

AN EVALUATION OF PROJECT RISK MANAGEMENT PRACTICES IN ETHIOPIA TELECOMMUNICATIONS SECTOR: A MOBILE MONEY PROJECT PERSPECTIVE

Memar Belete Asires¹, Arvinder Singh Chawla², Trapti Tak³ and Dr. Navneet Seth⁴

¹Department of Management, PhD Candidate, Guru Kashi University, Talwandi Sabo, Punjab 151302, India.
Email: memarbelete2014@gmail.com

²Department of Management, Professor, Guru Kashi University, Talwandi Sabo, Punjab 151302, India. Email:
chawlaas4207@gmail.com

³Department of Management Studies, Assistant Professor, Vivekananda Global University, Jaipur, Rajasthan,
India. Email: traptitak99@gmail.com

⁴Associate Professor, Faculty of Management and Commerce, Guru Kashi University, Talwandi Sabo, Punjab,
India. Email: navneetsethdhuri@gmail.com

Corresponding Author: memarbelete2014@gmail.com

ABSTRACT

Mobile money platforms are changing how people in Sub-Saharan Africa can access financial services but companies who build and deploy them work in very risky situations. Based on experiences of mobile money projects like Telebirr and M-Pesa Ethiopia, this paper looks at the current state of project risk management (PRM) in Ethiopia telecoms industry. The study uses a mixed-methods approach including a structured survey of 130 industry professionals, in-depth semi-structured interviews and targeted document review. It finds and ranks eight main types of risk, including regulatory and policy uncertainty, cybersecurity and digital fraud, infrastructure connectivity gaps, workforce skills deficits, interoperability problems, currency volatility, weak stakeholder coordination and vendor dependence. The results show that there is a big difference between how well organizations can find risks and how ready they are to deal with them. The most serious risks were regulatory and cybersecurity ones, while contingency planning and monitoring capacities were still not very good. This study suggests a five-pillar methodology for improving risk management and gives specific policy and operational advice for telecom-led mobile money operations in Ethiopia and other emerging markets.

Keywords: project risk management, mobile money, Ethiopia, telecommunications, financial inclusion, digital finance, Telebirr

How to cite this article: Asires MB, Chawla AS, Tak T, Seth N. An Evaluation of Project Risk Management Practices in Ethiopia Telecommunications Sector: A Mobile Money Project Perspective. *Int J Drug Deliv Technol.* 2026;16(67s):1823-1831. DOI: 10.25258/ijddt.16.67s.164

1. Introduction

Across the globe, project risk management (PRM) has been regarded as a basic subject that decides whether complex organisational efforts accomplish their intended objectives or fall short [1]. The challenge becomes more difficult when projects work in circumstances that are unstable and change quickly, which is the case for every mobile money project started in Sub-Saharan Africa. Mobile money has been most essential way to get financial services to people who do not have good bank accounts services in their areas or they do not have enough time to go to their banks. Over 709 million mobile money accounts had been set up on continent by 2023. Rules and laws in many host countries are still developing, risks to cybersecurity are growing

and costs of failure are considerable for both society and economy [3].

Ethiopia is at the center of this change. country contains more than 120 million inhabitants and has historically had one of the most cash-heavy economies on the continent. Recently, however, use of digital money has grown quite quickly. In May 2021, state-owned company Ethio telecom launched Telebirr. This platform had more than 36 million users and over a trillion Ethiopian Birr worth of transactions in just two years. The market had been run by one company until August 2023, when Safaricom M-Pesa Ethiopia entered it. This brought new competition and problems with how to run the market. These are not small-scale tests they are big infrastructure projects with many stakeholders that need careful risk management at every step [4].

AN EVALUATION OF PROJECT RISK MANAGEMENT PRACTICES IN ETHIOPIA TELECOMMUNICATIONS SECTOR: A MOBILE MONEY PROJECT PERSPECTIVE

Nevertheless, there has not been much empirical research done on how these initiatives really identify, evaluate and mitigate risk.

This paper fills that gap. We used a variety of research methods to get most complete picture of PRM practices in Ethiopia telecom-led mobile money ecosystem. This included a structured survey of 130 professionals, 18 in-depth interviews and a careful reading of organizational and regulatory papers. We measure difference between being able to detect problems and being ready to deal with them, list and describe main types of risk and offer a five-pillar model for improvement based on real-world data and larger project management literature [5].

