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EXPLORING THE EFFECTIVENESS OF RISK-BASED AUDITING IN STRENGTHENING INTERNAL CONTROLS IN MULTINATIONAL CORPORATIONS

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ABSTRACT

In an increasingly complex global business environment, multinational corporations (MNCs) face heightened risks related to regulatory compliance, financial integrity, and operational efficiency. Traditional audit approaches often fall short in identifying emerging risks and responding to dynamic business contexts. This study explores the effectiveness of risk-based auditing (RBA) as a strategic mechanism for strengthening internal controls within MNCs. Unlike conventional auditing, RBA prioritizes high-risk areas by aligning audit focus with the organization's risk appetite, enabling more proactive, efficient, and value-driven assurance activities. The paper begins by examining the theoretical foundations and evolution of risk-based auditing in the context of corporate governance and enterprise risk management. It then evaluates how MNCs operationalize RBA across diverse jurisdictions and regulatory regimes, highlighting key implementation frameworks, audit planning strategies, and tools such as risk heat maps, key risk indicators (KRIs), and control self-assessments. Through a comparative analysis of selected global corporations, the study assesses the extent to which RBA enhances the design and performance of internal control systems, particularly in mitigating fraud, non-compliance, and misstatement risks. Furthermore, the research identifies critical success factors for effective RBA implementation, including data analytics integration, cross-border coordination, board oversight, and auditor competence. Challenges such as inconsistent risk culture, fragmented data, and resource limitations are also discussed. The findings underscore that when tailored to the specific risk profiles of MNCs, RBA can serve as a pivotal driver of organizational resilience and accountability. The paper concludes with practical recommendations for scaling RBA frameworks to align with strategic goals and evolving risk landscapes in global business environments.

Keywords: Risk-Based Auditing, Internal Controls, Multinational Corporations, Enterprise Risk Management, Audit Planning, Corporate Governance.

I. INTRODUCTION

1.1 Context and Relevance of Internal Controls in MNCs

Internal controls form the backbone of corporate governance structures within multinational corporations (MNCs), providing a framework for achieving operational efficiency, regulatory compliance, and financial integrity. As global operations expand, so too do the complexities of risk exposure, particularly across jurisdictions with varying legal and financial reporting standards. In this context, internal controls serve not only as a mechanism for fraud prevention but also as a tool for strategic risk management and stakeholder assurance [1].

The governance challenges facing MNCs are further amplified by decentralized structures and diversified business units. These organizations operate in multiple currencies, adhere to different tax codes, and are subject to dynamic geopolitical risks. Effective internal controls in such environments must balance global oversight with local adaptability, requiring robust coordination between headquarters and subsidiaries [2].

Moreover, the rise of digital transformation has reshaped the internal control environment. Automated workflows, cloud-based enterprise systems, and AI-driven data management tools now play critical roles in real-time compliance and anomaly detection [3]. As financial reporting becomes increasingly digitized, internal controls must evolve to ensure that risks such as data manipulation, cybersecurity breaches, and regulatory lapses are proactively addressed [4].

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Table 1, presented in Section 2, will illustrate a comparative matrix of internal control frameworks used by MNCs operating in different regulatory regions. It highlights variations in control objectives, reporting lines, and audit readiness metrics.

Ultimately, the relevance of internal controls in MNCs extends beyond financial stewardship to influence investor confidence, board decision-making, and long-term strategic positioning in competitive markets [5]. These systems underpin accountability and serve as a safeguard against reputational and financial damage in today's interconnected global economy.

1.2 Limitations of Traditional Auditing Approaches

Traditional auditing, while foundational to financial oversight, has struggled to remain fully effective within the rapidly evolving risk landscapes of multinational corporations. Historically, audit approaches have relied on retrospective testing of controls and financial transactions, emphasizing compliance rather than dynamic risk identification [6]. In MNCs, where organizational scale and complexity are immense, this backward-looking model may miss real-time vulnerabilities and fail to respond to emerging risks in a timely manner.

Another critical limitation is the sample-based nature of traditional audits. Auditors often assess only a fraction of transactions, potentially overlooking material misstatements or localized compliance failures within far-flung subsidiaries [7]. In addition, variations in audit practices across jurisdictions may introduce inconsistencies, especially when global subsidiaries operate under different accounting regimes or internal policy interpretations [8].

Traditional audits also tend to underemphasize operational and strategic risks, focusing primarily on financial misstatements and regulatory infractions. This narrow scope may lead corporate boards to overlook broader risk categories, including supply chain disruptions, cybersecurity vulnerabilities, and ESG (environmental, social, governance) non-compliance all of which can impact organizational performance [9].

As will be illustrated in Figure 1 of Section 3, traditional audit approaches offer a baseline for assurance but lack the dynamic responsiveness required for integrated risk management in complex MNC ecosystems.

Given these constraints, there is a growing recognition that auditing must evolve beyond compliance checks to become a strategic enabler of risk-informed decision-making within multinational settings [10].

1.3 Emergence of Risk-Based Auditing as a Strategic Tool

Risk-Based Auditing (RBA) represents a paradigm shift in internal oversight, emphasizing proactive risk identification, prioritization, and mitigation within corporate structures. Unlike traditional auditing, RBA allocates audit resources based on risk magnitude and probability, thereby enhancing the efficiency and effectiveness of internal control assessments in multinational corporations [11].

By focusing on areas of greatest strategic and operational exposure, RBA allows MNCs to align audit functions with enterprise risk management frameworks. This alignment facilitates board-level visibility into non-financial risks such as regulatory noncompliance, geopolitical instability, or technological obsolescence [12]. Furthermore, RBA enhances adaptability; audit scopes can be adjusted to emerging threats, such as supply chain disruption or data privacy violations, ensuring relevance in a volatile business environment [13].

A hallmark of RBA is its reliance on data analytics and continuous monitoring tools, which allow internal audit teams to conduct real-time assessments. These tools offer dashboards, trend analyses, and risk heat maps that inform targeted audit planning and responsive recommendations [14].

RBA is not merely a methodological innovation it also reflects a broader cultural shift within MNC governance, moving toward transparency, agility, and strategic foresight. Internal audit functions are now increasingly involved in enterprise-wide strategic planning, helping organizations identify systemic weaknesses before they manifest into crises [15].

As discussed in Table 1, the comparative effectiveness of RBA vs. traditional audit methods in multinational environments underscores the former's superior adaptability and value in managing contemporary business risk.

With these capabilities, Risk-Based Auditing is emerging as a cornerstone of modern corporate resilience.

