Effect of Technological and Strategic Intelligence on the Performance of Small and Medium Enterprises in South-South, Nigeria

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Abstract

This study examines how technological and strategic intelligence affect SME performance in Nigeria's South-South region. Targeting SMEs, the research used the Nassiuma (2000) formula to determine the sample size and employed multiple regression and ANOVA for analysis. Findings show that technological intelligence negatively affects SME performance, with an R-square value of 0.513 indicating that TEI and STI explain 51.3% of the performance variation. Specifically, a one-unit increase in TEI results in a 0.119 unit decrease in performance, while a one-unit increase in STI leads to a 0.166 unit increase. The model's significance is confirmed by an F-stat. of 13.605 (p = 0.000) and a Durbin-Watson statistic of 1.933, indicating no significant autocorrelation. The study concludes that strategic intelligence enhances SME performance, whereas technological intelligence appears detrimental. Recommendations include improving SMEs' technological capabilities, conducting comparative regional studies, integrating additional variables in future research, and performing longitudinal studies to understand the long-term effects on SME performance.

Keywords: *Technological Intelligence, Strategic Intelligence, SMEs, Performance, South-South*

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Background to the Study

Due to intense rivalry from companies both inside and outside of their business environment, the global business climate has frequently presented new difficulties for companies trying to stay competitive. As a result, companies run the danger of losing clients due to their inability to recognise and adapt to the volatile market scenario - the changing trends in the market. Businesses must use their existing resources and talents to defeat the competition, get an advantage over rivals, and secure their survival in an effort to overcome this and increase performance. It should come as no surprise that every type of business is affected by this circumstance, as there are other players in the same industry. In relation to this, according to Isichei et al., (2020); Gracanin et al., (2015), poor decision making of most companies has come at enormous cost to the managers and the owners due to their inability to harness compelling resources such as technological and strategic intelligence assets that would have allowed them to gather reliable information to act proactively, learn and apply new knowledge.

Diverse types of businesses operate in diverse sectors of Nigeria with the goal of securing survival and gaining a competitive edge by leveraging value creation for customers. They do this by establishing quantifiable objectives that they could meet in a predetermined amount of time. Therefore, a significant portion of their performance is determined by their capacity to use the resources at hand efficiently in order to accomplish the stated goals and produce the anticipated results (Chang & Chuang, 2016). Additionally, Small and Medium Enterprises (SMEs) dominate the Nigerian economic landscape and play a major role in both creating jobs for the general public and contributing significantly to the GDP. Even though their significance to every country cannot be understated and they have garnered numerous government attention and supports from pertinent stakeholders, their growth and performance are still stunted. Accordingly, organisations that want to thrive may need to implement more sophisticated strategies, have access to accurate competitor information at the appropriate moment, and be able to harness and use that information. This is especially true in a volatile and uncertain environment where rapid technological advancement is driving change (Odiachi et al., 2021).

According to Rouach and Santi (2001), technological intelligence examines the costs, benefits, and potential discontinuities of new technology. This makes it easier for businesses to recognise new prospects, procedures, and technological advancements before their rivals and enables speedier client preference knowledge (Paiva & Goncalo, 2008). Since firms are compelled to innovate due to technological developments, this has elevated to a prominent position as a major driver of corporate performance in the business environment.

Strategic intelligence encompasses non-human knowledge reserves within the organisation and takes into account things like intellectual capital, creativity and innovation, processes, and so forth. It is also sometimes referred to as structural organisational intelligence or strategic alliance intelligence (Nibakabeho & Kule, 2016). According to Lee et al. (2011), strategic intelligence emphasises the importance of political knowledge regarding legislation, environmental laws, and other matters that can impact a company's success.

An organization's performance is determined by how well it performs overall, by the results of its activities, and by how well it meets both its financial and market-oriented objectives. The need for businesses to be adaptable and employ a range of strategies to control competition has increased in order to boost organisational effectiveness. SMEs could enhance their performance through technological and strategic intelligence dynamic capabilities especially in the face of a constantly evolving business environment.