Research

Objectives

The investigation is structured around the following objectives:

1. To identify and rank principal risk factors affecting mobile money projects in Ethiopia telecommunications sector.
2. To assess gap between risk identification capability and actual mitigation readiness across different risk categories.
3. To evaluate maturity level of Project Risk Management (PRM) practices and propose an enhancement model suitable for Ethiopian context.

2. Literature Review

2.1 Project Risk Management: Theoretical Foundations

The academic study of project risk management has evolved substantially over past two decades. Early frameworks concentrated on cost and schedule deviations, treating risk as a narrowly quantifiable phenomenon. Contemporary scholarship has moved decisively toward holistic, value oriented models that encompass organisational learning, stakeholder confidence and long-term sustainability [6]. In the field of technology-heavy projects, Selvakumar et al. showed through a large-scale empirical study that five main parts of risk management in which we have identification, assessment, response planning, monitoring and communication. each help IT projects succeed on their own but their combined effect is much greater than sum of their individual effects [5].

The Project Management Body of Knowledge (PMBOK) and the ISO 31000 set of standards have long served as major reference designs for designing PRM processes. Zhu et al. [4] extended these frameworks by introducing interdependence modelling through the DEMATEL method demonstrating that risks in large, complex projects do not behave independently: a trigger event in one risk domain say, a regulatory change routinely amplifies threats in technological and operational domains. Since financial, technological and regulatory risks are closely linked in mobile money projects, their analytical lens is immediately

applicable. Sendstad et al. [7] conducted more research on the interplay between risk and opportunity in technology-driven firms, demonstrating that companies that use risk acceptance as a strategic tool rather than only a defensive concern achieve greater capacity utilization and expedited time to market. This point of view is especially important for telecom companies in Ethiopia where they have to balance their desire to grow their services with their responsibilities for cybersecurity and following rules.

Testorelli and Verbano [8] used a PRM framework on IT consulting company and found direct empirical link between how well the firm identified risks and overall value created by its project portfolio. Their case study takes place in Europe but it provides a methodology framework that is used in this study to adapt to the mobile money setting in Ethiopia.

2.2 Risk Management in Developing-Country Contexts

The developing countries setting brings layers of risk that mainstream project management literature typically underestimates. Standard risk registers and probability matrices need to be significantly recalibrated due to institutional fragility which includes lax enforcement of contracts, lack of judicial independence and uneven execution of rules [9]. Kukaha et al. [10] showed this rigorously through a structural equation model applied to power projects in Ghana it shows us that interrelationships among risk factors turned out to be significantly more complex than additive assumptions incorporated into traditional matrices. Their finding that one upstream risk might increase three or four downstream risks at same time it has important implications for mobile money projects. For example, cybersecurity breach can lead to regulatory scrutiny, loss of user confidence and problems with liquidity all at the same time.

The World Bank Group [11] recently talked about how easy it is for knowledgeable hackers to attack digital infrastructure of financial sector in emerging countries. When they looked at regulatory frameworks in 40 countries they found that less than one-third had put in place cyber-risk stress-testing standards like those in G-20 countries. Ethiopia is not yet one of countries with a full cyber-stress framework. This makes the study results on cybersecurity preparation even more important.

Adeniyi and Ogundimu [12] created a comprehensive risk assessment methodology for mobile money operations in Nigeria focusing on mobile financial services. They discovered that regulatory fragmentation and cybersecurity gaps were two most important risk factors. They also found that firms that included regulatory monitoring in their project-level risk registers far better at fulfilling delivery dates than those that handled

AN EVALUATION OF PROJECT RISK MANAGEMENT PRACTICES IN ETHIOPIA TELECOMMUNICATIONS SECTOR: A MOBILE MONEY PROJECT PERSPECTIVE

compliance as a separate, after-the-fact effort. Vučinić and Luburić [13] both put fintech firms in a risk-based thinking framework on their own. They added that cyber risk is becoming important aspect of the operational identity of any digital financial service. Their conceptual framework corresponds with comprehensive taxonomy established by Mehrban et al. [14] which enumerated complete spectrum of risks confronting FinTech entities worldwide and recognized amalgamation of technological, regulatory and operational uncertainties as a characteristic structural attribute of industry.

