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Impact of Information Communication Technology Competency among Auditing Professionals

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ABSTRACT

The objective of this study is to find out the influence of Impact of Information Communication Technology competencies and Information Communication Technology Training among auditing professionals. This paper proposes a defined set of survey questionnaires to measure Information Communication Technology (ICT) competency and ICT Training variables. The sample size focuses on junior qualified professional auditors who were selected based on their experience in the field of accounting or auditing. The sample of population consists of individual practicing auditors from small audit firms in Kerala. Data were analyzed using partial least squares structural equation modeling approach (PLS-SEM). Expectedly, ICT competencies among auditing professionals and their ICT training are imperative among junior auditing professionals for auditing in a computer-based environment. The impact of audit efficiencies, ensuring client's fair financial statements, and timeliness of audit tasks were achieved by auditing professionals with ICT competencies and ICT training. This is important not only for junior staff, but also for lead auditors who have the authority to sign audit reports. The value of the research studies lies with a comprehensible examination of findings of various previous studies and enlightened commentaries on ICT enabled audit practice by sole proprietorship practicing audit firms, mainly in rural locations. In addition, such scientific method of understanding the implications of ICT enables auditing which involved in auditing professional policy makers intervention.

Keywords: information communication technology; auditing professionals; ICT competency; ICT training; auditing companies; auditing; accounting; financial statements

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ОРИГИНАЛЬНАЯ СТАТЬЯ

Влияние информационно-коммуникационных технологий на компетентность работников в сфере профессионального аудита

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АННОТАЦИЯ

Целью данного исследования является выявление значимости профессиональной подготовки и навыков использования информационно-коммуникационных технологий (ИКТ) при подготовке auditors и других работников, занятых в сфере финансового контроля над деятельностью экономических субъектов. В статье предложен метод оценки уровня готовности auditors к работе с использованием ИКТ на основе применения опросных листов, позволяющих определить уровень знаний, компетенций и навыков auditors в этой области; сформирована система показателей для такой оценки. Критерий отбора опрашиваемых ориентирован на младших квалифицированных практикующих auditors, при котором учитывается их опыт работы в бухгалтерской сфере и аудиторских организациях. В частности, выбирались индивидуально практикующие специалисты в сфере аудита и работники небольших аудиторских фирм в штате Керала (Индия). Данные были

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проанализированы с использованием метода моделирования структурных уравнений с наименьшими квадратами (TLS-SEM). Автор дает обоснование значимости квалификации специалистов в области ИКТ среди аудиторов и уровня подготовки в этой области младших специалистов для проведения аудита посредством компьютерных технологий. Эффективность аудита, обеспечение достоверности финансовой отчетности клиента и своевременность выполнения аудиторских задач в большой мере зависят от доли специалистов, обладающих компетенцией и качественной профессиональной подготовкой в области ИКТ. Это имеет значение не только для младшего персонала, но и для ведущих аудиторов, обладающих правом подписи аудиторских заключений. Ценность исследования заключается также в анализе и интерпретации выводов ранее проведенной оценки реализации аудита в компьютерной среде, осуществляемой индивидуальными предпринимателями, практикующими аудиторскими фирмами, в основном в сельскохозяйственной области. Кроме того, использование предлагаемого метода оценки подготовки аудиторов к работе в компьютерной среде позволяет директивным органам, регулирующим развитие аудита, учесть уровень подготовки в этой области при аттестации и определении требований к квалификации аудиторов действующих аудиторских организаций.

Ключевые слова: информационно-коммуникационные технологии; аудиторы; ИКТ-компетенция; обучение ИКТ; аудиторские компании; аудиторская проверка; бухгалтерский учет; финансовая отчетность

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INTRODUCTION

Financial statement audit provides management to ensure reliability of companies accounting system. Auditing discourages companies employees from doing fraud in accounting transactions since it acts as a moral check on them. Audited financial statements can use to obtain credit from financial institutions. Ultimately, having based on available evidence audit professionals issue an audit report for their client's financial statements. Increasing trend in adoption and use of Information Communication Technology in business, upsurge the importance of upgrading competency level among accounting and auditing professionals. Accounting professionals should competent enough to meet the challenges of contemporary business environment. However practical knowledge in Enterprise Resource Planning (ERP), Computer Assisted Auditing Techniques (CAATs) and Generalized Accounting Software (GAS) such as Tally, Peach Tree and QuickBooks are still lower than the minimum required level set by accounting and auditing professional bodies such as the Institute of Chartered Accountants of India (ICAI) and American Institute of Certified Public Accountant (AICPA).