Statement of the Problem

The importance of technological and strategic intelligence has not been fully understood or utilized by SMEs in South-South Nigeria, despite their awareness of its significance. This lack of application has led to a continued decline in their performance. Even with the support from various initiatives such as tax holidays, financial credit programs, and regulatory assistance, the performance of these SMEs has remained deteriorated (Gumel, 2017; Kayode and Ilesanmi, 2014). This decline is evident in the reduction of their contribution to the country's economy, which fell from 50% of GDP in 2021 to 43.3% by the end of 2022 (SMEDAN, 2023). Furthermore, many SMEs have not experienced any growth, indicating that physical resources alone are insufficient for improvement. Therefore, there is a pressing need for SMEs to review their internal activities to enhance their performance. This study aims to examine the effect of technological and strategic intelligence on the performance of SMEs in South-South Nigeria.

This study seeks to examine the effect of technological and strategic intelligence on the performance of SMEs in South-South, Nigeria using the following objectives: (i) to explore the effect of technological intelligence on the performance of SMEs in South-South, Nigeria; and (ii) to determine the effect of strategic intelligence on the performance of SMEs in South-South, Nigeria. These objectives are studied using the following null hypotheses:

Ho1: Technological intelligence has no significant effect on the performance of SMEs in South-South, Nigeria.

Ho2: Strategic intelligence has no significant effect on the performance of SMEs in South-South, Nigeria.

Conceptualisation

Technological Intelligence

Technological intelligence, according to Waithaka et al. (2016), is the process of spotting and seizing technological and scientific opportunities. It has a big impact on one's capacity for innovation and is seen as a key source of competitive advantage. Technological intelligence was described by Asikhia et al. (2019) as business-sensitive knowledge about the advancements in external sciences and technologies that have the potential to impact a company's competitive standing. They went on to say that adopting technology intelligence is merely an unstructured form of technology monitoring, but it is also a structured process encompassing the following: planning, organising, and carrying out competitive intelligence operations; intelligent information gathering; data analysis; and, finally, disseminating findings for real-world applications.

For Frishammar and Hörte (2018), technological intelligence is described as business-sensitive knowledge about advancements in science or external technology, as well as opportunities and risks that may affect a company's ability to compete. They have underlined that technological intelligence is pragmatic and business-sensitive, with an emphasis on external organisation concerns. Also, according to Majidfar and Salami (2011), technological intelligence is the analytical process that transforms fragmented data on rivals' technologies into relevant and applied strategic technology regarding their location, inclinations, and volume of activity. Gleaning from above, technological intelligence is the process of gathering, analysing and utilising information about evolving technology for valuable insights into the best practices and strategies for effective technology monitoring.

Strategic Intelligence

Alhamadi (2020), posits that strategic intelligence is the deliberate process of gathering, processing, and evaluating data and information in order to identify and evaluate important strategic data. It has to do with how big organisations make decisions and prepare strategically. Additionally, it fosters organisational administrative growth and competition. According to Levine et al. (2017), strategic intelligence is the capacity to predict and anticipate competitive behaviour. The more strategic intelligence, the more adept one is at predicting competitive behaviour and determining and foreseeing its possible strategies.

Blanding (2012) believes that strategic intelligence is the ability to adjust to changing conditions rather than following a course without question when all indications in the competitive environment point to the need for change. Dispersed throughout the entire organisation, strategic information continues to be a critical component since it generates greater value than the competitors over time, attracts more investments, and ultimately results in a durable competitive advantage. As a result, businesses will acquire the ability to continue serving the needs of their constituents over the long term as well as the short term. Businesses may continue to grow, adapt, and transform by routinely evaluating their plans (Blanding, 2012). Taken from the above, strategic intelligence is the systematic collection, evaluation and dissemination of information that enables the organisation to adjust its ways, means and ends for effective competitive behaviour.

SMEs Performance

Performance is defined as the capacity to meet predetermined goals, emphasizing a company's ability to achieve planned outcomes compared to its intended objectives, which includes financial performance, market performance, and shareholder returns (Workleap) (Align). Begonja et al. (2016) describe business performance as an organization's ability to meet or exceed targets set by its investors over a specific period, enabling the realization of significant goals relevant to market progress. Richard et al. (2016) reiterate that performance involves delivering anticipated results against intended outputs, encompassing shareholder return, market performance, and financial performance. Yadav et al. (2015) view company performance as a multidimensional phenomenon central to commercial ideologies. Generally, performance correlates with the achievement of objectives and goals. This study measures performance using an operational framework developed by Mbah and Maduafor

(2022), including metrics related to product quality, service speed, product variety, productivity, services rendered, and customer increase.

