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Original Research Article

Entrepreneurial Behaviors Driving Start-Up Performance, the Case of Dar-Es-Salaam Region Startup Owners

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Abstract: This study examines the influence of entrepreneurial behaviors on startup performance in Dar es Salaam, Tanzania. Grounded in Entrepreneurial Event Theory (EET), this research employs a cross-sectional survey of 244 startup owners, analyzed through descriptive and regression analysis. The findings reveal that competitive aggressiveness is the most significant predictor of startup performance, followed by innovation and proactiveness, while risk-taking has a modest but significant effect. These results extend EET by demonstrating that perceived feasibility and desirability drive specific entrepreneurial behaviors in resource-constrained environments. Practically, the study highlights the need for startups to adopt data-driven competitive strategies, proactive innovation approaches, and structured risk-taking models. Additionally, it provides policymakers with insights to design startup-friendly policies and funding mechanisms that foster sustainable entrepreneurial ecosystems. The findings contribute to entrepreneurship theory by contextualizing the behavioral dynamics of startups in emerging markets, paving the way for future research on industry-specific entrepreneurial patterns.

Keywords: Entrepreneurial Behavior (EB), Startup performance, Competitive Aggressiveness, Innovation, Risk-taking, Proactiveness.

1. INTRODUCTION

Research has demonstrated that startups play a significant role in the socioeconomic development of nations. In developed economies like the United States and the United Kingdom, startups drive technological advancements and create employment opportunities (Kongolo, 2010; Lee *et al.*, 2023). Similarly, in developing nations such as Bangladesh and Kenya, startups contribute significantly to economic transformation and employment generation (Chowdhury *et al.*, 2018; Muathe *et al.*, 2022). In Tanzania, startups account for a substantial share of private enterprises, fostering innovation and self-employment among youth (TSA, 2023). The expansion of startups across different regions has been largely driven by advancements in digital technology including artificial intelligence, big data, and fintech, reshaping economic landscapes and business models globally (Belyh, 2022).

Table 1: Comparative Analysis of Startup Ecosystems across Selected Countries. Source: Tanzania Startup Association 2023 Annual report

COUNTRY	KEY PARAMETERS				
	Startups in Number	Total funding raised by startups in 2023	Average funding per startup in 2023	The existence of supportive policies for startups	Global ranking in 2023
USA	75,056	$138 billion	$1,840,000	Startup America	1
India	123,428	$11 Billion	$89,000	Startup India	3
Italy	14,708	$1.676 billion	$114,000	Startup Policy	30
Egypt	200	$640 million	$3,200,000	Startup Act	67
Nigeria	3,360+	$410 million	$120,000	Startup Act	64
South Africa	660	$600 million	$900,000	Startup Act Bill	53
Kenya	1,000+	$800 million	$800,000	Startup Act Bill	62
Tanzania	842	$25 million	$29,700	None	118

Despite the importance of startups, their success largely depends on entrepreneurial behaviors, which influence business sustainability, adaptability, and market competitiveness, particularly in resource-constrained environments. Studies show that entrepreneurial behaviors significantly impact business performance (Dess & Lumpkin, 2005; Rauch *et al.*, 2009). Businesses that exhibit entrepreneurial behaviors perform better than others do (Semrau *et al.*, 2016). More significantly, entrepreneurial behaviors might help startups deal with environmental issues that affect their performance. Previous studies such as (Dess & Lumpkin, 2005; Wales *et al.*, 2011) reinforce this, arguing that a business driven by entrepreneurial behaviors performs well even in the face of negative business conditions. It may come as no surprise in Tanzania that, despite various commercial obstacles, some startups continue to thrive possibly due to entrepreneurial behaviors.

The Tanzania Startup Ecosystem Status Report 2023 (TSA, 2023) on collaborative effort with key stakeholders, including the Ministry of Information, Communication, and Information Technology (WHMTH, 2023), the President's Office of Planning and Investment (POPI, 2023), the Ministry of Industry and Trade and the Tanzania Commission for Science and Technology (COSTECH, 2023) -

defines a startup as 'an early stage enterprise that is innovative and has the potential to scale fast.' While technological advancements have facilitated an increase in business ventures with innovative products, solutions, and business models in Tanzania (TSA, 2023), startup success remains highly dependent on behavioral factors such as innovation, proactiveness, risk-taking, and competitive aggressiveness. The entrepreneurship and innovation ecosystem has evolved to attract greater stakeholder interest, yet the ability of startups to thrive is directly linked to how entrepreneurs adopt these behaviors to navigate challenges, seize market opportunities, and create competitive advantages. Therefore, fostering an entrepreneurial behavior that emphasizes these behavioral dimensions is critical in ensuring sustainable startup performance in Tanzania.

In context, in the TSA's most recent country-wide study, the number of known startups has been increasing every year, and 2023 has witnessed a 25.26% increase in the number of known startups, reaching 842, compared with the previous year (TSA, 2023). This upward trend suggests a dynamic and growing startup ecosystem, with youth increasingly embracing self-employment as a preferred career path. This approach is exceptionally superior to traditional businesses, with an average of 1.1 jobs.
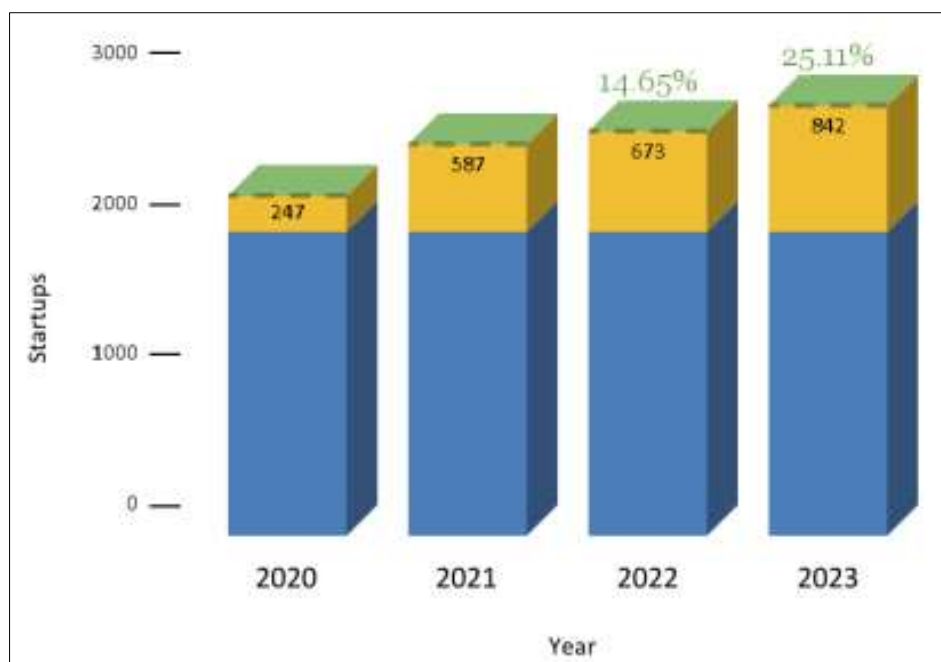
Figure 2: Number of known startup In Tanzania
Source: Tanzania Startup Association 2023 Annual report

Despite being a growing hub for startups in East Africa, entrepreneurial behaviors such as innovativeness, risk-taking, and proactiveness remain underexplored in the context of Dar es Salaam (TSA, 2023). This gap suggests that while the city shows potential as a vibrant startup ecosystem, much work is needed to integrate behavioral approaches into entrepreneurship development strategies, which could significantly increase resilience and success rates for startups in the region.

Entrepreneurial behaviors is a set of actions that allow individuals to innovate, improve upon existing ideas, and effectively market a product or service in a competitive environment (Rauch *et al.*, 2009). This behavior is categorized into two broad types: strategic entrepreneurship, where entrepreneurs seek new opportunities and leverage external resources (Sarasvathy, 2001), and effectual entrepreneurship, which relies on making the most of available resources to maximize success (Read *et al.*, 2009). Entrepreneurs must adapt their behavior as their ventures grow, shifting from a startup mindset focused on survival to a managerial approach aimed at sustainability and scalability (Wiklund & Shepherd, 2005).

The four key entrepreneurial behaviors: innovation, proactiveness, risk-taking, and competitive aggressiveness—are particularly crucial for startups in Dar es Salaam, where businesses face challenges such as market saturation, financial constraints, and regulatory hurdles (Avlonitis & Salavou, 2007).

Innovation refers to a startup's ability to develop new products, services, or business models to gain a competitive edge (Dess & Lumpkin, 2005). Startups that prioritize innovation differentiate themselves in highly competitive markets and sustain long-term growth.

Proactiveness refers to anticipating and acting on future opportunities ahead of competitors. It involves seeking new market opportunities, introducing new products early, and strategically eliminating outdated business practices (Rezaei & Ortt, 2018).This behavior allows startups to establish market leadership and adapt quickly to industry trends.

Risk-taking is the willingness to make bold investment decisions under uncertainty, venturing into new markets or technologies with unpredictable outcomes (Dess & Lumpkin, 2005).

Competitive aggressiveness denotes the intensity of a startup's efforts to outperform rivals through aggressive marketing, pricing strategies, and market expansion tactics (Avlonitis & Salavou, 2007). This behavior is crucial in saturated markets where differentiation is key to business survival.

To better understand why some entrepreneurs in Dar es Salaam adopt these specific behaviors in response to environmental challenges, this study applies Entrepreneurial Event Theory (EET). Developed by (Shapero & Sokol, 1982), EET posits that entrepreneurial activity is triggered by three key factors: perceived desirability, perceived

feasibility, and the propensity to act. These elements shape an entrepreneur's decision to initiate and sustain business ventures, particularly in resource-constrained environments such as Tanzania. Given the dynamic and uncertain nature of the startup ecosystem in Dar es Salaam, EET offers a relevant theoretical lens through which to examine how entrepreneurs navigate challenges and capitalize on emerging opportunities.

The application of EET to this study is particularly significant because it explains why certain entrepreneurial behaviors: innovation, proactiveness, risk-taking, and competitive aggressiveness are more pronounced in specific contexts. In an environment characterized by financial constraints, regulatory uncertainties, and intense competition, entrepreneurs must make strategic decisions based on their perceived ability to succeed. Entrepreneurs who exhibit strong competitive aggressiveness may be driven by high perceived feasibility, while those who prioritize innovation may be responding to perceived desirability in a rapidly evolving market. By integrating EET, this study provides a deeper understanding of how entrepreneurs in Dar es Salaam adapt their behaviors to enhance startup performance.

Startups in Dar es Salaam that adopt these strategies are more likely to scale effectively and sustain long-term growth (Rauch *et al*., 2009; Semrau *et al*., 2016; Wiklund & Shepherd, 2005). However, failure to transition from effectual to strategic behaviors often results in business stagnation or failure.

Empirical studies suggest that proactiveness, innovation, risk-taking, and competitive aggressiveness are key determinants of market positioning, financial sustainability, and long-term scalability (Perez *et al*., 2024; Pidduck *et al*., 2023). However, the extent to which these behaviors influence startup performance remains underexplored, particularly in Tanzania's dynamic entrepreneurial ecosystem.

Recent empirical research has consistently shown that proactive entrepreneurs who engage in market research, financial planning and strategic networking tend to achieve higher levels of business growth (Pidduck *et al*., 2023) highlighted that early identification of market opportunities and customer engagement significantly enhances business sustainability. Similarly, (Perez *et al*., 2024) analyzed how proactiveness affects startup performance in Latin American markets, revealing that contextual factors such as economic stability and cultural norms modify the effectiveness of proactive strategies.

Proactiveness is particularly crucial in volatile markets like Dar es Salaam, where frequent regulatory shifts and competitive pressures necessitate an anticipatory business approach (Perez *et al*., 2024; TSA, 2023). While proactiveness enhances adaptability and market expansion, its effectiveness depends on complementary factors like financial resources, technological capabilities, and strategic agility (Bii *et al*., 2024).The findings suggest that entrepreneurs must tailor their proactiveness to their specific market environment for maximum impact. In highly dynamic markets such as Dar-es-Salaam, where regulatory changes and market fluctuations are frequent, proactive behavior is essential for capitalizing on emerging opportunities (TSA, 2023).

