

BUSINESS INTELLIGENCE AND COMPETITIVE ADVANTAGE OF SELECTED MOBILE TELECOMMUNICATION FIRMS IN FCT-ABUJA

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Abstract

The study examined the effect of business intelligence on the competitive advantage of mobile telecommunication companies in Federal Capital Territory. The study adopted the quantitative research method and causal research designs, where questionnaires are administered to the target respondents to ascertain the needed data for the study. The study used a sample size of 187 respondents that was a census of the study population. The study used simple regression technique to test the hypotheses in this study, and the result revealed that business intelligence has significant effect on the competitive advantage of the selected mobile telecommunication companies in the FCT, Abuja. The study concluded that the business intelligence implementation of competitive and strategic intelligence in selected mobile telecommunication companies was the backbone to enhance the consistent sustainability of competitive advantage. The study recommends that improvements in knowledge management, big data analytics, and the adoption of artificial intelligence to support strategic and competitive intelligence can help Airtel and 9Mobile drive sustainable and profitable competitive capabilities that will boost their competitive strengths consistently in a competitive environment.

Key word: Business Intelligence, Competitive Intelligence, Strategic Intelligence and Competitive Advantage

INTRODUCTION

Business intelligence (BI) is a technological driven tool used in enhancing the business decision-making process, to attain and sustain competitive advantage in modern corporate organizations. Business intelligence is a remedy and strategy that strengthened the ability of modern business leaders to have access to and attain adequate stores of extracted data and refined information for every business decision-making process in organizations (Dahish,

2021). The study examined that business intelligence is a highly dependent technological structure that is adapt to extract, refine business and customer data into reliable business-based information to enhance sustainable and profitable business decisions and competitive advantage (Ovivi & Bello, 2022).

Dahish (2021) described business intelligence as a strength in the modern knowledge economy that has a persistent impact on modern business and economic

growth. Mohamad et al. (2022) described business intelligence as a technological driven tool that modern businesses adopt and implement to enhance effectiveness in strategic management and decision-making. Di Vaio et al. (2022) opined that business intelligence is a strategic technological implant that helps modern business settings attain effective management decisions.

Recently, studies have addressed issues deeply on business intelligence in many other industrial operations, but they have not actually addressed the issue of business intelligence and competitive advantage in mobile telecommunication companies like Airtel and 9mobile in the FCT, Abuja (Mohammad et al., 2023; Kongthanasuwan et al., 2023; Muhammad, et al., 2022). In recent years, organizational business intelligence systems have been able to address several issues arising from the business environment, especially the dramatic changes in technology, new markets for new and existing products, competitive information, and strategic planning and implementation within the organization.

To maintain a sustainable competitive position in the mobile telecommunication industry in Nigeria, it requires having adequate applications and practices of various business intelligence in place to adapt suitable strategies to business situational changes, forecast and exploit new technologies that support the attainment of suitable business positions in competitive markets (Ovivi & Bello, 2022). Competitive advantage can be described as the strengths and capabilities a firm has over its competitors in an industrial operation. Competitive advantage helps to attain and sustain margins and generate value over

other competitors in competitive markets. Competitive advantage is how well-positioned an organization is to maintain a more profitable operation than other competitors in a competitive environment.

To gain and maintain a competitive advantage, a firm must consistently show innovative differentiation in its operating target and competitive markets. Recent studies have also discussed the effectiveness of competitive advantage on organizational performance (Jeong & Chung, 2023; Grande & Botti, 2023; Zhang et al., 2023). However, there are limited studies that have focused on gaining competitive advantage through business intelligence in telecommunication sector especially Nigeria, which is the gap this study closed.

The study focused on the business intelligence and competitive advantage of selected mobile telecommunication companies in the Federal Capital Territory of Abuja. The study was conducted in two selected mobile telecommunication companies, which include Airtel and 9Mobile, in Abuja. These two companies were selected due to their strengths and capacity in the mobile telecommunications industry. The study's independent variable was business intelligence, which indicated competitive intelligence and strategic intelligence, and the dependent variable was competitive advantage. These indicators of business intelligence were selected because their strengths can help justify the competitive advantage of the firms selected for the study.