Empirical Review

Technological Intelligence and SMEs Performance
A study on the impact of predicting and technological intelligence on business performance using data from Indian logistics companies was conducted by Karmakar and Chakraborty (2021) in India. The impact of forecasting and technical intelligence on corporate performance was examined using a quantitative research approach. The study's population consisted of Indian logistics companies. A sample size of 346 Indian logistics companies was used in the study. Regression analysis was utilised in the study to examine the data. Technology intelligence has an impact on corporate performance, according to the study. The study was carried out in India; hence its conclusions may not be broadly applicable to other areas or nations.

Mochoge et al. (2020) examined the relationship between business performance and technological intelligence competence in Kenyan commercial banks. In this study, an explanatory research design was employed. Within the Nairobi CBD, the study's population consisted of twenty-five banks, with 225 heads of department. A stratified random sampling was used to select a sample size of 119 respondents using the Nassiuma (2000) formula. A questionnaire was employed in the study to collect the data. To test the hypothesis, multiple linear regression analysis was performed. According to the study, bank performance was positively and significantly impacted by technology operating, upgrading, and acquisition capabilities. However, the population and the sample size were not adequate. Equally, the study was carried out in Kenya; its conclusions cannot be applied universally.

An empirical inquiry on the connection between technical intelligence and business performance was carried out by Li et al. (2019) in USA. The study employed a correlational research design. The study's population consisted of medium-sized American businesses. There were sixty medium-sized businesses in the sample. With the help of the statistical programme SPSS, multiple regression was utilised to do the analysis. The study discovered a favourable relationship between corporate performance and technological intelligence. Businesses that made the investment to develop their technological intelligence were able to grow sustainably, increase their market share, and increase productivity. Furthermore, the sample size utilised is insufficient for a general application and a reliable conclusion.

Strategic Intelligence and SMEs Performance
Al-Ali and Ali (2023) used the questionnaire as the primary data collection tool to diagnose the reality of strategic intelligence in the areas of partnership, systems thinking, strategic vision, foresight, and employee motivation at the administrative leaders of Northern Technical University and its formations. The data gathered from a sample of 111 researchers who were administrative leaders in the research area was analysed using the Statistical Package for Social Sciences (SPSS 25). The study ends and confirms the availability of such dimensions and at high levels at the administrative leaders of the investigated organisation in light of the

statistical data. In order for business leaders to accomplish the objectives of their organisations, the study also underlines the necessity of improving these dimensions' possession and working to embrace them. The population and sample size were not specified in the study. Also, the study did not demonstrate how much these strategic intelligence factors influence performance making its result unreliable for reasonable application elsewhere.

In a similar vein, Alkharabsheh and Al-Sarayreh (2022) assessed how organisational excellence was affected by strategic intelligence techniques as measured by foresight, systems thinking, partnership, and motivation in Jordan. The Manaseer Companies Group in Jordan employed 281 workers in leadership and managerial roles as the study's sample. The study population was surveyed in order to gather data. The descriptive and inferential methodology that was suitable for data analysis was used in the study. The study discovered a statistically significant effect of strategic intelligence practices in their aspects (partnership, motivation, systems thinking, and foresight) on organisational excellence. Using human capital as a mediating variable, strategic intelligence methods had a statistically significant impact on organisational excellence in the Jordanian Manaseer Companies Group. The research was carried out with minimal population and in Jordan, and its conclusions might not be relevant in the Nigerian setting.

Al-Zu'bi (2016) looked into how organisational agility was affected by the strategic intelligence characteristics of visioning, foresight, partnership, intuition, and creativity in Jordan's mining and extraction industries in Jordan. A sample of 337 questionnaires, chosen from 8,377 employees of 15 selected organisations, were distributed as part of the study. The study found that all of the strategic intelligence dimensions had an effect on organisational agility, but that the influence was mostly on dimensional creativity. Regression analysis was used to analyse the data. It was suggested that managers should gain a deeper comprehension of identifying and assessing organisational agility. The population of this study was insufficient. Also, the focus of the study was organisational agility, which is not the same as the performance that is being looked at in this study.

