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Effectiveness of internal controls mechanisms in preventing and detecting fraud

Joseph Elikem Kofi Ziorklui[1], Frederick Owusu Ampofo[2], Nicholas Nyonyoh[3], & Bernard Owusu Antwi[4]

[1]Ohio University, USA
[2]Ohio University, USA
[3]Bowling Green State University, USA
[4]Illinois State University, USA

*Corresponding Author: Joseph Elikem Kofi Ziorklui
Corresponding Author Email: joseph.ziorklui@gmail.com

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ABSTRACT

This review examines the effectiveness of internal control mechanisms in preventing and detecting fraud within organizations. Internal control mechanisms are essential components of corporate governance, designed to safeguard assets, ensure the accuracy of financial records, and promote operational efficiency. The study begins by defining internal controls and their critical role in fraud prevention and detection, highlighting the significance of a robust control environment. The components of the internal control environment, risk assessment, control activities, information and communication, and monitoring activities are discussed to provide a comprehensive understanding of their structure and function. Preventive controls, such as segregation of duties, authorization processes, and access controls, are analyzed to assess their role in minimizing the risk of fraud occurrence. Case studies and examples of organizations with effective preventive measures are presented to illustrate best practices. The challenges and limitations faced by organizations in implementing preventive controls are also explored. Detective controls, including reconciliation processes, internal audits, and whistleblower hotlines, are evaluated for their ability to identify and expose fraudulent activities. The review reviews case studies

demonstrating the success of detective controls in uncovering fraud and discusses the obstacles organizations encounter in maintaining effective detection mechanisms. The evaluation section of the study focuses on metrics and indicators used to assess the effectiveness of internal controls, such as the reduction in fraud incidents and increased detection rates. Tools and techniques for evaluation, including internal and external audits, are examined to understand their role in ensuring control effectiveness. The review concludes by offering best practices for enhancing internal control mechanisms, emphasizing continuous monitoring, employee training, and the adoption of advanced technologies. The critical role of management in fostering a culture of ethical behavior and supporting internal audit functions is underscored. Recommendations for organizations and directions for future research are provided to guide ongoing efforts in fraud prevention and detection.
Keywords: Fraud Prevention, Internal Control, Detective Control.

INTRODUCTION

Internal control mechanisms are fundamental components of organizational governance designed to ensure the reliability of financial reporting, compliance with laws and regulations, and the effectiveness and efficiency of operations (Chornous and Gura, 2020). These mechanisms encompass policies, procedures, and practices implemented by management and the board of directors to safeguard assets and mitigate risks (Di Vito and Trottier, 2022).

Internal control mechanisms refer to the processes put in place by an organization's management and leadership to provide reasonable assurance regarding the achievement of objectives in the following categories, effectiveness and efficiency of operations, reliability of financial reporting, and compliance with applicable laws and regulations (Kaawaase et al., 2021). These mechanisms are designed to ensure that resources are used effectively, risks are managed appropriately, and operations are conducted in accordance with established guidelines. Fraud, including financial fraud, corruption, and misconduct, poses significant threats to organizations globally (Hashim et al., 2020). Beyond financial losses, fraud damages reputation, erodes stakeholder trust, and can lead to legal and regulatory penalties. Internal control mechanisms play a crucial role in preventing and detecting fraud by establishing checks and balances, ensuring transparency, and promoting ethical behavior within the organization (Kassem, 2022; Maulidi and Ansell, 2022). Effective controls not only deter fraudulent activities but also enable timely detection through monitoring and auditing processes (Nazarova et al., 2020).

The objective of this analysis is to explore the effectiveness of internal control mechanisms in preventing and detecting fraud within organizations. By examining the components of internal controls and their implementation across various sectors, this study aims to identify best practices and challenges associated with fraud prevention and detection. Additionally, the analysis seeks to evaluate the impact of internal controls on organizational resilience against fraud incidents, highlighting the role of leadership, organizational culture, and technological advancements in enhancing control effectiveness. Understanding these aspects is critical for organizations aiming to strengthen their governance frameworks and mitigate fraud risks effectively. This analysis will contribute to the body of knowledge on internal controls by providing insights into their practical application, significance in corporate governance, and implications for organizational sustainability and integrity.

Overview of Internal Control Mechanisms

Internal control mechanisms are essential frameworks implemented by organizations to ensure efficient operations, reliable financial reporting, and compliance with regulations (Kaawaase et al., 2021). These mechanisms consist of various components and types aimed at safeguarding assets, preventing fraud, and promoting operational effectiveness.

Internal control mechanisms encompass five key components as explained in figure 1 (Adegboyegun et al., 2020).