This study provides a significant reflow for the telecommunication industry on how business intelligence systems can help to attain and maintain competitive advantage

and how business intelligence can help to attain sustainable advantage and sustain sustainable profitable strategic management especially in a dynamic operating environment like Nigeria while also providing a practical significance for them to attain sustainable customer satisfaction, customer retention and customer loyalty. Hence, the central objectives of this study is to assess the effect of business intelligence on competitive advantage of communication industries in FCT-Abuja.

It has been observed that most businesses in telecommunication industries are still lagging behind their contemporaries and peers in other climes in adoption and use of business intelligence facilities and components as is affecting the growth and development of their organization as this is affecting the level of competitiveness globally in different aspect of products design, promotion, price market penetration, market intelligence and other areas of their business operations. Business intelligence including market business intelligence is expected to enhance positivity in competitive advantage for modern corporations, but adopting business intelligence without adequate differentiation can lower the strengths of attaining and sustaining needed competitive advantage.

Complexity and dynamism in the business cycle, poor financial strength, and consistent changes in business contexts are drawbacks for mobile telecommunication companies in Abuja in ensuring sustainable implementation of business intelligence practices to attain competitive advantage. Telecommunication companies in Abuja, Nigeria, including Airtel and 9Mobile, also face challenges and difficulties from a competitive context, poor data quality and

strength, issues of data integration from different sources, a low adoption of business intelligence systems, and inconsistent competitors' data among mobile telecommunication companies. Specifically, the consistency, dynamism, and complexities of technological and economic variables were critical recent banes that cause the miss-shape and disintegration of competitive advantage among mobile telecommunication companies in Nigeria, from the pilot survey and preliminary study conducted in 2022 till date. It is on this premise the study investigates the effect of business intelligence on comparative advantage of selected mobile telecommunication companies in the FCT, Abuja. The main objective is to critically evaluate the business intelligence and competitive advantage of selected mobile telecommunication companies in FCT Abuja. The specific objectives are to:

- i. examine the extent competitive intelligence affect competitive advantage of mobile telecommunication companies in FCT, Abuja.
- ii. assess strategic intelligence effect on competitive advantage of mobile telecommunication companies in FCT, Abuja.

LITERATURE REVIEW AND THEORETICAL FRAMEWORK

Concept of Business Intelligence (BI)

Business intelligence has the capacity to enhance businesses' ability to make informative and reliable business decisions that are in line with current business trends (Hussain et al., 2023; Kongthanasuwan et al., 2023; Mohamad et al., 2022; Sumera & Miskon, 2021; Nur et al., 2021). Biagi et al.

(2022) opined that BI is a quantitative data presentation and prediction that is expressed in financial and economic terms to business governance decisions. Seddigh et al. (2022) described BI as an electronic, systematic tool to help address varieties of business problems and attain highly competitive strengths in competitive markets. That is, data sourcing, data analysis, and business analytics give critical support and balance to BI competence and implementation in order to thrive and enhance the manipulation and exploitation of large data volumes that will ensure consistency in every business decision in modern business settings.

Studies disclosed that a business intelligence system is a wide group of information technology equipment to collate, collect, and analyze data into reportable business information to measure business and financial performance in alignment with environmental contexts (Huang et al., 2022; Wang et al., 2022; Mohammad et al., 2022). From the above definition, a "BI system is defined as the manipulation of IT solution tools in data processing to ascertain and extract concrete business information that will harmonize effective business decisions in the various strategic business units and corporate units of modern business organizations. The BI System was also described as a group of technological forces used to access, process, and analyze data to ascertain relevant business information in modern business settings (Maurer, 2021). This definition hammered on technological tools as the driving forces of BI and people's efforts in information reporting and interpretation to enhance sustainable strategic management implementation at all levels of business. The BI system involves the stringent application and installation of computer gadgets and packages of software

to process relevant business data into information chain functions that form a holistic information system in the organization.

Competitive intelligence (CI)

This category of business intelligence relies on gathering competitive information to strengthen company decisions in a competitive environment and identify business opportunities. Studies refer to competitive intelligence as business intelligence that helps address competitive issues in the external environment (De las et al., 2021; López-Robles et al., 2020). Effective and sustainable CI gathering helps the company attain and maintain a high level of competitive positioning and competitive advantage in competitive markets. Studies also stressed the impact and influence of competitive intelligence on the performance of operational systems and processes (Ali et al., 2022; Hanif et al., 2022; Yilma zandzgener, 2022).

