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Abstract

The competitiveness of Internet Service Providers in Nairobi City County faces increasing pressure from rapid technological disruption, global satellite internet entry, shifting consumer behavior, and intensifying market rivalry. Despite the vital role of ISPs in bridging Kenya's digital divide and driving economic growth, the strategic change drivers underpinning ISP competitiveness remain insufficiently investigated empirically, particularly in the post-Starlink era characterized by unprecedented market disruption. This study examined the influence of internal structural alignment, customer-centric innovation, strategic partnerships, and consumer behavior change on the competitiveness of Internet Service Providers in Nairobi City County, Kenya. The study was anchored on systems theory, resource-based view theory, service-dominant logic theory, theory of planned behavior and porter's five forces framework. A descriptive research design was adopted, targeting 108 top management team members drawn from 12 Communications Authority of Kenya-regulated Internet Service Providers. A census method was employed to ensure all cases participated, and an exceptional response rate of 97% was achieved. Primary data were collected using structured five-point Likert scale questionnaires, while secondary data on Return on Assets were extracted from ISP condensed audited annual reports. Data was analyzed using IBM SPSS version 23, employing descriptive statistics, Pearson correlation analysis, and multiple linear regression analysis. Diagnostic tests for normality, linearity, homoscedasticity, and multicollinearity were conducted to validate regression assumptions. The study established that all four strategic change drivers positively and significantly influence ISP competitiveness in Nairobi City County, collectively explaining the vast majority of variance in competitiveness. Strategic partnerships emerged as the most influential predictor, followed by consumer behavior change, customer-centric innovation, and internal structural alignment respectively. The study recommends that ISPs should prioritize standardized partnership management frameworks, proactive demographic segmentation strategies, automated customer onboarding processes, and AI-powered predictive service delivery to sustain and deepen competitive advantage in Kenya's rapidly evolving telecommunications landscape.

Keywords: Strategic change drivers, competitiveness, internet service providers, Nairobi City County, Kenya

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1.0 Background of the Study

The competitiveness of Internet Service Providers (ISPs) refers to their ability to attract and retain customers by offering superior services, pricing, and innovation compared to market rivals. Competitiveness extends beyond internet speed to encompass multiple performance dimensions including service quality, pricing flexibility, technology adoption, customer experience, and market strategy. Speed, reliability, and uptime are foundational requirements, while affordable and flexible pricing plans determine market accessibility. Technology adoption through fiber optics, 5G, and satellite internet serves as a game-changer, and efficient customer support with transparent billing builds loyalty. Smart market segmentation, targeted marketing, and strategic partnerships further enable ISPs to maintain their competitive edge. Prior studies have predominantly focused on marketing, pricing, and technology adoption strategies, leaving internal organizational systems, strategic partnerships, customer-centric innovation, and consumer behavior as relatively underexplored strategic change drivers, especially in the Kenyan context (Erik, Gabriele & Hans, 2023).

Successful ISPs globally have embraced a combination of innovation, customer-centricity, and operational excellence to sustain their competitive positions. Customer-centric innovation encompasses listening to subscribers through feedback loops, offering value-added services such as digital television, cloud storage, and cybersecurity tools, and creating customized bundles for diverse user segments including gamers, remote workers, and students. Smart marketing and branding leverage targeted audience segmentation and multi-channel campaigns to build strong brand identities centered on reliability and customer support. Data-driven decision making uses predictive analytics to optimize network performance, reduce churn, and track key performance indicators such as average revenue per user and customer lifetime value. Strategic partnerships with local governments, content providers, and infrastructure developers expand market reach. Operational excellence through automation, network upgrades, and round-the-clock AI-powered support reduces costs while maintaining service standards (OECD, 2023).