2.3 The Ethiopian Mobile Money Context

Ethiopia mobile money market is unique since it has quickly relaxed its rules and has been dominated by one state-affiliated operator for a long time. In 2013, National Bank of Ethiopia released its first Mobile Money and Agent Banking directive. Changes in 2020 and 2023 made it easier for non-bank companies and foreigners to get involved in the sector. By December 2023, number of mobile money accounts grown from about 15 million in 2021 to over 90 million [15]. Telebirr, which made in partnership with Huawei shows how big and ambitious these programs are: it has worked with 25 commercial banks, hired over 145,000 agents across the country and added micro-lending and micro-saving services [16].

Yet GSMA 2023 research in Ethiopia surfaced persistent operational challenges, most notably liquidity management at the agent level which agents themselves identified as single biggest barrier to running a mobile money business sustainably [17]. Safaricom arrival in August 2023 has made market more competitive which has led to debates about how to fairly distribute regulatory benefits and if market is too concentrated [6]. AfricaNenda 2024 report on Ethiopia digital payments journey talked about countries ambitious National Digital Transformation Strategy 2025. It also warned that peed of policy changes could become a risk factor if project teams are not ready to keep up with changing needs in real time [18]. Ragas et al. [19] documented analogous governance gaps in industrial project settings across Eastern Europe recommending that contingency planning be elevated from an optional exercise to a core governance mandate advice that translates directly to the Ethiopian mobile money context.

3. Methodology

3.1 Research Design

This study adopts a mixed-methods approach integrating quantitative survey data with qualitative information gathered through semi-structured interviews and review of publicly available organisational and regulatory documents. A mixed-methods methodology was adopted because study aims require both statistical breadth to rank and evaluate risk factors across companies and

interpretive depth that only qualitative inquiry can provide [20]. Figure 1 shows conceptual framework that guides this study. It connects risk categories to assessment methods, response options and project performance outcomes.

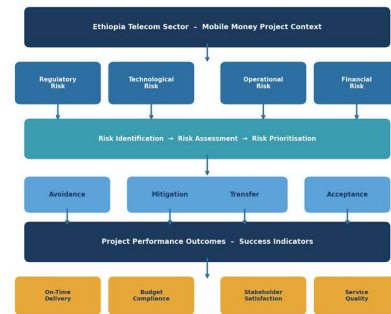


Figure 1: Conceptual Framework – Risk Management in Ethiopia's Mobile Money Projects

3.2 Sampling and Data Collection

The survey instrument was administered to 130 professionals drawn from organisations directly involved in design, deployment or governance of mobile money projects in Ethiopia. Participants selected through purposive sampling to ensure representation across four organisational categories: Ethio telecom, Safaricom Ethiopia, commercial banks with active mobile money integrations and fintech start-ups operating under National Bank of Ethiopia licences. The research sampling philosophy draws on argument by Almeile et al. [21] that purposive strategies are essential in developing-country contexts where relevant project population is small and access depends on institutional relationships. Demographic profile of respondents is summarised in Table 1.

Category	Sub-Category	Frequen cy	Percenta ge (%)
Gender	Male	78	60.0
	Female	52	40.0
Job Role	Project Manager	34	26.2
	Risk Analyst	28	21.5
	IT/Operations Lead	33	25.4
	Senior Consultant	22	16.9
	Other	13	10.0
Experience	1-3 Years	29	22.3
	4-7 Years	48	36.9
	8-12 Years	36	27.7
	13+ Years	17	13.1
Organisation	Ethiotelecom	42	32.3
	Safaricom Ethiopia	31	23.8
	Commercial Banks	37	28.5

AN EVALUATION OF PROJECT RISK MANAGEMENT PRACTICES IN ETHIOPIA TELECOMMUNICATIONS SECTOR: A MOBILE MONEY PROJECT PERSPECTIVE

Fintech	20	15.4
Start-ups		

Table 1: Demographic Profile of Survey Respondents (n = 130)

Semi-structured interviews conducted with 18 individuals drawn from survey pool, selected to capture senior decision-makers and technical specialists from each organisational type. Interviews lasted between 35 and 55 minutes, were recorded with informed consent, transcribed verbatim and analysed thematically. Document review covered Ethio telecom annual performance reports, National Bank of Ethiopia policy directives, GSMA research publications and AfricaNenda digital-payments tracking materials.