Theoretical Framework
Resource Based View (RBV)Theory
Resource based view (RBV) theory was propounded by Wernerfelt in 1984 and was further developed upon by Barney (1991). The theory affirmed that the availability of adequate firm resources is known to enhance firms and individual's competitiveness, growth and expansion. The theory holds that, there are two principal sources of gain in the surroundings of an enterprise that are crucial to the preparation for venturing into business and those sources are identified as tangible and/or intangible in nature which serve as an asset to the enterprise (Abdulaziz, 2019). Tangible asset is said to be physical sources that are visible (resources that can be seen and touched) in nature in structure of bodily matters such as machinery equipment's, land, buildings, and so on which are underneath the possession and manage of the enterprise. While intangible asset is non-physical in nature and include techniques used by the organization, however, it can still be owned through the organisation. Unlike tangible

asset, intangible asset is seen as skills for a company that can't be bought from an issue market but are typically built within an enterprise over a long time and generally embedded within an organization and are usually considered as capability (Wirattanapornkul, 2012).

Barney (1991) argues that a firm's competitiveness and performance are largely based on the availability of internal resources and capabilities. However, these internal resources should be Valuable, Rare, Inimitable, and Non substitutable (VRIN). Typically, these resources are heterogeneous in nature and come in various forms, including intangible resources such as human capital, organizational processes, information, and other tangible assets like financial resources, which are inevitable in the venture creation process. The contention is that, by applying these resources, the firm can adequately execute its strategies to achieve organizational objectives (Talaja, 2012). However, when it comes to the RBV, there is much emphasis on the presence of specialized human capabilities, which are unique in nature and thereby drive competitiveness. Start-ups need these specialized human capabilities to identify, explore and exploit various entrepreneurial opportunities.

The RBV emphasizes firm-specific resources or assets (tangible and intangible, human and nonhuman) possessed or controlled by the firm which permits it to devise and apply value enhancing strategies (Barney, 1991). The approach suggests that firms gain and sustain competitive advantage by deploying valuable resources (Barney, 1991). These resources and capabilities that are valuable, uncommon, poorly imitable and non-substitutable constitute firm's unique or core competencies (Halawi et al., 2005). Evolving developments in the RBV suggests that capabilities are crucial contributors to organizational performance (Teece et al., 1997).

In RBV, knowledge is seen as a strategic asset or capability with the potential to be a source of Sustainable Competitive Advantage (SCA) for a firm (Teece, 1998). Hitt et al. (2003) puts it, intangible firm-specific resources like knowledge permit firms to add up value to incoming factors of production, thereby generating competitive advantage. It therefore promotes a knowledge-based perspective, which postulates that competitive advantage (CA) is built upon those privately developed resources, tacit and explicit, inside the firm that are less likely to be imitated easily (Collis & Montgomery, 1995). These unique resources and capabilities are discussed under different names like distinctive competences, core competences, invisible assets, core capabilities, internal capabilities, embedded knowledge, corporate culture, and unique combinations of business experience (Von Krogh & Roos, 1995).

Though, the resource base view theory was criticized. One of the most important challenges of aid primarily based view idea raised is that, it is operationally invalid in the experience that it can only be relevant in static surroundings however impossible in the case for real lifestyles scenario (Pankaj, 2010). Resource based view idea has been largely criticized in particular from the dynamic factor of view due to the fact in today's commercial enterprise world no environment is static. The enterprise environments these days are anchored with radical adjustments and high velocity, and reaching a benefit with the resource of some specific sources may not be realizable in dynamic environment which thus, limit this concept to be solely useful or high-quality in a static environment (Abdulaziz, 2019).

Methodology

The survey research method was adopted for the study. In this research, the population comprised of owners/managers of all registered SMEs operating in South-South, Nigeria.

According to the NBS-SMEDAN (2021) national survey, there are 117,949 SMEs operating in South-South, Nigeria. Given the population, the study adopts the Taro Yamane (1967) sample size determination formula to arrive at a sample size of 399 for the study as shown below:

$$s = \frac{N}{1 + Ne^2}$$

Where

s = required sample size; N = Population size (=   ,   );
e = Level of significance = 5% or 0.05

By substituting the values into the formula, we now have:

$$s = \frac{117,949}{1 + 117,949(0.05)^2}$$

$$s = \frac{117,949}{1 + 117,949(0.0025)} = \frac{117,949}{1 + 294.87} = \frac{117,949}{295.87} = 308.6514 \approx 3$$

The minimum sample size for this study is 399 respondents, Nigeria. However, additional 10% (39) was added as recommended by Singh and Masuku (2014) to allow for attrition bringing it to a total of **438**.