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Table 1: Comparative Effectiveness of Risk-Based Auditing vs. Traditional Audit Methods in Multinational Environments

Criteria	Risk-Based Auditing (RBA)	Traditional Audit Methods
Audit Focus	Prioritized based on risk exposure and impact	Uniform focus across all processes and departments
Resource Allocation	Dynamic and scalable, aligned to high-risk areas	Static, often pre-defined irrespective of risk levels
Adaptability in Complex Environments	High – responsive to local regulatory, operational, and geopolitical contexts	Low – rigid frameworks less adaptable across jurisdictions
Fraud and Anomaly Detection	Enhanced through integrated analytics, KRIs, and real-time controls	Reactive, often delayed until end-of-cycle reviews
Audit Frequency	Continuous or high-frequency monitoring enabled by automation	Periodic and manual
Integration with ERM Systems	Seamless integration supports strategic risk alignment and oversight	Siloed from enterprise risk management processes
Value to Stakeholders	Proactive risk insights and strategic governance alignment	Retrospective compliance assurance
Technological Leverage	Utilizes AI, data analytics, dashboards, and real-time monitoring tools	Limited reliance on advanced digital tools

II. CONCEPTUAL FOUNDATIONS OF RISK-BASED AUDITING

2.1 Historical Evolution and Theoretical Underpinnings

The development of Risk-Based Auditing (RBA) has its roots in the shifting audit paradigms of the late 20th century, responding to increasingly complex organizational structures and diversified risk profiles. Traditional audit models that emphasized transactional verification and cyclical compliance were increasingly viewed as insufficient for detecting emerging risks in globalized enterprises [5]. In response, auditing standards began to evolve, gradually embedding risk-awareness into internal control assessment protocols.

Theoretical foundations for RBA were influenced by enterprise risk management (ERM) frameworks, particularly those outlined in the COSO ERM model, which emphasized the alignment of audit focus with strategic risk objectives [6]. By integrating risk into audit planning, auditors shifted their scope from uniformly testing all controls to prioritizing those areas deemed to pose the highest threat to organizational value and continuity. This change was further reinforced by academic work on control assurance theory and the behavioral responses to risk signals within corporate governance [7].

The rise of corporate governance scandals in the early 2000s, notably those involving Enron and WorldCom, further accelerated the transition from compliance-driven audits to risk-responsive models. Regulatory reforms, such as the Sarbanes-Oxley Act, institutionalized internal control evaluations that emphasized material risks, thereby institutionalizing the foundation of modern RBA practices [8].

Today, the theoretical underpinning of RBA reflects a multidisciplinary perspective, incorporating risk theory, decision sciences, and organizational behavior to inform how audit resources are optimally deployed. This evolution signifies more than a methodological change; it marks a philosophical shift toward audit as a value-adding strategic mechanism rather than a mere oversight function [9].

2.2 Comparison Between Traditional and Risk-Based Auditing

Traditional auditing and risk-based auditing differ fundamentally in philosophy, focus, and execution. Traditional audits prioritize uniformity and compliance, often applying checklists and cyclical routines to test internal controls regardless of contextual risk variation [10]. These methods emphasize transactional integrity

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and are generally retrospective in nature reviewing historical data to validate the completeness and accuracy of financial records.

Risk-Based Auditing (RBA), by contrast, adopts a forward-looking approach. It is built on the principle that audit efforts should be commensurate with the likelihood and magnitude of potential risks. This means audit activities are concentrated on high-impact processes and business areas such as revenue recognition, procurement, or cybersecurity where a control failure could result in significant organizational harm [11]. In RBA, scope is neither static nor uniform; it is dynamic and risk-informed.

A crucial distinction lies in how the audit scope is developed. Traditional approaches are often determined by fixed audit calendars or mandated by regulatory schedules, while RBA scopes are recalibrated in real-time using internal risk assessments, control self-assessments, and risk scoring matrices [12]. This enables better agility in dealing with emerging threats such as data breaches or ESG violations.

Table 1 presents a side-by-side comparison of the structural, procedural, and strategic differences between traditional and risk-based audit models. It underscores key features such as audit planning criteria, execution frequency, technological integration, and alignment with risk registers.

Ultimately, the comparative strength of RBA lies in its ability to deliver insights beyond compliance, allowing internal audit teams to serve as risk advisors rather than mere process checkers [13].

2.3 Principles of Risk-Based Auditing (RBA)

Risk-Based Auditing (RBA) is governed by a set of interrelated principles that shape its structure, execution, and strategic function. The first foundational principle is **risk prioritization**, which asserts that the frequency and depth of audit engagements should be based on the assessed risk level. This prioritization is informed by input from enterprise risk assessments, key risk indicators, and input from operational stakeholders [14].

Another critical principle is materiality awareness. Unlike traditional models that treat all controls with equal scrutiny, RBA acknowledges that some failures carry disproportionately greater consequences—such as those involving cash disbursement, regulatory reporting, or reputation-sensitive data. Thus, RBA allocates more resources to testing these high-materiality controls, enhancing the efficiency of audit coverage [15].

The third principle, real-time adaptability, emphasizes the need for flexibility in audit planning. In practice, this means that annual audit plans may be updated quarterly or even monthly based on new risks. For instance, an unforeseen geopolitical disruption or a spike in cyberattacks could trigger the reassessment of audit priorities [16]. Audit functions operating under RBA models often use dynamic dashboards and risk monitoring tools to achieve this level of responsiveness.

Another vital RBA principle is integration with governance structures. RBA is most effective when internal audit is embedded within broader governance and strategic planning frameworks. This allows audit outcomes to influence enterprise-wide decision-making, such as capital allocation, third-party onboarding, or IT investment [17].

Transparency and stakeholder engagement are also emphasized in RBA. Auditors must communicate findings in terms that are meaningful to both operational leaders and the board, using heat maps, key risk metrics, and business impact narratives rather than technical jargon.

Collectively, these principles empower RBA to transcend its compliance origins and act as a strategic enabler of value creation and risk intelligence within modern multinational enterprises [18].

III. INTERNAL CONTROL SYSTEMS IN MULTINATIONAL CORPORATIONS

3.1 Nature and Complexity of Internal Controls in MNCs

Internal controls in multinational corporations (MNCs) function as a critical governance mechanism to safeguard assets, ensure reliable financial reporting, and promote compliance with laws and policies. The nature of internal controls within MNCs is inherently complex due to multi-jurisdictional operations, varying regulatory standards, and diverse cultural environments [11]. These corporations often operate in fragmented organizational structures, including subsidiaries, affiliates, and joint ventures, complicating the uniform implementation of controls across their global footprint.

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Internal controls can be classified into preventive, detective, and corrective categories. Preventive controls, such as access restrictions and approval hierarchies, are designed to avert errors or fraud before occurrence. Detective controls like audits, reconciliations, and exception reports—identify anomalies after the fact, while corrective controls aim to rectify detected deficiencies [12]. For MNCs, these layers must be adapted to align with local business practices and infrastructure limitations without compromising standardization or control integrity.

In practice, internal control environments are influenced by management tone, organizational culture, and the allocation of authority and responsibility. MNCs with decentralized structures often delegate substantial decision-making power to regional units, increasing the need for tailored internal controls to mitigate localized risks [13]. However, decentralization also introduces variability in control effectiveness and exposes firms to operational inconsistencies and control lapses.

Furthermore, the integration of digital technologies such as enterprise resource planning (ERP) systems, automated workflows, and continuous auditing tools has transformed internal control mechanisms. While these technologies enhance control reliability and speed, they also introduce cybersecurity risks and require additional oversight [14]. Internal control complexity in MNCs is thus a balancing act: standardization vs. localization, automation vs. manual override, and central control vs. regional flexibility.