Globally, ISP competitiveness varies widely across markets, ranging from highly competitive environments to monopolistic structures. In highly competitive markets such as Brazil and Russia, no single ISP dominates more than 32% of the market, fostering innovation and price competition. In contrast, monopolistic markets such as Italy and Romania allow single providers to control nearly 60% of the market, resulting in reduced competition and consumer choice. In the United States, major ISPs including Comcast, Verizon, and AT&T compete intensively, driven by fiber-optic and 5G deployment, regulatory changes around net neutrality, and growing consumer demand for higher bandwidth driven by remote work and streaming. However, regional monopolies and duopolies persist, limiting consumer choice in many geographic areas despite significant technological progress and infrastructure investments (Federal Communications Commission, 2023; Katz & Callorda, 2022).

In Asia, South Korea exemplifies how government policy and technological innovation can create one of the world's most competitive ISP markets. Aggressive broadband deployment policies and substantial government infrastructure investments have fostered intense competition among KT Corporation, SK Broadband, and LG Uplus. Rapid 5G network deployment, low consumer switching costs, and strong regulatory oversight have driven ISPs to differentiate through ultra-high-speed services and innovative bundled packages combining internet, mobile, and content

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streaming. Japan similarly demonstrates technological excellence as a key strategic driver, with NTT, KDDI, and SoftBank competing intensively on network performance metrics, achieving among the world's highest fiber-optic penetration rates. Unique drivers in Japan include disaster resilience investment, aging population service adaptation, and the integration of Internet of Things services and smart city initiatives that are reshaping ISPs into comprehensive digital service providers (OECD, 2023; Ministry of Internal Affairs and Communications, 2023).

In Europe, ISP competitiveness is shaped by regulatory harmonization, digital infrastructure modernization, and emerging sustainability imperatives. Germany's ISP market is influenced by EU regulations promoting market liberalization and infrastructure sharing, with the transition from copper-based DSL to fiber-optic networks serving as a critical competitive differentiator. Deutsche Telekom faces increasing competition from Vodafone Germany and 1&1, while smaller ISPs capture rural market share where incumbents have been slow to upgrade. The United Kingdom's market has been reshaped by Brexit-related regulatory changes and the government's Gigabit Broadband programme, which has enabled new entrants such as CityFibre and Hyperoptic to leverage superior full-fiber infrastructure. Consumer protection regulations including automatic compensation schemes have further intensified competitive pressure on service quality and pricing, while government rural connectivity subsidies have created new dynamics around public contract competition (European Commission, 2022; Ofcom, 2023).

Africa's ISP market has experienced significant growth driven by rising smartphone penetration, expanding digital economies, and increasing demand for broadband services. Fixed broadband subscriptions grew by 11% in 2022, with continued growth projected through 2028. South Africa, Kenya, and Egypt lead continental connectivity quality, while major players including Telkom, MTN, and Maroc Telecom dominate regional markets. However, competitiveness remains constrained by high infrastructure costs, limited digital literacy, regulatory complexities, and among the world's highest connectivity costs in emerging markets. Individual country dynamics vary significantly. South Africa faces load shedding challenges that force ISPs to invest in backup power systems. Nigeria's market is shaped by massive infrastructure deficits and fintech partnership opportunities. Egypt leverages its strategic geographic position as a continental gateway, while Ghana's progressive telecommunications policies have positioned it as a West African connectivity leader (Matthew, Thecla & Njue, 2023).

Kenya's ISP market has evolved rapidly, driven by digital adoption, mobile penetration, and demand for high-speed connectivity. Leading providers including Safaricom, Airtel, Jamii Telecommunications, and Zuku dominate the landscape with diverse service offerings. The entry of satellite providers such as Starlink has intensified competition, particularly in underserved rural areas, compelling traditional ISPs to innovate, improve service quality, and diversify packages. The success of mobile money platforms, particularly M-Pesa, has enabled ISPs to integrate financial services with connectivity, creating unique value propositions. The landing of undersea cables including SEACOM and TEAMS has significantly reduced international bandwidth costs and enabled competitive pricing. Government initiatives including Konza Technology City and Universal Service Fund programs have created new market opportunities while requiring innovative last-mile delivery solutions for challenging rural terrain (Communications Authority of Kenya, 2023; Kenya ICT Authority, 2022).

