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The Role of Technology-Based Audits (Digital Audits) in Improving Audit Quality in Accounting Firms Public in the Industrial Era 4.0

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A B S T R A C T

The development of digital technology has brought about major changes in audit practices, especially in the Industry 4.0 era. This study aims to analyze the role of digital audit in improving audit quality in Public Accounting Firms (KAP). With a causal quantitative approach, data were collected through closed questionnaires to auditors in the Makassar area. The results show that the implementation of digital audit and the effectiveness of the audit process have a positive and significant effect on audit quality. Technologies such as CAATs, big data analytics, and artificial intelligence enable auditors to work faster, more accurately, and more objectively. This study provides a practical contribution to KAP in optimizing digital transformation strategies, and emphasizes the importance of training and infrastructure in the successful implementation of audit technology.

1. Introduction

The development of information technology has brought fundamental changes in various aspects of life, including in the world of accounting and auditing professions. The Industrial Revolution 4.0, marked by the presence of technologies such as big data, artificial intelligence (Al), blockchain, Internet of Things (IoT), and cloud computing, has encouraged organizations to adapt and transform their work systems, including in the field of auditing. In this context, Public Accounting Firms (KAP) are required to be able to follow the flow of technological developments in order to remain relevant in providing quality and reliable audit services.

Traditional audits that have relied on manual and sample-based testing are starting to be considered less efficient in dealing with the complexity of data and the speed of today's business transactions. Technology-based audits or known as digital audits have emerged as an answer to these challenges. Digital audits integrate information technology into the entire audit process, from collecting audit evidence, analyzing data, to reporting audit results more efficiently and accurately. Technology allows auditors to analyze the entire population of data, not just a portion of the sample, thereby increasing the chances of detecting errors, fraud, or other risks more effectively. According to Alles (2015), digital audits can increase the reliability of audit results based on

extensive, real-time data[1]. This is reinforced by Issa et al. (2016) who stated that technology-based audits support auditors in making faster and more accurate decisions based on complex data analysis.

Although digital audit promises various advantages, its implementation still faces many obstacles in the field, especially in Indonesia. Several KAPs still experience limitations in technological infrastructure, lack of technical training for auditors, and resistance to changing the way of working that has long been done conventionally. Research by Yanto and Nuryanto (2022) found that HR readiness and technology investment are the main challenges in adopting digital audit in Indonesia[2]. In addition, most previous studies have focused more on audit efficiency, without examining in depth how digital audits can improve aspects of audit quality, such as objectivity, independence, transparency, and compliance with professional standards.

This is where the urgency of this research lies. This research not only focuses on the benefits of digital audit efficiency, but also aims to explore the role of digital audit in improving audit quality as a whole. This research will also identify the extent to which the effectiveness of the audit process can be improved through the application of technology, as well as the supporting and inhibiting factors in its implementation in the Public Accounting Firm environment.

Thus, this research is expected to provide theoretical contributions in the development of modern audit literature and practical contributions for KAP as a reference in preparing a more strategic and sustainable digital audit transformation in the era of the Industrial Revolution 4.0.

2. Literature review

Digital audit is a form of transformation in audit practice that integrates information technology to improve the effectiveness and efficiency of the audit process. In traditional audits, auditors tend to use a sample-based approach to assess the fairness of financial statements. However, with the development of technologies such as big data analytics, Computer Assisted Audit Techniques (CAATS), and Al, auditors can now examine the entire data population, detect anomalies in real-time, and accelerate the risk analysis process (Issa, Sun, & Vasarhelyi, 2016)[3].

In the context of audit quality theory, DeAngelo (1981) defines audit quality as the auditor's probability of discovering and reporting material misstatements in financial statements[4]. The determining factors of audit quality include independence, competence, effectiveness of the audit process, and use of technology. The use of digital audits is believed to be able to strengthen the accuracy, precision, and reliability of audit results because it allows auditors to work faster and more accurately (Alles, 2015; Fedyk et al., 2022).[5]

[1] Alles, M. G. (2015). Drivers of the Use and Facilitators and Obstacles of the Evolution of Big Data by the Audit Profession. Accounting Horizons, 29(2), 439–449.
[2] Yanto, H. S., & Nuryanto, M. (2022). Audit Digital: Tantangan dan Peluang dalam Transformasi Teknologi. Jurnal Akuntansi dan Teknologi Informasi, 15(1), 45–56.
[3] 2. Issa, H., Sun, T., & Vasarhelyi, M. A. (2016). Research Ideas for Artificial Intelligence in Auditing: The Formalization of Audit and Workforce Supplementation. Journal of Emerging Technologies in Accounting, 13(2), 1–20.
[4] DeAngelo, L. E. (1981). Auditor independence, 'low balling', and disclosure regulation. Journal of Accounting and Economics, 3(2), 113–127.
[5] Fedyk, J., Moffitt, K., & Vasarhelyi, M. (2022). Artificial Intelligence and the Transformation of the Audit. Accounting Horizons, 36(3), 27–45.