3.2 COSO Framework and Internal Control Objectives

The Committee of Sponsoring Organizations of the Treadway Commission (COSO) established a widely adopted framework to structure and evaluate internal control systems. COSO defines internal control as a process, effected by an entity's board, management, and personnel, designed to provide reasonable assurance regarding the achievement of objectives across three categories: operations, reporting, and compliance [15].

The framework's five components control environment, risk assessment, control activities, information and communication, and monitoring form the basis for both evaluating internal control design and assessing operational effectiveness. These components are interrelated and embedded throughout the organization's infrastructure.



Figure 1 illustrates this five-component model, emphasizing its integrated and dynamic nature.

Control Environment sets the tone of the organization, reflecting leadership values, governance structure, and commitment to integrity. Risk Assessment involves identifying and analyzing internal and external risks that may hinder goal achievement. Control Activities are the specific policies and procedures implemented to mitigate these risks, including approvals, verifications, and segregation of duties [16].

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Information and Communication refer to the systems used to capture, process, and relay operational and financial data. Effective communication ensures that control responsibilities and expectations are understood at all levels. Monitoring involves regular evaluations of control performance through internal audits, management reviews, and real-time analytics to detect and respond to deficiencies [17].

For MNCs, aligning global operations with the COSO framework provides a structured yet adaptable approach. It supports the harmonization of internal controls across geographies while enabling scalability and localization based on entity size, jurisdiction, and complexity. COSO's emphasis on continuous improvement and organizational agility has made it a cornerstone of international governance standards [18].

3.3 Challenges in Cross-Border Internal Control Implementation

Implementing internal controls across multiple jurisdictions presents several structural, legal, and operational challenges for MNCs. A significant barrier is regulatory divergence, wherein local compliance laws, accounting standards, and audit requirements differ from the corporation's home-country mandates [19]. For instance, the Sarbanes-Oxley Act may mandate stringent internal control reporting for U.S.-listed firms, whereas subsidiaries in developing economies may operate under less mature or conflicting frameworks.

Cultural and organizational differences also complicate internal control implementation. In some regions, hierarchical organizational norms and informal decision-making processes may undermine the enforcement of control protocols designed under Western governance models [20]. This divergence can lead to inconsistent adherence to processes such as procurement approvals, conflict-of-interest declarations, or whistleblower protections.

Language barriers, technology gaps, and disparities in workforce competencies further obstruct uniform execution. Many MNCs encounter resistance from local managers who perceive centrally imposed controls as overly bureaucratic or misaligned with local business practices. This disconnect often results in partial or symbolic compliance, weakening the reliability of consolidated control reports [21].

Additionally, technology integration poses challenges in environments with limited infrastructure or cybersecurity awareness. Internal control systems dependent on enterprise-wide digital platforms may suffer from latency, data quality issues, or poor user adoption in some countries. Such constraints hinder real-time monitoring, exception reporting, and remediation processes vital to effective governance [22].

To overcome these obstacles, MNCs must adopt a risk-based, tiered approach that prioritizes critical controls while allowing contextual flexibility. Local engagement, tailored training, and cultural sensitization are essential to promote buy-in and mitigate compliance fatigue. Moreover, internal audit functions should maintain both global oversight and local presence to evaluate and reinforce control effectiveness. Strategic collaboration between headquarters and subsidiaries, underpinned by standardized metrics and adaptive processes, is critical for sustaining robust internal controls globally [23].

IV. IMPLEMENTING RISK-BASED AUDITING IN MNCS

4.1 Risk Assessment and Audit Planning

Risk-Based Auditing (RBA) has become central to internal audit methodologies, particularly within multinational enterprises. RBA shifts the focus of audits from traditional transaction testing to assessing the risk environment of strategic and operational functions. Audit planning under RBA begins with identifying key risk areas that threaten the achievement of business objectives [15]. This forward-looking approach enables auditors to allocate resources efficiently and concentrate on high-impact areas rather than uniformly covering all processes.

The foundation of effective risk assessment lies in understanding both internal and external risk factors. Internal factors include process weaknesses, staff competence, and technology vulnerabilities. External factors involve geopolitical instability, regulatory changes, and supply chain disruptions. To capture a holistic view, auditors gather data through interviews, document reviews, surveys, and control walkthroughs [16].

Risk scoring models are commonly used to quantify risks based on likelihood and impact. These models guide prioritization during audit plan development. High-risk areas are scheduled for comprehensive reviews, while lower-risk zones may receive thematic or cyclical audits. This stratification ensures that audit activities align with organizational risk appetite and governance goals [17].

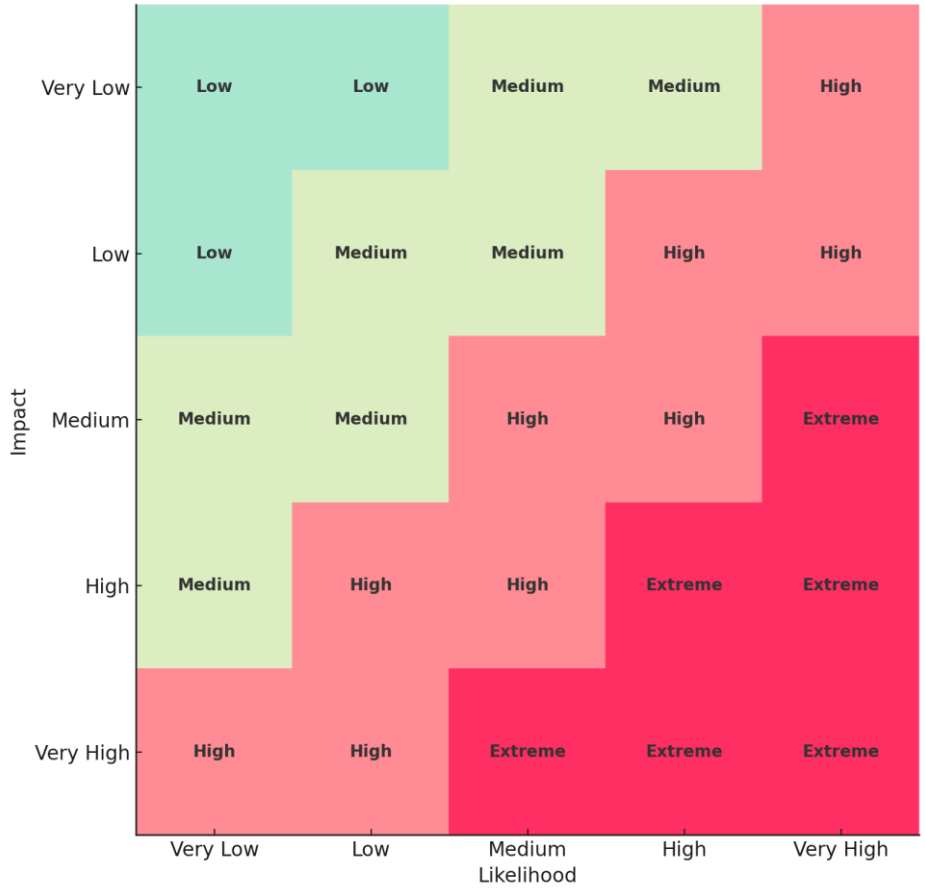
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Regular updates to the audit plan are essential as business environments evolve. Flexibility in planning allows internal audit functions to respond to emerging threats or regulatory expectations. Risk assessment is not a one-time event but a continuous process that informs dynamic audit priorities. Close coordination with compliance and enterprise risk teams enhances the accuracy and timeliness of audit plans. By integrating risk intelligence into audit workflows, organizations strengthen both accountability and assurance mechanisms, helping leadership make data-informed governance decisions [18].