Strategic intelligence (SI)

Critically, business empires cannot survive in the current competitive environment without adequate strategic purpose and strategic planning for sustainability. SI can be described as the process of gathering refined pools of strategic purpose and options to enhance the organization's ability to make effective and sustainable strategic business decisions and boost business performance. Strategic intelligence helps to strengthen the strategic marketing management and strategic planning decisions effectively to attain high business performance in harshly competitive industries and markets. Studies recently have also discussed the effectiveness of business intelligence on the competitive

advantage sustainability of modern organizations (Carr et al., 2023; Hamour et al., 2023). Awamleh and Bustami (2022) stressed the mediating role of business intelligence on the critical success factors for strategic intelligence in modern corporate operations. Yücel, et al (2022) studied the effectiveness of strategic intelligence on strategic planning and risk management sustainability in modern organizations.

Concept of Competitive Advantage

Competitive advantage is the driving force that enhances the operational performance of most telecommunications companies. Rehman et al. (2023) stress that the length and breadth of innovation and innovativeness in terms of product and process innovativeness and the holistic organizational innovativeness are driving forces that enhance and foster organizational competitiveness, pull out competitive strengths and capabilities of the organization, and holistically drive a suitable and sustainable competitive position for the company. Recent studies discussed heavily that competitive intelligence has strategic impacts and effects on the operational sustainability of modern corporate institutions and small and medium enterprises (SMEs) (Wu et al., 2023; Vieira et al., 2023). Hossain et al. (2022) stressed that competitive advantage can be sustainable with the effect and impact of competitive intelligence in modern organizations. Zhang et al. (2023) stressed that open innovation helps to enhance sustainable competitive advantage and digital transformation of organizations assists in boosting profitable competitive advantage.

Business intelligence and competitive advantage in organizations

Business intelligence supports effective and efficient implementation of strategic planning and management in all strategic business units of the organization, and this will have an encouraging effect on the attainment of competitive advantage and competitive sustainability in modern corporate organizations (Naznen & Lim, 2023; Umoh et al., 2023). In recent years, business intelligence has enhanced the adequate knowledge management of a competitive business environment, and competitive intelligence gathering has changed the phases of competitive structure and boosted competitive advantage. Many global business settings have used the application and practice of CI to maintain a sustainable competitive business position in many industries, help edge out worrying competitors, and create business opportunities.

Putting BI and CI architectural structures in place helps to monitor and sustain incoming and existing competitors of various kinds and the changes that may occur in the competitive marketing environment. Yan, et al (2023) proved that business intelligence helps modern organizations improve their competitive advantage. Wang et al. (2022) posit that business intelligence strength can help in attaining organizational performance sustainability and competitive advantage. Studies recently also agree that competitive intelligence boosts sustainable and profitable competitive advantage (Niwash et al., 2022; Ylmaz & zgener, 2022; Zaidan et al., 2022; Farley & Freyn, 2022). Studies have also discussed how strategic intelligence enhances the competitive

advantage of modern corporate settings (Alshaar, 2023; Barqawi et al., 2023).

Theoretical Framework and Theoretical Bases for the Study

The Intelligence Volatility Assessment Theory (IVA Theory) was developed to enhance the Technology, Organization, and Environment framework (TOE model) introduced by Torbatzky and Fleisher (1990). While the TOE model emphasized accessibility, analysis, and evaluation to bolster organizational sustainability, the IVA theory underscores the necessity to focus on continual, evolving changes in environmental behaviors that influence intelligence gathering and subsequently impact performance in contemporary corporate environments. The IVA theory is founded upon the intricate and dynamic nature of business scenarios, highlighting the profound shifts in data and information dynamics within modern business landscapes. It posits that unexpected disruptions in intelligence gathering, assessment, and analysis are pivotal to business resilience and sustainability.

The IVA theory, introduced by Ovivi (2020), posits that unforeseen shifts in business contexts directly influence the behavior of intelligence systems, thereby affecting organizational performance and sustainability. It asserts that ongoing variations in business contexts and intelligence analyses are fundamental to sustaining business operations. The theory anticipates that enhanced intelligence capabilities serve as a critical asset for achieving sustainable business practices and competitive advantage. IVA theory asserts that concurrent fluctuations in business contexts and intelligence trends are critical

determinants of future business outcomes. This perspective reinforces the notion that business intelligence plays a crucial role in enhancing the competitive edge of contemporary corporations.