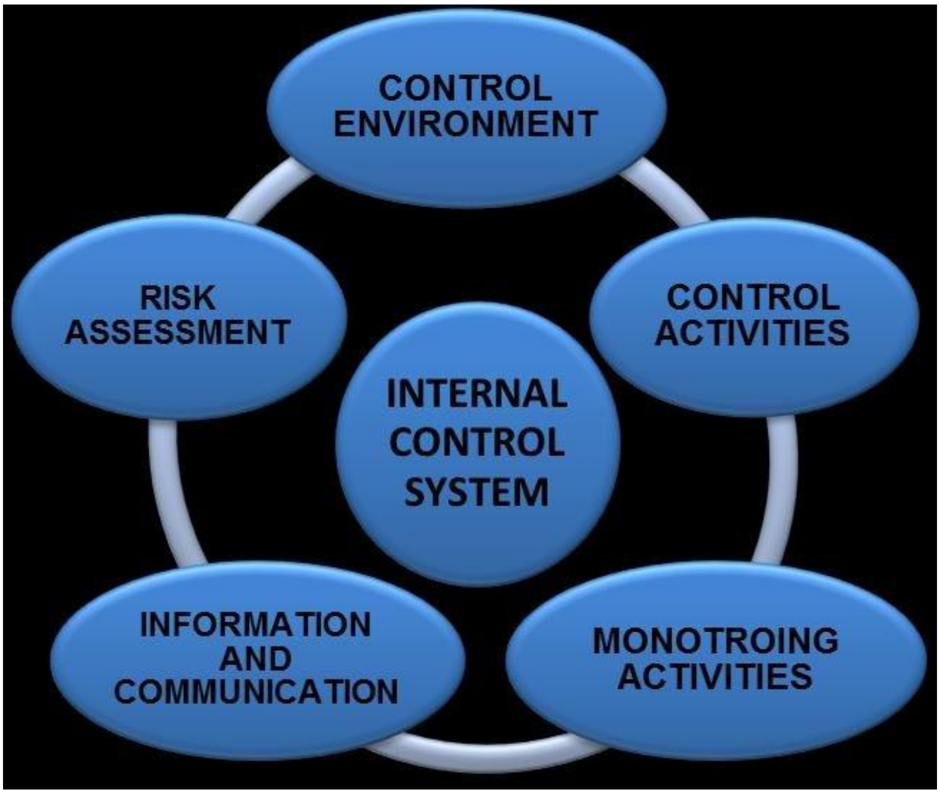

Figure 1: Component of Internal Control (Adegboyegun et al., 2020)

Control Environment, this component sets the tone of an organization, influencing the control consciousness of its employees. It includes the integrity and ethical values of management, as well as the organization's commitment to competence and accountability (Wangloan et al., 2022). Risk Assessment, organizations must identify and analyze risks that could hinder the achievement of objectives. Risk assessment involves evaluating potential risks, their likelihood, and potential impact on the organization's goals and operations. Control Activities, these are the policies and procedures that help ensure management directives are carried out. Control activities can include approvals, authorizations, verifications, reconciliations, and segregation of duties to prevent errors and fraud (Danter, 2022, Antwi et al., 2024, Bello et al., 2023a). Information and Communication, effective internal controls require timely, relevant, and reliable communication of information (Lois et al., 2020). This component ensures that information flows internally, providing necessary data to enable people to carry out their responsibilities. Monitoring Activities, continuous monitoring of controls is essential to assess their effectiveness over time. Monitoring involves ongoing assessments, evaluations, and reporting of internal control processes, identifying deficiencies, and implementing necessary improvements (Turetken et al., 2020).

Internal controls are categorized into three main types based on their purpose and function (Li et al., 2020). Preventive Controls, these controls are designed to prevent errors or irregularities before they occur (Lartey et al., 2020, Eziefule et al., 2022). Examples include segregation of duties, proper authorization procedures, physical access restrictions, and employee training on policies and procedures. Preventive controls aim to establish barriers that deter potential issues from arising. Detective Controls, detective controls are implemented to identify errors or irregularities after they have occurred, examples include reconciliations, regular reviews and comparisons of data, performance evaluations, and audits (Al-Zoubi, 2021; Naboth-Odums et al., 2021). Detective controls help detect deviations from expected outcomes and facilitate timely corrective actions. Corrective Controls, once errors or irregularities are identified, corrective controls are implemented to mitigate their impact and prevent recurrence. Corrective actions may involve adjustments to processes, policies, or procedures to address root causes and strengthen internal controls (Abiodun, 2020). Examples include disciplinary actions, process redesign, and enhanced training programs. Table 1 gives the classes of internal control and importance.

Table 1

Types of Internal Control and Importance (Li et al., 2020)

Types of Internal control	**Important**
Preventative	Seek to avoid irregularity events, error and the occurrences that an enterprise has determined could have a negative material effect on a process or end product.
Detective	Detect and export when errors, omissions, and unauthorized uses or entries have already occurred.
Corrective	Design to correct errors, omissions, and unauthorized uses and intrusions once detected

Understanding the components and types of internal control mechanisms is crucial for organizations to effectively manage risks, ensure compliance, and achieve operational goals. By implementing robust internal controls that encompass a strong control environment, comprehensive risk assessment, effective control activities, reliable information and communication, and continuous monitoring, organizations can enhance their governance frameworks and safeguard their assets. Preventive, detective, and corrective controls collectively contribute to mitigating risks, detecting anomalies, and maintaining the integrity and reliability of financial reporting and operational processes (Mungai et al., 2021; Kure et al., 2022).

Internal controls are essential mechanisms for preventing and detecting fraud within organizations. Effective internal control systems can significantly reduce the risk of fraudulent activities, ensuring the integrity of financial reporting and compliance with laws and regulations (Bello et al., 2023b). Research has shown that strong internal controls can prevent and detect up to 75% of fraudulent activities within organizations (Association of Certified Fraud Examiners [ACFE], 2020). These controls include segregation of duties, regular audits, and robust authorization processes, which collectively enhance the organization's ability to identify and mitigate fraud risks (ACFE, 2020). Segregation of duties is one of the most critical internal control mechanisms. A study found that organizations that implemented effective segregation of duties experienced a 50% reduction in fraud incidents (Murphy & Free, 2016). This control prevents a single individual from having complete control over all aspects of a financial transaction, thereby reducing the opportunity for fraud. Regular internal and external audits are vital for detecting fraudulent activities (Bello et al., 2023c). The ACFE's 2020 Report to the Nations indicated that 38% of fraud cases were detected through audits, making it one of the most effective fraud detection methods (ACFE, 2020). Regular audits help uncover irregularities and ensure compliance with internal policies and external regulations. Advanced technologies, such as data analytics and continuous monitoring systems, have enhanced the effectiveness of internal controls. A study by KPMG (2019) found that organizations using data analytics in their internal controls were able to detect fraud 20% faster than those relying solely on traditional methods. These technologies help in analyzing large datasets to identify unusual patterns and anomalies indicative of fraudulent activities. Establishing whistleblower mechanisms is another critical component of internal controls. According to the ACFE, 43% of fraud cases were detected through tips, with employees being the most common source of these tips (ACFE, 2020). Encouraging a culture of transparency and providing secure channels for reporting suspicious activities significantly enhance fraud detection capabilities. Employee training and awareness programs are essential for effective internal controls. A study found that organizations with comprehensive fraud training programs for employees and management reported 25% fewer instances of fraud (Murphy & Free, 2016). Training programs help employees recognize early signs of fraud and understand their role in the internal control system.