4.2 Tools and Techniques in RBA (KRIs, Heat Maps, Control Testing)

Modern internal audit teams utilize a variety of tools and techniques to support Risk-Based Auditing. These instruments help visualize, quantify, and prioritize risks across organizational functions. Key Risk Indicators (KRIs) are among the most valuable tools, offering measurable signals that warn of emerging threats. KRIs can be operational (e.g., production downtime rates), financial (e.g., days sales outstanding), or compliance-related (e.g., number of regulatory breaches) [19].

Figure 2: Sample Risk Heat Map in Audit Planning



Heat maps are commonly employed to visually communicate risk severity and likelihood. Figure 2: Sample Risk Heat Map in Audit Planning provides a graphical representation where risks are plotted on a matrix with axes for impact and probability. This method allows senior stakeholders and audit committees to quickly identify critical risk zones requiring immediate attention. Risk heat maps also enable comparison across departments, enhancing risk transparency and alignment.

Another cornerstone of RBA is control testing, which verifies whether mitigating controls are effectively designed and implemented. Control testing involves sampling transactions, observing procedures, and evaluating documentation. Tests may be preventive, such as evaluating segregation of duties, or detective, such as verifying access logs and exception reports. Where automated controls exist, auditors may use data analytics or continuous auditing tools to validate integrity [20].

Process flowcharts, risk-control matrices (RCMs), and dashboards are also leveraged to streamline audit execution. RCMs explicitly link each risk to its associated control, test procedure, and finding status. Dashboards

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offer real-time tracking of audit progress, risk exposure levels, and control deficiencies across business units [21].

Furthermore, maturity models and self-assessment surveys can help calibrate the control environment before audit engagement begins. These pre-audit diagnostics ensure more targeted scoping. By deploying these tools within the RBA cycle, audit departments increase precision, improve resource allocation, and deliver more relevant, timely findings to executive leadership [22].

4.3 Integration with Enterprise Risk Management (ERM) Systems

Integrating internal audit activities with Enterprise Risk Management (ERM) systems represents a major shift toward a unified governance approach. While internal audits have traditionally functioned as an independent assurance layer, alignment with ERM enables a more synchronized and forward-looking view of organizational risk posture [23]. ERM systems aggregate risk data from across departments, providing audit functions with real-time inputs on evolving threats, control gaps, and mitigation efforts.

Successful integration begins with shared risk taxonomies. Internal audit and risk management teams must define risk categories consistently strategic, operational, financial, compliance, reputational and agree on standard rating criteria. This harmonization enables both functions to speak the same language when reporting to the board and executive management [24].

ERM tools also facilitate data sharing through dashboards and centralized platforms. Internal audit teams can pull KRIs, incident logs, and issue remediation updates directly from ERM systems. This enhances audit planning accuracy and reduces redundancies in information collection. Moreover, by contributing their findings into the ERM platform, auditors help enrich the organizational risk profile [25].

Cross-functional risk workshops further support integration. Joint sessions involving ERM, compliance, and internal audit help surface interdependencies and align mitigation strategies. These collaborations also build consensus around risk appetite, enabling more nuanced audit scoping and evidence-based assurance reporting.

Integrated governance improves decision-making at all levels. For the board, it provides a cohesive narrative of risk oversight. For management, it clarifies accountability and reduces risk blind spots. Internal audit's collaboration with ERM, therefore, enhances not just assurance, but also strategic foresight and business resilience [26].

4.4 Auditor Expertise and Resource Alignment

The effectiveness of Risk-Based Auditing hinges on auditor expertise and appropriate resource alignment. Given the diversity and complexity of modern risk landscapes, auditors must possess multidisciplinary knowledge spanning financial controls, IT systems, regulatory frameworks, and operational processes [27]. Technical proficiency in analytics, cybersecurity, and compliance law increasingly defines the audit skillset.

Audit teams should be composed strategically based on the specific risk areas identified. For instance, auditing an ERP implementation demands IT auditors with system configuration and data integrity expertise. Conversely, reviewing anti-bribery controls in emerging markets may require forensic and legal skills [28]. A flexible staffing model leveraging in-house specialists, co-sourced talent, and external consultants enhances agility in resource deployment.

Training and certification programs such as Certified Internal Auditor (CIA), Certified Information Systems Auditor (CISA), or ISO 31000 build foundational competencies. Continuous professional development is vital to keep pace with evolving regulatory and technological change. Regular post-audit reviews also help identify capability gaps and inform future team composition.

Audit leaders must align resources with risk priorities, not just process volume. By deploying the right skills in the right contexts, internal audit can deliver impactful insights and serve as a credible partner in enterprise risk governance [29].

V. CASE STUDIES OF MNCS ADOPTING RISK-BASED AUDITING

5.1 Case Study: Financial Sector MNC (e.g., Citigroup)

Citigroup, as one of the largest global financial services corporations, provides a compelling example of how Risk-Based Auditing (RBA) is operationalized in a highly regulated and complex environment. With operations

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in over 90 countries and involvement in diverse financial products, Citigroup's risk landscape includes compliance violations, cybersecurity breaches, anti-money laundering (AML) lapses, and third-party risks. To address this, the Internal Audit (IA) function adopted a centralized RBA framework in the early 2010s [19].

The framework begins with the identification of enterprise-level risks, mapped through risk registers and enriched with Key Risk Indicators (KRIs) sourced from lines of business. Citigroup's audit planning tool integrates risk scoring algorithms that consider inherent risk, residual risk, and control performance. Notably, the bank conducts dynamic risk updates quarterly to recalibrate its audit priorities based on regulatory alerts, breach reports, and operational losses [20].

RBA implementation led to significant improvements in audit efficiency. As shown in Table 2: Key RBA outcomes in the financial MNC case, the time spent on low-risk audits was reduced by 38%, while thematic reviews covering high-risk areas (such as sanctions compliance and cyber defense) doubled in frequency. Moreover, collaboration between IA, Compliance, and Operational Risk functions enhanced early detection and resolution of cross-border control failures.

A key challenge observed was maintaining audit independence while sharing risk intelligence with first- and second-line functions. Citigroup addressed this through firewalled data platforms and clear protocols for information access [21]. Additionally, the use of data analytics in continuous auditing enabled near real-time monitoring of suspicious patterns, reducing the reliance on post-incident reviews. The Citigroup case underscores how tailored, digital-supported RBA can align internal audit with business strategy while preserving regulatory confidence in financial MNCs [22].