Traditional way of manual auditing does not allow the automated comparison of various transactions, ledgers, purchase, and sales records and inventory status. The lack of proficiency in utilization ICT application extremely and constantly for a contribution regarding task quality which has to do by practicing auditors [1]. Auditors weakness

appears in the lack of proficiency in usage of information technology of tax auditors during tax auditing [2]. The lack of practical knowledge and skills by professional auditors to validate ICT enabled accounting records was notable [3]. Further, auditors also face the challenge of hiring and training audit assistants at a time when freshly qualified auditors are not certainly looking for a long-term career. The unavailability of adequate ICT training in current audit professionals are notable [4]. The lack of adequate ICT training programs for junior auditor and accounting information systems within the ICT enabled audit environment will increase audit risks among audit firms [5]. Practicing auditors find it difficult to enhance audit effectiveness, and efficiency without employing information technology in their audit tasks [6]. The shortage of IT Training for certified information systems auditors weaken IT auditing skills. This is one of the main constraints to adopt Computer Assisted Auditing Techniques (CAATs). Hence, practicing auditors required to provide adequate professional IT education and training programs that facilitate to develop their ICT competency, skills, and knowledges [7].

The set of issue and challenges mentioned above made a call for researchers to investigate sole practicing audit firms and the necessity of examining ICT issues among auditing professionals. Therefore, the current study is a retaliation to what has been argued in earlier studies. Hence, the main aim of the research is to test the relation between

ICT competency, IC training among Auditing Professionals.

LITERATURE REVIEW

Auditing professionals are qualified and licensed practicing auditors form the Institute of Chartered Accountants of India who do audit of client's financial statements. External practicing auditors will issue different types of audit report in accordance with available audit evidence. The purpose of the external audit reports is to ensure fair financial statements which helps to take decision to shareholders, potential investors, lenders banks, customers and on the financial statements of the company in its true and fair view. The final stage of auditing is to issue audit report which is not a statement of authenticity and accuracy since the figures in the financial statements have been examined via a series of detailed substantive tests, internal controls tests, and analytics being comprehending the size, nature of organization and any events that might possibly influence the decision of stakeholders of the financial statements. Audit practice is driven by the code of ethics and professional body of auditors (the institute of chartered accountants) as well as by the status. The professional body try to ensure highest possible ethical conduct of members in their practicing service which is compatible internationally. Periodically as and when required the institute issues ethical code of conduct for its prating members. Technical competences, compliance to technical standards, accountability, and confidentiality are such codes of conduct [8]. Recent trends in the advancement of technology helps to integrate the adoption of big data for auditing practices which provides opportunities and challenges among auditing professionals. Practicing auditors must recognize the effects and threats of a big data and strive to obtain the adequate and timely ICT professional skills to continue relevant to their societies in common and their clients in particular [9].

Verifying digital records and transactions to assist the auditing necessitates adequate skills and competencies by audit professionals. Practicing auditors are not adequately trained on how to verify digital records and transactions records stored in client's ERP system [10, 11]. Low quality of the electronic auditing by many practitioners. Hence it was analyzed by [12, 13] to study the degree by which

auditor's ICT competencies that might support in successful adoption of the e-Audit system. Current technological advancement in the organizational operational activities resents challenges and opportunities among auditing professionals and necessitates both clients and auditors to adapt ICT in their business operations. This technological advancements in artificial intelligence (AI), big data analytics and blockchain technology, examines by [14] various required changes in auditing practices anticipated by auditing professionals. Technological changes are unavoidable in auditing profession. Hence, it entails a set of professional responsibilities for practicing auditors or accountants. Numerous causes of transformation, the advancement of technology is definitely one of the most substantial cause. Moving from manual auditing to ICT enabled auditing is a prerequisite for existence. This transformation for professional auditors as well as accountants means regularly gaining new skills, knowledge, and attitudes. Due to the advanced ICT changing environments in which professional auditors conduct, the nature of practical skills and knowledge that they necessitate in order to meet the challenges, and professional competency today require by professional auditors via re-examination. Therefore, [15] have examined what skills, knowledge, and attitudes were essential for a professional auditors or accountants of today [2] there had been found the need for improvement of IT knowledge and skills in the existing internal audit education program. Functional auditing competency had a significant and positive relationship with auditing software and performance in internal audit [16]. The ownership and utilization of ICT enabled auditing skills being necessary for auditors who must have to analyze the audit risks that might arise in advanced technology will be able and added value for any organization [17]. Adoption of an effective ICT enabled audit software has a positive effect on firms internal control procedures, which implies that implementing an effective ICT enabled audit software will have an positive, significant impact on enhancing the quality of internal control system [18–20]. Thus, it is hypothesized that: *H1: ICT Competency has positive association with auditing professionals.*