Effectiveness in Fraud Prevention

Fraud prevention is a critical aspect of organizational governance, aimed at minimizing the risk of fraudulent activities that can lead to financial losses, reputational damage, and legal repercussions (Taherdoost, 2021; Rashid, 2022). Effective fraud prevention strategies rely on robust internal controls, including preventive measures, vigilant monitoring, and proactive risk management practices.

Preventive controls are foundational in fraud prevention, focusing on establishing barriers and safeguards to deter fraudulent activities before they occur. Key preventive controls include. Segregation of Duties, this control principle ensures that no single individual has control over all key aspects of a transaction or financial process (Rauterberg, 2021). By separating responsibilities among different individuals, organizations reduce the risk of collusion and unauthorized activities. For example, separating the roles of initiating transactions, recording transactions, and authorizing payments enhances accountability and oversight. Authorization and Approval Processes, strict authorization and approval procedures require designated personnel to authorize transactions or access based on predefined criteria and limits (Khan et al., 2022). These processes ensure that transactions are legitimate and comply with organizational policies and regulatory requirements. Proper authorization mitigates the risk of unauthorized transactions and ensures accountability throughout the transaction lifecycle. Physical and Logical Access Control, physical access controls restrict physical access to sensitive areas, assets, or information through measures such as locks, security guards, and surveillance systems (Masoumzadeh et al., 2022). Logical access controls, on the other hand, regulate access to computer systems, networks, and data through authentication mechanisms, passwords, and user permissions. These controls prevent unauthorized access to critical assets and sensitive information, reducing the likelihood of fraudulent activities (Saxena et al., 2020).

Several organizations have successfully implemented preventive controls to mitigate fraud risks (Saxena et al., 2020). For instance, a multinational corporation implemented stringent segregation of duties across its financial operations, ensuring that no single employee could initiate, approve, and process payments without oversight. This measure significantly reduced the potential for fraudulent payments and unauthorized transactions. In another example, a financial institution enhanced its authorization and approval processes for high-value transactions by implementing dual authorization requirements and strict verification procedures. This proactive approach prevented fraudulent fund transfers and strengthened the institution's fraud prevention framework (Barker, 2020). Despite the benefits of preventive controls, organizations face several challenges and limitations in effectively preventing fraud. Implementing and maintaining robust preventive controls can be resource-intensive, requiring investments in technology, training, and ongoing monitoring (Bandari, 2021). Small and medium-sized enterprises (SMEs) may encounter challenges due to limited budgets and capabilities. Fraudsters continually evolve their tactics, making it challenging for organizations to anticipate and address emerging fraud schemes effectively (Rossy and Ribaux, 2020). Preventive controls must be adaptable and responsive to evolving fraud risks and technological advancements. Ensuring employee awareness of fraud risks and adherence to control procedures is crucial. Lack of training, understanding, or compliance with control measures can undermine the effectiveness of preventive controls. Stringent preventive controls may sometimes impede operational efficiency or agility, particularly in dynamic business environments (Plant et al., 2022). Organizations must strike a balance between fraud prevention and maintaining efficient business processes. Effective fraud prevention requires a holistic approach that integrates preventive controls, proactive monitoring, and continuous improvement efforts (Musyoki, 2023). By implementing robust segregation of duties, rigorous authorization processes, and comprehensive access controls, organizations can strengthen their defenses against fraud.

Effectiveness in Fraud Detection

Fraud detection plays a crucial role in organizational governance, aiming to identify and address fraudulent activities promptly to minimize financial losses, protect organizational reputation, and uphold legal and regulatory compliance (Shonhadji and Maulidi., 2021; Roszkowska, 2021). Effective fraud detection strategies rely on robust internal controls, proactive monitoring, and mechanisms designed to identify anomalies and irregularities.

Detective controls are essential components of fraud detection, focusing on identifying suspicious activities and deviations from expected norms as explained in figure 2 (Ar'Reza et al., 2020; Owusu et al., 2022).

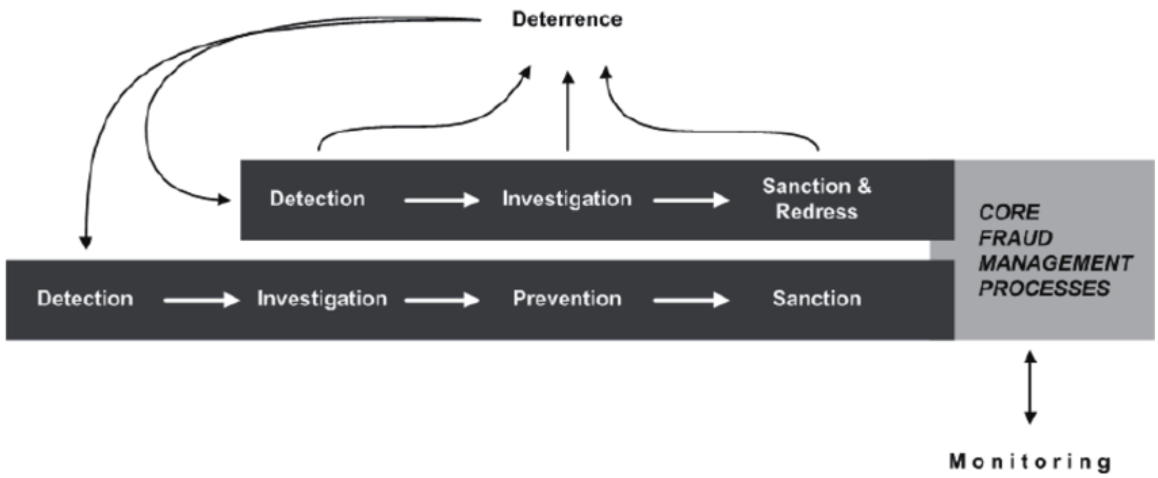

Figure 2: Fraud Management Activities and their Relations (Owusu et al., 2022)