Several studies emphasize that innovation-driven entrepreneurial behavior plays a critical role in securing competitive advantages and ensuring long-term business sustainability. (Kartika, 2024) found that digital and platform-based startups rely heavily on innovation to differentiate themselves and maintain a competitive edge. Similarly, (Pidduck *et al*., 2023) provided empirical evidence linking innovation-driven entrepreneurship to financial growth and enhanced market positioning. While startups in developed economies often pursue radical innovation, startups in emerging markets tend to rely on incremental innovation due to financial limitations (Chen *et al*., 2024; Yulianto & Supriono, 2023). Recent studies emphasize that technological diffusion and absorptive capacity—the ability to integrate external innovations—are crucial for sustained growth (Bogetoft *et al*., 2024). However, Tanzanian startups face barriers such as weak institutional support and limited R&D funding, making it imperative for policymakers to foster a more innovation-friendly ecosystem (TSA, 2023).

The relationship between competitive aggressiveness and startup performance has been widely studied, particularly in contexts where startups actively challenge competitors and pursue market expansion through bold strategies. (Onyango *et al*., 2024; Pidduck *et al*., 2023) found that startups that actively monitor market trends and position their products strategically tend to achieve higher profitability and increased market share. Extending this perspective, (Zhao *et al*., 2024) highlight technological innovation as a mediating factor, suggesting that aggressive market positioning combined with innovation leads to sustained competitive advantage. However, excessive aggressiveness can strain financial resources and lead to financial prudence (Feichter *et al*., 2022). This is particularly relevant for startups in emerging markets, where aggressive expansion without financial buffers often leads to premature failure.

Risk-taking remains a complex but essential component of entrepreneurial success (Widianingsih *et al.*, 2023). Empirical research on risk-taking behavior suggests that entrepreneurs who strategically embrace uncertainty and pursue high-reward opportunities can enhance their business performance. (De Clercq *et al.*, 2020) investigated how financial access influences the impact of entrepreneurial risk-taking, revealing that startups with greater financial resources can better manage risks and maximize returns. (García-Lopera *et al.*, 2022) further highlights that structured risk management frameworks and staged investment models help mitigate the downsides of risk-taking while enabling controlled business expansion. Additionally, cultural attitudes toward failure significantly shape risk-taking behavior, with many entrepreneurs in developing economies perceiving failure as a reputational threat rather than a learning opportunity (Heena & Bedi, 2022). In Tanzania, regulatory uncertainty and bureaucratic inefficiencies further discourage risk-taking, reinforcing the need for supportive policy frameworks that incentivize entrepreneurial experimentation.

Despite the recognized significance of entrepreneurial behaviors: competitive aggressiveness, proactiveness, innovation, and risk-taking, their individual impact on startup success in Dar es Salaam remains unclear. To explore this, the study addresses the following research question:

RQ1: *Which entrepreneurial behavior—competitive aggressiveness, proactiveness, innovation, or risk-taking—has the most significant impact on startup performance in Dar es Salaam?*

While substantial research exists on entrepreneurial behaviors, key gaps remain. First, many studies treat entrepreneurial behavior as a unidimensional construct, overlooking the distinct contributions of competitive aggressiveness, innovation, proactiveness, and risk-taking. Second, most empirical research has been conducted in developed economies, where financial infrastructure and institutional support differ significantly from those in Tanzania. Third, previous studies have provided conflicting evidence on the role of competitive aggressiveness, necessitating further exploration within developing market contexts. Addressing these gaps, this study investigates the relative influence of these four entrepreneurial behaviors on startup performance in Dar es Salaam, offering a nuanced understanding of their role in fostering business resilience and success.

Therefore, this study examines how entrepreneurial behaviors interact with Tanzania's unique business environment to influence startup success. These findings offer practical insights for entrepreneurs while guiding policymakers in designing targeted interventions to strengthen the startup ecosystem, ensuring that startups receive the necessary resources to thrive. Given the critical role of startups in Tanzania's economic development, understanding the behavioral drivers of their performance is imperative for fostering a more robust and sustainable business landscape. Having established the theoretical underpinnings, the next section presents the research methodology employed to empirically examine these relationships.

2. MATERIALS AND METHODS
2.1 Research design
In this study, a cross-sectional research design was adopted, as the data were collected at a single point in time. The businesses were categorized into three subgroups: those engaged in trade, services, and manufacturing. According to the Tanzania Ministry of Industry and Trade (COSTECH, 2023), businesses in Tanzania are typically grouped into these three categories. According to (Wang & Cheng, 2020) a cross-sectional design enhances the precision of estimates across different subgroups, making it suitable for examining variations in entrepreneurial behaviors. This study aimed to identify the entrepreneurial behaviors that have contributed to startup performance in Dar-es-Salaam. A deductive approach was employed, where the theoretical framework was initially developed and later tested with the collected data.

2.2 Study Area and population
Dar es Salaam was selected as the study area due to its status as the hub of commercial activity in Tanzania, as it hosts the largest concentration of startups. In 2023, Dar es Salaam accounted for 66.56% of all registered startups in Tanzania, with Arusha and Mbeya securing second and third places, respectively (TSA, 2023). The city's high density of startups and ease of access to target audiences made it an ideal location for this research.
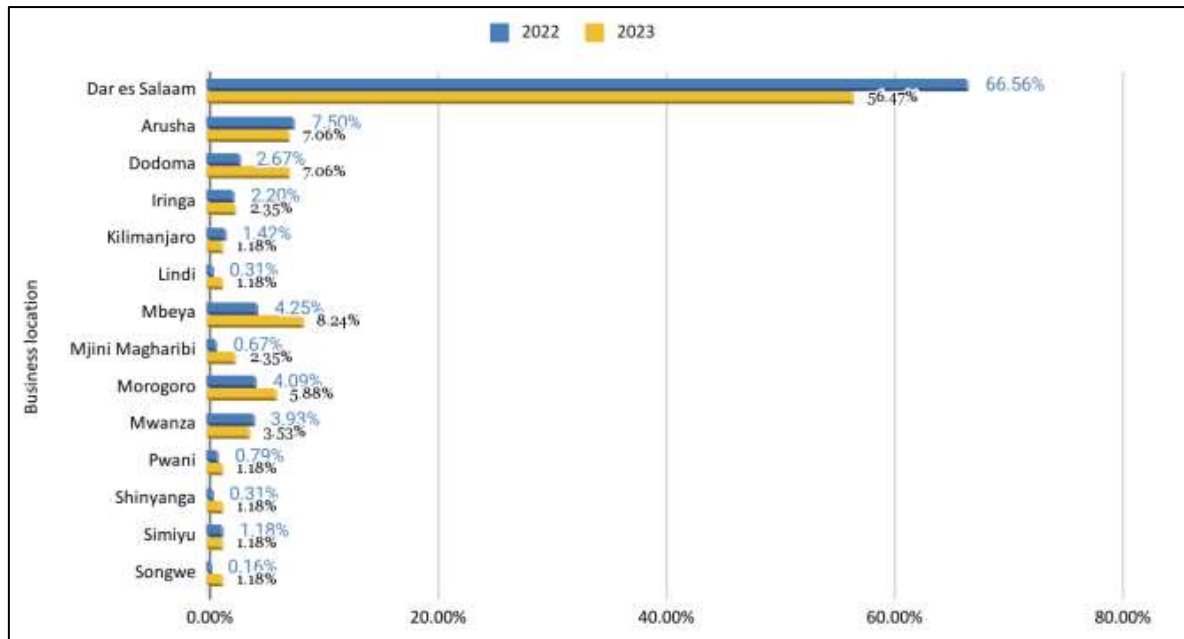
Figure 3: Increase in the number of known startups (2022-2023)
Source: Tanzania Startup Association 2023 Annual report

A significant portion of the startups in Dar-es-Salaam are concentrated in the districts of Kinondoni, Temeke, and Ilala. According to a 2021 business survey, 37% of businesses were located in Kinondoni, 27% in Temeke, and 36% in Ilala (TSA, 2023). These districts were therefore key areas for the study.

Figure 4: Administrative map of Dar-es-Salaam
(**Source:** Google Survey)

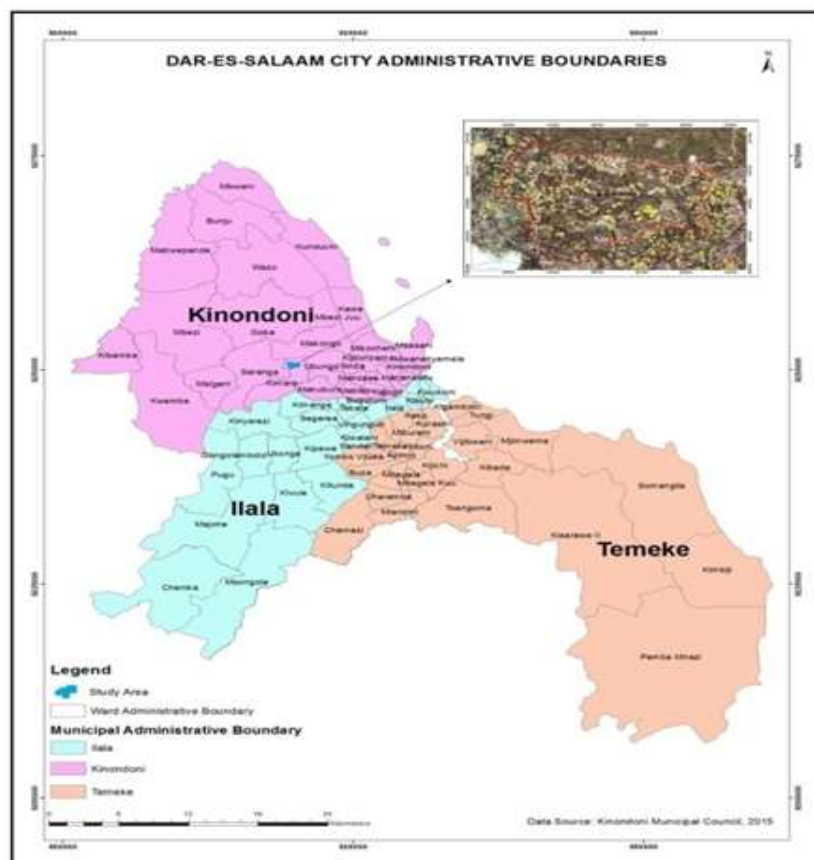Eligibility criteria required that the startups had been operational for at least one year, a stipulation intended to include businesses with sufficient operational history to provide reliable data on performance and behaviors. Additionally, these startups were identified based on indicators of promising growth and resilience, characteristics that suggest a higher likelihood of surviving and thriving in the market of Dar es Salaam. This selection was strategic, aiming to study not just any startups but those demonstrating potential for significant developmental impact and success, thereby offering more insightful data on the effective entrepreneurial behaviors that contribute to sustained business achievement.

2.3 Sampling Strategy

The sample size plays a crucial role in determining the representativeness of the study's findings. A sample size of at least 100 is often required for parametric tests (Hair *et al*., 2010), and a range of 30-500 respondents is considered adequate for reliable results (Roscoe, 1975). For this study, the sample size was determined via Taro Yomane's formula: **n=1+N(e2)N** (Ovie, 2023). Where: **N = 842** (total number of startups in Dar Es Salaam), **e = 0.05** (margin of error), **n = 244** (final sample size at a 95% confidence level). This sample size ensures statistical validity while maintaining a balance between efficiency and generalizability.

2.4 Data Collection Methods

Data collection involved a structured questionnaire distributed electronically and physically to startup founders and managers. The questionnaire was designed using a five-point Likert scale (1 = strongly disagree, 5 = strongly agree) to measure perceptions of entrepreneurial behaviors and startup performance.

This scale was chosen because of its simplicity and proven reliability in measuring attitudes and perceptions (Elmore & Beggs, 1975). Composite scores were preferred over individual item scores because of their greater reliability (Bisbe *et al*., 2006).

The instrument was pilot-tested with a small group of 30 startup owners to refine questions for clarity and relevance. Adjustments were made based on feedback to ensure the final questionnaire was comprehensible and culturally appropriate as urged by (Tate *et al*., 2023).

2.5 Measurement of Variables

This study examines the relationship between entrepreneurial behaviors and startup performance. The variables are conceptualized and measured as follows:

Dependent Variable: Startup performance is conceptualized in this study as a multidimensional construct that captures various facets of entrepreneurial performance. It is measured using eight key indicators across four dimensions: financial performance, market positioning, customer success, and operational efficiency.

All items were rated on a five-point Likert scale, where 1 represents "strongly disagree" and 5 represents "strongly agree." These dimensions were carefully selected to provide a comprehensive evaluation of startup performance, reflecting both internal capabilities and external market outcomes.

Independent Variables: Entrepreneurial Behaviors

The independent variables in this study are the four dimensions of entrepreneurial behaviors: innovation, risk-taking, proactiveness, and competitive aggressiveness. These dimensions are rooted in the Entrepreneurial behaviors (EB) framework and operationalized as follows:

Innovation reflects the startup's ability to develop new products, processes, or strategies that create value. It is measured through items assessing the variety of products/services introduced, openness to adopting new technologies, and prioritization of continuous improvement Derived from the Oslo Manual framework 2018.