The digital transformation theory according to Westerman et al. (2014) explains that digitalization is not just the use of technology, but also includes fundamental changes in organizational processes and strategies[6]. In the context of auditing, this transformation means automation of audit processes, implementation of continuous auditing, and intensive use of data analytics. Technology-based auditing enables the realization of a continuous monitoring system that accelerates the detection of nonconformities and potential audit risks (Vasarhelyi et al., 2004).[7]

As technology advances, the concept of continuous auditing becomes increasingly relevant. Continuous auditing is an audit approach that is carried out continuously through an integrated system that supports real-time evaluation. With the help of CAATs and cloud-based systems, auditors can provide direct feedback to management and minimize information delays (Vasarhelyi et al., 2004).[7]

Furthermore, audit quality is not only determined by the final report results, but also by the audit process itself. The effectiveness of the audit process includes time efficiency, data accuracy, and the ability to detect errors or fraud. In the research of Ersyafdi and Nasution (2023), it was found that audit digitalization significantly affects the accuracy and effectiveness of audit procedures[8]. In addition, Abimanyu and Suhartini (2023) stated that the use of information technology moderates the relationship between audit effectiveness and the quality of the reports produced[9].

In general, the integration of technology into the audit process brings great opportunities to improve the professionalism and accountability of audit results. However, as stated by Yanto and Nuryanto (2022), the success of digital audit implementation is greatly influenced by the readiness of technological infrastructure and human resource competence. Therefore, in addition to technical aspects, organizational and resource factors also play an important role in ensuring that digital audits are truly able to improve audit quality as a whole.

3. Methodology

This study uses a quantitative approach with a causality research type to test the influence between predetermined variables. The main objective of this approach is to empirically test the relationship between the implementation of digital audit, the effectiveness of the audit process, and audit quality at Public Accounting Firms (KAP) in the Industry 4.0 era.

Data were collected through the distribution of closed questionnaires to auditors working in several KAPs in the Makassar City area. This questionnaire was designed based on indicators of research variables that have been developed from previous literature. Distribution was carried out both directly and through online media in order to expand the scope of respondents and increase

[6] Westerman, G., Bonnet, D., & McAfee, A. (2014). Leading Digital: Turning Technology into Business Transformation. Harvard Business Review Press.
[7] Vasarhelyi, M. A., Alles, M. G., & Kogan, A. (2004). Principles of Analytic Monitoring for Continuous Assurance. Journal of Emerging Technologies in Accounting, 1(1), 1–21.
[8] Ersyafdi, R., & Nasution, S. M. (2023). Pengaruh Audit Digital terhadap Efektivitas Prosedur Audit: Studi Empiris pada KAP di Indonesia. Jurnal Audit dan Akuntansi, 10(1), 22–34.
[9] Abimanyu, R. P., & Suhartini, E. (2023). Peran Teknologi Informasi dalam Memoderasi Efektivitas Audit terhadap Kualitas Laporan Keuangan. Jurnal Ilmiah Akuntansi dan Keuangan, 8(2), 56–66.

the efficiency of data collection. In addition, observations were carried out on a limited basis to complement the contextual understanding of the implementation of digital audits in the field.

The independent variables in this study are the implementation of digital audit (X) and the effectiveness of the audit process (X), while the dependent variable is audit quality (Y). The implementation of digital audit is measured based on the use of technology such as CAATs, real-time data access capabilities, and process automation. The effectiveness of the audit process includes timeliness, resource efficiency, and compliance with procedures. Audit quality is measured through aspects of report accuracy, objectivity, independence, and compliance with professional standards.

Data analysis was performed using multiple linear regression to test simultaneous and partial effects between variables. Previously, classical assumption tests such as normality, multicollinearity. and heteroscedasticity tests were performed to ensure the validity of the regression model. All data processing was performed using SPSS statistical software version 25.0. The results of the analysis were then used to test hypotheses and draw conclusions about the relationships between the variables studied.