Despite Kenya's impressive ISP market growth, competitiveness remains challenged by infrastructure limitations, high deployment costs, and regulatory hurdles. The Competition Authority of Kenya has cracked down on anti-competitive practices such as exclusive ISP contracts in residential estates that block rival providers and limit consumer choice. To remain competitive, Kenyan ISPs are actively investing in fiber expansion, 5G rollout, and customer-centric digital platforms. Providers such as Poa Internet and Mawingu Networks target low-income and remote markets with affordable plans, while enterprise-focused ISPs like Liquid Intelligent Technologies enhance cloud and cybersecurity offerings. Since prior research has predominantly examined marketing, pricing, and technology adoption strategies, this study focuses on the less-researched strategic change drivers of internal organizational systems, strategic partnerships, customer-centric innovation, and consumer behavior as determinants of ISP competitiveness in Kenya (Competition Authority of Kenya, 2024). Hence, the study examined the influence of strategic change drivers on competitiveness of internet service providers in Nairobi County, Kenya.

1.1 Statement of the Problem

A competitive and efficient telecommunication service sector is a fundamental prerequisite for sustainable economic growth and the actualization of a digital society (Communications Authority of Kenya [CAK], 2023). Globally, organizational capacity to maintain competitiveness has become a primary objective for executives and policy formulators facing a turbulent business environment characterized by rapid technological shifts, fluctuating consumer demands, and increasing regulatory complexity (Birkhoff & Moriarty, 2023; Harrigan, 2023). Despite the vital role of Internet Service Providers (ISPs) in bridging the digital divide, many firms struggle with customer churn and service differentiation in an increasingly saturated market. Recent scholarship suggests that firms must align their internal structures with customer-centric strategies to enhance product portfolio innovativeness and overall performance (Vadakkappatt et al., 2025).

In the Kenyan context, the ISP landscape has undergone a radical transformation between 2023 and 2026. Data from the Communications Authority of Kenya (2026) indicates that fixed internet subscriptions grew by an unprecedented 85% over two years, reaching 2.46 million by December 2025 (Kemibaro, 2026). However, this growth is unevenly distributed among market players. As of late 2025, Safaricom maintains a dominant market share of 34.9%, followed by Jamii Telecommunications (Faiba) at 20.1%, while smaller players like Poa Internet and Ahadi Wireless hold approximately 9% each (CAK, 2026). The entry of global satellite providers such as Starlink—which reached 22,282 subscribers by late 2025 has introduced a new dimension of competition, forcing incumbents to aggressively improve speeds and pricing (Space in Africa, 2026; Kemibaro, 2026). Despite these advancements, ISPs in Nairobi City County continue to face significant hurdles. High churn rates, urban congestion affecting satellite reliability, and "disruption fatigue" underscore a deeper crisis in competitiveness. Infrastructure limitations and anti-competitive exclusive contracts in residential areas continue to stifle innovation and restrict consumer choice, leading to inflated fees and inconsistent service quality (Nduati & Mang'ana, 2024).

Therefore, the necessity for this study was underscored by several critical research gaps that persist in the current literature. Empirically and contextually, while recent reports from the Communications Authority (2026) highlight massive growth in the sector, previous researches

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have prioritized mobile money and telephony penetration over the nuances of fixed and satellite ISP competition. There is a profound lack of evidence regarding how the simultaneous integration of structural alignment and customer-centric innovation influences competitiveness in the specific hybrid market of Nairobi, where global satellite-based infrastructure now competes directly with local fibre-to-the-home (FTTH) providers in the same urban micro-markets. Furthermore, existing studies (Kanyi & Kihara, 2022) do not account for the post-Starlink entry era of 2025–2026, leaving a void in understanding how local ISPs can remain viable against well-funded global disruptors.