Table 1: Sample Proportion Computation

SN	Sampled States	Population (n)	Sample Proportion Computation, (n'/N) x n	Sample
Calculated Minimum Sample size, n' = 438				
1	Akwa-Ibom	n = 17,263	$\frac{438}{117949}$x17263 = 0.003714x17263= 64.11	64
2	Bayelsa	n = 5,863	$\frac{438}{117949}$x5863 = 0.0037x5863 = 21.78	22
3	Cross-River	n = 15,741	$\frac{438}{117949}$x15741= 0.0037x5863 = 58.41	58
4	Delta	n = 26,651	$\frac{438}{117949}$x26651= 0.0037x26651 = 98.96	99
5	Edo	n = 10,125	$\frac{438}{117949}$x10125 = 0.0037x10125 = 37.598	38
6	Rivers	n = 42,306	$\frac{438}{117949}$x42306 = 0.0037x42306= 157.1	157
Total		**117,949 =N**		**438**

Source: SMEDAN (2023)/Researchers' Computation, 2024

The study used stratified sampling technique employing the Bourley's appropriation formula using each state as a stratum as seen below:

The questionnaire items were adapted from previous works. A scale developed by Deschamps and Nayak (1995) containing 7-items was modified to 5-items and used to measure technological intelligence. A scale developed by Al-Zu'bi (2016) containing 15-items was modified to 9-items and adopted to measure strategic intelligence. Similarly, a scale containing

5 items developed by Mbah and Maduafor (2022) were adapted to measure performance. The scale was designed using 5-point Likert scale ranging from "strongly agree (=5)" to "strongly disagree(=1)" The data were analyzed using the multiple regression analysis with the aid of Statistical Package for Social Sciences (SPSS).

Model specification was obtained based on the assumption that the relationship is linear., in the form, $Y = \beta Xi$

Where $Xi = X_1, X_2, \ldots X_n$ represent $TEIi$, $STIi$, respectively, and Y represents $PRFi$

Thus, $\mathbf{PRF_i = \beta0 + \beta1TEI_i + \beta2STI_i + e_i}$ … … … … … … … … … … … …. … … … … … (eq1)

Where: PRF = Performance, TEI = Technological Intelligence, STI = Strategic Intelligence, e = Error term (5% or 0.05), $\beta0$ = Intercept on PRF axis when TEI and STI are set to zero; $\beta1$, $\beta2$ = Coefficients of respective independent variables, i= the cross-sectional effect on each SME.

Results and Discussions

The study distributed a total of 438 copies of the questionnaire out of which 407 copies were retrieved giving us a valid response rate of 93% and used for the analysis subsequently.

Table 2 presents the descriptive statistics for technological intelligence (TEI), strategic intelligence (STI), and performance (PRF) based on 407 observations. TEI has a minimum value of 1, a maximum of 5, a mean of 2.25, and a standard deviation of 1.511, with a skewness of 0.799 indicating a slight positive skew and a kurtosis of -0.919 suggesting a flatter distribution. STI ranges from 1 to 5 with a mean of 4.39 and a standard deviation of 1.139, showing a strong negative skew (skewness of -1.722) and a peaked distribution (kurtosis of 1.663). PRF also ranges from 1 to 5, with a mean of 3.03 and a standard deviation of 1.329, nearly symmetrical skewness at -0.063, and a flatter distribution with a kurtosis of -1.101. These metrics indicate higher ratings for STI, moderate ratings for PRF, and varied responses for TEI.