3.3 Analytical Framework

Quantitative data were analysed using descriptive statistics specifically, mean scores and standard deviations on a five-point Likert scale, Pearson correlation analysis across the five PRM capability dimensions and gap analysis comparing risk identification scores against mitigation readiness scores for each risk category were used to analyze quantitative data. In order to validate and contextualize the statistical patterns, qualitative data from interviews were coded using inductive thematic method and then cross-referenced with quantitative results. This convergent integration approach adheres to methodological recommendations provided by Wu et al. [22] who showed that combining qualitative stakeholder narratives with quantitative project-performance data produces richer and more useful insights than either approach alone.

4. Results and Discussion

4.1 Risk Severity Perception

Respondents asked to rate severity of eight risk factors on a five-point Likert scale ranging from "not severe at all" to "extremely severe." The mean scores, standard deviations, derived risk levels and rank positions are reported in Table 2 and full Likert distribution across all response categories is visualised in Figure 2.

Risk Factor	Mean Score	Std Dev.	Risk Level	Rank
Regulatory & Policy Uncertainty	4.32	0.61	High	1
Cybersecurity & Digital Fraud	4.28	0.58	High	2
Infrastructure & Connectivity Gaps	3.97	0.72	Moderate-High	3

Workforce Skills & Capacity	3.84	0.67	Moderate-High	4
Interoperability & Integration	3.76	0.74	Moderate	5
Currency Volatility & Inflation	3.61	0.79	Moderate	6
Stakeholder Coordination	3.45	0.81	Moderate	7
Gaps Vendor & Supplier Dependency	3.38	0.76	Moderate	8

Table 2: Risk Factor Severity Scores (Five-Point Likert Scale, n = 130)

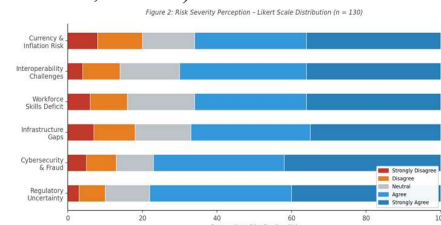


Figure 2: Likert Scale Distribution of Risk Severity Perception (n = 130)

Regulatory and policy uncertainty received highest mean score (4.32) reflecting rapidly shifting legal environment in which mobile money projects operate. Interview participants corroborated this quantitative finding describing specific instances in which mid-project rule changes forced significant re-design of compliance workflows and delayed go-live timelines by several months. Carnegie Endowment 2024 report on African digital financial services documented a similar pattern of regulatory volatility across continent [23], reinforcing view that regulatory risk is not unique to Ethiopia but is amplified by the countries relatively nascent supervisory architecture.

Cybersecurity and digital fraud placed second in severity (4.28) which is consistent with fraud typologies described in Nigerian mobile money systems by Adeniyi and Ogundimu [12] and broader continent-wide escalation of cyber threats noted by Akinbowale et al. [3]. Several respondents highlighted specific vulnerability of USSD-based transaction channels which lack the encryption layers found in dedicated smartphone applications. Infrastructure and connectivity limitations (3.97) seen as the third most serious risk especially among responders linked with rural-facing service rollouts. The workforces skills deficit (3.84) highlighted in both survey scores and interviews: project leaders emphasized that pace of technological change exceeds capability of existing training programs resulting in a chronic competency gap that worsens over time.

AN EVALUATION OF PROJECT RISK MANAGEMENT PRACTICES IN ETHIOPIA TELECOMMUNICATIONS SECTOR: A MOBILE MONEY PROJECT PERSPECTIVE

Interoperability and integration challenges (3.76) and currency volatility (3.61) fill the middle band of severity spectrum. Interoperability risks are particularly relevant given Ethiopia ongoing efforts to create a national digital payments switch; until that infrastructure is fully operational, mobile money platforms must rely on bilateral integration agreements that are costly to maintain and fragile under load. Although vendor and supplier dependency (3.38) came in last it is still important to pay attention to it because platform technology is concentrated in the hands of a few international providers most notably Huawei and Amdocs which means that supply-chain interruptions or licensing disputes could significantly impact project continuity.

4.2 Identification-Mitigation Gap Analysis

A critical finding of this study is the persistent gap between the capacity of organisations to identify risks and their readiness to mitigate them. This pattern is consistent with observations by Osei-Kyei et al. [9], who found in a scientometric review of PPP risk literature that identification maturity routinely outpaces response capability in developing-country settings. Figure 3 presents this gap across five risk categories derived from both the survey and interview data.