4. Results and Discussion

Uji Statistif Desktiptif

Tabel 1
Hasil Uji Statistif Desktiptif

StatistikDeskriptif					
	N	**Minimum**	**Maximum**	**Mean**	**Std.Deviation**
Penerapan audit digital	70	27	40	34.56	2.932
Efektivitas proses audit	70	30	50	43.44	4.406
KualitasAudit	70	40	60	53.49	4.099
ValidN(listwise)	70				

Based on the table above, the test in table 1 explains that the Implementation of Digital Audit gets a value of 34.58, while the minimum value obtained is 27, the maximum value is 40 and the deviation value is 2,932. In the Audit Process Effectiveness variable, it gets a value of 43.44 with a minimum value of 30 and a maximum value of 50 and has the highest standard deviation of 4,401 at the Public Accounting Firm in Makassar.

Uji Normalitas

Tabel. 2

Hasil Uji Normalitas

One-Sample Kolmogorov-Smirnov Test

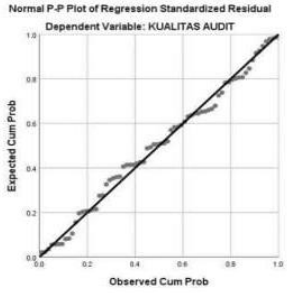
		Unstandardized Residual
N		70
Normal Parameters[a,b]	Mean	.0000000
	Std. Deviation	2.43774926
Most Extreme Differences	Absolute	.062
	Positive	.061
	Negative	-.062
Test Statistic		.062
Asymp. Sig. (2-tailed)		.200[c,d]

From the results of the study above through SPSS V.25 data, the Asymmp. Sig. value can be determined (2-tailed 0.200 with a significant value greater than 0.05. So it can be concluded that the data population in this study is stated that all data is normally distributed.

Uji Normalitas p-plot

Tabel. 3

Hasil Uji Normalitas p-plot



In the image above, it can be seen that the points are spread around the diagonal line and follow the direction of the diagonal line, which shows that the regression model is normally distributed.

Uji Multikolinearitas

Tabel.4

Hasil Uji Multikolinearitas

Model	Collinearity Statistics		Keterangan
	Tolerance	VIF	
Penerapan Audit Digital X1	0,673	1,486	Tidak Terjadi Multikolinearitas
Efektifitas Proses Audit X2	0,673	1,486	Tidak Terjadi Multikolinearitas

Based on the results of the Multicollinearity test using SPSS V.25 with table 4 above, it is stated that the variables show a Variance Inflation Factor (VIF) value = 1.641 <10, so it is concluded that the variables in this study do not experience Multicollinearity.

Uji Regresi Berganda

Tabel.5

Hasil Uji Regresi Berganda

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std.Error	Beta		
1	(Constant)	4.451	3.700		.3.906	.000
	Penerapan Audit Digital	.474	.124	.339	3.830	.000
	Efektifitas Proses Audit	.521	.082	.560	6.327	.000

From the results of the analysis, the following multiple regression equation was obtained:

Y-0.451+0.474 X10.521 X2

The regression equation has the following meaning:

a. The constant value (a) is positive with a value of 14.451. This means that the Audit Quality, Implementation of Digital Audit and Effectiveness of the Audit Process are suspected to be constant or fixed, so the constant value has a value of 0.451. It can be concluded that Audit Quality has an influence on the Implementation of Digital Audit and the Effectiveness of the Audit Process.2. The regression coefficient value for the Digital Audit Implementation variable (X1) is 0.474. This value indicates a positive influence. This means that if the Implementation variable increases by 1%, then the Audit Quality variable will increase by 0.474%,
b. The regression coefficient value for the Audit Process Effectiveness variable (X2) is 0.521. This value indicates a positive influence. This means that if the Audit Process Effectiveness variable increases by 1%, then conversely the Audit Quality variable will increase by 0.521. A positive sign means that it shows a unidirectional influence between the independent variable and the dependent variable.

Uji R2 (Koefisien Determinasi)

Tabel 6

Hasil Perhitungan Koefisien Determinasi

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.804[a]	.646	.636	2.474

The table above shows the Adjusted R Square value of 0.636 or 63.6%. It is concluded that the variables of Digital Audit Implementation and Audit Process Effectiveness have an effect on Audit Quality, it is stated that Digital Audit Implementation and Audit Process Effectiveness have an effect on Audit Quality Produced at Public Accounting Firms in the Makassar City area.

Uji Regresi Secara Parsial (Uji T)

Tabel.7

Hasil UjiSecara Parsial - Uji T

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std.Error	Beta		
1	(Constant)	.451	3.700		3.906	.000
	Penerapan Audit Digital	.474	.124	.339	3.830	.000
	Efektifitas Proses Audit	.521	.082	.560	6.327	.000

Based on Table 7, the results of the t-test (partial) show that the significant value of the Implementation of Digital Audit (X1) on Audit Quality (Y) is 0.000 <0.05 and the Calculation Value is 3.830 t-table value of 1.668, so HO is rejected, meaning that there is a significant influence on Audit Quality.