Table 2: Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic		Statistic	Std. Error	Statistic	Std. Error
TEI	407	1	5	2.25	1.511	.799	.121	-.919	.241
STI	407	1	5	4.39	1.139	-1.722	.121	1.663	.241
PRF	407	1	5	3.03	1.329	-.063	.121	-1.101	.241
Valid N (listwise)	407								

Source: SPSS Output, 2024

Correlation Analysis

The analysis and interpretation of Table 3 show key relationships among Technological Intelligence (TEI), Strategic Intelligence (STI), and Performance (PRF). The Pearson correlation between TEI and PRF is 0.123, significant at the 0.05 level (p = 0.013), indicating a weak but statistically significant positive relationship. Similarly, the correlation between STI and PRF is 0.131, significant at the 0.01 level (p = 0.008), also suggesting a weak positive relationship. However, the correlation between TEI and STI is -0.083 and not statistically significant (p = 0.094), indicating no substantial relationship. In summary, both TEI and STI positively correlate with PRF, while TEI and STI are not significantly related, highlighting the independent contributions of technological and strategic intelligence to performance.

Table 3: Correlations

		TEI	STI	PRF
TEI	Pearson Correlation	1	-.083	.123*
	Sig. (2-tailed)		.094	.013
	N	407	407	407
STI	Pearson Correlation	-.083	1	.131**
	Sig. (2-tailed)	.094		.008
	N	407	407	407
PRF	Pearson Correlation	.123*	.131**	1
	Sig. (2-tailed)	.013	.008	
	N	407	407	407

Correlation is significant at the 0.05 level (2-tailed).
**Correlation is significant at the 0.01 level (2-tailed).*

Source: SPSS Output, 2024

Model Analysis

The analysis and interpretation of the results displayed in Table 4 show an R-square value of 0.513, indicating that 51.3% of the variation in performance (PRF) can be attributed to the combined effects of technological intelligence (TI) and strategic intelligence (SI). This suggests that the model, incorporating these two independent variables, explains just over half of the variability in performance.

Table 4: Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.263[a]	.513	.511	1.243	1.933

a. *Predictors: (Constant), STI, TEI*
b. *Dependent Variable: PRF*

The remaining 48.7% of the variation is likely due to other factors not considered in this study. The model's goodness of fit is supported by the F-statistic value of 13.605, which is statistically significant at the 5% level ($p = 0.000 < 0.05$). This significance indicates that the model is appropriately specified and that there is a meaningful relationship between the independent variables (technological and strategic intelligence) and the dependent variable (performance). The Durbin-Watson statistic of 1.933 suggests that there is no significant autocorrelation in the residuals, further validating the model's reliability.

Analysis of Variance (ANOVA) test
Table 5 presents the ANOVA results, highlighting key aspects of the relationship between the independent variables (strategic intelligence (STI) and technological intelligence (TEI)) and the dependent variable (performance (PRF)). The regression model is statistically significant at the 5% level.

Table 5: ANOVA[a]

Model	Sum of Squares	Df	Mean Square	F	Sig.
1 Regression	167.344	2	.934	13.605	.000[b]
Residual	158.863	404	1.544		
Total	326.207	406			

a. *Dependent Variable: PRF*
b. *Predictors: (Constant), STI, TEI*

The "Regression" sum of squares is 167.344 with 2 degrees of freedom (df), resulting in a mean square value of 83.672. This indicates the variation in performance explained by STI and TEI. The "Residual" sum of squares is 158.863 with 404 degrees of freedom, leading to a mean square value of 0.393, representing the unexplained variation. The total sum of squares is 326.207 across 406 degrees of freedom. The F-statistic is 13.605, with a significance level (Sig.) of 0.000, indicating that the regression model is highly significant ($p < 0.05$). This confirms a statistically significant relationship between STI, TEI, and PRF, validating the model's effectiveness in explaining performance variations.

Regression Analysis and test of the Hypotheses
The test shown in Table 6 is known as the Multiple Regression Analysis. This test evaluates the relationship between the dependent variable (performance, PRF) and multiple independent variables (technological intelligence (TEI) and strategic intelligence (STI)).

Table 6: Multiple Regression Analysis
Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	2.039	.284		7.175	.000
	TEI	-.119	.043	-.135	2.755	.006
	STI	.166	.057	.142	2.900	.004

Source: SPSS Output, 2024

Test of Hypothesis 1: Technological Intelligence (TEI) has no effect on Performance (PRF) (i.e., for for TEI, β = 0). From the coefficients table, the unstandardized coefficient for TEI is -0.119 with a standard error of 0.043. The t-value is -2.755 and the significance level (Sig.) is 0.006. Since the p-value (0.006) is less than the 0.05 threshold, we reject the null hypothesis. This indicates that Technological Intelligence (TEI) has a statistically significant effect on Performance (PRF).

