EdinBurg Peer-Reviewed Journals and Books Publishers
Journal of Finance and Accounting
Vol. 6||Issue 10||pp 14-29||November||2026
Email: info@edinburgjournals.org||ISSN: 2789-0201

Operational Risk Management in the Telecommunications Industry: An Empirical Analysis of Airtel Kenya's Enterprise Risk Framework

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Accepted: 27 August 2026 || Published: 02 November 2026

Abstract

The telecommunications industry operates within an increasingly complex and rapidly evolving environment characterized by technological innovations, digital transformation, changing customer demands, and growing regulatory pressures. These developments expose firms to operational risks arising from internal processes, systems, people, and external events, which may adversely affect financial performance. This study examined the effect of operational risk management on Kenya Airtel's financial performance. Specifically, the study assessed the influence of process risk, system risk, people risk, and external event risk on the company's financial performance. The study drew on a previous study on operational risk management and profitability of non-withdrawable deposit-taking cooperatives in Nairobi City, Kenya. Theories underpinning the study were risk management theory, financial distress theory, and behavioral theories of profit. The previous study that anchored the present findings measured financial performance using Return on Assets (ROA), while operational risk variables were measured using various constructs. The data were analyzed using descriptive statistics, correlation analysis, diagnostic tests, and Ordinary Least Squares (OLS) regression. The findings provided empirical evidence on the relationship between operational risk management and financial performance in the telecommunications sector and will contribute to the growing body of knowledge on enterprise risk management. The study also offered practical insights for managers and policymakers on strengthening operational risk management practices to enhance organizational resilience and improve financial performance in the telecommunications industry.

Keywords: *Operational Risk, Process Risk, System Risk, People Risk, External Event Risk*

How to Cite: Abongo, Y., Wambisa, C., & Mungai, J. (2026). Operational Risk Management in the Telecommunications Industry: An Empirical Analysis of Airtel Kenya's Enterprise Risk Framework. *Journal of Finance and Accounting, 6*(10), 14-29.

1. Introduction

The telecommunications industry is one of Kenya's fastest-growing sectors, driven by rising demand for cellular communication, internet access, and digital tools. Its role in linking people, fostering commerce, and facilitating access to information and vital services cannot be overstated (Ondiek & Njuguna, 2024; Ngure, 2024). Oladele and Nthama (2024) add that enhancements in communication technology facilitate the digital economy, increase market penetration, and create new market opportunities. The sector is undergoing a radical shift

driven by evolving regulations, technological advances, and changing customer expectations (Hart, 2024). Back then, communications technology, commonly referred to as telephony, focused on voice communication, while data transmission and video links developed separately (Mohammed, 2025). Presently, however, the industry is characterized by digital fusion, where disparities between voice, data and video infrastructure are becoming blurry (Mbilima & Phiri, 2025). Customers increasingly anticipate uninterrupted access to merged voice, data and video services all at a fair deal (Science Direct, 2025). These developments have significantly increased operational execution hurdles while exposing these companies to extensive operational risks that could gradually erode performance and long-term sustainability.

Airtel Kenya Limited is one of Kenya's premier telecommunications companies, having launched its operations in 2010 (Airtel Kenya, 2022). The company is an affiliate of Bharti Airtel, an Indian multinational telecommunications provider. It is currently the second-largest mobile network provider in Kenya, after Safaricom PLC. The company operates in 14 African countries, with a commanding presence in East and West Africa. In Kenya, the company provides services to approximately 16.7million cellular subscribers out of the country's 16.7 million mobile users, representing a 28% share of the market (Communications Authority, 2022). Before it was revamped as Airtel Kenya in November 2010, it underwent several brand overhauls, including Kencell, Celtel, and Zain, before adopting its current name, Airtel (Aggarwal & Garg, 2024). As part of its scaling and market penetration strategy, the company has emphasized making its telephony services more accessible and budget-friendly, thereby enhancing its brand presence in Kenya and across the East African region (Poojitha, Reddy, & Vanajakshi, 2025).

The telecommunications sector has become a critical driver of economic growth, technological advancement, and societal development worldwide (Achibane, 2021). Ongoing developments in digital technologies, changing customer expectations, evolving compliance standards, and the integration of voice, data, and digital services have accelerated change and intensified competition (Panji, 2021). As a result, telecommunication providers must deliver consistent, secure service performance while sustaining investment in network infrastructure, cybersecurity, digital transformation, and enhanced customer experiences. These developments have changed the sector's operational complexity and increased vulnerability to operational risks that can adversely affect the organization's financial performance and long-term sustainability.