Table 2: Key RBA Outcomes in the Financial MNC Case

Performance Metric	Pre-RBA Approach	Post-RBA Implementation
Audit Allocation to Low-Risk Areas	High – 42% of audit cycles	Reduced by 38% through reprioritization
Frequency of High-Risk Thematic Reviews	Bi-annual	Increased to quarterly, especially for sanctions and cyber
Detection of Cross-Border Control Failures	Reactive and fragmented	Proactive, with 22% faster incident response
Interdepartmental Collaboration (IA, Compliance, OR)	Siloed efforts	Integrated coordination for unified risk governance
Time-to-Resolution of Emerging Risks	Averaged 6–8 weeks	Reduced to 3–4 weeks with risk-aligned planning
Stakeholder Reporting Quality and Clarity	Limited strategic relevance	Enhanced executive-level dashboards and early warnings

5.2 Case Study: Manufacturing MNC (e.g., Unilever)

Unilever, a consumer goods conglomerate with a footprint in more than 190 countries, represents a different risk profile compared to financial MNCs. While regulatory compliance and financial accuracy remain relevant, Unilever's internal audit emphasis under RBA includes operational resilience, supply chain risks, and sustainability compliance particularly across its global sourcing and production hubs [23].

The company transitioned from traditional cyclical audits to RBA by centralizing risk data from procurement, logistics, and quality control departments. Each region conducts quarterly risk reviews using heat maps and dashboard tools, feeding into the global audit plan. The risk categories include factory downtime risk, supplier ethical compliance, and raw material price volatility [24].

In practice, one of the early use cases for RBA involved food safety audits following a series of contamination incidents in emerging markets. The IA team applied control testing focused on vendor sourcing, plant-level

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hygiene controls, and traceability measures. This resulted in a new global food safety policy linked to supplier certifications and technology investments in blockchain traceability [25].

Unilever's use of co-sourced audit teams was instrumental in applying domain-specific expertise. For instance, engineers and environmental specialists were embedded into audit teams to evaluate production energy compliance and carbon emission controls. This allowed audits to contribute directly to sustainability KPIs, demonstrating how RBA supports broader ESG agendas [26].

Another success was integrating RBA outputs with the company's sustainability risk platform, which tracks biodiversity impact, water usage, and social labor compliance. The integrated dashboard allowed Unilever to better align its risk posture with SDG-related reporting and investor expectations.

The Unilever case shows that RBA in manufacturing is not limited to financial controls but extends to strategic, reputational, and environmental risks. Customization of risk taxonomies and embedded subject matter expertise are critical to success in such settings [27].

5.3 Lessons Learned Across Industries

A comparative review of Citigroup and Unilever's RBA implementation reveals shared principles and contextual nuances in applying risk-based strategies across industries. Both organizations emphasize a centralized risk intelligence platform as foundational. In Citigroup's case, integration with compliance and regulatory monitoring was paramount, while Unilever prioritized operational and ESG-linked risk convergence [28].

One shared lesson is the value of real-time risk data. Continuous monitoring, either through dashboards or analytics tools, was central to each MNC's RBA success. Whether tracking AML compliance breaches or production downtime events, timely data elevated audit responsiveness and decision-making.

The cases also highlight the necessity of cross-functional collaboration. At Citigroup, firewalls were needed to maintain IA independence. At Unilever, co-sourced experts added operational and environmental depth. These examples reinforce that effective RBA requires technical, functional, and cultural alignment across lines of defense [29].

Differences were also instructive. Citigroup's RBA emphasized regulatory trust and incident prevention, while Unilever's focused on production continuity and sustainability metrics. Thus, while the core RBA methodology risk assessment, prioritization, scoping, and testing remains consistent, its operationalization must adapt to sector-specific drivers.

Table 2 demonstrates how outcomes such as audit cycle time, control effectiveness ratings, and risk coverage can vary significantly by industry context. These metrics help track audit value over time and facilitate continuous improvement.

Finally, both MNCs showcased the importance of leadership sponsorship. Senior executive and board engagement helped embed RBA into broader governance frameworks. Clear communication, strategic alignment, and well-structured escalation protocols were enablers of successful adoption.

Collectively, these lessons offer a roadmap for other MNCs seeking to transition from static, compliance-heavy audits to agile, risk-focused, and value-driven assurance models that are responsive to evolving global threats and opportunities [30].

VI. MEASURING THE IMPACT OF RBA ON INTERNAL CONTROL EFFECTIVENESS

6.1 Key Performance Indicators (KPIs) for Auditing and Controls

The implementation of Risk-Based Auditing (RBA) has necessitated the development of performance indicators that align audit activities with organizational risk priorities. Traditional audit KPIs, such as audit cycle completion rate and number of findings per audit, are increasingly supplemented or replaced by indicators that evaluate effectiveness in risk mitigation, responsiveness, and operational integration [24].

Contemporary internal audit KPIs include control maturity scores, issue remediation timelines, and alignment with high-risk zones as determined by the Enterprise Risk Management (ERM) system. For instance, control maturity can be assessed on a scale from ad hoc to optimized, helping audit teams prioritize weaker areas [25].

Additionally, dashboards now track the percentage of audit resources allocated to critical risks, and the frequency of risk monitoring in high-impact domains. These KPIs support transparent communication with

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audit committees and business units. The evolution of KPI frameworks illustrates how audit functions are transitioning from backward-looking assessments to forward-looking risk intelligence [26].

Importantly, KPI utility is maximized when integrated with digital audit platforms. Tools such as Tableau and Power BI facilitate real-time visualization of audit KPIs, enabling stakeholders to make data-informed decisions on resource allocation and control enhancement [27]. The use of predictive KPIs such as likelihood of control failure has also been explored, although it remains in early adoption stages.

Ultimately, the alignment of KPIs with enterprise risk objectives is central to the credibility and strategic relevance of modern internal audit functions operating under the RBA model [28].

6.2 Improvements in Fraud Detection and Risk Response Time

RBA has significantly improved fraud detection efficiency and reduced organizational response times to internal control breaches. Prior to adopting RBA, many audit programs employed uniform risk treatment across business functions, leading to misallocation of resources and delayed intervention. RBA rectifies this by prioritizing high-fraud-risk areas such as financial reporting, third-party transactions, and procurement [29].

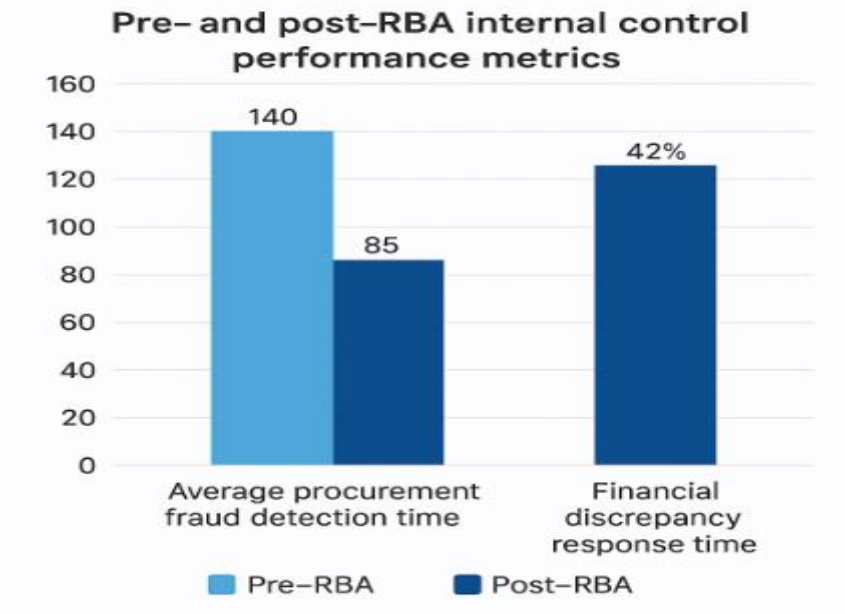


Figure 3: Pre- and post-RBA internal control performance metrics illustrates this transformation. The average time to detect procurement fraud reduced from 140 to 85 days, while financial discrepancy response cycles dropped by 42%. These metrics underscore the operational value of real-time audit signals.