Uji Regresi secara Simultan (Uji F)

Tabel. 8

Hasil Uji Secara Simultan - Uji F

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	749.445	2	374.722	61.229	.000[b]
	Residual	410.014	67	6.120		
	Total	1159.486	69			

Judging from the table above, it states that in the simultaneous test (F) the significant value is 0.00 which means less than 0.005, then according to the rule if the significant value is smaller then simultaneously it has a significant effect, the calculated f value is 61.22. greater than the f table of 3.132, then the variables simultaneously have an effect. So it can be seen that the

Implementation of Digital Audit and the Effectiveness of the Audit Process simultaneously have a significant effect on Audit Quality. Ha is accepted and Ho is rejected.

5. Conclusion

This study shows that the implementation of technology-based audits (digital audits) and the effectiveness of the audit process have a significant influence on audit quality in Public Accounting Firms in the Industry 4.0 era. The results of statistical analysis prove that both, both partially and simultaneously, provide positive contributions to increasing the accuracy, objectivity, and reliability of audit reports.

These findings reinforce the view that audit digitalization not only drives efficiency, but also a key factor in maintaining auditor professionalism and accountability. Technologies such as CAATs, big data analytics, and Al have proven to accelerate the audit process and improve accuracy in error detection.

However, to achieve optimal results, the success of digital audit implementation must be supported by the readiness of human resources, adequate technology training, and supporting digital infrastructure. Thus, the transformation towards digital audit is not just a trend, but a strategic need in improving the quality and relevance of audits in the modern era.

6. Recommendation

Based on the results of this study, it is recommended that Public Accounting Firms actively improve their readiness to face the digital era by strengthening human resource capacity through audit technology training and increasing auditor digital literacy. In addition, investment in technological infrastructure that supports data-based audit processes is essential to ensure that digital audits run optimally and efficiently. The role of professional associations and regulators is also needed in providing technical guidelines and ethical standards for implementing digital audits so that this transformation remains within the corridor of professionalism. Further research is expected to expand the scope of the region and methodological approaches, including the integration of qualitative methods, in order to gain a more comprehensive understanding of the implementation of digital audits in various organizational contexts.

REFERENCES

[1] Abimanyu, R. P., & Suhartini, E. (2023). Peran Teknologi Informasi dalam Memoderasi Efektivitas Audit terhadap Kualitas Laporan Keuangan. Jurnal Ilmiah Akuntansi dan Keuangan, 8(2), 56–66.

[2] Alles, M. G. (2015). Drivers of the Use and Facilitators and Obstacles of the Evolution of Big Data by the Audit Profession. Accounting Horizons, 29(2), 439–449. https://doi.org/10.2308/acch-51066

[3] DeAngelo, L. E. (1981). Auditor independence, 'low balling', and disclosure regulation. Journal of Accounting and Economics, 3(2), 113–127. https://doi.org/10.1016/0165-4101(81)90009-4

[4] Ersyafdi, R., & Nasution, S. M. (2023). Pengaruh Audit Digital terhadap Efektivitas Prosedur Audit: Studi Empiris pada KAP di Indonesia. Jurnal Audit dan Akuntansi, 10(1), 22–34.

[5] Fedyk, J., Moffitt, K., & Vasarhelyi, M. A. (2022). Artificial Intelligence and the Transformation of the Audit. Accounting Horizons, 36(3), 27–45. https://doi.org/10.2308/acch-2020-0035

[6] Issa, H., Sun, T., & Vasarhelyi, M. A. (2016). Research Ideas for Artificial Intelligence in Auditing: The Formalization of Audit and Workforce Supplementation. Journal of Emerging Technologies in Accounting, 13(2), 1–20. https://doi.org/10.2308/jeta-10511

[7] Vasarhelyi, M. A., Alles, M. G., & Kogan, A. (2004). Principles of Analytic Monitoring for Continuous Assurance. Journal of Emerging Technologies in Accounting, 1(1), 1–21. https://doi.org/10.2308/jeta.2004.1.1.1

[8] Westerman, G., Bonnet, D., & McAfee, A. (2014). Leading Digital: Turning Technology into Business Transformation. Harvard Business Review Press.

[9] Yanto, H. S., & Nuryanto, M. (2022). Audit Digital: Tantangan dan Peluang dalam Transformasi Teknologi. Jurnal Akuntansi dan Teknologi Informasi, 15(1), 45–56.