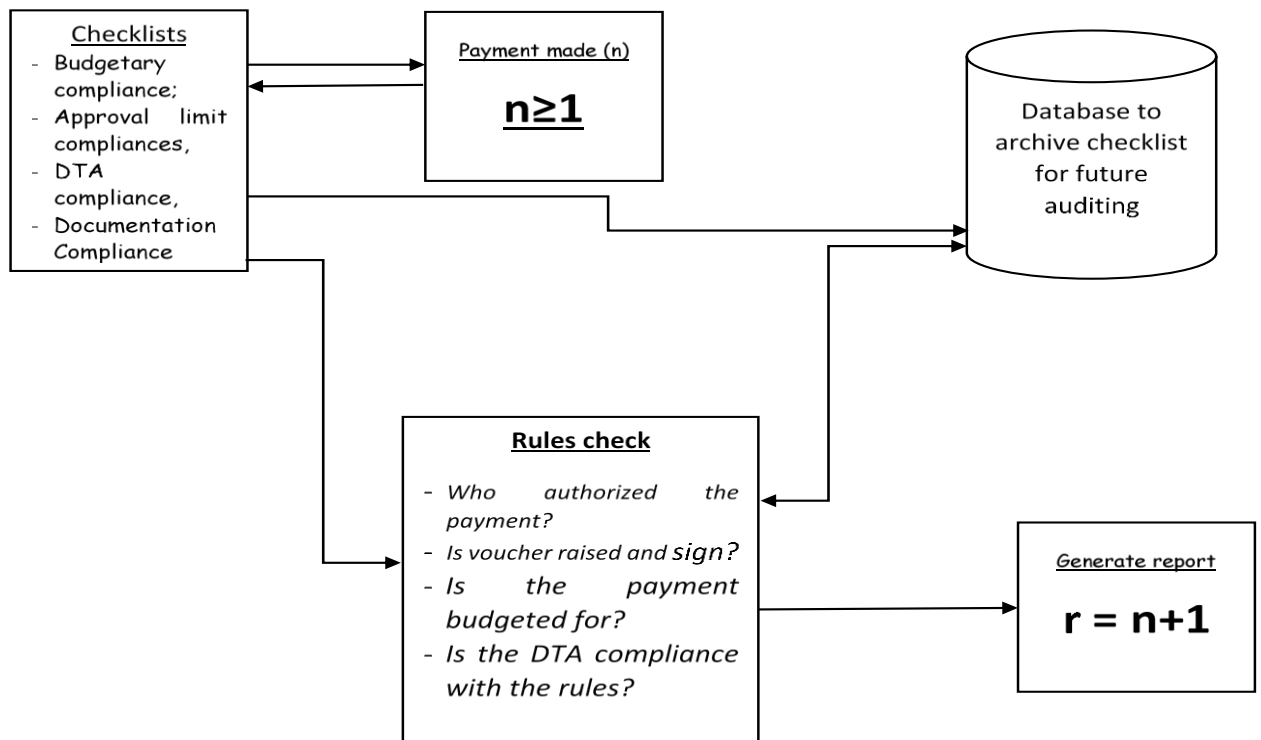


Figure 1. Architecture and data flow of working mechanism of proposed system

Implementation and Testing

The implementation of the design was done by following simple procedures as follows:

- i. Design the mimic auditor report that will be generated at every stage of checking the compliance.
- ii. Determine the user's role and put up flowchart algorithm as in figure 2.
- iii. Coding the algorithm with appropriate software.

The input stage allows the users (Auditors and System-Administrator) to login. New users can register. Auditor input the payment made within the accounting period, the system then check the compliance by asking auditor one or two question/s. Response by the auditor will determine the report to be generated by system for further decision by audit expert. The select of programming language is PHP (Hypertext pre-processor) and Mysql as the backend database.