Key enablers of improvement include continuous auditing mechanisms and anomaly detection tools embedded within enterprise systems. For instance, automated rule-based scanning now flags contract irregularities and payment deviations in near real-time. Audit teams can then triage and escalate flagged issues based on risk severity scores [30].

Another development is the integration of audit analytics with whistleblower data and external incident reports. When matched against internal control anomalies, these signals allow early fraud pattern recognition. Such integration reflects how RBA shifts audit focus from detection-after-fact to predictive interception.

Case evidence from large retailers and logistics firms demonstrates that audit functions leveraging digital surveillance and prioritized scoping reduce inventory pilferage losses by 20–30% annually [31]. Furthermore, companies that deploy forensic analytics in tandem with RBA report higher fraud recovery rates due to quicker legal escalation and documentation.

However, there are risks of overreliance on automated detection tools without adequate context or human interpretation. Audit functions must ensure tool configurations are regularly tested and contextualized to evolving business models.

In summary, RBA's impact on fraud detection and response timelines strengthens both financial control and organizational integrity [32].

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6.3 Role of Audit Committees and Board Oversight

The success of Risk-Based Auditing hinges significantly on the strategic involvement of audit committees and boards. As the custodians of corporate governance, these entities are responsible for ensuring that internal audit activities are not only technically sound but also aligned with enterprise-level risk priorities [33].

Modern audit committees are increasingly expected to review and approve risk-based audit plans, assess the appropriateness of audit coverage, and monitor resolution of high-priority audit findings. This contrasts with historical roles that primarily focused on financial reporting compliance. To fulfill these expanded mandates, committee members must possess a robust understanding of risk typologies, industry-specific threats, and audit technology trends [34].

Board oversight has also evolved. Leading organizations now involve board risk committees in reviewing quarterly risk heat maps, control effectiveness dashboards, and performance metrics of the internal audit function. These boards require periodic briefings on risk-adjusted audit productivity and strategic audit themes linked to material risk exposures [35].

For example, in multinational pharmaceutical companies, audit committees review thematic audit reports on supply chain disruption risks and cybersecurity breaches. These strategic reviews ensure that emerging risks are captured early and that internal audit remains agile in its response. In certain jurisdictions, regulatory bodies have also mandated board-level accountability for audit independence and scope validation [36].

Nonetheless, challenges persist. Misalignment between board risk appetite and internal audit focus can dilute RBA efficacy. Furthermore, lack of digital fluency among board members can hinder oversight of technology-enabled audit processes. To mitigate this, some organizations have introduced audit committee upskilling programs on RBA principles and digital assurance tools.

In conclusion, a well-informed, proactive, and strategically aligned board and audit committee structure is essential for embedding RBA into the organizational fabric and for enhancing its credibility across the enterprise [37].

VII. BARRIERS AND ENABLERS TO RBA EFFECTIVENESS

7.1 Internal Barriers: Culture, Silos, Resistance to Change

The implementation of Risk-Based Auditing (RBA) within multinational corporations is often hindered by entrenched internal barriers such as rigid organizational culture, functional silos, and resistance to change. These factors create inertia that obstructs the adaptive mindset necessary for RBA's dynamic, forward-looking framework [29].

Organizational culture plays a particularly significant role. In environments where audit functions are traditionally seen as compliance enforcers rather than strategic partners, RBA adoption struggles to gain traction. Staff may perceive risk-focused audits as intrusive or punitive, fostering defensive behaviors that limit the free flow of risk intelligence [30].

Siloed departments further exacerbate the challenge. When business units operate in isolation, it becomes difficult to collect integrated risk data or execute cross-functional audits aligned with enterprise-wide risk maps. Silos also undermine collective risk ownership, a cornerstone of effective RBA execution [31].

Change resistance is another major factor. Employees and mid-level managers accustomed to checklist-style audits may resist the shift toward judgment-driven prioritization. This reluctance may stem from uncertainty about evaluation criteria or fears of increased accountability. Without sustained change management initiatives, such resistance can derail RBA before its benefits are realized [32].

Leadership communication and trust-building are essential countermeasures. When senior leaders actively promote the value of risk intelligence and clarify RBA's contribution to business continuity and resilience, it mitigates skepticism and fosters support.

7.2 Technological Constraints and Data Fragmentation

Technological limitations pose substantial challenges to RBA, particularly in large organizations with heterogeneous IT ecosystems. Legacy systems, incompatible data formats, and fragmented databases hinder the efficient aggregation and analysis of risk-related information critical inputs for informed audit planning [33].

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One of the most pervasive issues is the absence of centralized audit and risk management platforms. In many firms, audit functions still rely on spreadsheets, static reports, or siloed applications that do not allow seamless integration with Enterprise Risk Management (ERM) systems. This limits visibility into emerging risk trends and weakens the audit function's ability to dynamically reallocate resources [34].

Moreover, inconsistent taxonomies and data governance structures complicate cross-border risk aggregation. A transaction flagged as a procurement risk in one region might be coded differently in another, obstructing automated risk analytics. The lack of standardized control metadata also inhibits automation of audit procedures [35].

Another constraint is cybersecurity and access restrictions. While safeguarding sensitive data is necessary, excessive compartmentalization limits audit teams' access to real-time data feeds, thereby delaying responses to emerging risk signals. These limitations are especially pronounced in highly regulated industries such as pharmaceuticals and banking [36].

Table 3: Common barriers vs. mitigation strategies in global RBA rollouts provides a structured summary of such challenges and proven mitigation strategies. Solutions like adopting cloud-based GRC (Governance, Risk, and Compliance) platforms, harmonizing taxonomies, and implementing cross-domain data lakes have enabled certain organizations to overcome technological fragmentation.

Investing in scalable, interoperable audit systems is imperative for transforming RBA from a strategic concept to an operational reality in digital-first corporations [37].

Table 3: Common Barriers vs. Mitigation Strategies in Global RBA Rollouts

Barrier	Description	Mitigation Strategy
Technological Fragmentation	Disparate systems and non-integrated audit environments across regions	Adopt cloud-based GRC platforms and cross-domain data lakes for unified visibility
Inconsistent Risk Taxonomies	Varied definitions and classifications of risk across business units and geographies	Implement standardized taxonomies and enterprise-wide risk dictionaries
Data Silos and Inaccessible Audit Trails	Isolated departmental data impeding cross-functional insights	Deploy interoperable data architectures and centralized audit repositories
Cultural Resistance and Audit Fatigue	Staff disengagement due to change aversion or over-surveillance	Engage through change management, continuous training, and risk literacy programs
Limited Scalability of Existing Tools	Legacy tools failing to support complex multinational operations	Transition to modular, scalable audit and analytics platforms
Delayed Insight Generation	Manual workflows reducing the timeliness of audit outcomes	Automate control testing and reporting pipelines with AI-driven alert mechanisms

7.3 Enablers: Digital Tools, Training, and Executive Buy-In

Successful RBA deployment hinges on three critical enablers: digital audit tools, structured training programs, and visible executive support. When implemented in tandem, these elements transform the internal audit function into a high-impact, risk-intelligent unit capable of proactive intervention and strategic alignment [38].