Key detective controls include. Reconciliation and Verification Processes, these controls involve comparing financial records, transactions, and accounts to identify discrepancies or inconsistencies. Regular reconciliation of accounts ensures accuracy and detects unauthorized transactions or errors that may indicate fraudulent activities (Tapang and Ihendinihu, 2020). Internal audits are systematic examinations of financial records, operational processes, and internal controls conducted by independent auditors or internal audit teams. Audits assess compliance with policies, identify weaknesses in internal controls, and detect potential fraud indicators through detailed reviews and testing (Handoyo and Bayunitri, 2021). Whistleblower hotlines provide employees, stakeholders, and third parties with a confidential platform to report suspected fraud, misconduct, or unethical behavior. These hotlines encourage transparency, facilitate early detection of fraud, and enable organizations to investigate allegations promptly. Numerous organizations have successfully detected fraud through effective detective controls. For instance, a global financial institution detected fraudulent activities involving misappropriation of funds by conducting regular reconciliations of accounts and identifying discrepancies in transaction records. Prompt investigation and internal audit verification uncovered fraudulent activities, leading to corrective actions and enhanced control measures (Mendes de Oliveira et al., 2022).

Despite the benefits of detective controls in fraud detection, organizations face several challenges and limitations (Mwangi and Ndegwa, 2020). Fraudsters continuously adapt their tactics and schemes to evade detection, making it challenging for organizations to identify sophisticated fraud schemes through traditional controls. Effective fraud detection requires investments in technology, skilled personnel, and robust monitoring systems. Small and medium-sized enterprises (SMEs) may lack the resources or expertise to implement comprehensive detective controls (Pawar and Palivela, 2022). Detective controls may generate false positives or inaccurate alerts, leading to unnecessary investigations and resource allocation. Organizations must refine detection criteria and enhance data analytics capabilities to reduce false positives and focus on genuine fraud indicators. Effective fraud detection relies on collaboration and communication between departments, including finance, compliance, internal audit, and legal teams (Nusantara et al., 2020). Lack of coordination or information sharing may impede timely detection and response to fraud incidents. Effective fraud detection requires a multi-faceted approach that integrates detective controls, proactive monitoring, and a culture of vigilance and transparency (Pomerleau, and Maimon, 2022). Reconciliation and verification processes, internal audits, and whistleblower hotlines play pivotal roles in identifying anomalies, irregularities, and suspected fraud activities. Case studies illustrate the effectiveness of these controls in detecting fraud and mitigating risks to organizational integrity and financial stability. Addressing challenges such as evolving fraud schemes, resource constraints, and enhancing collaboration remains critical to enhancing fraud detection capabilities and safeguarding organizational assets (Chisty et al., 2022).

Evaluation and Assessment in Fraud Prevention and Detection

Evaluation and assessment are crucial components of effective fraud prevention and detection strategies, enabling organizations to measure the effectiveness of internal controls, monitor performance, and identify areas for improvement (Yang and Lee, 2020). One of the primary metrics used to evaluate the effectiveness of fraud prevention measures is the reduction in the frequency and severity of fraud incidents. Organizations track and analyze trends in reported fraud cases, comparing current statistics with historical data to assess the impact of preventive controls and detection mechanisms as explained in figure 3 (Liu et al., 2020; Yu and Rha, 2021).

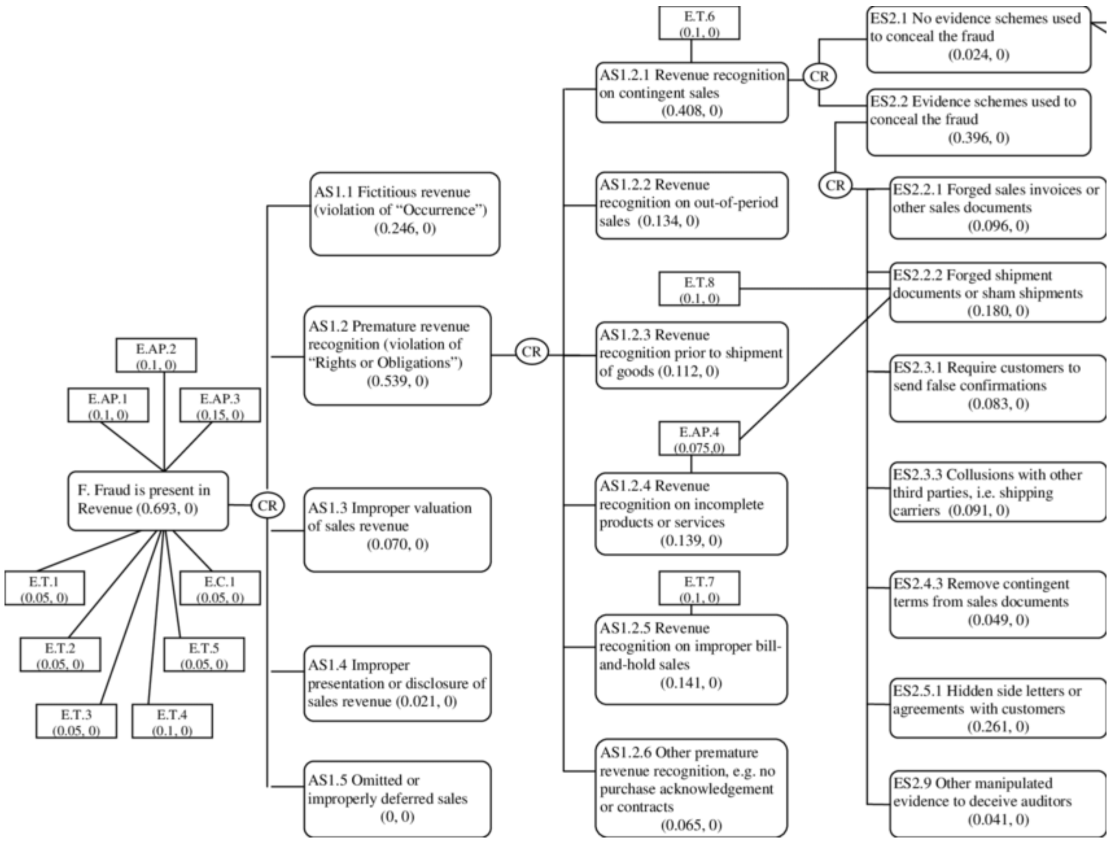

Figure 3: Preliminary Fraud Risk Assessment for FLIR Using Evidential Reasoning Approach (Liu e al., 2020)