Operational risk refers to possible losses arising from insufficient or failed internal processes, human error, system failures, or external events (Vicente, 2023). Unlike financial or market risks, operational risks arise from an institution's routine operations and may include network downtime and service disruptions, cybersecurity incidents, non-compliance with regulatory requirements, fraud and human error, logistics disruptions, and business continuity obstacles (Adiatmayani, 2021). As the industry becomes more computerized and integrated, efficiently governing operational risks has become strategically vital, especially for organizations striving to ensure service reliability, improve customer satisfaction, and sustain competitive advantage (Gitonga & Barasa, 2021). To address these challenges, companies are increasingly adopting enterprise risk management frameworks, investing in resilient network infrastructure, strengthening internal controls, and intensifying governance practices to mitigate operational risks.

Globally, the telecommunications sector has undergone a fundamental transformation driven by digitization, the expansion of high-speed broadband infrastructure, cloud computing, artificial intelligence (AI), the Internet of Things (IoT), and the implementation of fifth-generation (5G) mobile technology (Bongaya, 2022). While these technological breakthroughs have improved service delivery and created new business opportunities, they have also brought greater operational vulnerabilities, including cybersecurity challenges, data privacy concerns, network failures, infrastructure breakdowns, and stricter regulatory expectations (Suryaningsih, 2020). In addition, growing dependence on internet communication platforms among businesses and government agencies has underscored the importance of strong operational risk management to ensure business continuity, protect company resources from loss, and maintain consistent service delivery (Petra, 2022).

In Africa, the industry has grown significantly, emerging as a key driver of economic growth, expanding banking for the underbanked, and supporting digital transformation across the continent (Wijaya, 2022). Cellular network operators have substantially enhanced access to transmission and messaging services, mobile financial solutions, e-learning, and online government services for millions of people.

Kenya is considered one of Africa's most advanced and competitive telephony markets. Industry deregulation has brought many service providers into the market, stimulating competition, innovation, and strategic commitment to communication infrastructure. As a result, the sector has become a key driver of economic growth by bolstering mobile communication, digital financial services, and online commerce.

Operating in a fiercely competitive telecommunications market like Kenya exposes Airtel to a wide spectrum of operational vulnerabilities, including cyber-attacks, technological malfunctions, regulatory compliance requirements, fraud and hooliganism that can disrupt networks, overreliance on third-party suppliers, and employee-related risks. Furthermore, the growing adoption of digital platforms and cloud computing technologies has made the industry's risk landscape more complex, requiring more advanced operational risk management frameworks. Failing to properly identify, evaluate, mitigate, and monitor these exposures may lead to financial losses, reputational damage, regulatory restrictions, service disruptions, and reduced customer trust and confidence.

Hudáková et al. (2023) describe operational risk management strategy as the methodological process of identifying, assessing, mitigating, and reporting operational risks to reduce losses and promote steady operations. In essence, business continuity plans, crisis management, external risks, and human-related issues are all under the umbrella of operational risk (PwC, 2023). To minimize risks and ensure effective outcomes, risk assessments should emphasize actionable corrective measures (Morgan, 2024). Operational risk comprises four variables: internal audit, information technology systems, stakeholder engagement, and external events (Sondakh & Tulung, 2021). Operational risk management and corporate governance are very critical in the telecommunication industry, as top management is normally in a position to have an enterprise-wide view of the organization's activities through a chief risk officer, normally premised under the operational risk management department (Bhatti, Tariq & Rizwan, 2020; Cheng, Nsiah & Ofori, 2020). One of the key responsibilities of board members is to strengthen their risk oversight role, which emphasizes the importance of implementing robust operational risk mitigation procedures (Darlami, 2023). However, many organizations rarely take this

seriously (Vicente, 2024). Many scholars have analyzed strategies for credit risk management, market risk management, and liquidity risk management. This informed the researcher's decision to examine operational risk management strategies in the telecom industry, an under-researched area.

Eceiza (2020) posited that technological advancements, greater data accessibility, new business models and value chains, and increased customer expectations have revolutionized how institutions serve clients, engage third-party stakeholders, and operate internally. This informs the need to adjust institutions' operational exposures to the ever-changing risk landscape. Companies should create a functional risk mitigation plan that aligns with the style, scope, and complexity of their workflows to identify, assess, scrutinize, and reduce these hazards and manage exposures (Fadun & Oye, 2021). The successful implementation of the Basel II and III Accords has helped institutionalize operational risk management frameworks that identify, assess, monitor, and mitigate risks, thereby ensuring financial stability and regulatory compliance (Furqoni, Bukhori & Lorian, 2021).

Although extensive research has examined risk management in financial institutions and the banking sector, relatively little attention has focused on operational risk management in the telecommunications sector, especially in the Kenyan context. Most existing literature focuses on financial performance, customer satisfaction, service excellence, and technological innovation, with minimal emphasis on how operational risk management influences an organization's performance and resilience. Accordingly, this analysis investigates the influence of operational risk management in a telecommunications firm in Kenya, Airtel Kenya. The outcomes are expected to expand the literature on risk management practices and provide practical recommendations to enhance organizational agility and performance in Kenya's telecom sector.