Audit experience and audit training had a positive and substantial impact on the auditor's ability to detect fraud [21]. The interrelationship of ICT training and auditing practices were examined by [11]. Audit profession might necessitate the impact of artificial intelligence on the training of newly qualified

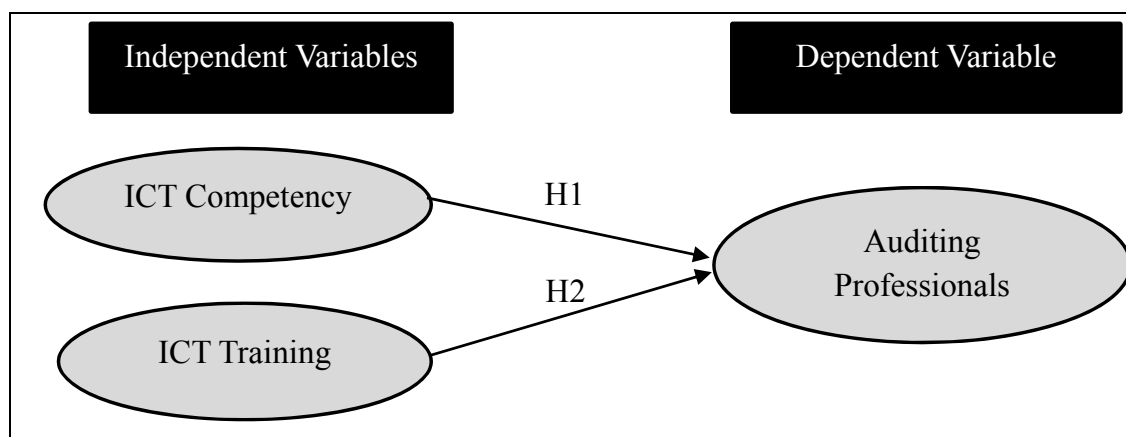


Fig. 1. Theoretical Model

Source: developed by the author.

auditors [22]. Different ICT training programs for practicing audit assistants were analyzed through information systems to reduce probable audit risks [5]. The impact of technology globalization and ICT in the practice of professional accountancy and auditing profession were studied by [23]. Practicing auditors are likely to be competent to adopt CAATs as a means for functioning of information technology audits. Hence, [24] aims to examine the effect of CAATs on functional review of IT audits in external practicing audit firms. Policy makers intention to stimulate practicing auditors to implement computer assisted audit techniques by giving increased practical CAAT training to using CAAT automated tools were analyzed by [25]. The adequate practical ICT training will make graduated students to make awareness of the auditing software usefulness that can improve the student's job performance and audit software utilization [26]. ICT auditing professionals should be trained to perform their audit tasks efficiently. It is essential to continue providing them adequate ICT training with skills and competencies to continue operate auditing work effectively during the current technological advancement period. This might assist professional auditors to continue being in a view to confirm fair records in ICT enabled audit systems [3]. Practicing auditors and audit firms might develop and give immense importance to CAAT training programs to improve auditors' ICT skills and practical knowledge to make it feasible to learn techniques of CAATs and by applying so to improve auditors' efficiency, expectancy and thus increase CAATs practice and advancement in the audit practice [27]. Thus, it is hypothesized that: *H2: ICT Training has positive association with auditing professionals.*

Thus, this study searches for examine the impact of ICT competencies and ICT Training among auditing professionals to realize the influence of the hypothesized enhancing factors: *H1: ICT Competency has positive association with auditing professionals; H2: ICT Training has positive association with auditing professionals.*

The below theoretical model framework has developed. The relationship between ICT competencies and ICT Training by auditing professionals has shown in the below figure (Fig. 1).