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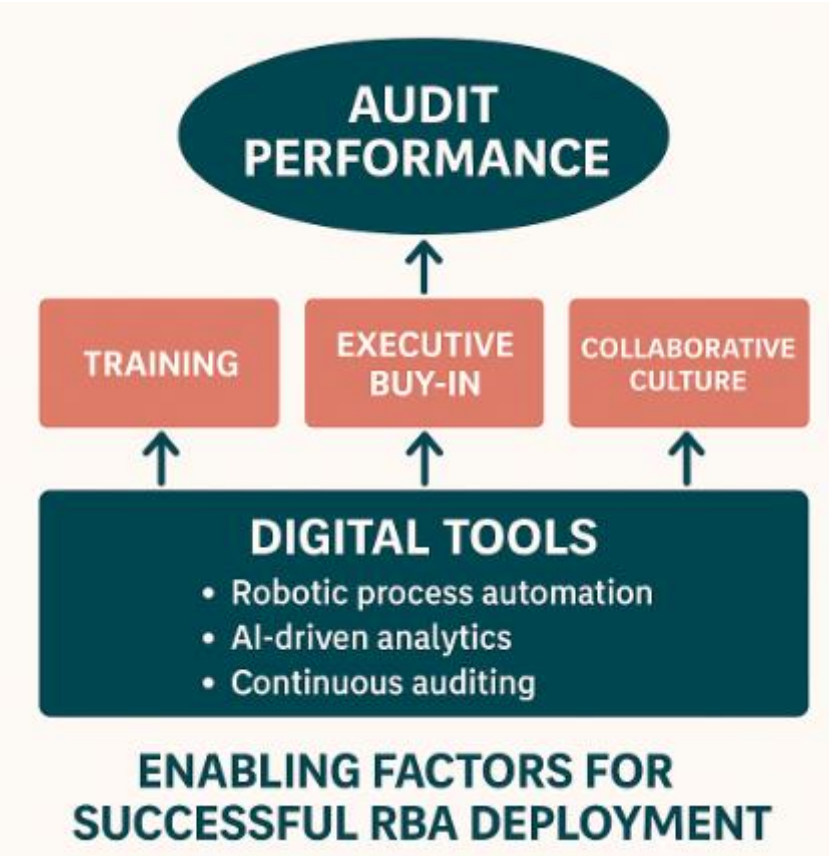


Figure 4: Enabling factors model for successful RBA deployment

visually depicts the interaction between these enablers and their influence on audit performance. At the foundation lie digital tools that enhance planning, execution, and reporting. For instance, robotic process automation (RPA) and AI-driven analytics are increasingly used to automate control testing and detect anomalies in large datasets. Tools such as ACL Robotics, CaseWare IDEA, and Tableau have facilitated continuous auditing models that reflect real-time risk landscapes [39].

However, tools alone are insufficient without a skilled workforce. Targeted upskilling programs are vital for transforming auditors into risk analysts who understand business dynamics, control design, and data interpretation. Audit teams trained in root-cause analysis and predictive modeling outperform those that rely solely on procedural audit checklists [40].

Training programs must also cover interpersonal skills to enable effective engagement with business leaders and risk owners. Soft skills such as strategic questioning, risk storytelling, and consensus-building foster stronger relationships between audit and management, increasing the influence of audit recommendations [41].

Executive buy-in serves as a catalyst. When CFOs, CROs, and CEOs publicly endorse RBA and tie it to enterprise objectives, it enhances the legitimacy of audit interventions. Executive support is also crucial for funding modern audit tools, facilitating access to integrated data streams, and breaking down cultural and structural resistance [42].

Several global organizations have institutionalized RBA through formal change programs, sponsorship by top executives, and incentive alignment for audit staff. These examples underscore that digital, human, and leadership capital must coalesce to realize RBA's full potential [43].

VIII. FUTURE DIRECTIONS AND INNOVATIONS IN RISK-BASED AUDITING

8.1 AI and Data Analytics in Risk-Based Audit Enhancement

Artificial intelligence (AI) and data analytics have emerged as transformative tools in the evolution of Risk-Based Auditing (RBA), offering unprecedented capabilities for identifying, prioritizing, and responding to risk.

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These technologies facilitate deeper insights into operational anomalies, control gaps, and emerging threats that traditional audit models may overlook [33].

AI's strength lies in its capacity to process large, unstructured datasets from across business functions, using machine learning algorithms to detect patterns that indicate risk or inefficiency. For instance, anomaly detection models can flag unusual transactions in real time, enabling auditors to focus on high-risk events rather than applying blanket sampling techniques [34]. Natural language processing also plays a growing role in analyzing policy documents, emails, and support tickets for potential compliance violations [35].

Predictive analytics enhances audit planning by simulating risk scenarios based on historical and live data. These models allow audit teams to forecast risk emergence and design tests that are not just reactive, but anticipatory. A risk scoring engine integrated with internal and external data sources—such as macroeconomic indicators, vendor credit profiles, and internal control test results—can help prioritize audit areas dynamically [36].

AI-enabled dashboards now deliver audit intelligence through visualizations that summarize KPIs, control maturity, and risk exposure in near real-time. These tools enhance communication with executives and audit committees, making risk insights more accessible and action-oriented [37].

However, the deployment of AI in audit must consider data quality, algorithm transparency, and ethical governance. To mitigate bias and ensure audit reliability, internal audit teams must collaborate with data science units to validate AI outputs and uphold audit integrity [38].

8.2 Real-Time Assurance and Continuous Monitoring Trends

The shift toward real-time assurance represents a paradigm change in how internal audits are conducted. Unlike periodic audits based on retrospective data, real-time assurance relies on continuous data feeds and automated control checks to assess compliance, detect fraud, and measure operational effectiveness in the moment [39].