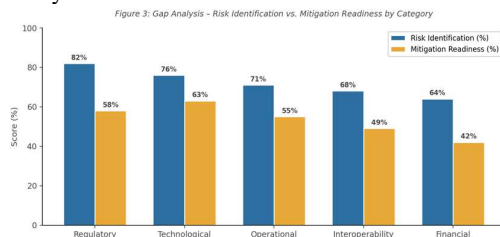


Figure 3: Gap Analysis – Risk Identification vs. Mitigation Readiness by Category

Regulatory category shows the widest gap: while 82 percent of respondents reported that regulatory risks actively monitored, only 58 percent indicated that concrete mitigation plans were in place. Technological category follows closely with identification rate of 76 percent but a mitigation readiness of only 63 percent. financial risk category exhibited narrowest identification rate (64 percent) and also the lowest mitigation readiness (42 percent) suggesting that currency and inflation risks are both under-monitored and under-prepared for a finding that underscores need for dynamic hedging mechanisms and dedicated reserve-fund strategies. Table 3 provides a detailed picture of the key mitigation techniques provided by respondents coupled with self-assessed efficacy scores and current implementation status.

Risk Category	Primary Mitigation Strategy	Effectiveness Score	Implementation Status
---------------	-----------------------------	---------------------	-----------------------

Regulatory	Continuous regulatory liaison & compliance auditing	4.18	Fully Implemented
Cybersecurity	Multi-layer encryption & real-time threat monitoring	4.35	Partially Implemented
Infrastructure	Phased network rollout with redundancy design	3.92	In Progress
Workforce	Structured training & knowledge-transfer programmes	3.78	Partially Implemented
Interoperability	Unified API gateway & national switch integration	4.01	In Progress
Financial	Dynamic hedging & reserve-fund allocation	3.55	Planned

Table 3: Mitigation Strategies and Implementation Status by Risk Category

Multi-layer encryption and real-time threat monitoring, primary cybersecurity mitigation strategy, received highest effectiveness score (4.35) yet remains only partially implemented, a gap that demands urgent organisational attention given severity ranking of cybersecurity risk. Continuous

AN EVALUATION OF PROJECT RISK MANAGEMENT PRACTICES IN ETHIOPIA TELECOMMUNICATIONS SECTOR: A MOBILE MONEY PROJECT PERSPECTIVE

regulatory liaison and compliance auditing is only strategy that has reached full implementation status which partly explains why regulatory risk identification is so much more mature than the other categories. Financial mitigation through dynamic hedging and reserve-fund allocation is in its early stages ("Planned") corresponding with low identification and preparedness scores obtained in that category.

4.3 PRM Capability Maturity

To assess overall maturity of PRM practices, this study measured scores across five capability dimensions: risk identification, risk assessment, contingency planning, stakeholder engagement and monitoring and control. The composite scores for each dimension are displayed in Figure 4 and inter-dimensional correlation structure is presented in Table 4.

Figure 4: Composite Risk Management Capability Radar

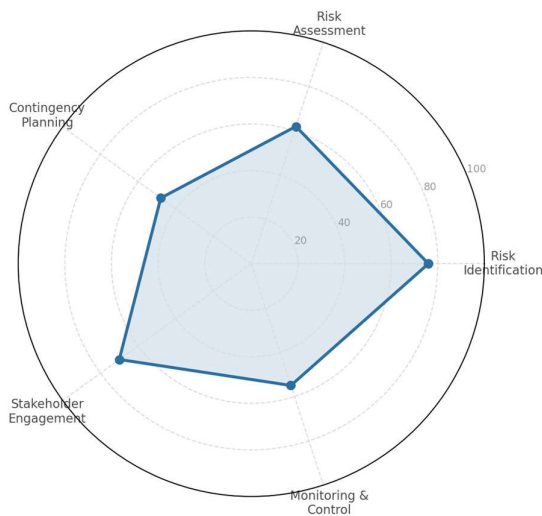


Figure 4: Composite Risk Management Capability Radar

Dimension	Risk ID	Risk Assessment	Contingency	Stakeholder Eng.	Monitoring
Risk Identification	1.00	0.78*	0.52*	0.69*	0.61*
Risk Assessment	0.78*	1.00	0.64*	0.71*	0.73*
Contingency Planning	0.52*	0.64*	1.00	0.58*	0.67*
Stakeholder Engagement	0.69*	0.71*	0.58*	1.00	0.62*
Monitoring & Control	0.61*	0.73*	0.67*	0.62*	1.00