The IVA model illustrates the interplay between adaptable business environments and the flexibility of intelligence systems to achieve and maintain business performance. This model elucidates the interconnectedness between business environments, the efficacy of business intelligence systems, and the sustainability of performance in modern business settings. Business intelligence represents a strategic asset, and its implementation in modern enterprises aims to harness, align, and optimize both challenging and favourable environmental factors to foster sustainable business growth and competitive advantage. This study underscores that theories of intelligence volatility assessment underscore the significant impact of business intelligence systems on enhancing the competitive advantage of mobile telecommunications companies.

Empirical Review

Umoh et al. (2023) conducted a study focusing on the role of business intelligence in enhancing competitive advantage within a hospitality firm located in Nigeria. The research investigated how business intelligence contributes to sustaining competitive advantage in this sector. Employing a survey research design, the study targeted a population of 1,806 individuals, with a sample size of 327 determined using statistical calculations. Data collection relied on a primary instrument, specifically a questionnaire, achieving a positive response rate of 73.7%.

Analysis of the data utilized simple regression techniques, revealing that business intelligence significantly strengthens the competitive advantage of hospitality firms in Akwa Ibom State. The findings underscored that effective implementation of business intelligence can lead to sustained competitive advantage, enhanced sustainability, and increased profitability.

Gomwe et al. (2022) explored innovative business intelligence strategies aimed at bolstering competitive advantage in small, medium, and micro enterprises (SMMEs) in South Africa's North West province. The study assessed the impact of innovative business intelligence practices on the competitive positioning and long-term viability of SMMEs in the region. Employing a quantitative approach, the research involved primary data collection from SMME owners, managers, and employees. The study gathered insights from 12 SMME managers and 394 employees through mixed methods including surveys, in-depth interviews, and structured questionnaires. Qualitative data analysis was conducted using ATLAS, while Statistical Package for the Social Sciences (SPSS) facilitated quantitative analysis, including tests of hypotheses via structural equation modeling (SEM). Results indicated that innovative business intelligence significantly contributes to enhancing the sustainability of competitive advantage among modern SMMEs in South Africa's North West province. The study concluded that continuous improvement in business intelligence implementation is crucial for SMMEs to enhance decision-making quality and achieve sustained competitive advantage in their respective markets

METHODOLOGY

The study adopted causal research designs to address the correlation between dependent and independent variables and arrive at concrete findings. The causal research design was used because the study wanted to ascertain the correlation that exists between business intelligence and competitive intelligence in selected mobile telecommunication companies. This study was conducted in the federal capital territory of Nigeria, Abuja, and it involved selected mobile telecommunication companies, whose regional offices are located in Abuja. The study selected two (2) mobile telecommunication companies in the federal capital territory, which include Airtel and 9Mobile, and the target respondents comprised both management and non-management teams from the selected companies in Abuja. The study used simple random sampling and stratified sampling techniques to ascertain the expected population of respondents from the selected organizations. Both companies have a population of one hundred and eighty-seven (187) respondents, where 98 were experts from 9Mobile that comprise 19 management staff and 79 non-management staff. 89 were from Airtel, which has 16 management staff and 73 non-management staff. The top management of these companies was unable to participate in this study due to their commitment to some high-rated administrative issues. Since the sample size was not too large, the entire population were used as the study sample size. Hence, the study sample size was 187 respondents.

Primary data was sourced directly from the attained sample size of respondents through structured, closed-ended questionnaires that were adequately and efficiently

administered by researchers and other experts in the field of business intelligence. The questionnaires distributed were returned, with 118 correctly filled and returned, 9 not returned and 60 not properly filled. Content validity was used to assess the credibility and believability of the study as the items in questionnaires were systematically drawn from the research objectives, questions, and hypotheses and accurately vetted and administered critically by experts in the field of business intelligence in an academic environment. They also went through a statistical test based on a critical analysis of the cause and effect of business intelligence systems and competitive advantage. Most studies previously have used questionnaires in the field of business intelligence and competitive advantage consistently that yielded dependable findings and

conclusions, which made the same instruments used in this study reliable to attain creditability and acceptability. Simple regression technique was used to test the hypotheses in this study.