Test of Hypothesis 2: Strategic Intelligence (STI) has no effect on Performance (PRF) (i.e., the coefficient for STI, β = 0). From the coefficients table: The unstandardized coefficient for STI is 0.166 with a standard error of 0.057. The t-value is 2.900 and the significance level (Sig.) is 0.004. Since the p-value (0.004) is also less than the 0.05 threshold, we reject the null hypothesis. This suggests that Strategic Intelligence (STI) significantly affects Performance (PRF).

The multiple regression line, using eq1 is thus, **PRF = 2.039 - 0.119TEI + 0.166STI**.

This shows the Constant (2.039), or the intercept of the equation represents the expected value of performance (PRF) when both technological intelligence (TEI) and strategic intelligence (STI) are zero. Essentially, it provides a baseline measure of performance in the absence of the two predictors. The Coefficient for Technological Intelligence (TEI) (-0.119) indicates that for each one-unit increase in technological intelligence, the performance (PRF) is expected to decrease by 0.119 units, holding strategic intelligence constant. This negative relationship suggests that, within the context of this model, higher technological intelligence is associated with lower performance. Also the Coefficient for Strategic Intelligence (STI) (0.166) shows that for each one-unit increase in strategic intelligence, the performance (PRF) is expected to increase by 0.166 units, holding technological intelligence constant. This positive relationship indicates that higher strategic intelligence is associated with better performance.

In summary, the regression equation suggests that performance is positively influenced by strategic intelligence but negatively affected by technological intelligence. The constant

provides a baseline performance measure, while the coefficients for the predictors indicate their respective impacts on performance.

Discussion of Findings

This study examined the effect of technological and strategic intelligence on performance of SMEs in south-south in Nigeria. The results of the hypotheses tested are discussed below:

Firstly, the study found a negative and significant effect of technological intelligence on performance of SMEs in south-south in Nigeria. This implies that SMEs in the region lack expertise in data gathering, analysis and dissemination that would have helped them, and therefore they are not able to predict future technological changes or advancements that could dictate the direction of their businesses. Therefore, they are mostly unaware and taken by surprises as it relates to technological changes in the environment. This finding agrees with that of Chakraborty (2021) and Li et al. (2019) who found significant effect of technology intelligence on performance, but in contrast with that of Mochoge et al. (2020) who found positive effect of technological intelligence on performance.

Conversely, the findings from the second hypothesis revealed that strategic intelligence has a positive and significant effect on performance of SMEs in south-south in Nigeria. This could imply that SMEs in the region have intensified efforts to collate knowledge as it relates to legislation, environmental laws, process, intellectual capital among others which has enhanced their performance level. This finding disagrees with the findings of Al-Zu'bi (2016) and Alkharabsheh and Al-Sarayreh (2022) who found significant effect of strategic intelligence on performance.

Discussion of Findings

This study investigated the effect of technological and strategic intelligence on the performance of SMEs in the South-South region of Nigeria. The results from the hypotheses tested are discussed below:The analysis revealed a negative and significant effect of technological intelligence on SME performance in the South-South region. This suggests that SMEs in this area may lack the necessary expertise in data collection, analysis, and dissemination. Consequently, they are often unprepared for technological changes and advancements, which leads to a reactive approach rather than a proactive one. This finding aligns with the work of Chakraborty (2021) and Li et al. (2019), who also observed significant impacts of technological intelligence on performance, albeit in different contexts. In contrast, Mochoge et al. (2020) reported a positive relationship between technological intelligence and performance, highlighting a divergence in findings across different studies. Conversely, the findings from the second hypothesis revealed that strategic intelligence positively and significantly affects SME performance in the South-South region. This indicates that SMEs have effectively enhanced their performance by improving their knowledge management related to legislation, environmental regulations, processes, and intellectual capital. This finding contrasts with the results of Al-Zu'bi (2016) and Alkharabsheh and Al-Sarayreh (2022), who also identified a significant effect of strategic intelligence on performance, but in different settings.