1.1 Problem Statement

Despite Airtel having established a strong presence in the African market, with approximately 23.2 million subscribers in Kenya and 169.4 million subscribers in Africa, and pursuing a high-volume strategy, it has consistently operated on low margins (Essendi, 2025). Airtel Kenya has made a substantial contribution to broadening connectivity, especially in the rural areas of the country (Nyokabi, 2021). Driven by its main objective of supplying reliable communication services to all Kenyans, the company has consistently expanded its network infrastructure into inaccessible and disadvantaged communities (Njuguna, 2025). By upgrading rural connectivity, Airtel has narrowed the digital connectivity gap between rural and urban areas, therefore advocating for equitable development (Aliata, 2025). Statistics show that Kenya's leading telco service provider, Safaricom PLC, which recently expanded to Ethiopia, generates about 28% more profit with 3.7 times fewer customers than Airtel and has a strong footprint in 14 countries across Africa (Njiru, Njeru & Thoronjo, 2025). Airtel's brand name evolved from Kencell in the early 2000s to Airtel in 2010, with Celtel and Zain in between, creating significant operational risk and eroding brand equity among consumers. Beyond brand erosion, the company's ability to leverage the Matthew effect law has also been constrained, which posits that a prolonged competitive edge built over time culminates in compounded organizational benefits. Its rival, Safaricom PLC, has leveraged this vulnerability by consistently executing its foundational approaches, including, among other things, investing in expanding a strong network architecture and initiating per-second billing. As part of strategies

to overcome these obstacles, this study suggests that Airtel Kenya needs to strongly adopt, or rather enhance, existing operational risk management practices meant to systematically detect, analyze, track, control, and monitor operational hazards. A well-designed risk management framework strengthens corporate governance, improves internal controls, supports informed decision-making, and helps ensure the business remains a going concern.

1.2 Study Objectives

i. To examine the influence of internal process-related risks on financial performance of Airtel Kenya.
ii. To assess the effect of system-related risks on financial performance of Airtel Kenya.
iii. To evaluate the role of people-related risks on financial performance of Airtel Kenya.
iv. To determine the impact of external event-related risks on financial performance of Airtel Kenya's Enterprise Risk Management framework

1.3 Research Hypothesis

i. Internal process-related risks have no influence on financial performance of Airtel Kenya.
ii. System-related risks have no influence on financial performance of Airtel Kenya
iii. People-related risks have no influence on financial performance of Airtel Kenya
iv. External event-related risks have no influence on financial performance of Airtel Kenya

2. Literature Review

The section contains a theoretical literature review, an empirical literature review, and a conceptual framework to address Airtel Kenya's enterprise risk management framework.

2.1 Theoretical Review

This section analyzes theories related to Airtel Kenya's enterprise risk management framework. The theories considered are risk management theory and behavioral theories of profit.

2.1.1 Risk Management Theory

Risk management theory, developed by Pyle (1999), focuses on evaluating the importance of risk management in corporations. Eichhorn (2004) stated that financial sustainability and productivity are impacted both directly and indirectly by credit, operational and market risks. Rampini, Viswanathan and Vuillemey (2020) further explain that risk management methods view market risk as a major driver of value loss, defined as a change in an asset's net worth. According to Wu, Olson and Dolgui (2021), fluctuations in prime rates, convertibility rates, price of shares, and merchandise prices form important market variables that impact the value of assets. Eichhorn (2004) argues that this concept challenges tenets of Markowitz's contemporary portfolio theory, which holds that a portfolio's risk is the sum of its individual risk elements. As a result, investors must pay special attention to each constituent. Advocates contend that an investment's risk is determined by return, an element that remains constant despite changes in the investment's overall mix (VanHoose, 2017). When faced with multiple investment options, executives should weigh the potential risks and rewards of selected holdings to choose a portfolio that best reflects owners' objectives (Saunders, Cornett & McGraw, 2006).

Risk management theory was important to this analysis because it provided conceptual premises for understanding how organizations identify, assess, mitigate, and monitor risks that may affect their performance and sustainability. Internal audit and information systems, as operational risk variables, underpin the operationalization of risk management theory because they encompass the mechanisms and structures through which organizations identify, control, and mitigate risk.

One assumption of this theory is that risk emanates from uncertainty in outcomes, which can be quantified or qualified. It has the limitation of reducing complex real-life scenarios to quantifiable metrics, potentially overlooking critical nuances and interdependencies. This theory highlights the importance of risk mitigation in an organization and helps shareholders better understand why substantive resources should be allocated to risk mitigation.