RESULT AND DISCUSSIONS

A total of 187 questionnaires were distributed among the management and junior staff of selected mobile telecommunication companies. From these, 118 completed questionnaires were collected, resulting in a response rate of 63%. The remaining 69 questionnaires, constituting 47%, were either not returned or were improperly filled out. Among the 118 respondents whose questionnaires were analyzed, 22 were from the management level, accounting for 19% of the total, while 96 respondents, representing 81%, were from the junior staff of these selected mobile telecommunication companies based in Abuja.

Hypothesis One

H₀₁: Competitive intelligence has no effect on competitive advantage of mobile telecommunication companies in FCT, Abuja.

Table 1: Regression Result

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-.108	.025		-4.330	.000
	Competitive intelligence.	.310	.114	.206	5.381	.000

a. Dependent Variable: Competitive Advantage.

Source: Extracted from SPSS Output

R = .776; R Square = .702; F-value = 270.381, p < 0.000

Table 1 presents the analysis of competitive intelligence's impact on the competitive advantage of mobile telecommunication companies in FCT, Abuja. The correlation between the predictor and the dependent variable demonstrates a positive relationship

at 0.776. Competitive intelligence accounted for 70.2% of the variance in competitive advantage, indicating a substantial explanatory power of the model. The remaining 21.8% variance is attributed to factors not included in the model, such as

random disturbances or external variables. Thus, the model's R-squared value is statistically significant.

The ANOVA results confirm the overall significance of the model, with a significant F Change value of $F(2, 102) = 270.381$, $P < 0.05$. This underscores the model's robustness and appropriateness for the study. The statistical significance suggests strong evidence that the regression model accurately predicts the relationship between the independent variable (IV) and the dependent variable (DV).

Moreover, the F-statistics probability of 0.000, which is less than the 0.05 significance level, further confirms the

model's high significance. This leads to the rejection of the null hypothesis that all parameters are insignificant, supporting the alternative hypothesis that all parameters are indeed significant.

Table 1 also displays the coefficient estimates, revealing that competitive intelligence is statistically significant at $P < 0.05$. The regression model indicates that a unit increase in competitive intelligence results in a 31.0% increase in competitive advantage, holding all other factors constant. Thus, there is a positive relationship between competitive intelligence and the competitive advantage of mobile telecommunication companies in FCT, Abuja, as indicated by a regression coefficient of 0.310.

Hypothesis Two

H₀₂: Strategic intelligence has no effect on competitive advantage of mobile telecommunication companies in FCT, Abuja.

Table 2: Regression result on Hypotheses Two

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
1 (Constant)	-.131	.017		-8.156	.000
Strategic intelligence	.345	.056	.351	5.647	.000

a. Dependent Variable: Competitive Advantage.

Source: Extracted from SPSS Output

R-value = .885; R Square = .752; F-value = 156.573, $p < 0.000$

Table 2 presents the model summary detailing the impact of strategic intelligence on the competitive advantage of mobile telecommunication companies in FCT, Abuja. The correlation between the predictor and the dependent variable reveals a positive association at 0.885. Strategic intelligence accounts for 75.2% of the variance in

competitive advantage, indicating a robust explanatory power of the model. The remaining 22.6% variance is attributed to factors not encompassed in the model, such as random disturbances or external variables. Thus, the model's R-squared value attests to its statistical significance.

The results demonstrate that the overall model is highly significant, with a significant Sig. F-value of $F(2, 102) = 156.573$, $P < 0.05$. This underscores the model's suitability and relevance for the study. The statistical significance provides strong evidence that the regression model effectively predicts the relationship between the independent variable (IV) and the dependent variable (DV).

Furthermore, the F-statistics probability of 0.000, which is below the 0.05 significance level, further confirms the model's high significance. This necessitates the rejection of the null hypothesis that all parameters are insignificant, thereby supporting the alternative hypothesis that all parameters hold significance.

Table 2 also displays the coefficient estimates, indicating that strategic intelligence is statistically significant at $P < 0.05$. The regression model suggests that a unit increase in strategic intelligence results in a 34.5% increase in competitive advantage, holding all other variables constant. Consequently, there is a positive impact of strategic intelligence on the competitive advantage of mobile telecommunication companies in FCT, Abuja, as indicated by a regression coefficient of 0.345.