METHODOLOGY

This work proposes a defined set of survey questionnaires to measure ICT competency and ICT Training variables. The sample size focuses on junior qualified professional auditors were selected based on their experience in the field of accounting or auditing. The sample of population consists of individual practicing auditors from small audit firms in Kerala (India). Data were analyzed using partial least squares structural equation modeling approach (PLS-SEM).

The performed study based on constructs validated in prior research studies, adapted and similar to the framework of the current study. The first section of the questionnaire was included demographic questions. Second section were set auditing practice, third section set with ICT Competency followed by ICT training. The questionnaire is adapted from [28].

RESULTS

As per descriptive statistics results shown under Table 1, auditing professionals (dependent variable) represents that the level of audit practice was 35%

Table 1

Descriptive Statistics

Variables	Mean	Std. Deviation	Minimum	Maximum
Auditing Professionals	0.37	1.09	0.16	0.50
ICT Competency	0.07	3.20	0.00	0.19
ICT Training	0.10	3.70	0.00	0.15

Source: developed by the author.

as average of auditing professionals with 1.09 as standard deviation, 16% as minimum value and 50% shown as maximum value. Further, descriptive statistics of independent variables, ICT competency and ICT training shown as average 7% and 10% with standard deviation 3.20 and 3.70 respectively.

Discriminant validity constructs measures value of discriminant which helps to make certain discrepancies and there is no correlation among variables used to measure factors. To measure values of discriminant factors, the average (AVE) square-root of every measurement factor is larger than the latent factors of variable correlations among such other factor show the reliability, discrimination, and consistency of the factors [29]. Ultimately, it can verify the factor load of every indicator for double the discriminatory validity and convergence validity. This was accomplished by taking into account the load factors of a greater index than any of its other structures [30]. The below Table 2, discriminant validity constructs, represents current study results.

The results of the SEM PLS, below Table 3, variance explained (R^2) explained 0.506 (which is substantial) of the fluctuations of the auditing professional explained. Thus 50.60% of the variance in auditing professionals were explained by ICT competency and ICT training.

The hypotheses named H1 and H2 were assumed to influence either a positively or negatively associated ICT competency, ICT training with auditing professionals, were attempted at the same time through bootstrapping process using SEM PLS. The path-coefficient range believed to be agreeable if it is more than 0.1 point [31]. Later analysis, the path approximations from the initial stage, all the two variables were confirmed as significant. As a next step, the summary of the findings of this analysis are shown next. The hypothesis assessment test is briefed in below Table 4. It reveals that all the two factors of independent variables, ICT competency and ICT training, have a positive and significant connection

Table 2

Discriminant Validity Constructs

	AP	ICT_COM	ICTT_TRA
PA	0.839		
ICT_COM	-0.488	0.822	
ICTT_TRA	0.656	-0.350	0.900

Source: developed by the author.

with Auditing professionals (ICT competency 0.000 and ICT training 0.000).

The findings of the results shows that ICT competency has significant and positive relationship with auditing professionals where the results of $P < 0.001$ against $t = 7.701$. This result findings addresses that the ICT competency has significant and positive effect on auditing professionals. This implies that proficiencies in ICT competencies against audit software are lacking among sole proprietorship auditors. Hence, H1 is supported.

The findings of the results shows that ICT training has significant and positive relationship with auditing professionals where the results of $P < 0.001$ against $t = 13.077$. This result findings addresses that the ICT training has significant and positive effect on auditing professionals. This implies that adequate ICT training for the use of audit software is lacking among sole proprietorship auditors. Hence, H2 is also supported.

Therefore, all the two finding results have significantly and positively supported, and it is stated that the both the two factors carried out in the current study does influences auditing professionals.

Thus, the variables in the model can explain 65.6% of the fluctuation of independent audit fees. The results of testing the compatibility of the research model with the research data are summarized in the Table 4. The results of testing the hypothesis (Fig. 2).

Table 3

Variance Explained

Endogenous Construct	Variance Explained (R ²)
Exogenous Variables → endogenous (Auditing Professionals)	0.506

Source: developed by the author.

Table 4

Path Coefficients

Hypotheses	Path	Path Coefficient	Standard Error	t-value
H1	ICT_COM → AP	0.000	0.038	***7.701
H2	ICT_TRA → AP	0.000	0.042	***13.077

Note: Significance levels: *** $p < 0.001$ ($t > 3.33$), ** $p < 0.01$ ($t > 2.33$), * $p < 0.05$ ($t > 1.605$) (based in one-tailed test).