Conclusion and Recommendations

In conclusion, the study reveals that the negative effect of technological intelligence on SME performance indicates a failure to effectively utilize technological advancements to enhance performance. In contrast, strategic intelligence has a positive impact and significantly contributes to SME growth. However, the combined effect of both variables shows that the negative impact of technological intelligence presents a notable limitation to SME performance in the South-South region of Nigeria.

The following Recommendations are in line with the findings:

(i) **Continuous Learning and Technological Integration:** SMEs should promote continuous learning among employees to keep their skills updated with emerging technologies. Establishing strong relationships with industry technology experts and fostering knowledge sharing and collaboration can further enhance technological capabilities.

(ii) **Environmental and Competitive Analysis:** SMEs should regularly scan their environment and conduct thorough analyses of competitors' strategies, strengths, weaknesses, and market positions. This proactive approach will aid in formulating effective strategies to counteract competition. Additionally, ongoing assessment of industry and market trends, including customer preferences and emerging opportunities, is crucial for strategic alignment and growth.

Limitations of the Study

This study, while providing valuable insights into the effects of technological and strategic intelligence on SME performance in the South-South region of Nigeria, has several limitations. Firstly, the negative impact of technological intelligence suggests that SMEs may not be effectively leveraging technological advancements to enhance their performance. This could be attributed to insufficient data collection and analysis capabilities. Additionally, the study's focus on the South-South region limits the generalizability of the findings to other regions with potentially different technological and strategic contexts. Furthermore, the research does not account for other influencing factors, such as organizational culture or external economic conditions, which may also affect SME performance.

Suggestion for Further Study

Based on the conclusions drawn, several suggestions for further study are proposed to address the limitations identified and deepen the understanding of technological and strategic intelligence in SME performance. Future research should focus on enhancing technological capabilities by exploring strategies that enable SMEs to better collect, analyze, and apply technological data, including the development of frameworks to integrate technological advancements more effectively. Comparative regional analyses are also suggested to broaden the perspective on how technological and strategic intelligence impact SME performance across different regions or countries. Additionally, incorporating additional variables such as organizational culture, managerial skills, and economic conditions into research could provide a more cosmprehensive view of the factors affecting performance and lead to more targeted suggestions. Finally, conducting longitudinal studies would offer valuable insights into how the effects of technological and strategic intelligence evolve over time, helping to

understand their long-term impacts on SME performance and guiding the formulation of sustained growth strategies.

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Appendix: Research Questionnaire

Dear Respondent, please assist to complete this Questionnaire to the best of your judgement, on the research topic: "Effect of Technological Intelligence and Strategic Intelligence On The Performance Of Small And Medium Enterprises In South-South, Nigeria": Please, select from the options A-E, to express the extent to which you agree or disagree with the statements indicated:

<u>Key:</u> SA = Strongly Agree(5), A = Agree(4), U = Undecided(3), D = Disagree(2), SD = Strongly Disagree(1):

S/N	Statement	SA	A	U	D	SD
TEI	**Technological Intelligence (TEI)**					
TEI1	Our firm collects intelligence pertaining to new technologies					
TEI2	Our firm analyses the intelligence pertaining to new technologies					
TEI3	Our firm disseminates the intelligence pertaining to new technologies					
TEI4	Our firm collects intelligence pertaining to future technologies					
TEI5	Our firm analyses the intelligence pertaining to future technologies					
STI	**Strategic Intelligence (STI)**					
STI1	Our firm is able to forecast future development direction					
STI2	Our firm relies on organizational thinking to analyze events surrounding with more clarity					
STI3	Our firm adopt group rather than individual ideas (synergy)					
STI4	Our firm adopt a clear future vision towards our accomplishments					
STI5	Our firm have the ability to deal with environmental uncertainty					
STI6	Our firm ensure the use of incentives to motivate employees to accomplish their vision					
STI7	Our firm encourage teamwork formation to increase interaction and knowledge sharing					
	SMEs Performance (PRF)					
PRF1	There is improved product quality					
PRF2	There is increase in service speed in recent time					
PRF3	There is increase in number of product varieties					
PRF4	There is increase in productivity and services rendered					
PRF5	Observed increases in number of customers					

Source: Studies from Kayode & Ilesanmi (2014); Gumel (2017); Suryantini et al. (2023), and other literature