Discussion of Findings

The analysis from the findings shows that there is a significant correlation and effect between business intelligence and competitive advantage of Airtel and 9Mobile telecommunication companies in the FCT, Abuja, with five years of operations, and this has been supported by the findings that a business intelligence system is an instrument to enhance and boost competitive advantage

sustainability and profitability (Naznen & Lim, 2023; Potanok, 2023; Umoh et al., 2023; Gomwe et al., 2022).

Supported the finding that innovative business intelligence enhances positive changes in the competitive advantage of SMEs. The assessment of hypothesis one shows that there is a positive relationship between competitive intelligence and the competitive advantage of Airtel and 9Mobile telecommunication companies in Abuja. The finding was supported by the findings and literature reviewed that competitive intelligence has a significant effect on the growth and improvement of competitive advantage for SMEs and telecommunication companies to operate smoothly in their various competitive contexts (Ali & Anwar, 2021; Hizaji, et al., 2022; Hanif, et al., 2022; Ylmaz & zgener, 2022; Farley & Freyn, 2022).

Zaidan et al. (2022) also supported the finding that improvement in competitive intelligence has a significant effect on the improvement of competitive advantage in the banking sector. Studies recently also agree that competitive intelligence boosts sustainable and profitable competitive advantage (Niwash et al., 2022; Ylmaz & zgener, 2022; Zaidan et al., 2022; Farley & Freyn, 2022).

The second hypothesis analyzed agrees with the finding that there is a positive relationship between strategic intelligence and improvement in the competitive advantage of Airtel and 9Mobile telecommunication companies in Abuja, and this finding was also supported by the findings that effective implementation of strategic intelligence can help to enhance strategic management changes that will

boost effective business decisions and competitive advantage sustainability (Carr et al., 2023; Hamour et al., 2023). Studies have also agreed that strategic intelligence enhances the competitive advantage of modern corporate settings (Alshaar, 2023; Barqawi et al., 2023).

CONCLUSION AND RECOMMENDATIONS

Based on the findings of the study, it was determined that the adoption of business intelligence has significantly enhanced the competitive advantage, sustainability, and profitability of Airtel and 9Mobile telecommunication companies operating in the Federal Capital Territory of Abuja over the past five years. Business intelligence practices represent a strategic avenue that contemporary mobile telecommunications firms can employ to enhance their competitive strengths comprehensively. The implementation of business intelligence has demonstrated a positive and strategic influence in achieving and maintaining the competitive advantage of the selected mobile telecommunication companies in the Federal Capital Territory, Abuja. Thus, the study's conclusions effectively address and fulfill the primary objective, which was to investigate the relationship between business intelligence and competitive advantage among chosen mobile telecommunication companies in FCT, Abuja. Consequently, the adoption and integration of business intelligence in modern mobile telecommunications companies are crucial for augmenting competitive advantage and strengths within a competitive business environment.

Furthermore, the study concluded that competitive intelligence significantly contributes to the attainment and

sustainability of competitive advantage for the selected mobile telecommunication companies in the FCT of Abuja. This conclusion directly addresses the research query concerning the impact of competitive intelligence on the competitive advantage of mobile telecommunication companies in FCT, Abuja, and successfully achieves the study's objective to determine the extent of this impact.

Similarly, the study determined that strategic intelligence plays a critical role in achieving and maintaining competitive advantage for the selected mobile telecommunication companies in the FCT of Abuja. This finding directly responds to the research question regarding the degree to which strategic intelligence affects the competitive advantage of mobile telecommunication companies in FCT, Abuja, and successfully fulfills the study's objective aimed at ascertaining this relationship.

Based on these research findings and conclusions, several recommendations have been formulated:

1. The adoption and implementation of agile and innovative competitive intelligence by the top management and business intelligence experts of Airtel and 9Mobile telecommunication companies can help them attain long-range competitive advantage sustainability by addressing the changing and innovative needs and wants of their customers that affect their customer experience, boost customer satisfaction, and improve their competitive positions in the target operating markets and with their customers.
2. Improvements in knowledge management, big data analytics, and the adoption of artificial intelligence

to support strategic and competitive intelligence can help selected mobile telecommunication companies drive sustainable and profitable competitive capabilities that will boost their competitive strengths consistently in the competitive environment.

3.