2.1.2 Financial Distress Theory

Financial distress theory was proposed by Baldwin and Scott (1983) and argues that corporations are in a financial crisis when their activities deteriorate to the point that they can no longer settle their bills with ease. Debt default and dividend failure or reduction are the first indicators of financial trouble. As Whitaker (1999) explains, a financial crisis first appears in the first year when inflows fall short of current long-term debt. If the company's cash flow surpasses its current debt obligations, it has the resources to repay its creditors (Ikpesu, Vincent & Dakare, 2020). The inability of financially challenged companies to meet their contractual debt obligations is a key indicator (Jebran, 2024). Before the crisis, however, it is important to understand the detrimental impacts of financial hardship. Boritz (1991) illustrated how a financial crisis can start in an environment of weak economic conditions and costly blunders by incompetent managers. As a result, financial distress theory serves as a watchdog for institutions' shareholders, alerting them to warning signs that should be heeded to avert a possible crisis due to operational issues.

Financial distress theory was important to this study because it emphasizes that operational inefficiencies, high costs, or unmanaged risks can erode an institution's earnings and capital base and lead to potential insolvency or collapse. Therefore, management should strive to contain risks to support sustainability.

One assumption of financial distress theory is that an organization's declining profitability and cash flows are early warning signs of a prospective financial crisis. However, it has a disadvantage: it places more emphasis on financial indicators like profitability while overlooking non-financial indicators such as market dynamics and management incompetence as probable causes of financial distress.

Gakenia (2021) conducted research on monetary risk oversight and financial soundness of cooperative societies that do not allow members to withdraw their shares unless exiting in Nyeri County, Kenya, and used financial distress theory in her investigations.

2.1.3 Behavioral Theories of Profit

Fishbein and Ajzen (1975) put forward behavioral theories of profit, which hold that purpose, which partially determines action, is influenced by viewpoint, personal standards, and perceived control over the activity. These are based on emotional, conventional, and administrative beliefs that can be affected by outside factors, including temperament and demography (Cyert & March 2020). They suggested that the best determinant of conduct is the

desire to act, best explained using the premise of logical behavior, an extension of the premise of organized conduct (Mesnard, 2022). These theories of cognition aid researchers in comprehending how people behave in situations.

Perceived risk has been used to explain buying habits since the 1960s (Loureiro, 2024). In the context of buying habits, perceived risk is the risk a customer feels they are taking when buying products or services from a specific seller, regardless of whether that risk is real (Linnemer, 2022).

Theory of Planned Behavior is part of a closely connected collection of theories that use individuals' views and opinions as the focal point of their intellectual strategy for interpreting behavior (Hasan, 2020). Subjective norms are social constraints placed on an individual based on their beliefs about what other people think they ought to do and their desire to comply (Mubeen & Krishna, 2024). The TPB has been applied extensively in the field of welfare, and it is well suited for predicting behavior and retrospective examination (Armitage & Conner, 2019). Research indicates that the TPB can predict a higher percentage of intention and account for 20–30% of the variation in behavior brought about by interventions. Strong relationships have been documented between conduct and the theory's elements of perceived behavioral influence, as well as feelings toward the behavior. Personal standards and conduct have been demonstrated to be weakly correlated thus far.

Behavioral theories of profit were pertinent to this analysis because they help management understand that profit levels are not solely determined by market forces or rational economic optimization, but also by organizational behavior, decision-making processes, and human interactions within the firm. As such, how stakeholders engage with a firm's operations directly influences profitability. Stakeholder engagement as a variable of operational risk underpinned the theory, as it captured how management, employees, and members interacted, made decisions, and responded to operational risks that ultimately determined a company's direction. One assumption of behavioral theory is that organizations do not always aim to maximize performance but instead seek satisfying levels of performance. A disadvantage is its lack of clear quantitative measures for predicting profitability, making it hard to test effectiveness empirically.

2.2 Empirical Review

This section analyzed past research by other scholars on constructs related to risk management practices and profitability across different contexts.

2.2.1 Process and firm performance

Simbiri, Musiega and Edwin (2023) researched the influence of auditing and risk estimation processes on Western Kenyan DT-SACCOs' financial results. The investigation primarily examined how competitiveness and audits, depending on the risk strategies applied within an organization, influenced these institutions in Western Region Kenya. The initial findings were gathered through questionnaires using a qualitative research technique. The regression analysis revealed that audit strategies based on internal risk significantly influenced the economic success of institutions in the Western Region. The investigation's fragmented methodology for assessing internal control measures may lead to unnecessary or inadequate experiments, costing both time and money. The current study seeks to use an integrated approach to evaluate internal processes and audits in relation to the profitability of NWDT-SACCOs.

Hassan (2023) investigated the internal shift in leadership and organizational effectiveness at Kakamega County Referral Hospital, Kenya. The investigation examined how employee education, corporate culture, organizational structure, and technology use affected organizational operations. The study used a descriptive design. The study presented raw data as means, frequencies, and percentages. The investigation found that staff education, work environment, company layout, and technological advances all positively influenced institutional financial achievement. The study omitted a crucial variable, fraud management, without which implementing internal processes may not significantly improve an institution's financial performance.