Monito	0.	0.7	0.67*	0.62*	1.00
ring &	61	3*			
Contro	*				
l					

Table 4: PRM Capability Dimensions of Pearson Correlation Matrix (* p < 0.05)

Risk identification (76) and stakeholder engagement (70) are two strongest capability dimensions while contingency planning (48) and monitoring and control (55) lag significantly behind. Correlation matrix confirms that all five dimensions are positively and statistically significantly inter-related. Strongest off-diagonal correlation is between risk identification and risk assessment ($r = 0.78$) suggesting that organisations which invest in quality of their identification processes also tend to develop stronger assessment capabilities. This coupling is consistent with the integrated framework arguments of Santos-Olmo et al. [24] who demonstrated that upstream PRM activities create data foundations on which downstream activities depend.

It is especially telling that there is a comparatively small association (range from 0.52 to 0.67) between contingency planning and other four aspects. It shows that in majority of organizations surveyed contingency planning is not yet naturally linked to remainder of risk management process. This supported by interview data which showed that many participants viewed contingency plans as documents created at start of a project and then infrequently reviewed rather than as dynamic elements of a continuous risk-response cycle. Similar disconnections in industrial project settings were noted by Ragas et al. [19] who suggested treating contingency planning as a governance priority rather than a discretionary activity. Real-time dashboards and automated escalation procedures are required throughout the industry as indicated by monitoring and control dimensions score of 55 which is likewise below midpoint.

5. Proposed Five-Pillar Risk Management Enhancement Model

Drawing on empirical findings reported in Section 4 and theoretical frameworks examined in Section 2, we suggest a five-pillar approach tailored to address the specific deficiencies observed in Ethiopian mobile money project risk management. This model is constructed around the following dimensions in which each directly traceable to one or more empirical gaps identified in this study:

1. **Regulatory Alignment Pillar.** This pillar establishes a dedicated, continuously updated compliance function that tracks National Bank of Ethiopia directives in real time and embeds regulatory risk responses into project planning from outset. It addresses both highest-ranked risk factor and widest identification to mitigation gap

AN EVALUATION OF PROJECT RISK MANAGEMENT PRACTICES IN ETHIOPIA TELECOMMUNICATIONS SECTOR: A MOBILE MONEY PROJECT PERSPECTIVE

identified in this study. The function should operate as a cross-organisational working group that convenes quarterly to align compliance calendars across Ethio telecom, Safaricom and participating banks.

2. **Cyber-Defence Pillar.** End-to-end encryption for USSD and mobile application interfaces, AI-powered anomaly detection for real-time transaction monitoring and mandatory biometric authentication rollout schedule are just a few of multi-layered cybersecurity controls implemented across all transaction channels by this pillar. It expands ISO 27001:2022 and PCI DSS certification standards that Ethio telecom has already attained [16] into a project-level risk-response strategy that is evaluated following each material security incident.
3. **Infrastructure Resilience Pillar.** This pillar requires phased network rollout plans with built-in redundancy at each tier, agent liquidity buffers based on seasonal demand patterns and connectivity-fallback procedures for low-coverage rural areas. It draws directly on tGSM-A documented findings that liquidity at agent level is primary operational constraint to long-term mobile money provision in Ethiopia [17] and suggests that project plans treat liquidity risk as a first-class infrastructure concern rather than an afterthought.
4. **Human Capital Development Pillar.** This pillar creates organized training programs that encompass both technical proficiency and fraud awareness for project teams, agents and end users. In almost every interview, labor skills shortage reaffirmed, ranking fourth in severity. In their study of sustainable project management, Wu et al. [22] showed that investing in human capital improves an organizations ability to identify and react to new hazards in real time rather than just lowering risk.
5. **Contingency and Monitoring Pillar.** This pillar formalises contingency planning through quarterly scenario-based exercises and annual stress tests that replicate regulatory shocks, cybersecurity breaches and liquidity crises. It also updates monitoring systems to give real-time dashboards and automated alert-escalation mechanisms. The necessity for this pillar is validated by two lowest-scoring dimensions in radar analysis (contingency planning at 48, monitoring and control at 55) and by the rising relevance of predictive analytics in financial sector risk

management emphasized by Chinoda and Kapingura [25].

These five pillars work together to create a cohesive, evidence-based enhancement model that addresses particular weaknesses found in this study while still being flexible enough to adjust to the institutional realities of Ethiopia telecom industry and more generally broader dynamics of mobile money adoption throughout East Africa.