Source: developed by the author.

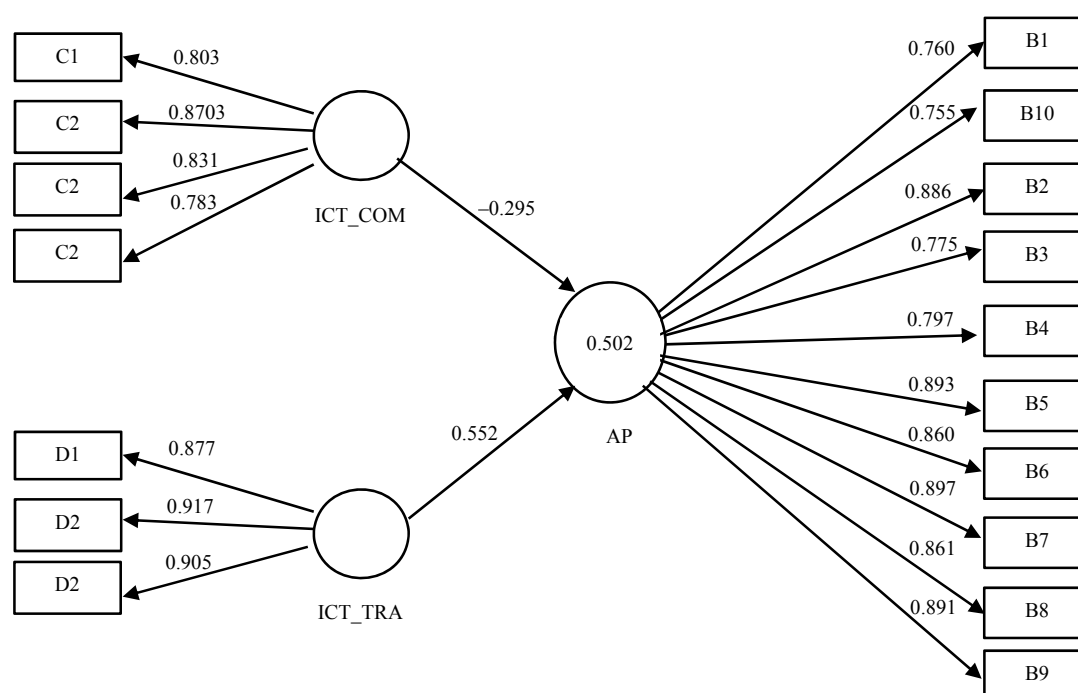


Fig. 2. Demonstrates the results of testing the hypotheses

Source: developed by the author.

DISCUSSION

The initial aspect was examined in the current study was information communication technology competency. There are various prior studies were identified that ICT competencies are significantly affect Auditing professionals [3, 10–12, 32]. Most of the organizations using ICT enabled software to record accounting transactions. Therefore, ICT

competencies are required to perform audit of financial statement of any organizations in the current period of technological advancements by auditing professionals. Auditor competence and proficiency in employing ICT had a positive influence on the success of implementation of e-Audit System [12]. The requirements for improvement of the traditional internal audit

program, IT skills and knowledge in particular and it is endorsed a cohesive ICT competency context for audit professionals, which is appropriate to all spheres of IT practical skills and knowledge anticipated from internal auditors in practice [3].

Table 4, Path Coefficients analysis, above shows that ICT competency has positive connection with auditing professionals ($\beta = 0.000$, $p < 0.001$). This factor has remained supportive with the hypothesis predicted in the present research study, which reveals that sole practicing auditors were tempted to adopt generalized audit software in their audit firms if they satisfy ICT competency among newly graduated audit assistants. Particularly, the result findings reveals that there is a significant positive association between ICT competency and auditing professionals. This result findings further discloses that the ICT competency is an essential determinant factor which allows the practicing professionals auditors and their audit firms to attain a greater degree of thinking to implement generalized audit software in their audit firms. This affirmative link that the present research study stated between ICT competency and auditing professionals is consistent with prior study done by [4] had been found that the impact of Information communication technology competency had a positive influence on auditing practice.