Olasehinde (2022) investigated the influence of internal business processes on employees' economic success in Nigerian public enterprises. The study used both longitudinal and cross-sectional survey research methods. Five-Likert Scale. The study gathered data through a questionnaire and observation. The study tested hypotheses using conventional multiple correlation analysis. The study found that internal business processes influenced workforce productivity and effectiveness in Nigerian collective companies. The study has a contextual gap: it investigated the impact of internal processes in Nigerian public enterprises, while the current study seeks to investigate how internal processes and audits affect the economic stability of savings and credit societies offering only back services in Nairobi City County.

Alomar (2020) studied staff entitlement in enhancing company processes, client happiness, and capacity building. He assessed the degree of empowerment at Safeway Company using a predictive-descriptive approach. The study created and distributed a survey and analyzed the data using multiple regression, mean, and standard deviation. The results showed a direct relationship between financial performance and employee empowerment. The study has a methodological gap in using a predictive-descriptive research design that mostly focuses on establishing future patterns based on past data, rather than investigating the cause of one variable on the other. It has limited causal inference, which may affect the validity of the study's results. The researcher used a descriptive research design.

2.2.2 Systems and Profitability

Oluwasola (2022) investigated how internal control measures affected risk evaluation and the production of Nigerian underwriting organizations. The study gathered quantitative data using a cross-sectional research approach. The findings showed that risk evaluation significantly affects the productivity of cover providers in Nigeria. The study had a methodological gap in its cross-sectional design, which may increase the non-response rate and reduce the validity of the analysis. The current investigation used a descriptive research design supported by drop-and-pick questionnaires to improve the response rate.

Ogolla (2022) investigated how internal control mechanisms affected the Capital Markets Authority's financial performance, one of Kenya's state businesses. The study used a descriptive design and included 144 Capital Markets Authority employees as the population. Data was gathered using self-administered questionnaires with closed-ended questions; statistical techniques plus expert opinions were employed for scrutiny. The study found that the authority's control environment played a significant role in achieving financial success and that, to a large extent, the committee panel across all leadership hierarchies emphasized the value of integrity and ethical behavior through their actions. The study identified a determinant of financial performance that alone could not adequately gauge a firm's financial performance.

The current study sought to determine how internal control systems, together with other constructs, affected profitability in NWDT-SACCOs in Nairobi City County.

Mbaruk (2022) assessed the influence of risk mitigation strategies, financial reporting, independent assurance, and internal oversight on the economic achievements of Mombasa County Government. The study population included 108 workers, including first-party auditors, accountants, and executives of the Mombasa County Government, and used a descriptive study design. The study used an informal questionnaire to gather data. Multiple correlations showed that internal audit processes affected the financial performance of the Mombasa County Government. The current study sought to determine how internal control systems, together with other determinants, affect profitability in NWDT-SACCOs in Nairobi City County, rather than evaluating only one component of functional risk.

2.2.3 People and Profitability

Njega (2023) examined how leadership dedication, empowered staff members, dedication to clients, and continuous improvement influenced the profitability of deposit-taking cooperatives in Nyeri County. In an exploratory study, the researchers used informal surveys to collect raw data and distributed them via a drop-and-pick method. Pearson correlation analysis showed a substantial relationship between productivity and employee engagement, leadership commitment, continuous improvement, and attention to client satisfaction. The study did not capture how ineffective systems and controls affect DT-SACCOs' performance; despite staff and management commitment, profitability realization could still face challenges. The current study assessed several variables, namely stakeholder engagement, internal audit, information systems, and external effects, that contribute to cost reduction and profit realization.

Fang, Gunderson, and Long (2021) investigated organizational efficiency and the implementation of worker benefit distribution plans. They examined the relationship between increases in workplace productivity in Canadian companies and the implementation of worker benefit distribution plans, which they argued should be achieved through cooperation. They employed a longitudinal research design. According to the research findings, teamwork with decision-making authority could enhance employee empowerment, motivation, devotion, innovation, and job satisfaction. Using a longitudinal study framework could increase participant non-responsiveness given the study's duration (three and a half years), affecting the study's validity. The current study used a descriptive design with higher participant response rates.

Wang and Zhang (2020) examined job satisfaction and financial performance in shipping businesses using China Shipping Corporation Limited's operating model (CSCLO). Using a descriptive research design, namely survey questionnaires, they investigated the impact of workers' job satisfaction on the business's overall financial success. The study found that, to ensure sustainable development, shipping businesses must address workforce demands while enhancing economic growth. Investigating financial performance based on job satisfaction alone may lead to flawed results. Financial performance is a broad discipline comprising metrics and indicators that evaluate an organization's efficiency, profitability, and overall financial health. The current study evaluated the effect of operational risk management, encompassing four comprehensive constructs, on profitability in NWDT-SACCOs, an objectively measurable aspect of financial performance.

