The Effective Contracts in Ground Handling: Ground Handling Services in Tanzanian Context

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Abstract
This study was conducted purposely to investigate the underlying issues affecting effective contract involved in the provision of ground handling service in Tanzania's aviation sector emanating from contract types, stakeholder collaboration, performance criteria, regulatory compliance, and validity of the contract. A combination of qualitative and quantitative research methodologies through mixed method approach was used. The hypotheses were aligned with existing theories and empirical studies have led to the adoption of questionnaires for data collection. About 101 respondents obtained from 10 airports/ locations in within Tanzania which contribute to about 89% of total traffic volumes including number of flights, passenger, and cargo volumes were purposively and stratified selected to participate in structured questionnaires. The data were analyzed using ANOVA and Binary Logistic Regression in Microsoft Excel while qualitative data was performed by Dedoose for the identification of significant relationships between effective contract (dependent) and contract types, stakeholder collaboration, performance metrics, regulatory compliance, as well as contract validity (independents). The binary logistic regression results indicated significant positive relationships between four out of five variables (contract types, performance metrics, regulatory compliance, and contract validity) while stakeholder collaboration had statistically insignificant impact on contract effectiveness, indicating that while collaboration is important, it does not directly influence the outcomes of ground handling contracts in Tanzania's aviation sector. incorporating automated systems for performance tracking, ensuring clear dispute resolution mechanisms, and providing training for personnel involved in contract management have been given as recommendation to ensure effective contract. The study was concluded by the implementation of world accepted performance metrics, periodic contract reviews, and adherence to regulatory standards can result into effective contract in ground handling in Tanzania.

Keywords: *Contract Management, Ground Handling Services, Standard Ground Handling Agreements (SGHA), Service Level Agreements (SLA), Performance Metrics, Ground handling Contract Types*

INTRODUCTION

According to International Civil Aviation Organization-ICAO (2019), ground handling is defined as all airport services necessary for the arrival and departure of an aircraft, which are not part of air traffic services. It refers to the wide range of operations essential for the smooth functioning of flights and only applicable when the aircraft is on ground, including aircraft parking, loading, and unloading of cargo and baggage, aircraft cleaning and servicing, security screening, as well as check-in, boarding, special assistance, cabin cleaning and cabin setup (International Air Transport Association-IATA, 2012). According to study conducted by Trabelsi (2013), ground handling services facilitate efficient operation of an aircraft on while the ground to ensure the safety of an aircraft and its occupants, and smooth departure of aircrafts, on the other hand minimizing delays, and fostering the overall passenger experience.

According to IATA (2013), airlines outsource more than 50 per cent of the ground handling that takes place at the world's airports through various types of contracts. Gruneberg et. al., (2018) contract management it is a process which involves a systematic approach of selection, negotiating, executing, and overseeing agreements between contracted parties usually airlines and ground handling providers.

Objectively, this paper investigates the impact of different contract types on the effectiveness of ground handling services contracts in Tanzania's aviation sector. It also, investigate the role of stakeholder collaboration in enhancing the effectiveness of ground handling contracts. It analyzes the influence of performance metrics on the effectiveness of ground handling service contracts. It assesses the impact of regulatory compliance on the effectiveness of contracts in the ground handling sector. It is also, examine the validity of contracts used in ground handling operations.

LITERATURE REVIEW

IATA (2022), ground handling services are critical to aviation operations that ensures efficiency, and safety of aircrafts while on ground. Management of these services is governed by various contracts which

includes who's recommended by aviation experts such as Standard Ground Handling Agreement (SGHA) and Service Level Agreement (SLA) which are the keys for maintaining financial viability for both airlines and service provider, quality of service, as well as operational efficiency.

This literature review evaluates existing research on contract management as well as stakeholders' involvement in ground handling services, identifying best practices, challenges, and areas for improvement.