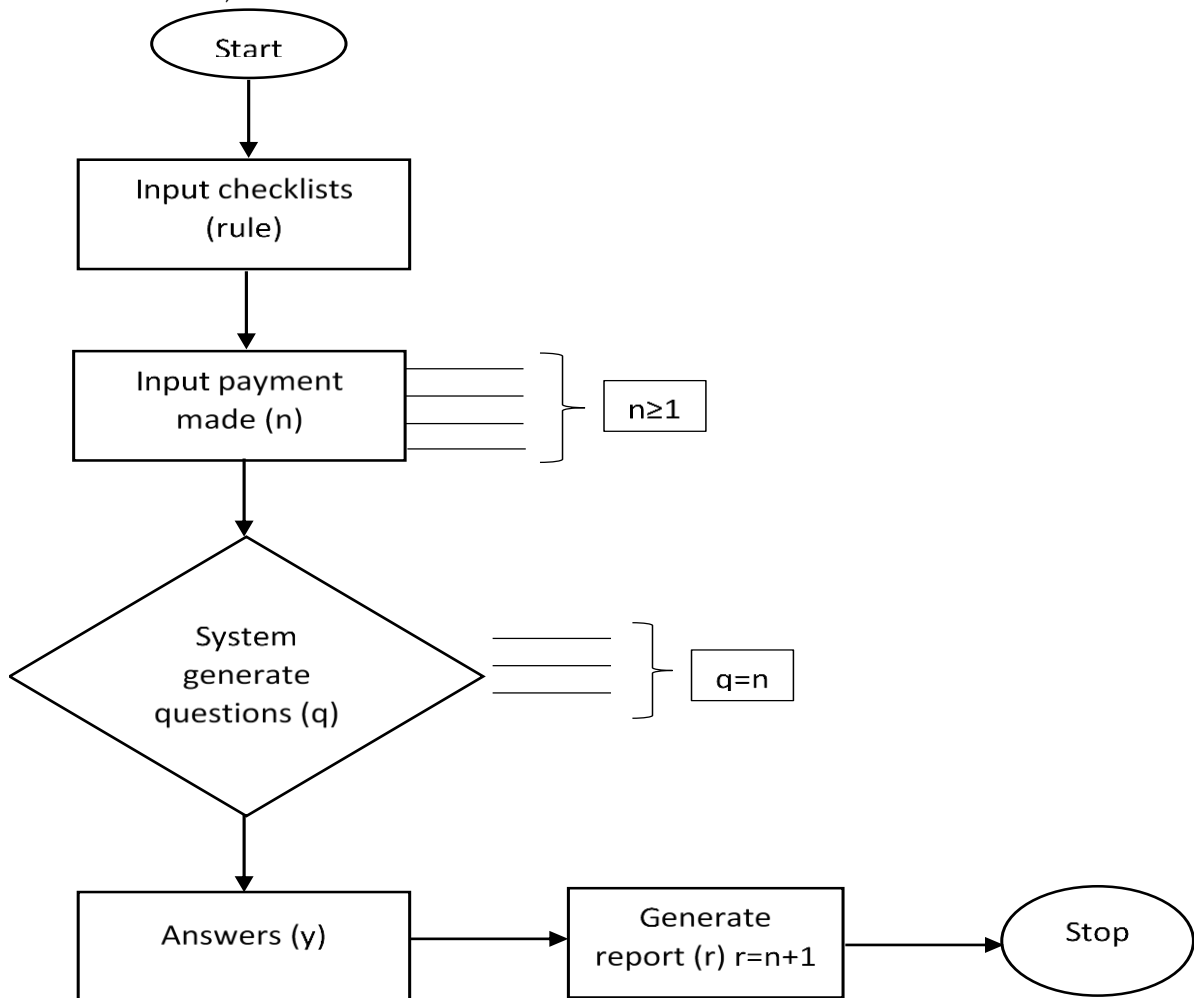


Figure 2. Operational flowchart of the proposed

CONCLUSION AND RECOMMENDATION

Use of computer application especially the Expert systems are quickly becoming ubiquitous in auditing process. Majority of

accounting organizations are one or the other using artificial intelligence in their auditing rehearses or have such systems under advance for achieving Specific, measurable, attainable, relevant, and timely auditing result. The design and testing of the prototype of the proposed system has shown that use of expert system in auditing cannot be overemphasized in this modern day of computer proliferation and complexity in auditing processes. We hereby recommended that professionals accountant should indicate more interest in computer knowledge to enhance account operation beyond auditing; there should be synergy between the professional accountant and computer scientists to point out the benefits and shortcomings of expert system systems in auditing; to place groundwork for formative elements that direct audit chores that can be enhanced by artificial intelligence; and also to identify directions for future application of expert systems development in complex and comprehensive auditing.

REFERENCES

- Carol E. Brown and David S. Murphy (n.d). The use of auditing expert systems in public accounting. Available from: https://www.researchgate.net/publication/286784718_The_use_of_auditing_expert_systems_in_public_accounting [accessed Aug 30 2019].
- Miklos A. Vasarhelyi, Alex Kogan (2015). Artificial Intelligence in Accounting and Auditing: Towards New Paradigms, Volume 4. Markus Wiener Publisher 14 Jefferson Road. Princeton, NJ 08540 USA.

Odon L.C., Uguwangu U.B., Silas C.E., and Chukwuman N.V (2018). Effect of AI on accounting operation among accountin firm in SE Nigeria. Asian Journal of Economics Business and accounting ISSN 2456-639x.

Daniel E. O'Learyt and Robert M. O' Keefe (1997). The impact of artificial intelligence in accounting work: Expert systems use in auditing and tax. Available from: https://www.researchgate.net/publication/226176062_The_impact_of_artificial_intelligence_in_accounting_work_Expert_systems_use_in_auditing_and_tax [accessed Aug 30 2019].

DANIEL E. O'LEARY (2016), Value Creation from Expert Systems: An Economic Approach with Applications In Accounting, Auditing And Finance. School of Business University of Southern California. Los Angeles, CA 90089-1421

AMELIA A. BALDWIN, CAROL E. BROWN AND BRAD S. (2006). Opportunities for Artificial Intelligence Development in the Accounting Domain: The Case for Auditing (2006). Intelligent Systems In Accounting, Finance And Management AI Development Opportunities In Accounting Intell. Sys. Acc. Fin. Mgmt. 14, 77-86 (2006) Published online in Wiley InterScience (www.interscience.wiley.com) DOI: 10.1002/isaf.277

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