Methodologically and conceptually, a significant gap remains in how ISP performance is analyzed within turbulent African markets. Prior research has largely relied on descriptive survey designs and cross-sectional data, which offer a static snapshot of the industry but fail to capture the dynamic capabilities required to navigate rapid shifts in consumer behavior and technology. There is also a theoretical disconnect, a knowledge gap regarding the extent to which internal structural alignment (the organizational system), customer-centric innovation (strategic orientation), strategic partnerships (the relational view), consumer behavior (market dynamics) influence ISPs' competitiveness. By synthesizing these variables into a unified framework, this study sought to move beyond traditional performance metrics to establish a more robust, multidimensional understanding of what internal (internal structural alignment, customer-centric innovation) and external (strategic partnerships, consumer behavior) change forces drives ISP competitiveness in the evolving telecommunications landscape of Nairobi city County.

1.2 Objectives of the study

- i. To examine influence of internal structural alignment on competitiveness of internet service providers in Nairobi City County, Kenya
- ii. To evaluate the influence of customer-centric innovation on competitiveness of internet service providers in Nairobi City County, Kenya
- iii. Kenya To determine the influence of strategic partnerships on competitiveness of internet service providers in Nairobi City County, Kenya
- iv. To assess the influence of consumer behavior change on competitiveness of internet service providers in Nairobi City County, Kenya

2.0 Literature Review

This chapter summarizes conceptual review of variables relevant to the study and relevant theories that inform study variables

2.1 Theoretical Framework

The study was anchored by the following theories.

Systems Theory

Systems Theory was originally formalized by Ludwig von Bertalanffy in the early 1940s and formally published in 1968. The theory views organizations as open systems composed of interrelated and interdependent parts that interact with both internal subsystems and the external environment, with emergent properties arising from component interactions. Contemporary scholars including Manuel Castells, Jan van Dijk, and Robin Mansell have applied systems thinking to analyze network effects and digital divides in telecommunications. In the ISP context,

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the theory frames providers not as isolated entities but as nodes within broader socio-technical systems encompassing regulatory frameworks, technological infrastructure, market dynamics, and user behaviors. It emphasizes feedback loops, resource flows, and dynamic adaptation, making it especially relevant for understanding how ISP departments including network operations, customer service, billing, and compliance collectively deliver seamless service. This theory informed the study's objective on internal structural alignment (Bertalanffy, 1968; Mahmood & Manzoor, 2021).

Resource-Based View (RBV) Theory

Resource-Based View Theory was developed by Jay Barney in 1991 and posits that firms gain sustainable competitive advantage by leveraging unique internal resources that are valuable, rare, inimitable, and non-substitutable, commonly referred to as the VRIN criteria. The theory suggests that competitive advantage is sustained not by market positioning alone but by the firm's specific asset combinations and dynamic capabilities. Das and Teng (2000) systematically applied RBV to strategic alliances, demonstrating how firms access complementary resources unavailable internally through collaborative agreements. In the ISP context, the theory explains why providers enter strategic partnerships to access fiber networks, cloud platforms, regional coverage, and specialized technical capabilities that enhance service delivery and market reach. RBV helps analyze how pooled alliance resources generate synergistic value that neither partner could independently achieve. This theory directly informed the study's objective on strategic partnerships (Barney, 1991; Helfat et al., 2023).

Service-Dominant Logic (S-D Logic) Theory

Service-Dominant Logic Theory was developed by Stephen Vargo and Robert Lusch in 2004 through their landmark article published in the Journal of Marketing. The theory fundamentally shifts the focus from products to services, emphasizing that value is co-created through continuous interactions between providers and customers rather than being embedded in offerings alone. S-D Logic reconceptualizes innovation as an ongoing process of adapting and refining offerings based on real-time market feedback and active customer involvement, rather than a pre-launch activity. Customers are viewed not as passive recipients but as active participants whose resources, knowledge, and experiences become integral components of the innovation process. In the ISP context, the theory supports innovations that prioritize customer experience, personalization, and engagement including self-service portals, proactive support systems, and flexible data plans. This theory directly informed the study's objective on customer-centric innovation (Vargo & Lusch, 2004; Chua & Yuen, 2025).