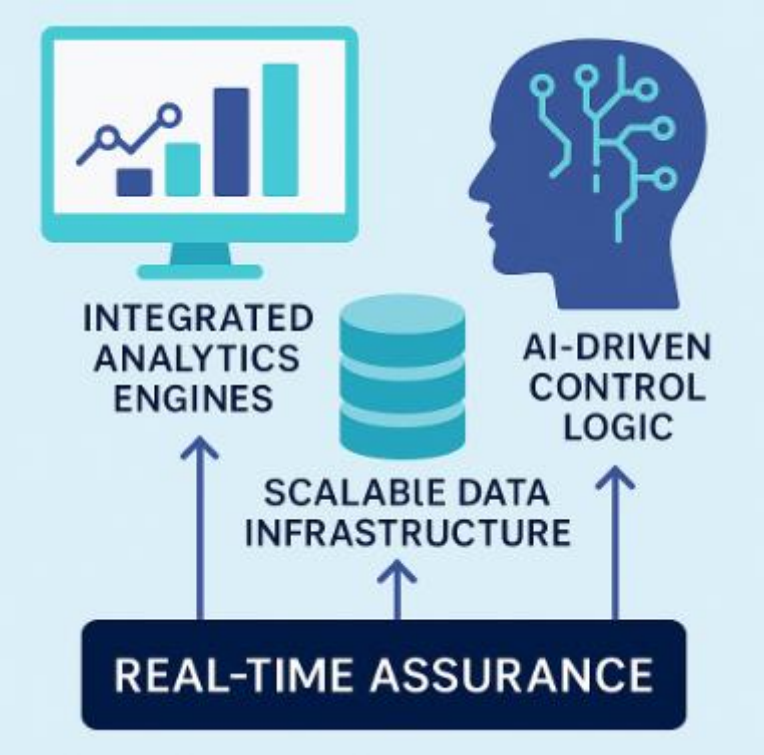
Key drivers of this transformation include regulatory pressure for proactive governance, stakeholder demand for agility, and the increasing complexity of digital business ecosystems. Continuous auditing and monitoring (CA/CM) systems are central to this model, offering mechanisms to track control performance and risk exposure with minimal time lag [40]. These systems pull live data from ERPs, CRMs, and third-party systems to identify deviations from expected patterns and trigger alerts for human intervention [41].

For example, in procurement audits, a real-time assurance system can compare incoming invoices against purchase orders and payment histories. Any mismatch exceeding defined thresholds can be flagged for immediate review, reducing the risk of duplicate payments or unauthorized vendors. Similarly, in cybersecurity audits, continuous monitoring tools can track login anomalies or privilege escalations and automatically log control violations [42].

Audit teams adopting real-time assurance must redefine workflows. Traditional fieldwork activities are supplemented or replaced by audit bots and API integrations that constantly scan for exceptions. Auditors shift from executing checks to validating alerts and engaging stakeholders on root causes and remediation [43].

Continuous monitoring also facilitates dynamic audit scoping. As new risks emerge, audit focus can be recalibrated mid-cycle to ensure responsiveness. This agility is particularly valuable in environments where risk exposure changes rapidly such as financial services, healthcare, and tech sectors [44].

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As depicted in Figure 5, real-time assurance models are built upon integrated analytics engines, scalable data infrastructure, and AI-driven control logic. Their rise signals a future where audit is not just a gatekeeper, but an always-on, value-adding risk intelligence function [45].

IX. CONCLUSION

9.1 Summary of Findings

This article examined the evolution and implementation of Risk-Based Auditing (RBA) in multinational corporations (MNCs), highlighting its role in strengthening internal controls and enterprise risk management. The review traversed key concepts such as the limitations of traditional audit models, the strategic adoption of Zero Trust Architecture, and the application of AI and analytics in audit enhancement. From a foundational standpoint, MNCs face increasingly complex threats stemming from cross-border operations, evolving compliance demands, and rapid technological shifts. Traditional internal control systems, while still foundational, have shown gaps in agility, detection capability, and scalability.

Through a detailed analysis of internal control frameworks, such as COSO, and risk assessment methodologies, the study identified significant progress in aligning audit objectives with enterprise-wide risk tolerance. Central to this transition is the move away from periodic, manual audits toward real-time assurance supported by continuous monitoring tools, digital dashboards, and AI-driven risk modeling.

Two case studies one from the financial sector and the other from manufacturing provided practical insights into how organizations are embedding RBA within internal governance. The former emphasized regulatory compliance and fraud mitigation, while the latter focused on operational efficiency and global supply chain risks. Across industries, the integration of RBA has yielded measurable improvements in detection timeliness, audit coverage, and executive oversight.

Moreover, the study revealed the importance of cultural readiness, leadership commitment, and technological infrastructure as critical enablers of RBA success. Despite persistent barriers such as resistance to change and fragmented data systems, enablers like automated analytics, training programs, and centralized audit committees are proving effective. As MNCs face more interconnected risk environments, the findings affirm that RBA is not simply an audit enhancement tool it is a strategic asset in building adaptive, resilient organizations.

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9.2 Strategic Implications for MNC Governance and Risk Culture

The implementation of Risk-Based Auditing has strategic implications for how multinational corporations design their governance frameworks and shape their internal risk cultures. In the modern enterprise, audit no longer operates in isolation but is deeply integrated into corporate strategy, compliance functions, and technology operations. This convergence demands that governance structures become more agile, interdisciplinary, and data-literate.

RBA shifts the audit function from a retrospective, compliance-checking role to a proactive, risk-sensing role. This change recalibrates expectations for boards and audit committees, requiring them to engage more actively with real-time risk intelligence, rather than relying on post-mortem reports. It also redefines accountability, as business unit leaders and control owners are expected to respond to audit findings in real-time and adjust operational strategies accordingly.

At the cultural level, RBA supports a transition from risk aversion to risk awareness. By emphasizing transparency, early warning systems, and evidence-based decision-making, RBA embeds a mindset of continuous vigilance across global teams. In doing so, it facilitates enterprise agility, enabling faster response to emerging threats and opportunities. However, the success of this cultural shift depends heavily on leadership endorsement and organization-wide capacity building.

From a risk culture standpoint, MNCs must also ensure alignment between technological tools and human judgment. While automation and AI provide analytical horsepower, governance mechanisms must preserve ethical oversight and audit independence. This dual commitment to innovation and integrity is central to sustaining trust, meeting stakeholder expectations, and maintaining global compliance. In sum, the strategic embedding of RBA strengthens governance not just structurally, but behaviorally, fostering an ecosystem where risk intelligence is actionable, inclusive, and future-focused.

9.3 Recommendations for Practitioners and Policy Makers

For practitioners, a successful RBA transformation begins with recalibrating audit planning processes around enterprise risk priorities. This means investing in advanced data integration platforms, deploying analytics for dynamic risk scoring, and equipping audit teams with skills in data science, automation, and risk communication. Audit leaders should develop hybrid audit models blending automated monitoring with selective deep dives to enhance both coverage and insight. Additionally, organizations should formalize feedback loops where audit findings directly inform business unit strategy, policy redesign, and resource allocation.

Training and change management are also pivotal. Practitioners must cultivate cross-functional audit teams that combine subject matter expertise with technological fluency. Regular workshops, simulation exercises, and leadership forums can reinforce audit's evolving strategic role and encourage collaboration across compliance, IT, and finance functions. Moreover, clear audit charters and performance KPIs can help embed accountability and transparency at all levels.

For policy makers and regulators, it is essential to create frameworks that both enable innovation and ensure responsible governance. Guidelines should encourage the use of digital tools and AI in internal auditing while requiring disclosures on algorithmic transparency, data governance, and audit independence. Governments and standard-setting bodies can further support MNCs by funding audit innovation labs, facilitating cross-border audit harmonization, and developing sector-specific toolkits for risk-based audit implementation.

At a systemic level, multi-stakeholder collaborations should be fostered to share audit intelligence and establish industry benchmarks. Global coordination is especially crucial for MNCs navigating divergent regulatory landscapes. By aligning regulatory flexibility with technological innovation, policy makers can empower organizations to build more adaptive, responsive, and ethical risk management ecosystems that thrive in uncertainty.

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