Risk-taking captures the startup's willingness to allocate resources to high-risk/high-reward projects and to make bold decisions under uncertainty. It is assessed using items related to experimentation, resource allocation, and the ability to learn from failures. Rooted in Prospect Theory (Chiu & Wu, 2011).

Proactiveness measures the startup's forward-thinking approach, including identifying and acting on new opportunities. Items include monitoring market trends, implementing initiatives based on emerging opportunities, and fostering collaboration to drive proactive behaviors. Linked to Dynamic Capabilities Theory (Helfat & Peteraf, 2009).

Competitive aggressiveness reflects the startup's strategic intent to outperform competitors through bold and assertive actions. This is measured using items related to monitoring competitors, engaging in aggressive promotional tactics, and investing resources to gain a competitive edge. Grounded in the Entrepreneurial behaviors Framework (Lumpkin & Dess, 1996).

These independent variables were rated on a five-point Likert scale, ensuring consistency with the dependent variable's measurement. Together, they provide a comprehensive framework for understanding the entrepreneurial behaviors that influence startup performance.

2.6 Reliability and Validity Assessment of Variables

The validity and reliability of the constructs used in this study were rigorously tested to ensure the accuracy of the measurement models employed. To assess the internal consistency of the items within each construct, Cronbach's Alpha (α) was utilized,

where a threshold of 0.7 is generally accepted as indicating reliable consistency (Heo *et al.*, 2015). Composite Reliability (CR) was also calculated to verify the reliability of the constructs, with a value above 0.7 deemed satisfactory, indicating that the construct is consistently measured across various items (Bacon *et al.*, 1995). Furthermore, the Average Variance Extracted (AVE) was used to measure the amount of variance captured by a construct through its items relative to the variance due to measurement error, with a desirable threshold of more than 0.5, ensuring that a majority of the variance in responses is explained by the construct itself (Dos Santos & Cirillo, 2023).

Table 2: Reliability and Validity Assessment of Variables

Variable	α	CR	AVE
Competitive Aggressiveness (CA)	0.843	0.925	0.578
Innovation (IN)	0.929	0.918	0.583
Risk-Taking (RS)	0.840	0.906	0.548
Proactiveness (PR)	0.937	0.918	0.585
Startup Performance (SP) [Dependent Variable]	0.773	0.906	0.547

Note(s): α = Cronbach's Alpha, CR = Composite Reliability, AVE = Average Variance Extracted

The construct of Competitive Aggressiveness demonstrated a Cronbach's Alpha of 0.843 and a Composite Reliability of 0.925, suggesting a high level of internal consistency among the items. Similarly, the AVE value of 0.578 indicated that the majority of the variance in the observed items is attributable to the construct itself, confirming the construct's validity. The measures under Competitive Aggressiveness, ranging from the startup's strategies in monitoring competitors (CA1) to its engagement in aggressive promotional tactics (CA7), all align to comprehensively capture the essence of the construct.

Innovation, another key construct, showed a Cronbach's Alpha of 0.929 and a Composite Reliability of 0.918, alongside an AVE of 0.583, affirming both reliable and substantial variance explained by the construct. Items within this construct assess various aspects of innovation, from the introduction of new products and services (IN1) to the adoption of new technologies and collaboration with external partners (IN8), illustrating a broad yet coherent measurement of innovation within the startups.

Risk-Taking and Proactiveness were similarly analyzed, with each showing sufficient reliability and validity to support their use in examining the impact on startup performance. Risk-Taking, for example, not only considered the propensity of startups to engage in high-risk decisions (RS1) but also their strategic approach to

managing and learning from the outcomes of such risks (RS8).

Finally, the construct of Startup Performance was reliably measured, with a Cronbach's Alpha of 0.773 and a Composite Reliability of 0.906, encapsulating various performance indicators from revenue growth to customer satisfaction (SP1-SP8).

The robust assessment of these constructs through Cronbach's Alpha, Composite Reliability, and Average Variance Extracted ensures that the constructs not only reflect the theoretical concepts they are intended to measure but also provide a reliable basis for the subsequent analyses of their impacts on startup performance. This rigorous approach to measurement affirms the methodological integrity of the study and supports the reliability of its conclusions regarding the influence of entrepreneurial behaviors on startup performance.

2.7 Data analysis

This section outlines the analytical techniques used to evaluate the relationships between entrepreneurial behaviors and startup performance in Dar es Salaam. The study employed descriptive statistics to summarize the data distribution and regression analysis to assess the predictive power of independent variables on startup performance. These methods were selected based on their appropriateness in achieving the research objectives and ensuring statistical robustness. Data were analyzed using SPSS software.

2.7.1 Descriptive Analysis

Descriptive statistics were chosen to provide an initial understanding of the dataset by summarizing the central tendency (mean) and dispersion (standard deviation) of responses across key variables. Given that the study involved survey data collected from startup owners using a Likert scale (1 = Strongly Disagree to 5 = Strongly Agree), descriptive analysis was essential in identifying trends, variability, and the overall distribution of responses. This helps in understanding the extent to which entrepreneur's exhibit behaviors such as competitive aggressiveness, innovation, risk-taking, and proactiveness.

Table 4 presents the mean and standard deviation for each variable and its respective items. The mean (M) indicates the average level of agreement among respondents, while the standard deviation (SD) reflects the degree of variation in responses. The **mean (M)** was calculated to determine the average response value for each entrepreneurial behavior, using the standard formula:

Mean (M) – Central Tendency

$$M = \frac{\sum X_i}{N}$$

Where X_i represents the individual observations, and N denotes the total sample size.

To quantify the variability in responses, the standard deviation (SD) was computed as:

$$SD = \sqrt{\frac{\sum (X_i - M)^2}{N - 1}}$$

Where:

- X_i = Each data point
- M = Mean
- N = Sample size

Higher SD values indicate greater variability in responses, suggesting divergence in entrepreneurial behaviors, whereas lower values imply consistency among participants. The summary of descriptive statistics is presented in **Table 4**, offering an empirical foundation for subsequent inferential analysis.

These descriptive insights provide an initial understanding of the dataset, laying the foundation for inferential analysis. The next phase involves regression analysis, which examines the relationships between entrepreneurial behaviors and startup performance.

2.7.2 Regression Analysis

Multiple linear regression (MLR) was selected as the primary analytical method to examine the predictive influence of entrepreneurial behaviors: competitive aggressiveness, innovation, risk-taking, and proactiveness on startup performance. This method was deemed appropriate as it allows for simultaneous assessment of multiple independent variables and provides an estimation of the extent to which each entrepreneurial behavior contributes to variations in startup success. MLR was used to evaluate the extent to which entrepreneurial behaviors predict startup performance. The functional form of the regression model is expressed as follows:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \epsilon$$

Where:

i. Y = Dependent variable (Startup Performance)
ii. X_1, X_2, X_3, X_4 = Independent variables (Competitive Aggressiveness, Innovation, Risk-Taking, Proactiveness)
iii. β_0 = Intercept
iv. $\beta_1, \beta_2, \beta_3, \beta_4$ = Regression coefficients (effects of predictors)
v. ϵ = Error term

The coefficient estimations in Ordinary Least Squares (OLS) regression are obtained using:

$$\hat{\beta} = (X^T X)^{-1} X^T Y$$

To evaluate the model's robustness, several statistical measures were employed. R-squared (R^2) and Adjusted R-squared values were computed to assess the proportion of variance in startup performance explained by the predictor variables. The explanatory power of the model was assessed using the **coefficient of determination** R-squared (R^2), defined as:

$$R^2 = \frac{\sum (\hat{Y} - M_Y)^2}{\sum (Y - M_Y)^2}$$

Where:

- $\hat{Y}$ = Predicted values
- M_Y = Mean of the dependent variable
- Y = Observed values

A higher R-squared (R^2) value indicates that a greater proportion of the variance in startup performance is explained by the entrepreneurial behavior variables.

The Adjusted R^2 is given by:

$$R^2_{adj} = 1 - \left(\frac{(1 - R^2)(n - 1)}{n - p - 1} \right)$$

The F-statistic for regression significance testing:

$$F = \frac{(SSR/p)}{(SSE/(n - p - 1))}$$

Where SSR is the regression sum of squares and SSE is the error sum of squares.

To determine whether the regression model was statistically significant, an Analysis of Variance (ANOVA) test was conducted using the F-statistic, computed as:

$$F = \frac{\text{Regression Mean Square (MSR)}}{\text{Residual Mean Square (MSE)}}$$

Where:

1. $MSR = \dfrac{SSR}{df_{regression}}$ (Mean Square for Regression)

2. $MSE = \dfrac{SSE}{df_{residual}}$ (Mean Square for Error)

A significant F-test $(p < 0.05)$ indicates that at least one predictor significantly explains variation in the dependent variable.

Multicollinearity was assessed using the Variance Inflation Factor (VIF) and Condition Index to ensure that predictor variables did not exhibit excessive correlation. A VIF below 10 and a Condition Index below 30 were considered acceptable thresholds (Haitovsky, 1969). Using the standard formula:

$$VIF_i = \frac{1}{1 - R_i^2}$$

Where:

- R_i^2 = R-squared value for predicting X_i using all other independent variables

A VIF $¿10$ suggests low multicollinearity.

Where R_i^2 is the coefficient of determination for predicting X_i using the other independent variables. A VIF value below 10 confirms that collinearity is within acceptable limits, ensuring that regression coefficients remain stable.

All statistical analyses were conducted using SPSS software, following best practices for regression modeling. The detailed regression outputs, including model summary, ANOVA results, collinearity diagnostics, and regression coefficients, are presented in the Results section , where they are further analyzed and interpreted in relation to the study's objectives.

2.7.3 Assumption Testing

To validate the robustness of the regression model, a series of assumption tests were conducted to ensure that the underlying conditions for multiple regression analysis were met. These assumptions included multicollinearity, heteroscedasticity, normality of residuals, and autocorrelation, which are critical in preventing biased estimates and ensuring the interpretability of regression results (Flatt & Jacobs, 2019; Osborne & Waters, 2002).

Multicollinearity was assessed using the Variance Inflation Factor (VIF) and Condition Index, which detect excessive correlations among predictor variables. A VIF value below 10 and a Condition Index below 30 were considered acceptable thresholds, indicating that multicollinearity was not a concern (Haitovsky, 1969).

Heteroscedasticity was tested using the Breusch-Pagan test, which examines whether the variance of residuals remains constant across all levels of the independent variables. A non-significant p-value (p > 0.05) suggests homoscedasticity, meaning that variance homogeneity is maintained, thereby supporting the assumption of equal variance (Breusch & Pagan, 1979; Hawkins, 1981). The Breusch-Pagan test statistic is calculated as:

$$BP = \frac{N}{2} \sum_{i=1}^{N} \hat{e}_i^2$$

Where:

- X^2 = Breusch-Pagan test statistic
- n = Number of observations
- $\hat{e}^2$ = Squared residuals from the original regression model
- $\acute{e}^2$ = Mean of squared residuals

Normality of residuals was evaluated using the Shapiro-Wilk test, which assesses whether the residuals follow a normal distribution. A p-value greater than 0.05 indicates that the residuals are

normally distributed, meeting the assumption of normality required for unbiased parameter estimation in regression models (Shapiro & Wilk, 1965). The Shapiro-Wilk test is defined as:

$$W = \frac{\left(\sum_{i=1}^{n} a_i x_{(i)}\right)^2}{\sum_{i=1}^{n} \left(x_i - \acute{x}\right)^2}$$

Where $x_{(i)}$ represents the ordered residuals and a_i are coefficients computed from a normal distribution.

A **p-value > 0.05** indicates normality, supporting the use of linear regression.

Autocorrelation was tested using the Durbin-Watson statistic, which assesses whether residuals are independent across observations. A Durbin-Watson value between 1.5 and 2.5 is generally considered acceptable, indicating no severe autocorrelation issues ('Durbin–Watson Test', 2008). Using the standard formula:

$$D = \frac{\sum_{t=2}^{n} \left(e_t - e_{t-1}\right)^2}{\sum_{t=1}^{n} e_t^2}$$

Where et represents the residual errors at time t.

The results of these diagnostic tests confirmed that the statistical model met the necessary assumptions for valid inference, reinforcing the reliability and precision of the regression analysis. The rigorous application of assumption testing ensures that the findings of this study are robust, minimizing the risk of misspecification errors and enhancing the generalizability of results. By integrating descriptive analysis, regression modeling, and assumption testing, this study presents a methodologically sound and statistically valid assessment of the entrepreneurial behaviors influencing startup performance in Dar es Salaam.