6. Conclusion

This study provided first comprehensive, empirical assessment of project risk management practices within Ethiopia telecom-led mobile money ecosystem. The results show strong foundation in risk detection skills but a notable deficiency in monitoring, contingency planning and mitigation readiness, gaps that seriously jeopardize the long-term viability and user trust of mobile money initiatives nationwide.

Regulatory uncertainty and cybersecurity risks dominate the risk environment showing both nascent state of Ethiopia digital finance regulatory architecture and continent-wide escalation of cyber threats targeting financial services [3, 23]. Persistent disconnect between maturity of identification processes and readiness of response processes is this study most consequential finding: organisations know what risks they face but have not yet built organisational capacity to respond to them at speed that environment demands.

If organizational leadership in both public and commercial sectors views risk management as a strategic goal rather than a compliance afterthought suggested five-pillar enhancement model provides a workable solution to close these gaps. Coordinated investment across regulatory, technological, human-capital and governance aspects will be necessary for implementation; nevertheless with amount of resources now being mobilized for digital financial inclusion in Ethiopia this challenge is well within reach.

Future research should extend survey instrument to a larger and more geographically dispersed sample, incorporate longitudinal tracking of actual risk events and their outcomes and compare PRM maturity across multiple East African mobile money ecosystems to enable cross-country benchmarking. A focused empirical study in Ethiopian setting is also necessary for incorporation of machine-learning technologies for predictive risk assessment area that Chinoda and Kapingura [25] noted as a promising future for Sub-Saharan African fintech.

Acknowledgements

authors gratefully acknowledge cooperation of Ethio telecom, Safaricom Ethiopia, National Bank of Ethiopia and numerous survey participants and interviewees whose insights made this research possible. Funding for this study was provided in part by Ethiopian Science and Technology Ministry

AN EVALUATION OF PROJECT RISK MANAGEMENT PRACTICES IN ETHIOPIA TELECOMMUNICATIONS SECTOR: A MOBILE MONEY PROJECT PERSPECTIVE

Research Grant Programme (Grant No. EST-2024-0417).