Detection rates measure the percentage of fraudulent activities identified through internal controls, audits, and monitoring systems. A higher detection rate indicates the effectiveness of detective controls and proactive monitoring in identifying fraud early, minimizing financial losses, and mitigating risks. Conducting a cost-benefit analysis evaluates the financial implications of implementing fraud prevention and detection measures compared to potential losses due to fraud (Prenzler, 2020). Organizations assess the costs associated with implementing and maintaining controls against the financial savings achieved through fraud prevention, detection, and mitigation efforts.

Internal audits are systematic reviews conducted by independent auditors or internal audit teams to evaluate the effectiveness of internal controls, compliance with policies and procedures, and the accuracy of financial reporting (Kotb et al., 2020; Sudirman et al., 2021). Auditors assess the adequacy of preventive and detective controls, identify control weaknesses, and recommend corrective actions to strengthen fraud prevention measures. Risk assessments identify and prioritize potential fraud risks and vulnerabilities within an organization. These assessments involve evaluating internal and external factors that may impact the organization's ability to prevent and detect fraud, such as organizational structure, business processes, industry trends, and regulatory requirements. Risk assessments help organizations allocate resources effectively and implement targeted fraud prevention strategies. External reviews and audits involve independent assessments conducted by external auditors, regulatory bodies, or third-party consultants (Breger et al., 2020). These reviews provide objective evaluations of an organization's fraud prevention and detection processes, adherence to regulatory requirements, and overall governance framework. External audits offer valuable insights and recommendations for enhancing controls and addressing compliance gaps identified during the audit process (Cohen et al., 2020).

Evaluation and assessment are integral to maintaining effective fraud prevention and detection programs (Al-Hashedi and Magalingam, 2021). By utilizing metrics such as reduction in fraud incidents, increased detection rates, and cost-benefit analysis, organizations can measure the impact of their fraud prevention efforts and make informed decisions to enhance controls and mitigate risks. Tools and techniques such as internal audits, risk assessments, and external reviews provide systematic approaches to evaluating fraud prevention measures, identifying weaknesses, and implementing corrective actions (Rehman and Hashim, 2020; Skoczylas-Tworek, 2022). Continuous evaluation and improvement of fraud prevention and detection strategies are essential to safeguarding organizational assets, maintaining stakeholder trust, and achieving long-term sustainability. Addressing challenges such as evolving fraud schemes, resource constraints, and technological advancements remains critical to enhancing evaluation practices and strengthening organizational resilience against fraud risks.

Enhancing Internal Control Mechanisms

Enhancing internal control mechanisms is essential for organizations to strengthen governance frameworks, mitigate risks, and safeguard assets against fraud and misconduct (Wanjala, and Riitho, 2020). Implementing a culture of continuous monitoring allows organizations to regularly assess the effectiveness of internal controls. Continuous monitoring involves real-time data analysis, automated alerts for anomalies, and periodic reviews of control activities. By monitoring key performance indicators (KPIs) and control metrics, organizations can promptly identify deficiencies and implement corrective actions to strengthen controls. Educating employees on fraud risks, ethical conduct, and the importance of internal controls is vital for effective implementation (Fernandhytia and Muslichah, 2020). Training programs should include workshops, seminars, and awareness campaigns tailored to different organizational roles and responsibilities. By fostering a culture of vigilance and accountability, organizations empower employees to identify suspicious activities and adhere to control procedures. Leveraging advanced technologies such as data analytics, artificial intelligence (AI), and machine learning enhances the effectiveness of internal controls. These technologies enable predictive modeling, anomaly detection, and pattern recognition to identify potential fraud indicators and operational inefficiencies. Automation of routine tasks and processes reduces manual errors and accelerates response times to emerging risks (Tyagi et al., 2020). Management plays a pivotal role in setting the tone at the top and establishing a strong ethical culture within the organization (Ullah et al., 2022). Leaders should uphold ethical standards, integrity, and transparency in decision-making processes. By demonstrating a commitment to ethical behavior, management fosters trust among employees, stakeholders, and external partners, reinforcing the importance of compliance with internal controls. Management's support for internal audit functions is critical for independent assessment and validation of internal controls (Ratmono and Darsono, 2022). Internal auditors provide objective evaluations of control effectiveness, identify control weaknesses, and recommend improvements to mitigate risks as explain in figure 4 (Manita et al., 2020).

Figure 4: Internal Audits (Manita et al., 2020)

Planning, this includes defining the scope and objectives of the audit, identifying the key areas and processes to be audited, and developing an audit plan and schedule. Gathering Information, this may include financial records, previous audit reports, and any other relevant documentation. Internal auditors may also conduct interviews with personnel to gain insights into the operations and controls in place. Risk Assessment, this is to identify and prioritize potential risks and areas of concern within the audited processes. The internal audit risk assessment evaluates the likelihood and impact of risks and helps focus the audit activities on high-risk area. Testing and Analysis, to assess the effectiveness of internal controls and processes, internal auditors review transactions, examine supporting documentation, and conduct sample testing. This is to determine whether controls are operating as intended and identify any control weaknesses or deviations from established policies and procedures. Findings and Recommendations, internal auditors compile their findings and document any control deficiencies, non-compliance issues, or areas for improvement. In addition, they can also provide recommendations to address the identified issues and improve the effectiveness of controls and processes. Reporting, internal auditors prepare a report summarizing the audit results, highlighting areas of concern, and presenting actionable recommendations for improvement. The report is typically shared with management and the board of directors. Follow-up and Monitoring, after the audit report is issued, internal auditors may follow up on the implementation of their recommendations and monitor the progress made by management in addressing the identified issues.