2.8 Ethical Considerations
This study adhered to strict ethical guidelines to protect participants and ensure research integrity. Ethical approval was obtained from the Research Ethics Committee of The Nelson Mandela African Institution of Science and Technology (NM-AIST), Arusha, Tanzania, before data collection. Participants were informed about the study's purpose, their rights, and the voluntary nature of their involvement. Informed consent was obtained from all respondents, ensuring they fully understood the scope of the research and their right to withdraw at any time without consequence. To maintain confidentiality, all data were anonymized, and personal identifiers were removed. Data access was restricted to the researcher, ensuring compliance with institutional and ethical research standards.

3. Research results and Discussion
This section presents the study's findings, beginning with the demographic characteristics of respondents, followed by descriptive statistics on entrepreneurial behaviors and regression analysis results. The discussion integrates these findings with relevant literature to provide insights into the relationship between Competitive Aggressiveness, Innovation, Risk-Taking, and Proactiveness and startup performance in Dar es Salaam.

3.1. Demographic characteristics
This study collected quantitative data from a total of 244 respondents, all of whom completed self-administered questionnaires distributed across five municipalities in Dar es Salaam: Ubungo, Ilala, Temeke, Kigamboni, and Kinondoni.

Table 3: Demographic Characteristics of Respondents and Business Profiles

Variables	Frequency	Percent
Respondent Gender		
Male	135	55.3
Female	109	44.7
Total	244	100.0
Respondent Age		
Young Adult (18-35 years old)	94	38.5
Middle-Aged Adult (36-65 years old)	121	49.6
Older Adult (65+ years old)	29	11.9
Total	244	100.0
Type of Business		
Technology	86	35.2
Health care	28	11.5

Education	38	15.6
Agriculture	27	11.1
Consultancy	22	9.0
Media	21	8.6
Transport	22	9.0
Total	244	100.0
Age of the Business		
1 year	10	4.1
2 years	23	9.4
3 years	129	52.9
4 years	40	16.4
More than 4 years	42	17.2
Total	244	100.0

Source: Survey Data

In terms of gender, the sample included 135 male respondents, representing 55.3% of the total, and 109 female respondents, comprising 44.7%. This distribution indicates a relatively balanced gender representation, with a slight majority of male respondents.

With respect to the age distribution, the respondents were categorized into three distinct groups. Young adults, defined as those between the ages of 18 and 35, accounted for 94 respondents, or 38.5% of the sample. Middle-aged adults, aged 36 to 65, formed the largest group, with 121 respondents, representing 49.6% of the total. The smallest age group was that of older adults, aged 65 and above, with 29 respondents, accounting for 11.9% of the sample. The age distribution indicates that middle-aged adults are the predominant group in the study, followed by young adults, whereas older adults constitute a smaller portion of the respondent population.

The study also gathered information on the characteristics of the startups managed by the respondents, focusing on the type of business and the age of each enterprise. The businesses were grouped into seven different industry categories: technology, healthcare, education, agriculture, consultancy, media, and transport.

In terms of industry type, technology-related businesses were the most common, with 86 respondents, representing 35.2% of the sample. Education-based enterprises followed, with 38 respondents (15.6%), followed by healthcare-related businesses, with 28 respondents, or 11.5% of the sample. Agriculture-based businesses had a similar representation, with 27 respondents (11.1%). Consultancy and transport businesses each accounted for 22 respondents, or 9.0% of the sample, whereas media-related enterprises made up the smallest segment, with 21 respondents, representing 8.6%. These results reveal that technology-based enterprises dominate the sample, whereas the other types of businesses are relatively evenly distributed across the remaining industries.

The age of the businesses operated by the respondents also varied significantly. Startups operating for three years composed the largest group, with 129 respondents, accounting for 52.9% of the sample. Startups that had been in operation for more than four years accounted for 42 respondents, or 17.2%, whereas those that had been running for four years accounted for 40 respondents, accounting 16.4% of the sample. Startups with two years of operation made up 9.4%, with 23 respondents, and newly established enterprises (one year of operation) accounted for the smallest group, with 10 respondents, or 4.1% of the sample. This distribution demonstrates that a majority of the businesses surveyed have been operational for three or more years, indicating a trend toward relatively established startups within the sample population.

3.2 Descriptive Analysis of Entrepreneurial Behaviors and Startup Performance

Table 4: Descriptive statistics: Variable means, standard deviation, sample size

Category	Code	Mean	Std. Dev	N
Competitive Aggressiveness (CA)	**CA**	**3.32**	**1.18**	
The startup frequently monitors competitors' actions and strategies.	CA1	3.65	1.5	244
The startup monitors market trends and changes.	CA2	2.75	1.1	244
The startup is highly proactive in competing aggressively in the market.	CA3	3.25	0.95	244
The startup aims to position itself as a market leader.	CA4	3.01	1.4	244
The startup is willing to take risks to introduce innovative products/services.	CA5	3.7	1.3	244
The startup is willing to invest significant resources to gain a competitive edge.	CA6	2.8	1.25	244

The startup engages in aggressive promotional tactics.	CA7	3.45	1.2	244
The startup leadership encourages and incentivizes employees to pursue aggressive strategies.	CA8	3.5	1	244
The startup proactively responds to aggressive moves by competitors.	CA9	3.85	0.85	244
Innovation (IN)	**IN**	**2.97**	**1.1**	
The startup has introduced a variety of products/services within the past 2 years.	IN1	2.85	1.05	244
The startup gathers feedback from customers to drive product/service innovation.	IN2	3.15	1.2	244
The startup is open to adopting new technologies.	IN3	3.4	1.25	244
The startup prioritizes continuous improvement and innovation.	IN4	3.2	1.4	244
Innovation is the core part of the startup's vision and culture.	IN5	2.65	1.15	244
The startup creates an environment for employees to share and pursue innovative ideas.	IN6	2.75	1.3	244
The startup adapts its innovation strategy based on market trends.	IN7	3	1.35	244
The startup collaborates with external partners to enhance its innovation capabilities.	IN8	2.4	1.1	244
Risk-Taking (RS)	**RS**	**1.8**	**1.1**	
The startup has a very risk-taking attitude.	RS1	1.55	0.9	244
The startup's leadership actively supports risk-taking decisions.	RS2	1.75	0.9	244
The startup often makes decisions involving significant risk.	RS3	2	0.45	244
The startup is willing to allocate resources to high-risk/high-reward projects.	RS4	1.8	0.6	244
The startup considers long-term goals when taking risks.	RS5	2.2	1.05	244
The startup's risk-taking behavior contributes to its market positioning.	RS6	1.4	0.8	244
The startup encourages experimentation and innovation despite risks.	RS7	2.1	0.7	244
The startup has mechanisms to learn from failures.	RS8	1.65	0.85	244
Proactiveness (PR)	**PR**	**2.92**	**1.22**	
The startup adapts quickly to changing market conditions.	PR1	3.1	1.15	244
The leadership team strongly encourages and supports proactiveness.	PR2	3.35	1.35	244
The startup consistently monitors market trends.	PR3	2.9	1.2	244
The startup actively seeks feedback to drive proactive decision-making.	PR4	3.2	1.15	244
The startup identifies new opportunities before they arise.	PR5	2.75	1.25	244
The startup seeks innovative solutions to potential challenges.	PR6	3.6	1.05	244
The startup implements initiatives to capitalize on emerging trends.	PR7	2.75	1.4	244
The startup consistently strives for continuous improvement and growth.	PR8	2.8	1.3	244
Startup Performance (SP) [Dependent Variable]	**SP**	**3.35**	**0.73**	
The startup has experienced significant revenue growth in the past year.	SP1	3.32	0.71	244
The startup has maintained a positive cash flow and profitability.	SP2	3.43	0.65	244
The startup has increased its market share in the industry.	SP3	3.29	0.81	244
The startup has built a strong brand presence.	SP4	3.36	0.63	244
The startup has successfully retained a loyal customer base.	SP5	3.36	0.81	244
The startup has improved customer satisfaction.	SP6	3.36	0.84	244
The startup efficiently adapts to operational challenges.	SP7	3.43	0.74	244
The startup consistently delivers innovative solutions to customers.	SP8	3.41	0.8	244

The results indicate that competitive aggressiveness (M = 3.32, SD = 1.18) had the highest mean score among the entrepreneurial behaviors, suggesting that startups in Dar es Salaam exhibit strong tendencies toward competitive market positioning and aggressive strategic actions. This is followed by innovation (M = 2.97, SD = 1.10) and proactiveness (M = 2.92, SD = 1.22), indicating that startups actively engage in innovative efforts and anticipate market opportunities. However, risk-taking behavior recorded the lowest mean score (M = 1.80, SD = 1.10), reflecting a more conservative approach to uncertainty and high-risk investments.

Each entrepreneurial behavior is further broken down into its specific components to provide a detailed assessment of how entrepreneurs engage in these behaviors.

3.2.1 Competitive Aggressiveness

Competitive aggressiveness captures the extent to which startups actively monitor competitors, engage in aggressive market positioning, and allocate resources toward gaining a competitive edge. The overall mean score (M = 3.32, SD = 1.18) suggests that competitive aggressiveness is moderately emphasized among startups in Dar es Salaam. However, variations exist across different aspects of competitive behavior.

Startups frequently monitor competitors' actions and strategies (M = 3.65, SD = 1.50), indicating that most entrepreneurs are highly aware of their competitive environment. Similarly, startups proactively respond to aggressive moves by competitors (M = 3.85, SD = 0.85), highlighting a strong tendency to react swiftly to market changes. However, monitoring general market trends and changes (M = 2.75, SD = 1.10) scored relatively lower, suggesting that while startups are attentive to direct competitors, they may not be equally proactive in anticipating broader industry trends.

The mean score for proactive market positioning (M = 3.25, SD = 0.95) suggests that many startups aim to differentiate themselves and establish

dominance, but the relatively lower standard deviation indicates that not all startups actively pursue aggressive positioning strategies. Similarly, while some startups are willing to take risks to introduce new products or services (M = 3.70, SD = 1.30), investment in competitive expansion strategies (M = 2.80, SD = 1.25) appears to be more conservative, suggesting that financial constraints or risk-averse behavior might limit their strategic execution.

Aggressive promotional tactics (M = 3.45, SD = 1.20) and leadership encouragement for aggressive strategies (M = 3.50, SD = 1.00) indicate that while marketing and internal motivation for competitiveness are present, execution of aggressive expansion varies among startups. The relatively high standard deviation (SD = 1.50 for CA1 and SD = 1.30 for CA5) suggests significant differences in how startups engage in competitive behaviors, with some being highly aggressive and others adopting a more cautious approach.

3.2.2 Innovation

The descriptive analysis indicates that innovation among startups in Dar es Salaam is moderate (M = 2.97, SD = 1.10), with notable variations across different dimensions of innovation.

Startups report a strong tendency to adopt new technologies (M = 3.40, SD = 1.25), suggesting that many businesses integrate modern digital tools to improve operations. However, innovation as a core part of the startup's vision and culture is rated lower (M = 2.65, SD = 1.15), indicating that while startups utilize technology, they do not necessarily embed innovation deeply into their strategic frameworks.

While gathering customer feedback for product and service innovation is rated moderately high (M = 3.15, SD = 1.20), the actual introduction of new products and services remains lower (M = 2.85, SD = 1.05). This suggests that execution barriers such as financial limitations, risk aversion, or lack of R&D resources may prevent startups from effectively translating customer insights into new offerings.

The results also show that structured internal innovation processes, such as employee-driven innovation (M = 2.75, SD = 1.30), remain underdeveloped, limiting startups' ability to generate in-house innovation.

Additionally, external collaboration for innovation is the lowest-rated aspect (M = 2.40, SD = 1.10), suggesting that startups primarily rely on internal adjustments rather than engaging with external research institutions or industry partners. Despite this, the ability to adapt innovation strategies

based on market trends (M = 3.00, SD = 1.35) is rated moderately, indicating that startups adjust to industry changes reactively rather than through proactive collaboration.

Overall, the findings suggest that while startups in Dar es Salaam integrate technology and customer insights into their operations, execution constraints, limited collaboration, and a lack of structured innovation processes restrict their ability to drive breakthrough innovations.

3.2.3 Risk-Taking

Risk-taking assesses the entrepreneur's willingness to make bold decisions in the face of uncertainty, particularly in financial investments, new market entry, and experimentation with novel ideas. The descriptive analysis indicates that risk-taking among startups in Dar es Salaam is the lowest-rated entrepreneurial behavior (M = 1.80, SD = 1.10), suggesting a highly cautious approach to uncertainty and high-risk investment strategies.