Theoretical Literature Review

Contract management in aviation ground handling is an important factor of service efficiency in ground handling which involves a systematic approach of selection, negotiating, executing, and overseeing agreements between contracted parties usually airlines and ground handling providers (Gruneberg & Hughes, 2018). In order to maintain consistency and implement industry standards, IATA has developed a Standard Ground Handling Agreement (SGHA), which is commonly used contract template for ground handling services (IATA, 2022). The IATA SGHA lists the key elements of in the provision of ground handling services. It originally contained 14 types of activities but was amended in 2003 in order to re-group and re-allocate them into 8 types of activities (Narendra, 2014) to ensure measurable specific terms covered and are constantly met, such as service quality, pricing, and operational flexibility. This paper adopts the Transaction Cost Economics (TCE) theory founded by Ronald Coase (1937) which explains how stakeholders structure contracts to minimize transaction costs and risks. Williamson (1985), TCE is based on following principles; asset specificity, which refers to the investments for specific transactions, like specialized ground handling equipment which are specifically designed for aircraft handling. Bounded rationality is another important concept in organizational economics which distinguishes the cognitive and informational limitations of decision makers which may lead into insufficiently contractual terms that may require review and adjustments over time (Williamson, 1985). Opportunism highlights the risk of parties may take advantage of the existing contractual gaps for self-interest, as a result it necessitates robust monitoring and enforcement mechanisms (Williamson, 1985). Williamson (1985), additionally TCE also emphasizes uncertainty and complexity, while pointing out that transactions are characterized by unpredictability or complexity that require governance mechanisms to

reduce risks. Lastly, the frequency of transactions is a key concept, which suggest that recurring interactions may justify closer relationships or internal governance to reduce costs (Williamson, 1985). This paper has in-scoped the principle of opportunism, uncertainty, complexity and frequency of transactions to address the contract management issues in Tanzania ground handling sector. On the other hand, this paper has out-scoped asset specificity, and bounded rationality.

Likewise, The Principal-Agent Theory proposed by Jensen and Meckling (1976) which describes the relationship between the principal and agent in ground handling services refers to airline and service provider relationship
According to the study conducted by Amoah et al., (2022), enforcement of robust contracts in ground handling services minimizes disputes, enhances efficiency, and ensures adherence to regulatory standards.

Empirical Literature Review
According to the study conducted by Avanija (2024), the operational frameworks of the aviation industry involve a complex and risky network of contracts from different categories in order to prevent unlawful practices. There are various contracts in ground handling sectors including, fixed-term contracts, ad-hoc contracts are specific for certain project or event, performance-based contracts, cost-plus contracts and joint venture contracts are contracts in which the airline and the ground handling provider form a joint venture to provide ground handling services (Avanija, 2024). IATA's SGHA and SLA have been designed to accommodate different types of contracts to ensure smooth operational activities in the conduct of ground handling services (IATA, 2022).

IATA Ground Operations is part of the ICAO Ground Operations Task Force that makes sure that the airlines' voice and opinion is heard in the regulatory environment (Joseph, 2017) with its consistent theme of IATA's work in Ground Handling Operations is collaboration with all stakeholders, from regulators to ground service providers. Cloudely (2021) developing aviation sectors, like Tanzania, face significant challenges resulting from ambiguous contractual terms, weak monitoring mechanisms, and a lack of legal enforcement capacity. Additionally, according to study conducted by Sally (2016), stakeholders have an imperative influence on project implementation since they are affected in one way or another by any project. Therefore, limited stakeholder

collaboration has been linked to inefficiencies, as airlines, regulators, and service providers often operate in silos rather than engaging in coordinated decision-making.