Enhancing internal control mechanisms requires a holistic approach that integrates best practices, advanced technologies, and strong leadership commitment. Continuous monitoring and improvement, coupled with employee training and awareness programs, create a proactive environment for detecting and preventing fraud (Oladejo and Jack, 2020). Adoption of advanced technologies enhances the efficiency and effectiveness of internal controls, enabling organizations to leverage data-driven insights and automation. Management's role in promoting ethical standards and supporting internal audit functions is indispensable in fostering a culture of integrity and compliance. By prioritizing ethical behavior and transparency, management sets a precedent for ethical conduct throughout the organization, reinforcing the importance of adhering to internal controls. Organizations can strengthen their internal control mechanisms by implementing best practices, leveraging technology advancements, and fostering a culture of accountability and ethical conduct (Li and Shen, 2021). Management's proactive involvement and support for internal audit functions are crucial in safeguarding organizational assets, maintaining stakeholder trust, and achieving sustainable growth in an increasingly complex business environment.

CONCLUSION

Various aspects of internal control mechanisms, their effectiveness in fraud prevention and detection, and strategies for enhancing these controls. Internal control mechanisms encompass preventive and detective controls, supported by robust frameworks such as continuous monitoring, employee training, and advanced technologies. These mechanisms are essential for mitigating risks, ensuring compliance, and safeguarding organizational assets against fraud and misconduct. Based on our analysis, several recommendations can strengthen internal control mechanisms within organizations. Establish a culture of continuous monitoring to promptly detect anomalies and deviations from expected norms. Conduct regular training programs to educate employees on fraud risks, ethical behavior, and the importance of internal controls. Leverage data analytics, AI, and automation to enhance the efficiency and effectiveness of internal controls. Provide adequate resources and empower internal audit teams to conduct independent assessments and validate control effectiveness.

Future research in the field of internal controls and fraud prevention can explore. Investigate the integration of blockchain, cybersecurity measures, and predictive analytics in enhancing fraud detection capabilities. Compare international practices and regulatory frameworks for internal controls across different industries and regions. Examine the role of organizational culture, employee behavior, and psychological factors in influencing the effectiveness of internal controls. Assess the long-term sustainability of internal control mechanisms and their adaptation to evolving fraud risks and regulatory environments. Enhancing internal control mechanisms requires a proactive approach that integrates best practices, technological advancements, and strong leadership commitment. By implementing these strategies and fostering a culture of integrity and compliance, organizations can effectively mitigate fraud risks, protect organizational assets, and maintain stakeholder trust in an increasingly complex business landscape. Future research efforts should continue to explore innovative approaches and address emerging challenges to strengthen internal controls and promote sustainable organizational growth.

Reference

Abiodun, E.A. (2020). Internal control procedures and firm's performance. *International Journal of Scientific & Technology Research*, *9*(2), 6407-6415.

Adegboyegun, A.E., Ben-Caleb, E., Ademola, A.O., Oladutire, E.O., & Sodeinde, G.M. (2020). Internal control systems and operating performance: Evidence from small and medium enterprises (SMEs) in Ondo state. *Asian Economic and Financial Review*, *10*(4), 469â.

Al-Hashedi, K.G., & Magalingam, P. (2021). Financial fraud detection applying data mining techniques: A comprehensive review from 2009 to 2019. *Computer Science Review*, *40*, p.100402.

Al-Zoubi, A.M. (2021). A proposed framework for classifying preventive and detective fraud controls. *International Journal of Entrepreneurship*, *25*, 1-21.

Antwi, B.O., Adelakun, B.O., & Eziefule, A.O. (2024). Transforming Financial Reporting with AI: Enhancing Accuracy and Timeliness. *International Journal of Advanced Economics*, *6*(6), 205-223.

Ar'Reza, I.F., Wardoyo, C., & Putri, S.F. (2020). Internal auditors' fraud detection: a phenomenological study. *International Journal of Accounting & Finance in Asia Pasific (IJAFAP)*, *3*(2), 68-76.

Association of Certified Fraud Examiners (ACFE). (2020). Report to the Nations: 2020 Global Study on Occupational Fraud and Abuse. Retrieved from ACFE Report

Bandari, V. (2021). A comprehensive review of AI applications in Automated Container Orchestration, Predictive maintenance, security and compliance, resource optimization, and continuous Deployment and Testing. *International Journal of Intelligent Automation and Computing*, *4*(1), 1-19.

Barker, R. (2020). The use of proactive communication through knowledge management to create awareness and educate clients on e-banking fraud prevention. *South African Journal of Business Management*, *51*(1), 1-10.

Bello, O.A., Folorunso, A., Ejiofor, O.E., Budale, F.Z., Adebayo, K., & Babatunde, O.A. (2023). Machine Learning Approaches for Enhancing Fraud Prevention in Financial Transactions. *International Journal of Management Technology*, *10*(1), 85-108.

Bello, O.A., Folorunso, A., Onwuchekwa, J., Ejiofor, O.E., Budale, F.Z., & Egwuonwu, M.N. (2023). Analysing the Impact of Advanced Analytics on Fraud Detection: A Machine Learning Perspective. *European Journal of Computer Science and Information Technology*, *11*(6), 103-126.

Bello, O.A., Ogundipe, A., Mohammed, D., Adebola, F., & Alonge, O.A. (2023). AI-Driven Approaches for Real-Time Fraud Detection in US Financial Transactions: Challenges and Opportunities. *European Journal of Computer Science and Information Technology, 11*(6), 84-102

Breger, D., Edmonds, M., & Ortegren, M. (2020). Internal audit standard compliance, potentially competing duties, and external auditors' reliance decision. *Journal of Corporate Accounting & Finance*, *31*(1), 112-124.