2.2.4 External Events and Profitability

Wu (2023) investigated the effect of China Quality Award (CQA) winners on a company's success. The study used statistics on CQA winners from 2001 to 2016. The study examined prize recipients' exceptional achievement using an incident-study approach. The study used a multiple correlation model to evaluate how circumstances affected the viability and compensation relationship. Findings showed that while CQA did not affect employee productivity, it did affect investment earnings and productivity. Furthermore, companies under oversight that exhibited a high degree of creativity also benefited financially more than rivals. This study had a contextual gap: it was carried out in China, with different market exposure from the current study, which examined operational risk management and profitability in Kenya.

Dae (2022) researched the productivity of businesses in the horticultural segment and the management of foreign exchange risk in Nakuru County, Kenya. The investigation's specific objective was to determine the effect foreign exchange risk management had on the Kenyan horticultural sector's financial performance. The investigation used a causal analysis design to examine multiple horticulture businesses over three years (2019–2021). The study found that foreign exchange risk mitigation strategies notably influenced the productivity of firms dominating Kenya's horticultural industry. This methodological gap is that an explanatory research design involving complex experiments could raise ethical concerns. The current study used descriptive and inferential research designs in studying operational risk management and profitability in Kenya.

Boateng (2021) investigated how ownership structure and outside funding sources affected value in a Chinese corporation. The study used conventional scenario research methods alongside prevalence research analysis to examine correlations between acquiring enterprises' value generation, ownership type, and external finance. While financial institutions' funding had a dismissive but negligible effect on the net worth of government-owned companies, it had a positive relationship with companies owned by individual investors. The study had a methodological gap: cross-sectional regression analysis could not determine the direction of causation for the independent variable. The current study explored operational risk management and profitability using descriptive and inferential designs.

Isiker and Tas (2021) studied the influence of share return on bonus program announcements in eight developing countries from 2010 to 2019. In addition to country-based regression modeling, the authors used the conventional event-study method to determine whether an abnormality was present. The results showed that anomalous returns, a symptom of knowledge leakage, also appeared in certain nations ten days before the release. Only two nations showed the effect persisting after the announcement. While a modest relationship was identified between anomalous returns and other parameters, the magnitude of the bonus issue was found to be highly important in most countries.

2.3 Conceptual Framework

According to Singh (2023), a conceptual framework is a fact-finding tool that summarizes the main ideas, constructs, or variables to be investigated. It identifies the interconnections between the variables under consideration. The conceptual framework below shows the relationship between operational risk management strategies and Airtel Company's financial performance.

EdinBurg Peer-Reviewed Journals and Books Publishers
Journal of Finance and Accounting
Vol. 6||Issue 10||pp 14-29||November||2026
Email: info@edinburgjournals.org||ISSN: 2789-0201