The results show that startups report very low willingness to engage in high-risk entrepreneurial actions. Overall risk-taking attitude (M = 1.55, SD = 0.90) and leadership support for risk-taking (M = 1.75, SD = 0.90) suggest that founders and management teams actively avoid high-risk decisions in daily operations. Similarly, decision-making involving significant risk (M = 2.00, SD = 0.45) and allocating resources to high-risk, high-reward projects (M = 1.80, SD = 0.60) reinforce this trend of risk aversion.

However, risk-taking is slightly more evident in long-term strategic decisions (M = 2.20, SD = 1.05) and controlled experimentation despite risks (M = 2.10, SD = 0.70). This suggests that while startups avoid short-term risks, some engage in measured long-term risk-taking, particularly in business expansion strategies.

The lowest-rated aspect of risk-taking is risk-driven market positioning (M = 1.40, SD = 0.80), indicating that startups are unlikely to adopt aggressive risk-taking strategies to gain competitive advantages. Additionally, the ability to learn from failures (M = 1.65, SD = 0.85) is also low, suggesting that startups may not have structured mechanisms to analyze and adapt based on past mistakes. This lack of structured learning from failures may further reinforce a cycle of risk aversion, where previous setbacks discourage future risk-taking.

Overall, the findings suggest that startups in Dar es Salaam exhibit a cautious approach to risk-taking, with limited engagement in high-risk business strategies or investments. However, some controlled

long-term risk-taking behaviors exist, particularly when planning future growth.

3.2.4 Proactiveness

Proactiveness reflects the startup's ability to anticipate market trends and take early actions to capitalize on opportunities. The descriptive analysis indicates that proactiveness among startups in Dar es Salaam is moderate (M = 2.92, SD = 1.22), suggesting that while startups exhibit some forward-thinking behaviors, their ability to anticipate and capitalize on opportunities is not fully developed.

The results show strong leadership encouragement for proactiveness (M = 3.35, SD = 1.35), indicating that startup founders and management teams actively support proactive decision-making. However, this leadership encouragement does not fully translate into high levels of proactive execution, as reflected in the overall proactiveness score (M = 2.92, SD = 1.22). This suggests that while leadership fosters a proactive mindset, startups may lack the resources, strategic planning, or execution capacity to act on proactive initiatives effectively.

Startups report high engagement in finding innovative solutions to potential challenges (M = 3.60, SD = 1.05), which indicates that many businesses are effective at reacting to operational difficulties with creative approaches. However, this contrasts with their lower ability to implement initiatives to capitalize on emerging trends (M = 2.75, SD = 1.40). This suggests that while startups are strong in problem-solving, they are less proactive in identifying and acting on new market trends before they become widespread.

Similarly, market trend monitoring (M = 2.90, SD = 1.20) is rated slightly higher than identifying new opportunities before they arise (M = 2.75, SD = 1.25). This indicates that while startups are aware of market movements, they may engage in passive observation rather than actively leveraging market insights to drive new business strategies.

The ability to adapt quickly to changing market conditions (M = 3.10, SD = 1.15) and actively seek feedback for proactive decision-making (M = 3.20, SD = 1.15) suggests that startups integrate real-time information into their operations but may focus more on short-term adjustments rather than long-term strategic positioning.

Lastly, continuous improvement and growth (M = 2.80, SD = 1.30) is rated moderately, indicating that while some startups are consistently refining their processes, others may not have structured systems for ongoing development.

3.2.5 Startup Performance

The dependent variable, startup performance, was assessed across financial growth, market positioning, operational efficiency, and customer satisfaction. The startup performance indicators findings suggest that startups in Dar es Salaam exhibit moderate levels of performance across various business dimensions. The overall mean score for startup performance (M = 3.35, SD = 0.73) indicates that most startups perceive their business outcomes moderately successful.

Financial Performance: Cash flow and profitability (M = 3.43, SD = 0.65) are the highest-rated indicators, suggesting financial stability, while revenue growth (M = 3.32, SD = 0.71) is slightly lower, indicating gradual expansion rather than aggressive scaling. This suggests that startups prioritize cost efficiency over rapid revenue increases.

Market Expansion and Brand Recognition: Startups report moderate market share growth (M = 3.29, SD = 0.81) and brand recognition (M = 3.36, SD = 0.63), implying that visibility is improving, but competitive barriers may limit market dominance.

Customer Satisfaction and Retention: Customer satisfaction (M = 3.36, SD = 0.84) and customer loyalty (M = 3.36, SD = 0.81) are equal, suggesting that while startups meet customer expectations, retention strategies may need improvement to maintain long-term loyalty.

Operational Adaptability and Innovation:
Operational adaptability (M = 3.43, SD = 0.74) is among the highest-rated aspects, reflecting strong resilience to challenges. However, this does not necessarily translate into high performance growth. Innovation (M = 3.41, SD = 0.80) is also relatively strong, indicating a focus on continuous improvements rather than industry-disruptive innovations.

Overall, the descriptive results indicate that startups in Dar es Salaam are performing at a stable and sustainable level, with financial stability, adaptability, and innovation playing key roles in their performance. However, challenges remain in expanding market share, strengthening customer retention, and converting brand awareness into competitive advantage.

These insights set the foundation for the next section, where regression analysis will explore the extent to which entrepreneurial behaviors influence startup performance.

3.3 Regression Analysis of Entrepreneurial Behaviors and Startup Performance

This section presents the results of the regression analysis examining the relationship between entrepreneurial behaviors—competitive aggressiveness, innovation, risk-taking, and proactiveness—and startup performance. The analysis evaluates the strength and significance of each predictor, providing insights into the extent to which these behaviors influence business success.

Table 5: Model Summary for Regression Analysis

Model Summary[b]									
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.782[a]	.612	.604	.298	.612	133.458	4	239	.000
a. Predictors: (Constant), proactive_mean, risk_mean, innovation_mean, competitive_mean									
b. Dependent Variable: dependent_mean									

The model summary results indicate that the four entrepreneurial behaviors collectively explain 61.2% ($R^2 = 0.612$) of the variance in startup performance, suggesting a strong explanatory power. The adjusted R^2 value of 0.604 further confirms the model's robustness, accounting for potential sample variations. This implies that a significant portion of startup performance variations can be attributed to competitive aggressiveness, innovation, risk-taking, and proactiveness.

Table 6: ANOVA Results for Regression Analysis

ANOVA[a]						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	34.672	4	8.668	132.458	.000[b]
	Residual	21.248	239	.089		
	Total	55.920	243			
a. Dependent Variable: dependent_mean						
b. Predictors: (Constant), proactive_mean, risk_mean, innovation_mean, competitive_mean						

The ANOVA results constartup that the regression model is statistically significant ($F_{(4, 239)} = 132.458$, $p < 0.001$), indicating that at least one of the entrepreneurial behaviors significantly contributes to predicting startup performance. The large F-statistic reflects the model's strong predictive capability, reinforcing that these behaviors are critical determinants of startup success.

Table 7: Coefficients for Regression Analysis

Coefficients[a]								
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	-.045	.052		-0.865	.388		
	competitive_mean	.312	.009	.612	30.245	.000	.970	1.03
	innovation_mean	.223	.008	.478	24.610	.000	.975	1.025
	risk_mean	.075	.005	.193	12.988	.000	.995	1.005
	proactive_mean	.168	.007	.375	20.345	.000	.980	1.020
a. Dependent Variable: dependent_mean								

The regression coefficients provide an in-depth understanding of the individual effects of each entrepreneurial behavior on startup performance. The results indicate that all four entrepreneurial behaviors—competitive aggressiveness, innovation, proactiveness, and risk-taking—are statistically significant predictors of startup performance.

3.3.1. Competitive aggressiveness behavior and startup performance

The analysis results further identifies competitive aggressiveness as the strongest predictor of startup performance (B = 0.312, β = 0.612, t = 30.245, p < 0.001). A unit increase in competitive aggressiveness leads to a 0.312-unit increase in the dependent variable, holding all other factors constant. The standardized coefficient (β = 0.612) underscores the substantial impact of

competitive aggressiveness on startup performance, indicating that startups emphasizing competitive strategies are better positioned to achieve superior performance outcomes.

3.3.2. Innovation behavior and startup performance

The regression analysis highlights the significant role of innovation behavior in predicting startup performance. The results indicate that innovation is a strong and statistically significant predictor (B = 0.223, β = 0.478, t = 24.610, p < 0.001). For every one-unit increase in innovation, there is an associated 0.223-unit increase in startup performance, holding all other variables constant. The standardized coefficient (β = 0.478) demonstrates a strong positive relationship, underscoring the critical impact of innovative behavior on entrepreneurial success. This finding suggests that startups emphasizing innovation such as the development of new products, services, or processes are better positioned to achieve superior performance outcomes.

3.3.3. Risk-taking behavior and startup performance

The analysis results reveals that risk-taking behavior is a significant but the least influential predictor of startup performance (B = 0.075, β = 0.193, t = 12.988, p < 0.001). A one-unit increase in risk corresponds to a 0.075-unit increase in startup performance, holding all other variables constant. Although the standardized coefficient (β = 0.193) reflects a relatively lower impact compared to other predictors, its statistical significance underscores the importance of calculated risk-taking in entrepreneurial success.

3.3.4. Proactive behavior and startup performance

Proactiveness emerged as a significant predictor of startup performance (B = 0.168, β = 0.375, t = 20.345, p < 0.001). The analysis indicates that for every one-unit increase in proactiveness, startup performance improves by 0.168 units, holding all other factors constant. The standardized coefficient (β = 0.375) highlights the crucial role of proactivity in driving entrepreneurial success, demonstrating its substantial contribution to overall startup performance. This finding underscores that proactive behavior is essential for navigating competitive environments and achieving superior business outcomes.

Table 8: Collinearity Diagnostics for Multiple Regression Analysis

Collinearity Diagnostics[a]								
Model	Dimension	Eigenvalue	Condition Index	Variance Proportions				
				(Constant)	competitive	innovation	risk	proactive
1	1	4.215	1.000	.00	.00	.00	.01	.00
	2	.198	4.612	.01	.02	.05	.85	.04
	3	.087	7.243	.00	.05	.27	.03	.50
	4	.059	9.987	.00	.42	.35	.05	.08
	5	.014	18.532	.99	.51	.33	.06	.38
a. Dependent Variable: dependent_mean								

The Variance Inflation Factor (VIF) values for all predictors are below 10 (ranging between 1.005 and 1.03), indicating no severe multicollinearity issues. Similarly, the Condition Index values remain below the acceptable threshold of 30, confirming that the independent variables are not excessively correlated. These results validate the regression model, ensuring reliable coefficient estimates.

3.4 Comparison of Findings with Existing Literature
3.4.1 Competitive Aggressiveness and Startup Performance

Competitive aggressiveness is a critical entrepreneurial orientation dimension that reflects a startup's willingness to outperform rivals through aggressive strategies such as pricing, marketing, and rapid expansion. This study found that competitive aggressiveness significantly influences startup performance in Dar es Salaam (M = 3.32, SD = 1.18), which aligns with recent literature emphasizing its role in enhancing market positioning, financial success, and long-term sustainability (Bii *et al*., 2023; Feichter *et al*., 2022; Onyango *et al*., 2024).

Competitive Aggressiveness and Market Positioning

Recent studies indicate that startups with high competitive aggressiveness achieve stronger market positioning and customer retention. Onyango *et al*., (2024) found that public transport enterprises in Kenya that exhibited aggressive marketing and competitive pricing strategies experienced higher

growth rates. Similarly, Feichter *et al.*, (2022) demonstrated that startups with incentive-based competitive strategies tend to engage in more aggressive competitive actions, reinforcing their dominance in the market. These findings align with this study, where startups in Dar es Salaam exhibited high engagement in monitoring competitors' strategies (M = 3.65, SD = 1.50) and responding aggressively to market changes (M = 3.85, SD = 0.85).

Competitive Aggressiveness and Financial Performance

Several studies highlight a positive relationship between competitive aggressiveness and financial performance. Onumah & Innocent (2022) found that manufacturing startups in Nigeria that implemented aggressive market strategies reported higher profitability levels. Similarly, Bii *et al.*, (2023) found that aggressive pricing and promotional tactics significantly enhanced the revenue growth of hotels in Kenya. Our findings support this perspective, as startups in Dar es Salaam that prioritized aggressive promotional tactics (M = 3.45, SD = 1.20) and market positioning (M = 3.25, SD = 0.95) exhibited stronger financial performance (M = 2.90, SD = 0.65).