Chisty, N.M.A., Baddam, P.R., & Amin, R. (2022). Strategic approaches to safeguarding the digital future: insights into next-generation cybersecurity. *Engineering International, 10*(2), 69-84.

Chornous, G.O., & Gura, V.L. (2020). Integration of information systems for predictive workforce analytics: Models, synergy, security of entrepreneurship. *European Journal of Sustainable Development*, *9*(1), 83-83.

Cohen, J.R., Joe, J.R., Thibodeau, J.C., & Trompeter, G.M. (2020). Audit partners' judgments and challenges in the audits of internal control over financial reporting. *Auditing: A Journal of Practice & Theory, 39*(4), 57-85.

Danter, E. (2022). Separation of duties. in *audit defense: a management audit readiness guide* (pp. 171-205). Cham: Springer International Publishing.

Di Vito, J., & Trottier, K. (2022). A literature review on corporate governance mechanisms: past, present, and future. *Accounting Perspectives*, *21*(2), 207-235.

Eziefule, A.O., Adelakun, B.O., Okoye, I.N., & Attieku, J.S. (2022). The role of AI in automating routine accounting tasks: efficiency gains and workforce implications. *European Journal of Accounting, Auditing and Finance Research, 10*(12), 109-134.

Fernandhytia, F., & Muslichah, M. (2020). The effect of internal control, individual morality and ethical value on accounting fraud tendency. *Media Ekonomi Dan Manajemen, 35*(1), 112-127.

Handoyo, B.R.M., & Bayunitri, B.I. (2021). The influence of internal audit and internal control toward fraud prevention. *International Journal of Financial, Accounting, and Management*, *3*(1), 45-64.

Hashim, H.A., Salleh, Z., Shuhaimi, I., & Ismail, N.A.N. (2020). The risk of financial fraud: a management perspective. *Journal of Financial Crime, 27*(4), 1143-1159.

Kaawaase, T.K., Nairuba, C., Akankunda, B., & Bananuka, J. (2021). Corporate governance, internal audit quality and financial reporting quality of financial institutions. *Asian Journal of Accounting Research*, *6*(3), 348-366.

Kassem, R. (2022). Elucidating corporate governance's impact and role in countering fraud. *Corporate Governance: The International Journal of Business in Society, 22*(7), 1523-1546.

Khan, A., Ahmad, A., Ahmed, M., Sessa, J., & Anisetti, M. (2022). Authorization schemes for internet of things: requirements, weaknesses, future challenges and trends. *Complex & Intelligent Systems, 8*(5), 3919-3941.

Kotb, A., Elbardan, H., & Halabi, H. (2020). Mapping of internal audit research: a post-Enron structured literature review. *Accounting, Auditing & Accountability Journal*, *33*(8), 1969-1996.

KPMG. (2019). *The use of data analytics in fraud detection*. KPMG Insights. Retrieved from KPMG Report

Kure, H.I., Islam, S., Ghazanfar, M., Raza, A., & Pasha, M. (2022). Asset criticality and risk prediction for an effective cybersecurity risk management of cyber-physical system. *Neural Computing and Applications*, *34*(1), 493-514.

Lartey, P.Y., Kong, Y., Bah, F.B.M., Santosh, R.J., & Gumah, I.A. (2020). Determinants of internal control compliance in public organizations; using preventive, detective, corrective and directive controls. *International Journal of Public Administration*, *43*(8), 711-723.

Li, D., & Shen, W. (2021). Can corporate digitalization promote green innovation? The moderating roles of internal control and institutional ownership. *Sustainability*, *13*(24), 13983.

Li, Y., Li, X., Xiang, E., & Djajadikerta, H.G. (2020). Financial distress, internal control, and earnings management: Evidence from China. *Journal of Contemporary Accounting & Economics*, *16*(3), 100210.

Liu, X., Yang, J.B., Xu, D.L., Derrick, K., Stubbs, C., & Stockdale, M. (2020, July). Automobile insurance fraud detection using the evidential reasoning approach and data-driven inferential modelling. In *2020 IEEE International Conference on Fuzzy Systems (FUZZ-IEEE)* (pp. 1-7). IEEE.

Lois, P., Drogalas, G., Karagiorgos, A., & Tsikalakis, K. (2020). Internal audits in the digital era: opportunities risks and challenges. *EuroMed Journal of Business*, *15*(2), 205-217.

Manita, R., Elommal, N., Baudier, P., & Hikkerova, L. (2020). The digital transformation of external audit and its impact on corporate governance. *Technological Forecasting and Social Change*, *150*, 119751.

Masoumzadeh, A., van der Laan, H., & Dercksen, A. (2022, June). BlueSky: physical access control: characteristics, challenges, and research opportunities. In *Proceedings of the 27th ACM on Symposium on Access Control Models and Technologies* (pp. 163-172).

Maulidi, A., & Ansell, J. (2022). Corruption as distinct crime: the need to reconceptualise internal control on controlling bureaucratic occupational fraud. *Journal of Financial Crime*, *29*(2), 680-700.

Mendes de Oliveira, D.K., Imoniana, J.O., Slomski, V., Reginato, L., & Slomski, V.G. (2022). How do internal control environments connect to sustainable development to curb fraud in Brazil?. *Sustainability*, *14*(9), 5593.

Mungai, D.K., Maina, M., & Kungu, J.N. (2021). Effect of internal control systems on financial performance of public universities in Kenya. *Research Journal of Finance and Accounting*, *12*(16), 80-94.

Murphy, P. R., & Free, C. (2016). Broadening the fraud triangle: instrumental climate and fraud. *Behavioral Research in Accounting*, *28*(1), 41-56. https://doi.org/10.2308/bria-51183

Musyoki, K.M. (2023). Internal control systems and their role in financial fraud prevention in Kenya. *African Journal of Commercial Studies*, *3*(3), 173-180.