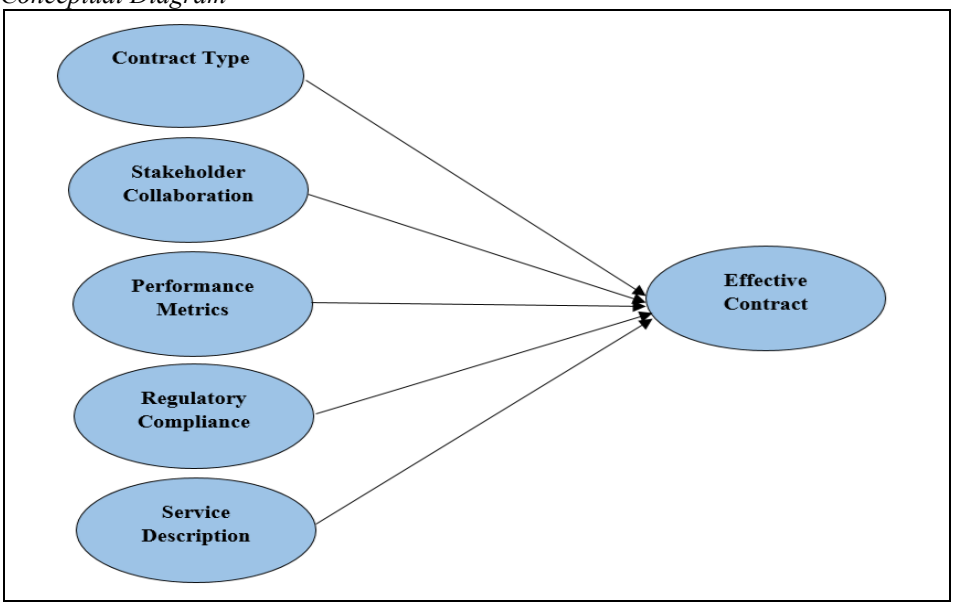
This study builds upon existing literature to explore how these challenges impact Tanzania's ground handling operations.

Conceptual Framework

A conceptual framework includes key concepts, variables, relationships, and assumptions that guide the academic inquiry (Sigh, 2023).

The figure conceptual framework within this research study which highlights the relationships amongst dependent and independent variables, the independent variable of in this study include contract type which emphasize how contractual terms are structured, emphasized, negotiated, and enforced to influence effectiveness of contract in ground handling services. Stakeholders' collaboration depicts the level of collaboration between various stakeholders involved in ground handling services including airlines, services provider, regulators and airport operators. Presence of measureable performance metrics helps to evaluate service provider towards the achievement of contractual expectations. Regulatory compliance ensures the service provider is safe, legal and aligned to international standards. Service description which describes the type of services to be delivered during the contract period to ensure all parties have mutual understanding of the service expectation. The dependent variable is effective contract which ensures that ground handling services are mutually understood by both parties and are delivered efficiently according to the agreed terms

Figure 2:
Conceptual Diagram



Source: Source: Literature review (2023)

From the conceptual diagram depicted in Figure 1 above the following hypothesis were drawn to test the validity of the cause effect between dependent and independent variables.

H_1: Contract types (fixed-term, performance-based, cost-plus, joint ventures) significantly impact contract effectiveness.

H_2: Stakeholder collaboration positively influences contract effectiveness.

H_3: Performance metrics play a critical role in determining contract effectiveness.

H_4: Regulatory compliance directly impacts contract effectiveness.

H_5: The existing contractual framework supports the resolution of service-related disputes effectively.

METHODOLOGY

Research Design

This study employs a mixed-methods approach, integrating qualitative and quantitative research methods to evaluate the effectiveness of ground handling service contracts in Tanzania's aviation sector. The study is descriptive and exploratory, aiming to assess effective contract management practices, and stakeholder collaboration. The use of

hypotheses aligned with existing theories and empirical studies led to the adoption of a quantitative design to use questionnaires for data collection.

Study Area and Population

The study was conducted in domestic airports (Arusha, Bukoba, Tabora, Dodoma, Songwe, Mwanza, Kigoma) and international airports (Dar es Salaam, Kilimanjaro and Zanzibar) within the United Republic of Tanzania while the target population for this study consists of key stakeholders involved in ground handling services in these airports. These airports have been selected due to traffic volumes including flight frequencies, passenger and cargo volumes. According to Tanzania Airports Authority (2023), these airports have a total contribution of 89%.

Sampling Technique

A purposive sampling technique was used to ensure a representative sample from the aviation sector, including ground handling service providers, airlines, and airport operators. The study targeted 101 respondents, ensuring diversity among stakeholders to capture different perspectives.

Data Collection Methods

Data was collected using structured questionnaires distributed to four groups of stakeholders while targeting 20 respondents from ground handling service providers, 26 respondents' airline representative, 10 respondents from airports, a random selection of passengers' and cargo.