CONTRIBUTION TO KNOWLEDGE

This study on business intelligence and competitive advantage of mobile telecommunication companies has exposed insights conceptually and theoretically on how managers and strategic thinkers can adopt competitive intelligence and strategic intelligence to improve and boost competitive advantage sustainability and profitability consistently in the changing business contexts. Other corporate institutions in other industrial operations can use these findings and conclusions to strengthen their competitive advantage through the adoption of business intelligence. Researchers and students can use the conceptual, theoretical, and empirical reviews in this study to improve their future and further studies.

REFERENCES

- Ali, B. J., & Anwar, G. (2021). Measuring competitive intelligence network and its role on business performance. *International Journal of English Literature and Social Sciences*, 6(2).
- Alshaar, A. M. K. (2023). Authentic leadership and its impact on supporting strategic intelligence. *Intelligence*, 13(3), 59-75.
- Atkinson, P., Hizaji, M., Nazarian, A., & Abasi, A. (2022). Attaining organizational agility through competitive intelligence: The roles of strategic flexibility and organizational innovation. *Total Quality Management & Business Excellence*, 33(3-4), 297-317.
- Awamleh, F. T., & Bustami, A. N. (2022). Investigate the mediating role of business intelligence on the relationship between critical success factors for business intelligence and strategic intelligence. *Journal of Intelligence Studies in Business*, 12(2), 66-79.
- Barqawi, M., Al-Zoubi, M., & Hamdan, M. (2023). The impact of innovative leadership on strategic intelligence in insurance companies in Jordan. In *The Effect of Information Technology on Business and Marketing Intelligence Systems* (pp. 1403-1418). Cham: Springer International Publishing.
- Biagi, V., Boniardi, E., & Brambilla, R. (2022). Business intelligence for IT governance of a technology company. *Data*, 7(2), 1-13. <https://doi.org/10.3390/data7010002>
- Carr, P. M., Ebersole, E. K., & Sturtz, J. L. (2023). Accuracy and confidence of strategic intelligence in cases of inadequate information: Implications for acquisition of collection systems. *IEEE Transactions on Systems, Man, and Cybernetics: Systems*.
- Černý, J., & Potančok, M. (2023). Information literacy in international master's students: A competitive and business intelligence course perspective. *Cogent Education*, 10(1), 2161701.

- Dahish, Z. (2021). A systematic review of business intelligence: The sentimental analysis on the online market. *Journal of Theoretical and Applied Information Technology*, 99(1).
- De las Heras-Rosas, C., & Herrera, J. (2021). Innovation and competitive intelligence in business: A bibliometric analysis. *International Journal of Financial Studies*, 9(31). <https://doi.org/10.3390/ijfs9020031>
- Di Vaio, A., Palladino, R., Pezzuti, T., & Alvino, F. (2022). Data intelligence and analytics: A bibliometric analysis of human-artificial intelligence in public sector decision-making effectiveness. *Technological Forecasting & Social Change*, 174, 121201.
- Farley, H. F., & Freyn, S. (2022). Competitive intelligence: A precursor to a learning health system. *Health Services Management Research*.
- Gomwe, G., Makombe, G., & Hove, N. (2022). Proposed framework for innovative business intelligence for competitive advantage in small, medium, and micro-organizations in the North West province of South Africa. *The Southern African Journal of Entrepreneurship and Small Business Management*, 14(1), 10.
- Grande, K., & Botti, L. (2023). Measuring the comparative advantage of camping businesses: A multi-criteria sorting methodology. *Tourism and Hospitality Research*.
- Hamour, S., Mohamed, I., & Issa, T. (2023). The effect of strategic intelligence, effective decision-making, and strategic flexibility on logistics performance. *Uncertain Supply Chain Management*, 11(2), 657-664.
- Hanif, N., Arshed, N., & Farid, H. (2022). Competitive intelligence process and strategic performance of the banking sector in Pakistan. *International Journal of Business Information Systems*, 39(1), 52-75.
- Hossain, M., Rahman, M., & Khan, M. (2022). Determinants of sustainable competitive advantage from a resource-based view: Implications for the hotel industry. *Journal of Hospitality and Tourism Insights*, 5(1), 79-98.
- Huang, T., Yang, X., & Wang, J. (2022). The business intelligence impact on the financial performance of start-ups. *Information Processing & Management*, 59(1), 102761.
- Hussain, Z., Jabbar, A., & Kong, K. (2023). Power, dominance, and control: Implementing a new business intelligence system. *Digital Transformation and Society*.
- Kongthanasuwan, P., Thongkham, S., & Jantasin, P. (2023). Market analysis with business intelligence system for marketing planning. *Information*, 14(2), 116.
- López-Robles, J. R., Otegi-Olaso, J. R., & Cobo, M. J. (2020). The relationship between business intelligence and competitive intelligence: A retrospective analysis and literature review from 1959 to 2017. *Revista Española de Documentación Científica*, 43, e256.
- Maurer, F. (2021). Business intelligence and innovation: A European digital innovation hub to increase system interaction and value co-creation within and among service systems. In *Proceedings of the 10th International Conference on Operations Research and Enterprise Systems (ICORES*