Mwangi, S.W., & Ndegwa, J. (2020). The influence of fraud risk management on fraud occurrence in Kenyan listed companies. *International Journal of Finance & Banking Studies (2147-4486)*, *9*(4), 147-160.

Naboth-Odums, A., Abanyam, F.E., Edeh, N.I., & Abdulkadir, A. (2021). Procedural preventive and detective control measures adopted by administrative officers for effective information management in Colleges of Education in South-South.

Nazarova, K., Mysiuk, V., Gordopolov, V., Koval, V., & Danilevičienė, I. (2020). Preventional audit: implementation of SOX control to prevent fraud. *Business: Theory and Practice*, *21*(1), 293-301.

Nusantara, A.F.P., Irianto, G., & Prihatiningtias, Y.W. (2020). Fraud prevention and detection practices in the perspective of Jember Regency internal auditor. *International Journal of Research in Business and Social Science (2147-4478)*, *9*(4), 377-384.

Oladejo, M.T., & Jack, L. (2020). Fraud prevention and detection in a blockchain technology environment: challenges posed to forensic accountants. *International Journal of Economics and Accounting*, *9*(4), 315-335.

Owusu, G.M.Y., Koomson, T.A.A., Alipoe, S.A., & Kani, Y.A. (2022). Examining the predictors of fraud in state-owned enterprises: an application of the fraud triangle theory. *Journal of Money Laundering Control*, *25*(2), 427-444.

Pawar, S., & Palivela, H. (2022). LCCI: A framework for least cybersecurity controls to be implemented for small and medium enterprises (SMEs). *International Journal of Information Management Data Insights*, *2*(1), p.100080.

Plant, O.H., van Hillegersberg, J., & Aldea, A. (2022). Rethinking IT governance: Designing a framework for mitigating risk and fostering internal control in a DevOps environment. *International Journal of Accounting Information Systems*, *45*, 100560.

Pomerleau, P.L., & Maimon, D. (2022). *Evidence-based Cybersecurity: Foundations, Research, and Practice*. CRC Press.

Prenzler, T. (2020). What works in fraud prevention: A review of real-world intervention projects. *Journal of Criminological Research*, *Policy and Practice*, *6*(1), 83-96.

Rashid, C.A. (2022). The role of internal control in fraud prevention and detection. *Journal of Global Economics and Business*, *3*(8), 43-55.

Ratmono, D., & Darsono, D. (2022). Effectiveness of internal audit in local governments: The moderating role of internal and external auditors' relations. *Accounting*, *8*(2), 177-186.

Rauterberg, G. (2021). The separation of voting and control: the role of contract in corporate governance.

Rehman, A., & Hashim, F. (2020). Impact of fraud risk assessment on good corporate governance: Case of public listed companies in Oman. *Business Systems Research: International Journal of the Society for Advancing Innovation and Research in Economy*, *11*(1), 16-30.

Rossy, Q., & Ribaux, O. (2020). Orienting the development of crime analysis processes in police organisations covering the digital transformations of fraud mechanisms. *European Journal on Criminal Policy and Research*, *26*, 335-356.

Roszkowska, P. (2021). Fintech in financial reporting and audit for fraud prevention and safeguarding equity investments. *Journal of Accounting & Organizational Change*, *17*(2), 164-196.

Saxena, N., Hayes, E., Bertino, E., Ojo, P., Choo, K.K.R., & Burnap, P. (2020). Impact and key challenges of insider threats on organizations and critical businesses. *Electronics*, *9*(9), 1460.

Shonhadji, N., & Maulidi, A. (2021). The roles of whistleblowing system and fraud awareness as financial statement fraud deterrent. *International Journal of Ethics and Systems*, *37*(3), 370-389.

Skoczylas-Tworek, A. (2022). Internal audit as a tool to reduce the risk of fraud and abuse. *Journal of Intercultural Management*, *14*(4), 4-20.

Sudirman, S., Sasmita, H., Krisnanto, B., & Muchsidin, F.F. (2021). Effectiveness of Internal Audit in Supporting Internal Control and Prevention of Fraud. *Bongaya Journal of Research in Accounting (BJRA)*, *4*(1), 8-15.

Taherdoost, H. (2021). A review on risk management in information systems: Risk policy, control and fraud detection. *Electronics*, *10*(24), 3065.

Tapang, A.T., & Ihendinihu, J.U. (2020). Effect of forensic accounting services on unethical practices in Nigerian banking industry. *The Journal of Accounting and Management*, *10*(1).

Turetken, O., Jethefer, S., & Ozkan, B. (2020). Internal audit effectiveness: operationalization and influencing factors. *Managerial Auditing Journal*, *35*(2), 238-271.

Tyagi, A.K., Fernandez, T.F., Mishra, S., & Kumari, S. (2020, December). Intelligent automation systems at the core of industry 4.0. In *International conference on intelligent systems design and applications* (pp. 1-18). Cham: Springer International Publishing.

Ullah, I., Hameed, R.M., Kayani, N.Z., & Fazal, Y. (2022). CEO ethical leadership and corporate social responsibility: Examining the mediating role of organizational ethical culture and intellectual capital. *Journal of Management & Organization*, *28*(1), 99-119.

Wangloan, E.H., Moeins, A., Marhalinda, M., & Endri, E. (2022). The influence of transformational leadership, professional ethics, and work competence on organizational commitment and its implications for the performance of ship safety.

Wanjala, K., & Riitho, D.G. (2020). Internal control systems implementation and fraud mitigation nexus among deposit taking Saccos in Kenya. *Finance & Economics Review*, *2*(1), 11-29.

Yang, C.H., & Lee, K.C. (2020). Developing a strategy map for forensic accounting with fraud risk management: An integrated balanced scorecard-based decision model. *Evaluation and program planning*, *80*, 101780.

Yu, S.J., & Rha, J.S. (2021). Research trends in accounting fraud using network analysis. *Sustainability*, *13*(10), 5579.