Theory of Planned Behavior (TPB)

The Theory of Planned Behavior was developed by Icek Ajzen in 1991 and proposes that consumer behaviors are driven by intentions determined by three core factors: attitudes toward the behavior, subjective norms, and perceived behavioral control. The theory has been extensively applied in consumer behavior research, with scholars integrating TPB with the Technology Acceptance Model to examine digital service adoption and switching behaviors using structural equation modeling. In the ISP context, a customer's decision to adopt, continue using, or switch providers depends on their beliefs about service quality and pricing, influence from peers and family, and their ability to access or afford alternatives. TPB provides a robust theoretical lens for

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understanding customer retention, service adoption patterns, and social influence in competitive telecommunications markets. This theory directly informed the study's objective on consumer behavior change (Ajzen, 1991; Hajli et al., 2022).

Porter's Five Forces Framework

Porter's Five Forces Framework was introduced by Michael Porter in 1979 and analyzes the competitive intensity and market attractiveness of an industry by examining five structural forces: threat of new entrants, bargaining power of suppliers, bargaining power of customers, threat of substitute products, and rivalry among existing competitors. The framework provides a systematic lens for understanding how industry structure shapes strategic options and competitive positioning. In the ISP context, the framework helps assess how factors including high infrastructure costs, consumer switching behavior, regulatory entry barriers, and emerging technologies such as satellite internet reshape market dynamics and strategic opportunities. It evaluates how ISPs build sustainable competitive advantages in rapidly evolving digital environments characterized by new entrants, shifting consumer power, and technological substitution. This framework informed the study's overall conceptualization of ISP competitiveness as the dependent variable (Porter, 1979).

2.2 Conceptual framework

This is a diagrammed visual representation of the direct/linear relationship between the study's conceptualized independent variables (internal structural alignment, strategic partnerships, customer centric innovations, consumer behavior change) and the dependent/outcome variable (Competitiveness of ISP) as shown figure 1.