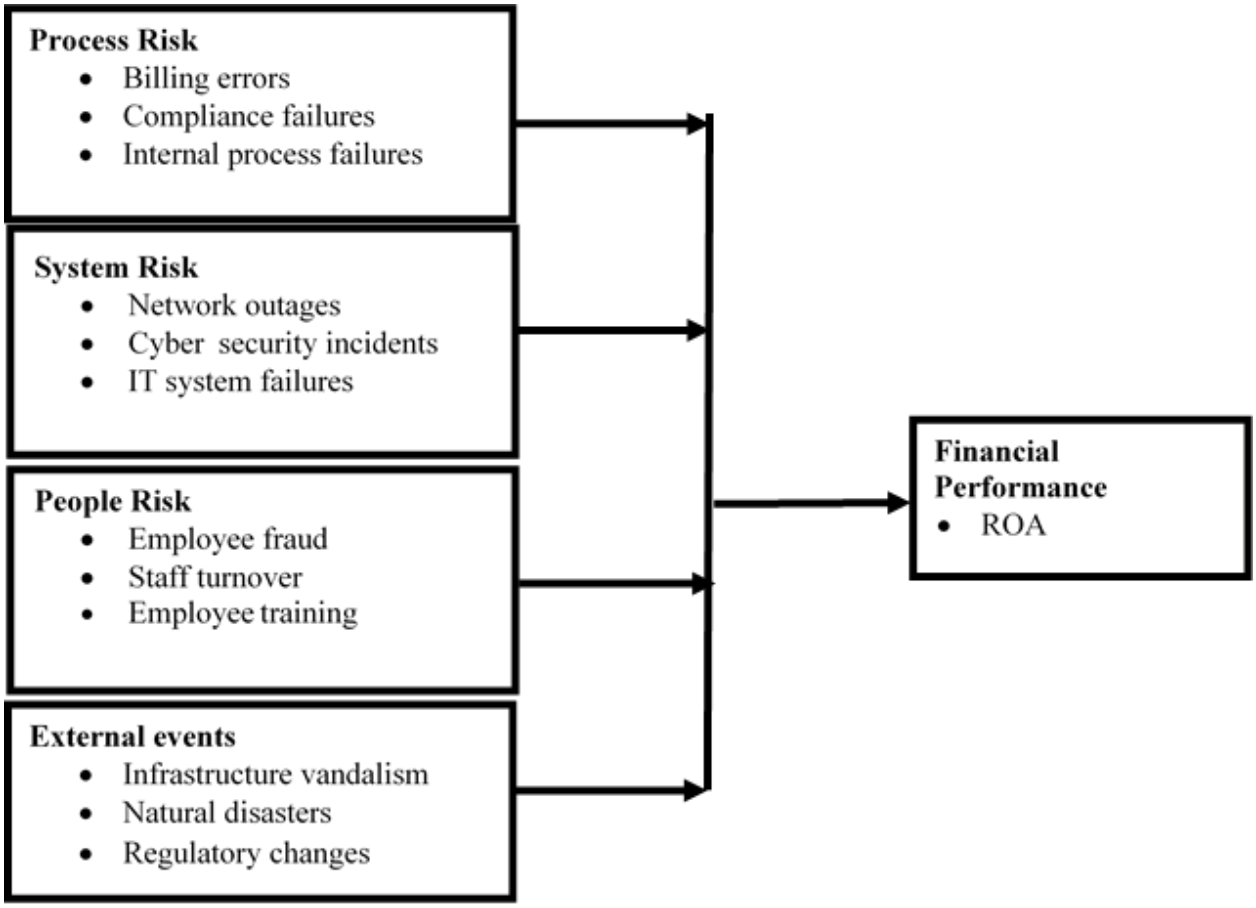


Figure 1: Conceptual Framework

3. Methodology

This section covers the design, procedures, and processes used to validate the hypothesis outlined in the previous section, approaches to interpreting data, pre-estimation tests, and ethical considerations for both the researcher and data privacy.

3.1 Research Design

An explanatory research design will be utilized. This design is widely used when a study's primary purpose is to explain why or how one variable influences another (Simkus, 2023). Rather than merely describing a phenomenon, explanatory research seeks to establish relationships between variables and test hypotheses (Sheth, 2026).

3.2 Empirical Models

The explanatory research framework will help evaluate the correlation between operational risk management variables and Airtel Kenya's financial performance. The models are as below.

$FPt = \beta 0 + \beta_1 PR_t + \beta_2 SR_t + \beta_3 PeR_t + \beta_4 ER_t + \varepsilon t$

Where:

- FPt = Financial Performance
- PRt = Process Risk (Dummy)

EdinBurg Peer-Reviewed Journals and Books Publishers
Journal of Finance and Accounting
Vol. 6||Issue 10||pp 14-29||November||2026
Email: info@edinburgjournals.org||ISSN: 2789-0201

- SRt = System Risk (Dummy)
- PeRt = People Risk (Dummy)
- ERt = External Event Risk (Dummy)
- β0 = Intercept
- β0, β1, β2, β3, β4 = Coefficients showing the effect of operational risk variables

εt = Error term

3.2 Operationalization Table

The table below shows how measurement variables will be utilized.

Table 1: Operationalization and Measurement of Study Variables

Variable	Type	Operationalization	Measurement Indicators
Financial Performance	Dependent Variable	Percentage change in stock market value over time.	Return on Assets (ROA)
Process Risk (PR)	Independent Variable	Process failures, billing errors, compliance breaches, service process disruptions	Dummy variable (1 = major process risk event occurred during the quarter; 0 = otherwise)
System Risk (SR)	Independent Variable	Network outages, IT system failures, cyber security incidents	Dummy variable (1 = significant system failure occurred during the quarter; 0 = otherwise)
People Risk (PeR)	Independent Variable	Employee fraud, human error, labor disputes, staff misconduct	Dummy variable (1 = significant people-related event occurred during the quarter; 0 = otherwise)
External Event Risk (ER)	Independent Variable	Infrastructure vandalism, power outages, regulatory changes, natural disasters	Dummy variable (1 = significant external event occurred during the quarter; 0 = otherwise)

3.3 Research Philosophy

The study will employ a positivist research paradigm. This philosophy, as explained by Irwan (2024), stresses hypothesis testing, establishes causal relationships, and produces generalizable findings through quantitative methods.

3.4 Sampling Design

The study will adopt a census of all quarterly observations of Airtel Kenya during the study period. Quarterly observations provide more in-depth scrutiny of the company's operations than annual observations.

3.5 Data Collection Method

Data extraction tables will be used to extract secondary data from Bharti Airtel Limited's website. Data extraction occurs after eligible data for the study has been selected but before actual analysis and may include qualitative synthesis or quantitative analysis (Taylor, Mahtani & Aronson, 2020).