The questionnaires were designed using a 5-point Likert scale (1 = Strongly Disagree, 5 = Strongly Agree) to measure perceptions on contract effectiveness. Only 79% of the questionnaires which accounts for 80 questionnaires (12 ground handling service providers, 18 airline representatives, passengers and cargo customers 40 and 10 airports) were correctly filled out and returned for data recording and analysis. The unreturned responses, constituting 15%, were due to time constraints and unwillingness or inability to complete the questionnaires by the respondents.

Validity and Reliability

The questionnaire was validated through expert review by professionals in the aviation sector to ensure relevance and accuracy. These experts were involved to review questionnaires to ensure clarity, content validity,

and alignment with the research objectives. Furthermore, Cronbach's alpha will be used to measure the scale reliability.

Data Analysis

Data will be analyzed using Excel, applying descriptive statistics (mean, standard deviation, frequency distribution) to summarize responses. Additionally, ANOVA (Analysis of Variance) and Binary Logistic Regression in Microsoft Excel will be used to compare responses across stakeholder groups. Regression Analysis will be employed to test the relationship between contract types, stakeholder collaboration, performance metrics, and regulatory compliance with the dependent variable (contract effectiveness). The study also employed a thematic approach to analyze the qualitative data collected through interviews through Dedoose online platform. Through this approach, the gathered responses from respondents through interview were recorded, organized, reviewed, and decoded in Dedoose online platform in order to develop and explain themes do be presented in the study findings.

FINDINGS

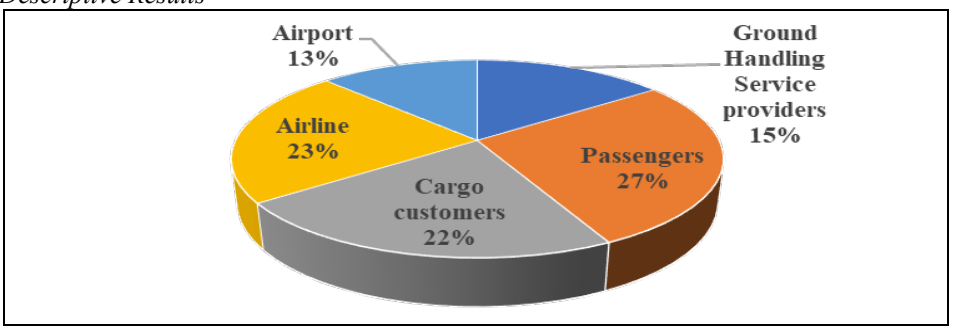
Reliability and validity test

A Cronbach's Alpha value was conducted for all four stakeholders namely Ground handling service providers, airlines, passengers and cargo customers and airport operator (station) and scored 0.917 which exceeds the commonly accepted threshold of 0.7, meaning the survey or questionnaire items used to measure variables in this study are internally consistent.

Description analysis

A descriptive analysis test was run to examine 80 respondents' 23% of respondents were airline representatives which formed the largest group, indicating their significant role in assessing contracts in ground handling services, 27% of respondents were passengers who provided critical feedback on performance metrics in ground handling contracts, 22% of respondents' cargo customers contributed valuable insights into cargo handling efficiency, security, and compliance with regulations. 15% of respondents were from ground handling service providers who provided internal perspectives on operational challenges and contract effectiveness and airport authority representatives scored 13% who shared insights on regulatory compliance and coordination between stakeholders.

Figure 3:
Descriptive Results



Source: Data Analysis (2025)

Sample Size Adequacy

Logistic Regression, a sample size which is too small will not be a true representation of the population whereas a large sample size will involve putting more individuals at risk (Gumpili, 2022). This study employed five independent variables; Contract type, stakeholders' collaboration, performance metrics, regulatory compliance, and validity. Due to the size of Tanzania aviation sector, a sample of 101 is large and enough to provide adequate data needed in this study. Variance Inflation Factor (VIF) values were used to test for multicollinearity between independent variables, since variables should not be highly correlated with one another to avoid multicollinearity (Senaviratna & Cooray, 2019). R-Square was used to represent the proportion of variance in the dependent variable that is explained by each independent variable when considered individually. Higher values indicate a stronger relationship. R-Square calculations have indicated 65.6% of Contract types variance in the dependent variable, indicating a strong relationship, Stakeholder collaboration scored 34.6% of variance, showing a moderate impact, Regulatory compliance scored 65% of variance which indicates a strong relationship, 28.4% of variance, suggesting a moderate relationship resulted from validity. R-Square in this study concludes that Contract types and Regulatory compliance are the most influential predictors, on the other hand performance metrics and contract validity contribute have moderate contribution towards effective contract. Meanwhile, Stakeholder collaboration has the least explanatory power.