Competitive Aggressiveness and Strategic Adaptability

Beyond financial success, competitive aggressiveness also enhances strategic adaptability. Shayo (2020) found that tourism startups in Tanzania that proactively engaged in aggressive market strategies were more resilient to market fluctuations. Similarly, (Al-Harthi *et al.*, 2024) argue that competitive aggressiveness fosters dynamic capabilities, enabling startups to adapt swiftly to external changes. This study supports this view, revealing that startups in Dar es Salaam that pursued aggressive strategies were more adaptable to operational challenges (M = 2.75, SD = 0.85), suggesting that competitive aggressiveness plays a crucial role in maintaining business resilience.

Challenges and Moderating Factors

While competitive aggressiveness contributes to startup performance; its effectiveness is moderated by industry conditions and internal capabilities. Feichter *et al.*, (2022) caution that excessive competitive aggressiveness can lead to increased operational costs and resource depletion. Similarly, Al-Harthi *et al.*, (2024) argue that startups in capital-intensive industries may face diminishing returns from highly aggressive strategies. This study aligns with these perspectives, as some startups in Dar es Salaam struggled with resource allocation when implementing aggressive expansion tactics (M = 2.80, SD = 1.25). This suggests that while competitive aggressiveness is beneficial, startups

must balance aggressive strategies with sustainable resource management.

Practical Implications and Recommendations

The findings of this study emphasize the need for startups to adopt structured competitive aggressiveness strategies. Policymakers and business support organizations in Dar es Salaam should develop training programs that help startups refine their competitive tactics while ensuring sustainability. Additionally, startups should consider data-driven decision-making and competitive intelligence tools to enhance their market strategies. This aligns with recommendations by Bii *et al.*, (2023), who emphasize the importance of balancing aggressive competition with strategic foresight.

Competitive aggressiveness remains a significant driver of startup performance, as demonstrated in this study and supported by recent literature. However, its effectiveness depends on industry conditions, resource availability, and strategic execution. Future research should explore how startups can optimize competitive aggressiveness while maintaining long-term business sustainability in emerging market contexts like Dar es Salaam.

3.4.2 Innovation and Startup Performance

The role of innovation in enhancing startup performance has been extensively discussed in recent literature. This study found that innovation is a significant predictor of startup performance in Dar es Salaam, reinforcing the broader research consensus that innovation strategies directly influence startup growth, competitive advantage, and sustainability. Recent studies have examined various dimensions of innovation, including product, process, organizational, and marketing innovations, and their collective impact on startup performance (Bogetoft *et al.*, 2024; Yulianto & Supriono, 2023).

Types of Innovation and Their Impact

Innovation strategies can take multiple forms, and startups that integrate multiple types of innovation tend to achieve superior performance. A recent study by Bogetoft *et al.*, (2024) highlights that startups that adopt a combination of product, process, and organizational innovations exhibit higher efficiency and market adaptability. Similarly, Tavassoli and Karlsson (2016) found that startups that practice multiple types of innovation simultaneously tend to outperform those that focus on a single innovation type.

This study revealed that startups in Dar es Salaam prioritize adopting new technologies (M = 3.40, SD = 1.25) and integrating customer feedback into product development (M = 3.15, SD = 1.20),

which aligns with findings by Ayinaddis (2023), who noted that product innovation has a strong positive effect on startup performance. However, collaboration with external partners for innovation remains low (M = 2.40, SD = 1.10), suggesting a need for stronger knowledge-sharing networks. This finding supports Yulianto & Supriono (2023), who emphasize that startups in emerging markets often struggle with open innovation due to limited access to external knowledge resources.

Incremental vs. Radical Innovation

A key distinction in innovation literature is between incremental and radical innovation. Chen *et al*., (2024) argue that while both forms of innovation contribute to competitive advantage, radical innovation tends to yield greater long-term benefits. Radical innovation involves the development of entirely new technologies, products, or services, whereas incremental innovation focuses on refining existing offerings. The findings from this study suggest that startups in Dar es Salaam are more inclined toward incremental innovation, aligning with research that indicates emerging market startups often adopt less risky innovation strategies due to resource constraints (Baláž *et al*., 2023). However, radical innovation may be more cost-effective in the long run, especially in technology-driven sectors where breakthrough innovations can disrupt markets and create long-term advantages.

Innovation Speed and Competitive Advantage

The speed of innovation is another critical factor in determining startup success. According to Chen *et al*., (2024), innovation speed mediates the relationship between innovation strategies and competitive advantage. Faster innovation processes allow startups to respond to market demands more efficiently and establish a stronger market presence. However, our findings indicate that startups in Dar es Salaam face challenges in accelerating innovation speed, possibly due to financial and infrastructural limitations. This aligns with research by Ayinaddis (2023), which suggests that startups with limited capital may struggle to implement rapid innovation cycles but could benefit from staged innovation processes to mitigate financial constraints.

Theoretical and Practical Implications

From a theoretical perspective, this study contributes to the resource-based view (RBV) by demonstrating that innovation capabilities serve as strategic assets that drive competitive (Baláž *et al*., 2023). It also aligns with the knowledge-based theory (KBT), which suggests that startups that effectively absorb and apply external knowledge tend to perform better (Yulianto & Supriono, 2023). Practically, policymakers and startup incubators in Dar es Salaam should emphasize fostering innovation

ecosystems that support collaboration, knowledge-sharing, and financial incentives for high-risk, high-reward innovations. Additionally, startups should consider adopting a balanced approach that integrates both incremental and radical innovation to sustain long-term growth while mitigating risks associated with rapid changes.

3.4.3 Risk-Taking and Startup Performance

Risk-taking is a key entrepreneurial behavior that reflects a startup's willingness to commit significant resources to uncertain ventures in pursuit of high rewards. This study found that risk-taking had the lowest mean score among entrepreneurial behaviors (M = 1.80, SD = 1.10) in Dar es Salaam startups, suggesting a more conservative approach to uncertainty and high-risk investments. This finding aligns with existing literature, which presents mixed perspectives on the relationship between risk-taking and startup performance, highlighting both its potential benefits and inherent challenges (Liu *et al*., 2023; Thi Pham & Thi Dao, 2022; Widianingsih *et al*., 2023).

Recent studies emphasize the dual nature of risk-taking in entrepreneurial success. A meta-analysis by Pham & Dao (2022) found that risk-taking behaviors, including leverage, R&D spending, and investment in new markets, can lead to improved financial returns but also expose startups to volatility. Similarly, Widianingsih *et al*., (2023) established that innovation-related risk-taking positively influences startup performance when complemented by strong financial performance and strategic planning. This aligns with this study findings, where risk-taking behaviors such as investing in high-risk, high-reward projects (M = 1.80, SD = 0.60) and making bold strategic decisions (M = 2.00, SD = 0.45) were relatively low among Dar es Salaam startups, indicating a cautious approach.

Cultural and Institutional Determinants of Entrepreneurial Risk-Taking

Studies found that risk-taking behavior in entrepreneurship is deeply shaped by cultural attitudes, institutional support, and financial security (Amankwah-Amoah *et al*., 2018; DeScioli, 2024; Hofstede *et al*., 2010; Prokopenko *et al*., 2025). In collectivist societies, failure is often stigmatized, leading to cautious, incremental risk-taking rather than bold market moves (Amankwah-Amoah *et al*., 2024). This pattern is evident in Tanzania, where startups favor risk minimization strategies such as staged investments and strategic partnerships, largely due to regulatory unpredictability and weak venture financing infrastructure (Jethro Godi, 2024).

Conversely, the U.S. and China exemplify how strong institutional support systems foster high-

risk entrepreneurial behavior. In the United States, the abundance of venture capital, government-backed SBIR grants, and startup accelerators like Y Combinator significantly lower financial risks for entrepreneurs (Nanda & Rhodes-Kropf, 2017). Additionally, bankruptcy protection laws, particularly Chapter 11, allow founders to recover from failure without facing long-term financial ruin, encouraging greater risk-taking (Yamakawa *et al*., 2011). Similarly, China's government-led innovation policies, such as the Torch Program and mass entrepreneurship campaigns, provide state-backed venture capital, financial subsidies, and R&D incentives, fostering a risk-tolerant entrepreneurial ecosystem (He *et al*., 2019). These mechanisms de-risk entrepreneurship in both economies, allowing founders to take calculated risks with confidence, knowing that failure does not lead to financial devastation (Ahlstrom *et al*., 2018).

In contrast, Tanzania lacks structured risk-absorption mechanisms, making entrepreneurs more reluctant to engage in radical innovation (Nyamrunda & Freeman, 2021). This study contributes to the broader literature by demonstrating that risk-taking behavior is highly contextual, with startups in risk-averse environments focusing on conservative expansion rather than disruptive innovation. To strengthen Tanzania's startup ecosystem, financial institutions must develop structured risk-mitigation frameworks, including staged funding mechanisms, tax incentives for high-growth startups, and policies that de-stigmatize entrepreneurial failure. These insights align with recent research advocating for contextualized risk-taking models in African entrepreneurial ecosystems (Jethro Godi, 2024).

Strategic Risk-Taking and Staged Investment Models

One way startups can mitigate the downsides of risk-taking while maximizing its benefits is through staged investment models. Research by Garcia-Lopera *et al*., (2022) suggests that startups adopting phased risk-taking approaches—where investments are tested in smaller increments before full-scale deployment—tend to have more sustainable growth. This approach helps businesses manage financial risks while exploring high-reward opportunities, which could be particularly beneficial for Dar es Salaam startups.

The Psychological Dimension of Risk-Taking

The role of entrepreneur psychology in risk-taking behavior is another important consideration. Studies by Liu *et al*., (2023) and Dao & Phan (2023) highlight how cognitive biases, such as overconfidence and loss aversion, influence decision-making. Entrepreneurs who perceive risk as an opportunity rather than a threat are more likely to engage in calculated risk-taking, leading to greater innovation and performance outcomes. Incorporating structured decision-making frameworks and risk analysis training could help startups in Dar es Salaam enhance their risk-taking capabilities without exposing themselves to excessive financial instability.

Risk-taking is a complex but essential component of entrepreneurial success. While this study indicates a conservative approach to risk-taking among Dar es Salaam startups, literature suggests that calculated risk-taking, combined with financial discipline and strategic oversight, can significantly enhance startup performance. Implementing structured staged investment models and understanding psychological drivers of risk-taking can help startups optimize their risk strategies. Future research should explore how startups can develop adaptive risk-taking strategies tailored to their industry dynamics and financial capabilities.

3.4.4 Proactiveness and Startup Performance

Proactiveness has been widely recognized as a critical entrepreneurial orientation dimension that enhances startup performance. It represents a forward-looking perspective characterized by anticipating future market trends, identifying new opportunities, and taking the initiative before competitors. The findings from this study suggest that proactiveness significantly influences startup performance in Dar es Salaam (M = 2.92, SD = 1.22), aligning with recent literature that highlights its role in fostering competitive advantage, strategic adaptability, and long-term sustainability (Khwae & Amoozegar, 2024; Ogundare & Merwe, 2024).

Proactiveness and Competitive Advantage

Recent studies indicate that proactiveness is a key determinant of competitive advantage for startups. Ogundare & Van der Merwe (2024) found that SMEs with a strong proactiveness orientation outperform competitors by identifying and responding to market shifts early. This aligns with this study's findings that startups in Dar es Salaam exhibit moderate proactiveness, particularly in monitoring market trends (M = 2.90, SD = 1.20) and adapting to changing conditions (M = 3.10, SD = 1.15). However, the study also reveals that while startups react to immediate market changes, their long-term strategic foresight remains limited (M = 2.75, SD = 1.25). This is consistent with Bii *et al*., (2024), who argue that startups with high proactiveness need dynamic capabilities to sustain a competitive edge.

Proactiveness and Startup Performance

The relationship between proactiveness and startup performance has yielded mixed results in previous studies. While some studies confirm a positive and significant impact (Abdullahi, 2022; Adomako *et al*., 2021), others suggest that proactiveness alone may not guarantee improved performance unless coupled with complementary factors such as strategic resource allocation and innovation (Kavana & Puspitowati, 2022). The findings from this study support the argument that while proactiveness contributes to startup performance, its effectiveness is contingent on how well startups implement proactive strategies.

A study by Adomako *et al*., (2021) found that proactive environmental strategies positively influence startup performance in developing economies. Similarly, Abdullahi (2022) identified proactive marketing, networking, and diversification as essential strategies for improving startup competitiveness. Our findings align with these insights, suggesting that startups in Dar es Salaam could enhance their market positioning by adopting structured proactive strategies.

The Moderating Role of External and Internal Factors

The effectiveness of proactiveness on performance is influenced by both internal and external factors. Bii *et al*., (2024) emphasize the moderating role of dynamic capabilities, highlighting that startups with the ability to reconfigure their resources are better positioned to leverage proactiveness. This perspective aligns with our findings, where startups with strong leadership support for proactiveness (M = 3.35, SD = 1.35) demonstrated better performance outcomes. However, this study also shows that some startups struggle with long-term strategic planning, indicating the need for improved resource alignment to fully capitalize on proactive behavior.

