

APPLICATION OF ROBOTICS IN ACCOUNTING AND AUDITING OF BUSINESS AND FINANCIAL INFORMATION

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ABSTRACT

Today is the day in which all the business organizations are running behind the technology for achieving its goal by the rendering of goods and services in an efficient manner. But not all the functions of business organizations have adopted the technology. For instance, accounting and auditing functions are paper-based in most of the organizations. The paper-based accounting and auditing function require high human effort, time, and energy and cost because it involves repetitive clerical tasks and it is also highly impossible to get high accuracy. The accounting and auditing function is one of the important functions in par with the main operations of the business because it speaks about the soundness of the operations and "true and fair" view of its operations and its financial conditions. Conventional accounting and auditing are still suffering from various problems such as paper-based time-consuming work, difficulty in maintenance of books of accounts, check-list manner of verification of business and financial transactions etc., so the present paper is intended to analyze the benefits of application of robotics in accounting and auditing of business and financial information.

KEYWORDS: *Accounting, Auditing, Robotics, Knowledge-based Expert Systems.*

Introduction

Today is the day in which all the business organizations are running behind the technology for achieving its goal by the rendering of goods and services in an efficient manner. But not all the functions of business organizations have adopted the technology. For instance, accounting and auditing functions are paper-based in most of the organizations. The paper-based accounting and auditing function require high human effort, time, and energy and cost because it involves repetitive clerical tasks and it is also highly impossible to get high accuracy. The accounting and auditing function is one of the important functions in par with the main operations of the business because it speaks about the soundness of the operations and "true and fair" view of its operations and its financial conditions. Conventional accounting and auditing are still suffering from various problems such as paper-based time-consuming work, difficulty in maintenance of books of accounts, check-list manner of verification of business and financial transactions etc., today we can see robotics are playing role in all the corner points of day-to-day life of human being and also in some of the part of business operations. Manual production of goods and services are replacing with robotic production of goods and services. Some of the think-tanks in accounting and auditing and the experts in robotic technology are suggesting implementing robotics in accounting and auditing practices of the business. Robotics means the technology works based on the knowledge-based expert system which is popularly known as "Artificial Intelligence". If this technology is adapted to the accounting and auditing arena the business organizations and accountants and auditors will get benefit in an unimaginable manner. For instance, if it's adopted it eases the recording and

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maintenance of books of accounts through the automated expert system, removes the paper-based energy consuming repetitive human tasks, and ensures accuracy further it also helps to communicate the business and financial information in an automated manner example: XBRL for financial reporting. Some of the people are arguing that if robotics introduced to accounting and auditing function definitely most of the accountants and auditors will lose their jobs. But in reality it is wrong because it will work with knowledge-based expert system and eases the accountants and auditors function, here accountants and auditors have upgraded their skills to work with this technology it means the future of the accountants and auditors work is not manual but it is automated so their duty will be more on advisory and consultancy aspects instead of maintenance and check-list verification of books of accounts. And also for reporting of business and financial information, it is very important to have advanced skills to deal with knowledge-based expert reporting languages like XBRL. These languages are pre-coded with business and accounting elements prescribed by the regulatory authority based on the applicable accounting and auditing GAAP. If this is implemented for reporting and communication of business and financial information it is very easy for the business people to automated verification of reported information with the regulatory requirements before the filing of the reports. This, in turn, helps in eliminating the necessary conducting compliance audit and to get certification. Apart from this, it will be more beneficial in the purview of all stakeholders as it enables them for automated further processing of communicated information as per their need and also guides them to take suitable decisions on their individual interest. Here we can observe some of the areas to which robotics can be applied:

- Handling of accounts receivables and payables
- Automated data entry and classification of accounting data for compliance purpose
- Automated preparation of business and financial reports
- Automated verification of transactions to ensure the true and fair view
- Automated verification of the transactions to ensure the materiality
- Automated compliance report generation etc.,

Here it notable that if robotics is applied to accounting and auditing functions of the business definitely it will get various fruitful benefits. So, the present paper is intended to analyze the benefits of application of robotics in accounting and auditing of business and financial information. The succeeding part of the paper is organized as literature review, research gap, statement of the problem, research questions, objectives, hypothesis, methodology, results and discussions and conclusions and suggestions for future research.

Review of Literature

Odoh et al.,(2018)¹⁰ examined the effect of artificial intelligence on the performance of accounting operations among various accounting firms in South East Nigeria. They concluded that the application of artificial intelligence favourably impacts on the performance of accounting functions. Further, they recommended that accountants and accounting firms should continually upgrade their skills and knowledge in relation to artificial intelligence to enhance the performance of accounting functions, thereby eliminating certain accounting cost.