Though, the research findings of the current study revealed that ICT competency is positively related with auditing professionals. This may be with a number of reasons such as the un-availability of adequately trained audit assistants, wrong selection of audit assistants for auditing clients financial statements without considering their competency level and experience, hiring audit assistants without considering their previous practical experience in various accounting software, without bothering audit assistants basic knowledge in MS Excel and computer assisted auditing techniques, and audit assistants negligence of latest information technology Act. If the audit firms consider all those factors mentioned and ensures consistent ICT competencies among audit assistants increases to adopt generalized audit software for audit tasks. Thus, it can be briefed, that ICT competency based on first hypothesis, will increase the willingness to adopt generalized audit software by audit professionals which ultimately enhances audit efficiency.

The next aspect was examined in the current study was information communication technology training. There are various prior studies were identified

that ICT training are significantly affect Auditing professionals [11, 28, 33, 34]. Timely training to audit assistants enhances their knowledge in latest technology in the field of auditing. ICT training will inspire audit assistants to shift from manual auditing to automated auditing. Therefore, ICT training to audit assistants are required to perform audit of financial statement of any organizations in the current period of technological advancements. Recent advancement in IT is imperative for adoption of an efficient automated auditing system. The effect of data security procedures against internet hackers including audit assistants training and skills were found to be substantial [35]. Auditing through the computer guarantee fair financial representation, and the audit assistants were very well trained and fully competent for working in the ICT enabled auditing environment and those practice generally reduce audit risks and confirm good performance. Thus it is recommended that extensive ICT training programs protects audit firms that improve the proficiency of auditors to ensure better performance in auditing [5].

Table 4, Path Coefficients analysis, above shows that ICT training has positive connection with auditing professionals ($\beta = 0.000$, $p < 0.001$). This factor has remained supportive with the hypothesis predicted in the present research study, which reveals that sole practicing auditors were tempted to adopt generalized audit software in their audit firms if they give timely ICT training to newly graduated audit assistants. Particularly, the results reveal that there is a significant positive association between ICT training and auditing professionals. This result findings further discloses that the ICT training is an essential determinant factor which allows the practicing professionals auditors and their audit firms to attain a greater degree of thinking to implement generalized audit software in their audit firms. This affirmative link that the present research study stated between ICT training and auditing professionals is consistent with prior study done by [11] had been found that timely and sufficient ICT training to audit assistants helps audit firms from doing audit by implementing customized audit software among auditing professionals.

Though, the research findings of the current study revealed that ICT training is positively related with auditing professionals. This may be with a number of reasons such as insufficient and in-adequate IT (ICT) training creates ambiguity among audit staffs/team, and insufficient and

inadequate IT training makes audit assistants their auditing task much complicated. If the audit firms, consider all those factors mentioned and ensures consistently providing ICT training among audit assistants increases to adopt generalized audit software for audit tasks. Thus, it can be briefed, that ICT training based on second hypothesis, will increase the willingness to adopt generalized audit software by audit professionals which ultimately enhances audit efficiency.

CONCLUSION

The research findings indicate that there is a positive and substantial connection between ICT competency, ICT training variable with auditing professionals. Thus, the findings propose is that all two variables of information communication technology (ICT competency and ICT training) appear to be considerably significant factors that influence auditing professionals. Thus, ICT competencies among auditing professionals and their ICT training are imperative among junior auditing professionals for auditing in a computer-based environment. The impact of audit efficiencies, ensuring client's fair financial statements, and timeliness of audit tasks were

achieved by auditing professionals with ICT competencies and ICT training. The intention to adopt generalized auditing software by small practicing audit firms to ensure audit efficiency, ensuring client's fair financial statements, and timeliness of audit tasks were found to be highly substantial for auditing operations. It induces auditors to move from traditional way of doing auditing to ICT enabled auditing practice which enriches efficiency of auditing practice among auditing professionals. The intention to adopt generalized auditing software by small practicing audit firms to ensure audit efficiency, ensuring client's fair financial statements, and timeliness of audit tasks were found to be highly substantial for auditing operations. It induces auditors to move from a traditional way of doing auditing to ICT enabled the auditing practice which enriches its efficiency among auditing professionals.

The fact that fourth industrial revolution (Industry 4.0) in the auditing industry's ongoing automation is still growing with its ultimate outcomes not so far visible and lacks to draw conclusions in the current study. Additionally, there is a need to include other ICT variables which can be focused auditors practicing outside Kerala (India).

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