Multicollinearity Test was performed using VIF to measures how much a predictor is correlated with other predictors in this study, it is noted that

all VIF values are below 5, meaning there is no serious multicollinearity in the model, Contract types and Regulatory compliance show some collinearity but remain within acceptable limits. While, Stakeholder collaboration and Performance metrics are independent of other variables.

Table 1
Binary Logistic Regression

Variables	R Square	VIF
Contract types	0.656	2.904
Stakeholder collaboration	0.139	1.161
Performance metrics	0.346	1.528
Regulatory compliance	0.650	2.857
Validity	0.284	1.397

Source: Data Analysis (2025)

Goodness of fit

The Adjusted R-Square value of 0.791 indicates that the regression model explains approximately 79.1% of the variance in the dependent variable after accounting for the number of predictors. This suggests a strong model fit, meaning that the independent variables included in the model significantly contribute to explain variations in the dependent variable. Since the Adjusted R-Square is close to the R-Square, it also confirms that the predictors are relevant and not merely adding noise to the model. Additionally, with Variance Inflation Factor (VIF) values below 5, there are no serious multicollinearity issues, ensuring that the predictors are not excessively correlated with each other.

Table 2
Logistic Regression Analysis

Variables	B	SE	Sig	Exp (B)
Contract types	0.275	0.066	0.000	1.317
Stakeholder collaboration	-0.087	0.046	0.061	0.917
Performance metrics	0.103	0.046	0.027	1.108
Regulatory compliance	0.270	0.040	0.000	1.310
Validity	0.218	0.088	0.016	1.244

Source: Data Analysis (2025)

DISCUSSION

Relationship between Contract Types and Effective Contract

As shown in table 2 above, the positive coefficient of 0.275 indicates that an increase in contract types increases the log-odds of the effective

contract in ground handling meaning that the more specific contract type in the pursuant of ground handling services more effective it becomes. Likewise, the odds ratio of 1.317 signifies that for every one-unit increase in contract types, the odds of achieving the effective contract in ground handling for almost 31.7%. Furthermore, a contract type is statistically significant**,** *p* value = 0.000 confirming that contract types have a meaningful impact on the effective contract.

Relationship between Stakeholder collaboration and Effective Contract

A negative coefficient of -0.087 indicates that any increase of stakeholders' collaboration in ground handling contract decreases its effectiveness by 8.3%. Furthermore, the *p* value of 0.061 obtained in stakeholders' collaboration is not statistically significant at the 0.05 level. Therefore, this study cannot confidently conclude that stakeholder collaboration has a meaningful impact on the effective contract in ground handling.

Relationship between Performance metrics and Effective Contract

A positive coefficient shows a positive relationship with the outcome, with a coefficient of 0.103 and a *p*-value of 0.027, indicating statistical significance. This suggests that robust performance metrics in ground handling contract are associated with an increase in the likelihood of the its effectiveness. The exponentiated coefficient of 1.108 suggests that for each unit increase in performance metrics, the odds of the outcome increase by about 10.8%. This relationship is statistically meaningful, which signify that performance metrics play a role in the outcome.

Relationship between Regulatory compliance and Effective Contract

Similarly, a positive relation of regulatory compliance and effective contract, with a statistically significant coefficient of 0.270 and a *p*-value of 0.000. This suggests that higher levels of regulatory compliance led to an increase of likelihood of the effective contract. The odds ratio of 1.310 means that for every unit increase in regulatory compliance, the odds of the outcome occurring increase by 31%. This result reinforces the importance of regulatory compliance in influencing the effective ground handling contracts.