- 2021) (pp. 208-217). DOI: 10.5220/0010255602080217
- Mohamed, I., Ahmed, M., & Nasser, S. (2022). Thriving information system through business intelligence knowledge management excellence framework. *International Journal of Electrical and Computer Engineering (IJECE)*, 12(1), 506-514. <https://doi.org/10.11591/ijece.v12i1.p506-514>
- Mohammad, M., Ahmed, A., & Khan, R. (2022). Business intelligence and analytics (BIA) usage in the banking industry sector: An application of the TOE framework. *Journal of Open Innovation: Technology, Market, and Complexity*, 8(4), 189.
- Naznen, F., & Lim, W. L. (2023). Conceptualizing business intelligence (BI) adoption in SME to gain competitive advantage: Effects of organizational mindfulness, inter-organizational relationship, and technology orientation. In *Proceedings of the 2nd International Conference on Emerging Technologies and Intelligent Systems: ICETIS 2022 Volume 1* (pp. 90-100). Cham: Springer International Publishing.
- Niwash, M., Sharma, P., & Patel, K. (2022). Intellectual capital and competitive advantage and the mediation effect of innovation quality and speed, and business intelligence. *Sustainability*, 14(6), 3497.
- Nur Syahidah, N., Rahmat, N., & Zain, N. (2021). Justifying business intelligence systems adoption: A literature review on healthcare supply chain perspective. *Jurnal Intelek*, 16(1).
- Ovivi, A. J., & Bello, A. (2022). Business intelligence system and operational performance of selected telecommunication companies in the Federal Capital Territory. *Gusau Journal of Business Administration (GUJOBA)*, 1(1).
- Rehman, S., Khan, A., & Mehmood, H. (2023). Twin transitions & industry 4.0: Unpacking the relationship between digital and green factors to determine green competitive advantage. *Technology in Society*, 102227.
- Sarfraz, K. U. (2019). Reducing food wastage at retail stores using business intelligence (BI) tools and methods. *ResearchGate*.
- Seddigh, M. R., Sarlak, A., & Abdi, N. (2022). Approaching towards sustainable supply chain under the spotlight of business intelligence. *Annals of Operations Research*. <https://doi.org/10.1007/s10479-021-04509-y>
- Sumera, A., & Suraya, M. (2021). A conceptual model of business intelligence system adoption for the textile and apparel industry in Pakistan. *Mehran University Research Journal of Engineering and Technology*, 40(2), 251-264.
- Umoh, G., Nwabueze, U., & Chukwu, M. (2023). Business intelligence and competitive advantage of hotels in Akwa Ibom State, Nigeria. *European Journal of Business and Innovation Research*, 11(1), 31-45.
- Vieira, A., De Almeida, M., & Pereira, R. (2023). Salespeople's competitive intelligence, efficiency, and performance: The role of intelligence diversity and manager's tenure. *Journal of Business Research*, 159, 113705.
- Wang, J., Chen, L., & Zhou, P. (2022). Business intelligence ability to

- enhance organizational performance and performance evaluation capabilities by improving data mining systems for competitive advantage. *Information Processing & Management*, 59(6), 103075.
- Wu, Q., Yan, D., & Umair, M. (2023). Assessing the role of competitive intelligence and practices of dynamic capabilities in business accommodation of SMEs. *Economic Analysis and Policy*, 77, 1103-1114.
- Yan, K., Xia, E., Li, J., & Huang, J. (2023). Assessing the effect of business intelligence quality on enterprise innovation performance: A knowledge dynamic capability perspective. *International Journal of Technology*, 2(3), 1-18