Practical Implications and Recommendations

The findings of this study reinforce the need for startups to integrate proactiveness into their strategic frameworks actively. Policymakers and business support organizations in Dar es Salaam should focus on training programs that enhance entrepreneurial foresight, strategic planning, and market anticipation. Additionally, startups should invest in competitive intelligence systems and foster leadership cultures that encourage proactive decision-making. This aligns with recommendations by Abdullahi (2022), who suggests that SMEs in emerging markets need structured approaches to sustain proactive advantages.

Proactiveness remains a significant driver of startup performance, as demonstrated in this study and supported by recent literature. However, its effectiveness depends on how well startups leverage proactive strategies alongside complementary capabilities. Future research should explore how startups can develop dynamic capabilities to maximize the benefits of proactiveness in emerging market contexts like Dar es Salaam.

3.5 Theoretical Contributions

This study contributes to Entrepreneurial Event Theory (EET) by demonstrating that entrepreneurial behaviors are not universal in their impact but are shaped by contextual factors. Unlike in developed markets where resource abundance enables aggressive risk-taking and disruptive innovation, Tanzanian startups must balance aggressiveness with adaptability due to limited financial and institutional support. This reinforces the need for a contextualized approach to entrepreneurship theory, emphasizing the role of economic conditions, regulatory environments, and cultural factors.

Behavioral Mechanisms Under EET – The findings reveal that entrepreneurial behaviors (proactiveness, innovation, risk-taking, and competitiveness) are activated by perceived feasibility and desirability of startup opportunities, reinforcing EET's predictive validity.

Environmental Contingency in EET – The study provides empirical evidence that entrepreneurs in resource-constrained environments rely more on innovation and competitive behaviors rather than risk-taking due to financial and market uncertainties, adding nuance to EET's applicability.

Feedback Loop in Entrepreneurial Behavior – This study finds that startup success encourages entrepreneurs to take further actions, such as reinvesting in innovation, expanding market strategies, and seeking new opportunities. As businesses grow and achieve success, entrepreneurs gain confidence and motivation, reinforcing continued entrepreneurial efforts beyond just the initial startup phase. This cycle of success and reinvestment helps sustain long-term business growth and adaptation. This feedback loop ensures that entrepreneurship is not just a one-time event but an ongoing cycle of learning, adaptation, and reinvestment.

Cultural Factors and Entrepreneurial Perseverance: Furthermore, the influence of cultural factors on entrepreneurial behaviors is integrated into the theory. In the Tanzanian context, cultural

predispositions towards risk, which differ significantly from Western settings, dictate the extent to which entrepreneurs engage with perceived opportunities. This cultural dimension suggests that EET could be modified to account for varying risk tolerances across different cultures, influencing the propensity to act.

3.6 Recommendations and Implications

The findings of this study provide actionable insights for entrepreneurs, policymakers, and business support institutions to enhance startup performance in Tanzania and similar emerging economies.

Strategic Competitive Aggressiveness: Given that competitive aggressiveness is the strongest predictor of startup success, entrepreneurs should adopt data-driven market positioning strategies, leveraging competitive intelligence to outmaneuver rivals. Business support organizations should provide training on competitive analysis to help startups refine their market entry and expansion strategies.

Fostering Innovation and Proactiveness: Policymakers and incubators should promote innovation-friendly ecosystems by facilitating access to funding, mentorship programs, and industry collaborations. Startups should actively integrate customer feedback, technology adoption, and market trend analysis into their innovation and proactive strategies.

Refining Risk-Taking Strategies: Given the conservative risk posture of Tanzanian startups, financial institutions should design staged funding mechanisms such as pilot investment grants, micro-financing for experimental projects, and structured venture capital models. Entrepreneurs should be encouraged to adopt phased risk-taking approaches, where small-scale tests precede full-scale implementations.

Enhancing Regulatory and Institutional Support: The government should streamline bureaucratic processes and develop clear startup policies that reduce regulatory uncertainty. Establishing entrepreneurial advisory hubs can help bridge the knowledge gap on navigating legal and financial frameworks.

Integrating Entrepreneurial Behavior Training in Business Development Programs: Entrepreneurial education should emphasize behavioral agility, encouraging startups to develop dynamic capabilities in competitive aggressiveness, innovation, and proactiveness. Universities and business development programs should integrate experiential learning approaches, such as startup simulations and real-world case analyses.

By implementing these strategies, Tanzania's startup ecosystem can enhance its sustainability, resilience, and long-term growth potential, aligning with global best practices for entrepreneurial success.

3.7 Limitations and Future Research Directions

While this study provides valuable insights into how entrepreneurial behaviors influence startup performance, a few limitations should be considered. These present opportunities for future research to build on these findings and further enhance our understanding of entrepreneurship in emerging economies.

Single-Point Data Collection: This study used a cross-sectional design, meaning data was collected at one point in time. While this provides a snapshot of entrepreneurial behavior, future studies could use longitudinal research to track how these behaviors evolve and impact startups over time.

Self-Reported Data: The study relied on survey responses from entrepreneurs, which may be influenced by personal perceptions. Future research could complement self-reported data with business performance records to gain a more well-rounded view.

Focus on Dar es Salaam: The study focused on startups in Dar es Salaam, which is a major business hub. While the findings are relevant, future studies could expand to other regions of Tanzania or compare different African markets to see if similar trends exist in different economic environments.

Industry Differences: While this study included startups from various industries, it did not deeply examine whether certain entrepreneurial behaviors are more impactful in specific sectors. Future research could explore whether, for example, innovation is more critical in tech startups compared to service-based businesses.

Policy and Institutional Influences: The study acknowledges the role of regulatory environments and financial access but does not provide an in-depth analysis of how government policies or support programs shape entrepreneurial behaviors. Future research could assess how startup-friendly policies or funding initiatives influence risk-taking and innovation.

4. CONCLUSION

This study underscores the critical role of entrepreneurial behaviors in shaping startup

performance in Tanzania's evolving business landscape. The findings affirm that competitive aggressiveness is the most influential driver of startup success, highlighting the necessity for startups to adopt assertive market positioning and strategic competition. Innovation and proactiveness further reinforce business growth by fostering adaptability and market responsiveness, while risk-taking, though a weaker predictor, remains essential for measured business expansion.

By integrating Entrepreneurial Event Theory (EET) into this study, we extend its applicability beyond entrepreneurial entry to explain how behavioral dynamics sustain business performance in resource-constrained environments. The study refines EET by demonstrating that perceived feasibility drives competitive aggressiveness, desirability influences proactive and innovative behaviors, and risk-taking is contextually moderated by financial and regulatory constraints.

From a practical standpoint, entrepreneurs must adopt data-driven, innovation-led, and proactive business strategies while policymakers should enhance institutional support, funding accessibility, and regulatory clarity to create a more enabling startup ecosystem. The study's implications provide a roadmap for startups to strategically align their behaviors with evolving market conditions, ensuring long-term sustainability and resilience.

Future research should explore industry-specific entrepreneurial behavior patterns and the role of institutional frameworks in enhancing startup performance. As Tanzania's startup ecosystem continues to expand, fostering an environment where entrepreneurial behaviors are systematically nurtured will be key to sustainable economic growth and innovation-driven development.

ACKNOWLEDGMENT

Conflicts of Interest: The author declares no conflicts of interest.

REFERENCES

- Abdullahi, U. (2022). Proactiveness strategies of small and medium construction firms in Nigeria: A qualitative assessment. *FUTY Journal of the Environment*, *16(3)*, 65-80.

- Adomako, S., Ning, E., & Adu-Ameyaw, E. (2021). Proactive environmental strategy and firm performance at the bottom of the pyramid. *Business Strategy and the Environment*, *30*(1), 422–431. https://doi.org/10.1002/bse.2629

- Ahlstrom, D., Yang, X., Wang, L., & Wu, C. (2018). A global perspective of entrepreneurship and innovation in China. *Multinational Business Review*, *26*, 302–318. https://doi.org/10.1108/MBR-08-2018-0058

- Al-Harthi, S., Bachkirov, A. A., Al-Riyami, S., & Al-Jahwari, M. (2024). Entrepreneurial orientation and competitive aggressiveness: A need for conceptual refinement and contextualization. *Arab Gulf Journal of Scientific Research*, *42*(3), 825–835. https://doi.org/10.1108/AGJSR-04-2023-0161

- Amankwah-Amoah, J., Boso, N., Adomako, S., & Danso, A. (2024). Editorial to the special issue "International entrepreneurial behaviors of African firms: Emerging issues, challenges and opportunities". *Journal of Business Research*, *182*, 114763. https://doi.org/10.1016/j.jbusres.2024.114763

- Amankwah-Amoah, J., Boso, N., & Antwi-Agyei, I. (2018). The Effects of Business Failure Experience on Successive Entrepreneurial Engagements: An Evolutionary Phase Model. *Group & Organization Management*, *43*(4), 648–682. https://doi.org/10.1177/1059601116643447

- Avlonitis, G. J., & Salavou, H. E. (2007). Entrepreneurial orientation of SMEs, product innovativeness, and performance. *Journal of Business Research*, *60*(5), 566–575. https://doi.org/10.1016/j.jbusres.2007.01.001

- Bacon, D. R., Sauer, P. L., & Young, M. (1995). Composite Reliability in Structural Equations Modeling. *Educational and Psychological Measurement*, *55*(3), 394–406. https://doi.org/10.1177/0013164495055003003

- Baláž, V., Jeck, T., & Balog, M. (2023). Firm performance over innovation cycle: Evidence from a small European economy. *Journal of Innovation and Entrepreneurship*, *12*(1), 40. https://doi.org/10.1186/s13731-023-00298-9

- Belyh, A. (2022, March 5). The Ultimate List of Startup Statistics for 2024. *FounderJar*. https://www.founderjar.com/startup-statistics/

- Bii, J., Akuku, C., Geoffrey, K., & Onyango, R. (2023). Effect of Competitive Aggressiveness On Performance of Star Rated Hotels in North Rift Region, Kenya. *International Journal of Business and Management Review*, *11*(8). https://eajournals.org/ijbmr/vol11-issue-8-2023/effect-of-competitive-aggressiveness-on-