Relationship between Validity and Effective Contract

Finally, validity of contracts also shows a statistically significant positive relationship with the effective contract, with a coefficient of 0.218 and a

p-value of 0.016. This suggests that greater validity is associated with a higher likelihood of the outcome. The exponentiated coefficient of 1.244 means that for each unit increase in validity of the contract, the odds of the outcome occurring rise by approximately 24.4%.

In summary, both contract types, performance metrics, regulatory compliance, and validity have a positive and statistically significant effect on the effective contract, suggesting that these factors contribute to a higher likelihood of the outcome. Conversely, this study found out that stakeholders' collaboration does not exhibit a statistically significant relationship, and its potential impact remains uncertain based on this analysis.

Table 3
Summary of Binary Logistic Regression Results

Hypothesis		Results
H_1:	Contract types significantly impact contract effectiveness.	**Supported**
H_2:	Stakeholder collaboration positively influences contract effectiveness.	**Not Supported**
H_3:	Performance metrics play a critical role in determining contract effectiveness.	**Supported**
H_4:	Regulatory compliance directly impacts contract effectiveness.	**Supported**
H_5:	The existing contractual framework supports the resolution of service-related disputes effectively.	**Supported**

Source: Data Analysis (2025)

This study was conducted to address the effectiveness of ground handling contracts in Tanzania aviation sector. These results might not apply to different airports within the context due to different environment as well as cultural diversification within each airport. Hence, a different study that includes two in-scoped variables from TCE Model, such as Bounded Rationality and Opportunism to address the issues of contracts specifically in aviation ground handling in Tanzania may be conducted in incorporate all airports in Tanzania since this study only considered only 10 airports to simply the research findings.

CONCLUSION

In conclusion, this study highlights the importance of effective contract management in the aviation ground handling sector, particularly within Tanzania's aviation industry. The findings suggest that various factors, such as contract types, performance metrics, regulatory compliance, and

contract validity, significantly influence the effectiveness of ground handling contracts. Contract types is positively related to contract effectiveness. Despite of being important, the stakeholder collaboration did not exhibit a statistically significant effect on contract performance in this study.

The role of regulatory compliance emerged as particularly impactful, reinforcing the necessity for service providers to adhere to international standards to ensure safety and operational efficiency. Moreover, the inclusion of world class performance metrics including merit for achieved targets and penalties for failures are very important in fostering the accountability and efficiency of ground handling operations.

The study also emphasizes the need for continuous review and flexibility in contracts to accommodate changing industry standards and regulatory requirements. As the aviation sector in Tanzania continues to grow, implementing automated systems for performance monitoring and dispute resolution processes will help to ensure that contracts remain effective and relevant.

Ultimately, the research offers practical recommendations for improving contract management in Tanzania's aviation sector, contributing to a more efficient, transparent, and collaborative approach to ground handling services. By addressing these areas, the industry can better support the smooth and safe operations of aircraft, thus enhance the overall passenger and cargo experience while foster a more resilient aviation sector.

RECOMMENDATIONS

Ground handling contracts must incorporate clear performance metrics and penalties for non-compliance. This will ensure that both parties understand their obligations and responsibilities towards fulfilment of the contractual terms and are held accountable for any failure that might result. On the other hand, world class performance indicators must be included as well in the contract in order to measure critical aspects of contacts as mutually agreed upon by contractual parties.

Clear dispute resolution process must be clearly stated to facilitate timely settlement of disputes to avoid unnecessary service disruptions and to

support business continuity. Arbitration clauses must be incorporated to foster quick resolution of misunderstanding between parties.

Notwithstanding, personnel responsible for monitoring and implementing ground handling contracts must be trained for the effective contract negotiation, implementation, and enforcement.

Contractual parties must continuously review ground handling contracts for them to remain relevant, flexible and dynamic to reflect changes in industry standards including regulatory requirements.

By addressing these recommendations, this study suggests that Tanzania's ground handling services can achieve improved contract effectiveness, through type of contract, regulatory compliance, validity and performance metrics.

Furthermore, this study recommends implementation of automated systems for tracking performance metrics across the industry to standardize monitoring and reporting in order to maintain transparency, real-time tracking, and timely adjustments to meet contract obligations while ensuring compliance with SLAs and SGHAs.

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