O'Leary, et al.,(1991)⁸ discussed the role of artificial intelligence and expert system on accounting function and in solving the problems involved in traditional accounting functions. The researcher concluded that the use of AI in accounting will solve the problems of traditional paper-based accounting.

Murphy and Yetmar (1996)⁷ conducted the study on the context of use of the expert system for the credibility of audited information and found that the application of the expert system for the usage by sub-ordinates affects the beliefs of superiors but the use of ES by superiors does not affect on their own beliefs and on their own decisions.

Amelia et al.,(2006)² examined the application artificial intelligence in accounting and auditing and opined that auditing and accounting function can be potentially improved through the usage of complex AIs such as expert systems, genetic programming, neural networks, fuzzy systems and hybrid systems, should be investigated to the fullest extent possible.

Daniel et al.,(1997)⁹ empirically Analysed the impact of artificial intelligence in accounting, taxation work and influence on other organisational issues and opined that application of artificial intelligence helps top management and reduces the need for supervision because it works based on expert system which allows to solve a complex problems of accounting and taxation and allows the organizations to perform more work with less supervision. Further, it helps to take decisions immediately.

Research Gap

Literature survey revealed that most of the studies focused on the working mechanism of robotics in accounting with the help of knowledge-based expert systems but no studies were concentrated on the awareness of use of robotics in accounting and auditing among the academicians, researchers and accountants so present study is intended to examine the awareness of use of robotics in accounting and auditing of business and financial information among these group of stakeholders.

Statement of the Problem

Accounting auditing functions are changing from day to day due to the advancement of technology and computerising the business operations so it is necessary to replace the conventional accounting and auditing practices with modern technology based functions so one of the modernised accounting and auditing can be expected in future that is insertion of robotics in these functions so the present study is intended to analyse the impact of use of robotics in accounting and auditing functions.

Research Questions

Based on the statement of the problem study framed the following research questions:

- What are the benefits can derive from the application of robotics in accounting and auditing of business and financial information?
- What is the awareness level of use of robotics in accounting and auditing among academicians, researchers and accountants and auditors?

Research Objectives

To answer the research questions study framed the following research objectives:

- To analyse the benefits which can derive from the application of robotics in accounting and auditing of business and financial information?
- To examine the awareness level of use of robotics in accounting and auditing among academicians, researchers and accountants and auditors.

Research Hypothesis

Among the two objectives, the first objective is conceptual and the second objective is to be achieved through inferential statistics so the following hypothesis is framed.

H₀: There is no awareness of the use of robotics in accounting and auditing among academicians, researchers, and accountants and auditors.

Research Methodology

The study is carried based on both primary and secondary data; primary data was collected through structured questionnaire form academicians and researchers in the area of accounting who is situated in Mysore city. Secondary data was collected through journals, books, websites and other published materials. For the purpose of primary data, convenience sampling method was applied. For analysing the collected data descriptive statistics, a one-sample t-test was used to test the research hypothesis. The distribution of the questionnaire and responses were shown in the table-01:

Table1: Categorisation of Respondents

S. No.	Respondents Category	No. Of. Questionnaires Distributed	No. Of. Responses Received	Response Rate
1	Academicians in accounting	15	12	30.00%
2	Researchers in accounting	10	09	22.50%
3	Accountants and auditors	15	11	27.50%
	Total	40	32	80.00%

Source: Author compiled

Academicians are the teachers who are involving teaching accounting for the postgraduate students at the university level, Researchers is the scholars who are a PhD degree in the area of accounting and accountants and auditors are the chartered accountants, company secretaries who are practising auditors in Mysore city. The geographical area considered for the study in Mysore city.

Benefits of application of robotics in accounting and auditing functions

Traditional accounting and auditing is facing certain problems such it involves in tedious, repetitive, expensive and time consuming tasks and also it is very difficult to get accounting and auditing results at the 0% inaccuracy so to overcome these problems the business organisations can apply robotics (Knowledge-based expert system) in accounting and auditing of its business and financial information because of its fruitful benefits that are discussed here. The application of robotics in accounting will result in the elimination