performance-of-star-rated-hotels-in-north-rift-region-kenya/

- Bii, J., Akuku, C., & Kimutai, G. (2024). Proactiveness and Performance of Star Rated Hotels in Kenya's North Rift Region: The Moderating Role of Dynamic Capabilities. *International Journal of Business and Management Review*, *15*. https://eajournals.org/ijbmr/vol11-issue-8-2023/effect-of-competitive-aggressiveness-on-performance-of-star-rated-hotels-in-north-rift-region-kenya/
- Bisbe, J., Coenders, G., Saris, W., & Batista-Foguet, J. (2006). Correcting measurement error bias in interaction models with small samples. *Advances in Methodology and Statistics*, *3*(2). https://doi.org/10.51936/wbtj1056
- Bogetoft, P., Kroman, L., Smilgins, A., & Sørensen, A. (2024). Innovation strategies and firm performance. *Journal of Productivity Analysis*, *62*(2), 175–196. https://doi.org/10.1007/s11123-024-00727-1
- Breusch, T. S., & Pagan, A. R. (1979). A Simple Test for Heteroscedasticity and Random Coefficient Variation. *Econometrica*, *47*(5), 1287. https://doi.org/10.2307/1911963
- Chen, X., Xie, H., & Zhou, H. (2024). Incremental versus Radical Innovation and Sustainable Competitive Advantage: A Moderated Mediation Model. *Sustainability*, *16*(11), 4545. https://doi.org/10.3390/su16114545
- Chiu, A., & Wu, G. (2011). Prospect Theory. In *Wiley Encyclopedia of Operations Research and Management Science*. John Wiley & Sons, Ltd. https://doi.org/10.1002/9780470400531.eorms0687
- Chowdhury, F., Audretsch, D. B., & Belitski, M. (2018). Institutions and entrepreneurship quality. *Entrepreneurship Theory and Practice*, *43*(1), Article 1. https://doi.org/10.1177/1042258718780431
- COSTECH. (2023). *TANZANIA COMMISSION FOR SCIENCE AND TECHNOLOGY*. https://www.costech.or.tz/
- De Clercq, D., Zhou, Y., & Shu, C. (2020). C. Liu. 2019.'Government institutional support, entrepreneurial orientation, strategic renewal, and firm performance in transitional China.' *International Journal of Entrepreneurial Behavior & Research*, *25*(3), 433–456.
- DeScioli, P. (2024). *Understanding the Influence of Cultural Factors on Entrepreneurial Behavior*. https://doi.org/10.21203/rs.3.rs-3966968/v1
- Dess, G. G., & Lumpkin, G. T. (2005). The Role of Entrepreneurial Orientation in Stimulating Effective Corporate Entrepreneurship. *Academy of Management Perspectives*, *19*(1), 147–156. https://doi.org/10.5465/ame.2005.15841975
- Dos Santos, P. M., & Cirillo, M. Â. (2023). Construction of the average variance extracted index for construct validation in structural equation models with adaptive regressions. *Communications in Statistics - Simulation and Computation*, *52*(4), 1639–1650. https://doi.org/10.1080/03610918.2021.1888122
- Durbin–Watson Test. (2008). In *The Concise Encyclopedia of Statistics* (pp. 173–175). Springer New York. https://doi.org/10.1007/978-0-387-32833-1_122
- Elmore, P. B., & Beggs, D. L. (1975). Salience of Concepts and Commitment to Extreme Judgments in the Response Patterns of Teachers. *Education*.
- Feichter, C., Moers, F., & Timmermans, O. (2022). Relative Performance Evaluation and Competitive Aggressiveness. *Journal of Accounting Research*, *60*(5), 1859–1913.
- Flatt, C., & Jacobs, R. (2019). Principle Assumptions of Regression Analysis: Testing, Techniques, and Statistical Reporting of Imperfect Data Sets. *Advances in Developing Human Resources*, *21*, 484–502. https://doi.org/10.1177/1523422319869915
- García-Lopera, F., Santos-Jaén, J. M., Palacios-Manzano, M., & Ruiz-Palomo, D. (2022). Exploring the effect of professionalization, risk-taking and technological innovation on business performance. *PLOS ONE*, *17*(2), e0263694. https://doi.org/10.1371/journal.pone.0263694
- Hair, J. F., Black, W. C., & Babin, B. J. (2010). *Multivariate Data Analysis: A Global Perspective*. Pearson Education.
- Haitovsky, Y. (1969). Multicollinearity in Regression Analysis: Comment. *The Review of Economics and Statistics*, *51*(4), 486–489. https://doi.org/10.2307/1926450
- Hawkins, D. M. (1981). A New Test for Multivariate Normality and Homoscedasticity. *Technometrics*, *23*(1), 105–110. https://doi.org/10.1080/00401706.1981.10486244
- He, C., Lu, J., & Qian, H. (2019). Entrepreneurship in China. *Small Business Economics*, *52*. https://doi.org/10.1007/s11187-017-9972-5
- Heena, M., & Bedi, D. H. S. (2022). How Does Risk Taking Propensity Impact Firm Performance? *Journal of Positive School Psychology*, *6*(8), Article 8.
- Helfat, C. E., & Peteraf, M. A. (2009). Understanding dynamic capabilities: Progress along a developmental path. *Strategic Organization*, *7*(1), 91–102. https://doi.org/10.1177/1476127008100133
- Heo, M., Kim, N., & Faith, M. S. (2015). Statistical power as a function of Cronbach alpha of

instrument questionnaire items. *BMC Medical Research Methodology*, *15*(1), 86. https://doi.org/10.1186/s12874-015-0070-6

- Hofstede, G., Hofstede, G. J., & Minkov, M. (2010). *Cultures and Organizations: Software of the Mind, Third Edition*. McGraw Hill Professional.
- Jethro Godi. (2024). Analysis of Risk Factors for Investors in Emerging Markets. *Journal of Risk Analysis and Crisis Response*, *14*(2). https://doi.org/10.54560/jracr.v14i2.469
- Kartika, F. (2024). The Role of Innovation in Startup Success: A Comprehensive Review. *Advances: Jurnal Ekonomi & Bisnis*, *2*. https://doi.org/10.60079/ajeb.v2i1.240
- Kavana, H., & Puspitowati, I. (2022). *The Effect of Proactive Action, Innovation and Risk Taking on Business Performance*. 284–289. https://doi.org/10.2991/aebmr.k.220501.043
- Khwae, G. B., & Amoozegar, A. (2024). Effect of innovativeness, proactiveness and risk-taking on small medium enterprises (SMEs) performance: Technology orientation as mediating variable in Botswana. *Asian Finance Journal of Business Studies*, *6(12)*, 1198–1216. https://doi.org/10.48047/AFJBS.6.12.2024.1198-1216
- Kongolo, M. (2010). Job creation versus job shedding and the role of SMEs in economic development. *African Journal of Business Management*, *Vol. 4(11)*, 2288–2295.
- Lee, Y., Kumar, S., Cortes, A. F., Sureka, R., & Lim, W. M. (2023). Twenty-five years of New England Journal of Entrepreneurship: A bibliometric review. *New England Journal of Entrepreneurship*, *26*(1), Article 1. https://doi.org/10.1108/NEJE-03-2023-0010
- Liu, C., Chen, Y., Huang, S., Chen, X., & Liu, F. (2023). Assessing the Determinants of Corporate Risk-Taking Using Machine Learning Algorithms. *Systems*, *11*(5), 263. https://doi.org/10.3390/systems11050263
- Lumpkin, G. T., & Dess, G. G. (1996). Clarifying the Entrepreneurial Orientation Construct and Linking It to Performance. *The Academy of Management Review*, *21*(1), Article 1. https://doi.org/10.2307/258632
- Muathe, S., Sang, P., Kavinda, L., Kosimbei, G., Letema, S., Nyachae, S., Kiriago, S., Chelule, K., Ouko, E., Mutua, M., & Maina, S. (2022). Understanding Startups Ecosystem in Kenya: Drivers, Challenges, and Opportunities. *Journal of Business and Management Sciences*, *10*(3), Article 3. https://doi.org/10.12691/jbms-10-3-5
- Nanda, R., & Rhodes-Kropf, M. (2017). Financing Risk and Innovation. *Management Science*, *63*(4), 901–918. https://doi.org/10.1287/mnsc.2015.2350

- Nyamrunda, F., & Freeman, S. (2021). Small and Medium Enterprises in Transitional East African Economies: The Case of Tanzania. In S. M. Apitsa & E. Milliot (Eds.), *Doing Business in Africa* (pp. 277–307). Springer International Publishing. https://doi.org/10.1007/978-3-030-50739-8_12
- Ogundare, J. A., & Merwe, S. van der. (2024). The role of competitor orientation and proactiveness in competitive advantage for small- and medium-sized enterprises performance. *The Southern African Journal of Entrepreneurship and Small Business Management*, *16*(1), Article 1. https://doi.org/10.4102/sajesbm.v16i1.786
- Onyango, E. M., Ngugi, P. K., & Nyang'au, S. (2024). Competitive Aggressiveness and Its Role in The Growth of Public Transport Enterprises in Kenya. *Journal Integration of Management Studies*, *2*(2), Article 2. https://doi.org/10.58229/jims.v2i2.266
- Osborne, J., & Waters, E. (2002). Four Assumptions of Multiple Regression That Researchers Should Always Test. *Practical Assessment, Research & Evaluation*, *8*.
- Ovie, O. (2023, November 15). *Taro Yamane Formula: Overview, Merits, and 3 Examples to Determine Sample Size*. https://onovisinfo.com/taro-yamane-formulaoverview-merits-and-examples/
- Perez, J. P., Martins, I., Mahauad, M. D., & Sarango-Lalangui, P. O. (2024). A bridge between entrepreneurship education, program inspiration, and entrepreneurial intention: The role of individual entrepreneurial orientation. Evidence from Latin American emerging economies. *Journal of Entrepreneurship in Emerging Economies*, *16*(2), 288–310.
- Pidduck, R. J., Clark, D. R., & Lumpkin, G. T. (2023). Entrepreneurial mindset: Dispositional beliefs, opportunity beliefs, and entrepreneurial behavior. *Journal of Small Business Management*, *61*(1), 45–79. https://doi.org/10.1080/00472778.2021.1907582
- POPI. (2023). *Ofisi ya Rais Mipango na Uwekezaji | Maelezo Kuhusu Wizara*. https://www.planninginvestment.go.tz/pages/introduction-about-ministry
- Prokopenko, O., Sitenko, D., Zhanybayeva, Z., Lomachynska, I., & Rakhmetova, A. (2025). Financial Systems and Their Influence on Entrepreneurial Development: Insights for Building Sustainable and Inclusive Ecosystems. *Journal of Risk and Financial Management*, *18*(3), Article 3. https://doi.org/10.3390/jrfm18030131
- Rauch, A., Wiklund, J., Lumpkin, G. T., & Frese, M. (2009). Entrepreneurial Orientation and Business Performance: An Assessment of past

Research and Suggestions for the Future. *Entrepreneurship Theory and Practice*, *33*(3), 761–787. https://doi.org/10.1111/j.1540-6520.2009.00308.x

- Rezaei, J., & Ortt, R. (2018). Entrepreneurial orientation and firm performance: The mediating role of functional performances. *Management Research Review*, *41*(7), Article 7. https://doi.org/10.1108/MRR-03-2017-0092
- Roscoe, J. T. (1975). *Fundamental Research Statistics for the Behavioral Sciences*. Holt, Rinehart and Winston.
- Semrau, T., Ambos, T., & Sascha Kraus. (2016). Entrepreneurial orientation and SME performance across societal cultures: An international study. *Journal of Business Research*, *69*(5), 1928–1932.
- Shapero, A., & Sokol, L. (1982). *The Social Dimensions of Entrepreneurship* (SSRN Scholarly Paper No. 1497759). Social Science Research Network. https://papers.ssrn.com/abstract=1497759
- Shapiro, S. S., & Wilk, M. B. (1965). An analysis of variance test for normality (complete samples). *Biometrika*, *52*(3–4), Article 3–4. https://doi.org/10.1093/biomet/52.3-4.591
- Tate, R., Beauregard, F., Peter, C., & Marotta, L. (2023). *Pilot Testing as a Strategy to Develop Interview and Questionnaire Skills for Scholar Practitioners*. ResearchGate. https://www.academia.edu/download/121063644/Pilot_Testing_as_a_Strategy_to_Develop_Interview.pdf_filename_UTF-8Pilot_Testing_as_a_Strategy_to_Develop_Interview.pdf
- Thi Pham, P. M., & Thi Dao, B. T. (2022). A meta-analysis of risk taking and corporate performance. *Cogent Business & Management*, *9*(1), 2064263. https://doi.org/10.1080/23311975.2022.2064263
- TSA. (2023). *Tanzania Startup Association*. https://tsa.co.tz/

- Wales, W. J., Gupta, V. K., & Mousa, F.-T. (2011). *Empirical research on entrepreneurial orientation: An assessment and suggestions for future research—William J. Wales, Vishal K. Gupta, Fariss-Terry Mousa, 2013. Volume 31*(Issue 4). https://doi.org/10.1177/0266242611418261
- Wang, X., & Cheng, Z. (2020). Cross-Sectional Studies: Strengths, Weaknesses, and Recommendations. *CHEST*, *158*(1), S65–S71. https://doi.org/10.1016/j.chest.2020.03.012
- WHMTH. (2023). *Wizara ya Habari, Mawasiliano na Teknolojia ya Habari*. https://www.mawasiliano.go.tz/
- Widianingsih, Y. P. N., Setiawan, D., Aryani, Y. A., & Gantyowati, E. (2023). The Relationship between Innovation and Risk Taking: The Role of Firm Performance. *Risks*, *11*(8), 144. https://doi.org/10.3390/risks11080144
- Wiklund, J., & Shepherd, D. (2005). Entrepreneurial orientation and small business performance: A configurational approach. *Journal of Business Venturing*, *20*(1), Article 1. https://doi.org/10.1016/j.jbusvent.2004.01.001
- Yamakawa, Y., Lee, S.-H., & Peng, M. W. (2011). *Entrepreneurship and the Barrier to Exit: How Does an Entrepreneur-Friendly Bankruptcy Law Affect Entrepreneurship Development at a Societal Level? Advocacy: the voice of small business in government*, 328.
- Yulianto, E., & Supriono. (2023). Effect of open innovation on firm performance through type of innovation: Evidence from SMES in Malang City, East Java, Indonesia. *Cogent Business & Management*, *10*(3), 226–277. https://doi.org/10.1080/23311975.2023.2262671
- Zhao, Z., Haikel-Elsabeh, M., Baudier, P., Renard, D., & Brem, A. (2024). Functional, hedonic, and social motivated consumer innovativeness as a driver of word-of-mouth in smart object early adoptions: An empirical examination in two product categories. *International Journal of Technology Management*, *95*(1–2), 226–252. https://doi.org/10.1504/IJTM.2024.137028