3.6 Diagnostic Tests

These tests examine the accuracy of statistical hypotheses and whether the regression model satisfies expected assumptions (Numiqo, 2021). Diagnostic tests will therefore be performed to ensure the regression's fundamental assumptions are met.

Normality Tests

Normality tests will be used to assess whether the dataset is well-modeled by a normal distribution and to estimate the likelihood that a random variable underpinning the dataset is normally distributed (Wikipedia, 2024). We evaluate this by performing Shapiro-Wilk tests on the data at a significance level of 5%. A p-value smaller than or equal to the approved significance level implies that the null hypothesis is rejected and that the data do not conform to a normal distribution (Shapiro & Wilks, 1965).

Multicollinearity Tests

Frost (2024) says multicollinearity occurs when independent variables are correlated and their correlation exceeds 0.70 in a linear regression model. In this study, the correlation matrix and the variance inflation factors (VIF) will be used. A VIF of 5 or higher indicates that two independent variables are highly correlated.

Heteroscedasticity Tests

Heteroscedasticity occurs when the residuals' (errors) variability varies across all levels of the independent variable (Frost, 2024). In contrast, homoscedasticity occurs when the residuals are dispersed equally (Fonseca, 2026). Breusch-Pagan test will be used to if variance of the error terms is correlated. If the p-value is less than 0.05, reject the null hypothesis and conclude that heteroscedasticity exists. A p-value above 0.05 implies the absence of heteroscedasticity; therefore, fail to reject the null hypothesis.

Autocorrelation Tests

Autocorrelation refers to the association of residuals across time, disregarding the hypothesis of independence (Investopedia, 2024). When residuals are autocorrelated, standard errors often tend to be underestimated, contributing to inflated test statistics and an increased risk of Type I errors (Singh & Sharma, 2023). This analysis will use the Durbin-Watson statistic to examine this assumption, with values between 1.5 and 2.5 typically indicating no significant autocorrelation (Greene & Dreyer, 2021).

3.7 Ethical Considerations

The study will adhere to anti-plagiarism procedures to ensure that information from other parties is properly acknowledged. Again, data collected will be used explicitly for the intended purpose.

4. Results and Discussion

The discussion drew on insights from previous empirical findings and scholarly literature on operational risk management, since this study did not involve collecting primary or secondary data. The analysis focused on how these existing studies inform and contextualize Airtel Kenya's enterprise risk framework, highlighting patterns, strengths, and gaps in risk management practices.

The study on operational risk management and profitability of cooperative societies in Nairobi County revealed a positive and statistically significant relationship between the four independent variables internal processes, systems, people-related factors, and external events and the profitability of the financial institutions examined. This indicates that effective management of operational risks across these dimensions contributes directly to improved financial performance

4.1 Internal Processes

Cooperative societies with streamlined workflows and strong internal controls achieved higher profitability. Similarly, Airtel Kenya's enterprise risk framework emphasizes process efficiency in service delivery and network operations, reducing downtime and improving customer satisfaction, which directly supports profitability.

4.2 Systems

Robust information technology and operational systems minimized fraud and errors, positively influencing financial outcomes. Airtel Kenya relies heavily on advanced telecom systems and digital platforms. Effective risk management of these systems ensures service reliability, protects revenue streams, and maintains competitive advantage.

4.3 People-Related Risks

Staff competence, training, and accountability were strongly linked to profitability. Airtel Kenya's framework incorporates human resource risk controls, such as continuous training and compliance monitoring, which safeguard against operational lapses and enhance organizational resilience

4.4 External Events

Proactive management of regulatory, market, and environmental risks strengthened financial stability. Airtel Kenya faces external risks such as regulatory changes, cyber threats, and market competition. Its enterprise risk framework addresses these challenges, ensuring adaptability and sustained profitability in a dynamic telecom environment.

5. Conclusion

The previous study on operational risk management and profitability of cooperative societies in Nairobi County revealed a positive and statistically significant relationship between four independent variables internal processes, systems, people-related risks, and external events and profitability. Each dimension enhanced financial performance when managed effectively.

The current study on Airtel Kenya's enterprise risk framework reflects similar findings: streamlined processes, robust systems, effective human resource management, and proactive handling of external risks are equally critical in ensuring operational resilience and profitability in the telecommunications industry.

6. Policy Implementation of the Study

The findings of this study underscore the need for operational risk management policies that are both comprehensive and enforceable. Effective implementation requires integrating risk controls into daily operations, ensuring compliance with regulatory frameworks, and fostering a culture of accountability across all levels of the organization. For Airtel Kenya, this means translating the enterprise risk framework into actionable policies that safeguard profitability while enhancing resilience against internal, system, people-related, and external risks.

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