of complex human repetitive tasks involved in accounting and auditing process and at the same time, it replaces the automated computerised tasks with greater accuracy⁶ and which can be expressed as the six sigma level accuracy i.e., 99.9996667%.¹¹ Use of robotics in accounting and auditing significantly eases the compliance with various regulatory authorities in an easy manner because the knowledge-based expert systems used for accounting and auditing is pre-coded with business and auditing rules, manner, provisions to be followed while reporting and auditing of business and financial information this importantly helpful in carrying automated compliance audit¹. Some popular traditional tasks of accountants such as processing of accounts receivables and payables will be complete can be mechanised if the firm implements robotics in accounting.³ One of the major problems of traditional accounting is that matching internal accounts with the bank transactions, if a knowledge-based expert system is applied definitely it will solve this problem in an automated manner. Another important usual problem observed in the conventional accounting is balancing with a single payment having several bills, on the other hand, several payments for a single bill, if robotics are introduced definitely it, will resolve this problem in an automated manner. In case of large companies some times bills transaction are in thousands together number on a monthly basis for this situation it is necessary to segregate the bills into receivables and payables but it will consume lot energy and time but if robotics with knowledge-based expert systems are used it will also be done in an automated manner. One of the routine tasks of an accountant is to record, an audit of transactions based on the data produced by actual transactions for these tasks in most of the organisations software are induced but it also requires manual touch but the complete elimination of human touch for these tasks such as data coding and other data related tasks one of the most important benefit here we can identify that it will enable accountants to concentrate only on advisory and consultancy services and other value-added tasks.

Results and Discussions

The results of primary data collected through structured interview are presented in the following table:

Table 2: Results of One-Sample T-test at a test value 0.05 on the Awareness of Use of Robotics in Accounting and auditing Business and Financial Information

Awareness of Use of Robotics in Accounting and Auditing Business and Financial Information	N	Mean	Std. Deviation	t-value	Sig (Two-tailed)
Future accounting and auditing will be based on Robotics(Knowledge-based expert systems)	32	4.2188	.97499	9.972	.000
Use of robotics in accounting and auditing smoothens the accounting and auditing function.	32	3.7188	1.11397	6.189	.000
Use of robotics does not affect the job of accountants and auditors.	32	3.8125	1.14828	6.466	.000
Use of robotics in accounting and auditing eliminates the paper-based repetitive manual tasks	32	4.1875	.78030	12.234	.000
Use of robotics in accounting and auditing will eradicate the flaws of the traditional system	32	4.1875	.73780	12.938	.000
Use of robotics in accounting and auditing helps in functioning the accounting and auditing operations in faster, economical and paper-less ways	32	4.0938	.92838	9.711	.000
Use of robotics simplifies the more complex human tasks	32	4.0000	.71842	11.811	.000
Use of robotics in accounting promotes integrated reporting	32	4.1250	.94186	9.760	.000
Robotic based accounting and auditing enable firm for conducting automated compliance audit.	32	4.0938	.77707	11.602	.000
Robotics in accounting and auditing helps the firm in filing disclosure and other compliance reports to various regulatory authorities	32	4.1875	.73780	12.938	.000
Use of robotics in auditing replaces the check-list system with the automated verification system	32	4.0938	.96250	9.367	.000
Use of robotics in auditing helps the auditors to ensure the materiality of transactions automatically	32	4.2500	.67202	14.731	.000

Source: Primary data

Table-02 shows that the results of one-sample t-test conducted with the test value of 2.5 and with 5% level of significance. The result was derived by processing the primary data through primary data. Significance value of all the variables are less than 0.05 so it indicates the null hypothesis, H_0 there is no awareness of the use of robotics in accounting and auditing among academicians, researchers, and accountants and auditors. And H_1 i.e., alternative hypothesis is that there is awareness of the uses of robotics in accounting and auditing among academicians, researchers and accountants and auditors.

Findings and Conclusion

By the analysis of primary and secondary data study observed the following findings:

With respect first objective it is found that the future accounting and auditing functions can be done through the insertion of robotics because of its unimaginable benefits such as it removes the paper-based repetitive manual tasks, eases the compliance audit and enables the automated verification of transactions as the part of audit function and transforms the conventional accounting and auditing functions into advisory and consultancy functions and which will not removes the accountants from the job but it eases the accounting and auditing functions. With respect to second objective study evidently finds that there is a significant awareness about the use of robotics in accounting and auditing functions. Importantly academicians and researchers of accounting and auditing are more aware than that of accountants and auditors.

Suggestions for Policy Implications

By the study have certain recommendations for policy implications such as:

The organisations must try to give training to enhance the skills of their accountants to cope up with these changes in accounting filed. Apart from this the government must try include the robotics aspects of accounting and auditing in the curriculum to equip the future accounting and auditing graduates in this respect.

Scope for Further Research

The present study is also suffered from certain limitations such as it not studied the operational mechanism of robotics so it would be the future scope for further research.

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