References

- [1] Testorelli, R., Tiso, A., & Verbano, C. (2024). Value creation with project risk management: A holistic framework. *Sustainability*, 16(2), 753. <https://doi.org/10.3390/su16020753>
- [2] Osabutey, E. L. C., & Jackson, T. (2024). Mobile money and financial inclusion in Africa: Emerging themes, challenges and policy implications. *Technological Forecasting & Social Change*, 202, 123339. <https://doi.org/10.1016/j.techfore.2024.123339>
- [3] Akinbowale, O. E., Klingelhöfer, H. E., Zerihun, M. F., & Mashigo, P. (2024). Development of a policy and regulatory framework for mitigating cyberfraud in the South African banking industry. *Heliyon*, 10(1), e23491. <https://doi.org/10.1016/j.heliyon.2023.e23491>
- [4] Zhu, F., Hu, H., & Xu, F. (2022). Risk assessment model for international construction projects considering risk interdependence using the DEMATEL method. *PLoS ONE*, 17(5), e0265972. <https://doi.org/10.1371/journal.pone.0265972>
- [5] Selvakumar, S., Mareddy, A., & Kolar, S. (2024). Risk management components and IT project success: An empirical investigation. *Journal of Systems and Software*, 208, 112112. <https://doi.org/10.1016/j.jss.2024.112112>
- [6] Ndubueze, P. N., & Adewale, A. (2024). The effect of financial technology on financial inclusion in Ethiopia during the digital economy era. *Cogent Social Sciences*, 10(1), 2309000. <https://doi.org/10.1080/23311886.2024.2309000>
- [7] Sendstad, L. H., Chronopoulos, M., & Hagspiel, V. (2023). Optimal risk adoption and capacity investment in technological innovations. *IEEE Transactions on Engineering Management*, 70(2), 576–589. <https://doi.org/10.1109/TEM.2021.3056142>
- [8] Testorelli, R., & Verbano, C. (2022). An empirical framework to sustain value generation with project risk management: A case study in the IT consulting sector. *Sustainability*, 14(19), 12117. <https://doi.org/10.3390/su14191201>
- [9] Osei-Kyei, R., Jin, X., Nnaji, C., Akomea-Frimpong, I., & Wuni, I. Y. (2023). Review of risk management studies in public-private partnerships: A scientometric analysis. *International Journal of Construction Management*, 23(6), 2419–2430. <https://doi.org/10.1080/15623599.2022.2063013>
- [10] Kukaha, A. S. K., Owusu-Manu, D.-G., Badu, E., & Asamoah, E. (2024). Structural equation model for evaluating interrelationships among risks inherent in Ghanaian PPP power projects. *Engineering, Construction and Architectural Management*, 31(6), 2327–2352. <https://doi.org/10.1108/ecam-10-2022-0943>
- [11] World Bank Group. (2023). Financial sector's cybersecurity: Regulations and supervision – Emerging markets update. Washington, DC: World Bank. <https://doi.org/10.1600/978-1-4643-4069-7>
- [12] Adeniyi, O. S., & Ogundimu, T. A. (2024). Integrated risk assessment frameworks for mobile financial services in Nigeria. *Journal of Risk and Financial Management*, 17(8), 347. <https://doi.org/10.3390/jrfm17080347>
- [13] Vučinić, M., & Luburić, R. (2022). Fintech, risk-based thinking and cyber risk. *Journal of Central Banking Theory and Practice*, 11(2), 27–53. <https://doi.org/10.2478/jcbtp-2022-0012>
- [14] Mehrban, S., Nadeem, M. W., Hussain, M., Ahmed, M. M., Hakeem, O., & Saqib, S. (2020). Towards secure FinTech: A survey, taxonomy, and open research challenges. *IEEE Access*, 8, 23391–23406. <https://doi.org/10.1109/ACCESS.2020.2970430>
- [15] National Bank of Ethiopia (NBE). (2023). National Digital Payments Strategy – Phase One Review Report. Addis Ababa: NBE.
- [16] Ethio telecom. (2024). Annual Business Performance Report 2023/2024. Addis Ababa: Ethio telecom Public Limited Company. <https://www.ethio telecom.et>
- [17] GSMA. (2023). Mobile money in Ethiopia: Advancing financial inclusion and driving growth. London: GSMA Mobile for Development.
- [18] AfricaNenda. (2024). Ethiopia's digital payments journey: Leveraging the national digital transformation strategy 2025. Nairobi: AfricaNenda Foundation. <https://www.africanenda.org>
- [19] Ragas, A. A. M. A., Chupin, A., Bolsunovskaya, M., Leksashov, A., Shirokova, S., & Senotrusova, S. (2023). Accelerating sustainable and economic development via scientific project risk management model of industrial facilities. *Sustainability*, 15(16), 12942. <https://doi.org/10.3390/su151612942>
- [20] Javaid, M., Sajid, M., Masood, K., & Khan, Z. (2022). Examining the impact of project management methodology on construction project success: Risk management as a mediator. *Sustainable Business and Society in Emerging Economies*, 4, 151–166. <https://doi.org/10.4236/ajibm.2022.1212102>
- [21] Almeile, A. M., Chipulu, M., Ojiako, U., Vahidi, R., & Marshall, A. (2024). Project-focussed literature on public-private partnership in developing countries: A critical review. *Production Planning & Control*, 35(6), 683–710. <https://doi.org/10.1080/09537287.2022.2123408>
- [22] Wu, S.-W., Yan, Y., Pan, J., & Wu, K.-S. (2023). Linking sustainable project management with construction project success: Moderating influence of stakeholder engagement. *Buildings*, 13(10), 2634. <https://doi.org/10.3390/buildings13102634>
- [23] Carnegie Endowment for International Peace. (2024). Security and trust in Africa's digital financial

AN EVALUATION OF PROJECT RISK MANAGEMENT PRACTICES
IN ETHIOPIA TELECOMMUNICATIONS SECTOR:
A MOBILE MONEY PROJECT PERSPECTIVE

inclusion landscape. Washington, DC: Carnegie Endowment. <https://carnegieendowment.org>

[24] Santos-Olmo, A., Mesilla, J. C., & Oliveira, J. (2023). MARISMA: An integrated risk management framework. *Information Security Journal: A Global Perspective*, 32(3), 158–174. <https://doi.org/10.1080/19393548.2023.2203776>

[25] Chinoda, T., & Kapingura, F. M. (2024). Fintech-driven financial inclusion and banking stability in Sub-Saharan Africa: An inflection-point analysis. *African Development Review*, 36(2), 512–529. <https://doi.org/10.1111/1467-8268.12748>