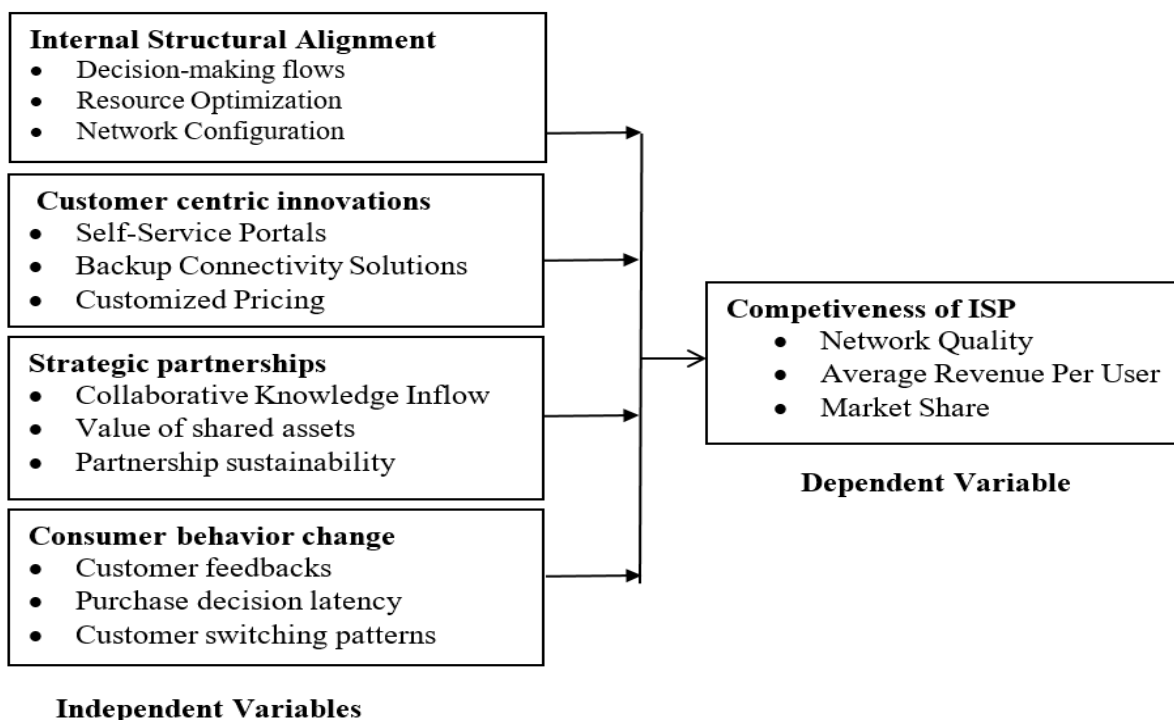


Figure 1: Conceptual framework

2.3 Review of Literature Related to the Study

Chen and Rodriguez (2019) found significant positive correlations between Network Operations Center efficiency and customer retention rates among North American and European ISPs, while Park et al. (2020) established that integrated customer service systems explained substantial variance in customer loyalty and brand reputation among Asia-Pacific providers. Okafor and Williams (2018) demonstrated that advanced data analytics capabilities and integrated systems architecture were the strongest predictors of competitive performance among Sub-Saharan African ISPs. Andersson and Mueller (2021) found that adhocracy organizational culture had the strongest positive effect on ISP innovation performance across European markets, while Sharma and Patel (2020) established that training and development programs most significantly influenced service quality outcomes among Indian providers. Johnson and Thompson (2019) revealed that integrated supplier relationship management capabilities explained significant variance in cost efficiency, while Liu et al. (2022) confirmed that knowledge sharing mechanisms had the strongest impact on competitive intelligence effectiveness among ISPs across China, Germany, and Brazil.

Bergström and Kowalski (2023) found that European ISPs engaging in equipment vendor partnerships achieved significantly higher revenue growth rates than non-partnering competitors, while Nakamura et al. (2022) established that deep Content Delivery Network partnerships substantially explained variance in customer satisfaction scores among Asia-Pacific ISPs. Mwangi and Ochieng (2021) demonstrated that ISPs with extensive fintech partnerships in Sub-Saharan Africa achieved markedly higher service innovation rates and greater rural customer base expansion. Davis and Chen (2023) confirmed that comprehensive cloud service partnerships resulted in significant reductions in operational costs and improvements in service deployment speed among North American ISPs. Rodriguez and Silva (2022) identified hybrid satellite-terrestrial partnership configurations as superior for rural market penetration in Latin America, while Al-Rashid and Hassan (2021) established that open platform partnerships significantly explained variance in digital ecosystem maturity among Middle Eastern ISPs. Petersen and Dubois (2024) confirmed that infrastructure sharing partnerships substantially reduced 5G deployment costs and accelerated network rollout among European operators.

Lindqvist and Andersson (2023) found that enhanced digital self-service capabilities were associated with significantly higher customer retention rates and market share growth among Nordic ISPs, while Wong et al. (2022) established that service personalization substantially explained variance in customer loyalty across Southeast Asian markets. Mueller and Schmidt (2021) identified community-driven co-creation models as superior for customer satisfaction and service adoption rates among European fiber-optic ISPs, while Johnson and Martinez (2023) confirmed that omnichannel customer support implementation resulted in significant improvements in customer satisfaction and reductions in support costs among North American providers. Al-Mahmoud and Kassem (2022) demonstrated that advanced customer data analytics capabilities substantially explained variance in predictive service delivery effectiveness among Middle Eastern ISPs, while Okafor and Nkomo (2021) identified human-centered design approaches as superior for customer satisfaction improvements among Sub-Saharan African providers. Gutierrez and Morales (2024) confirmed that integrated Voice of Customer programs with real-time feedback capabilities were associated with significantly faster innovation response times among Latin American ISPs.

Kowalski and Jensen (2023) identified four distinct consumer preference segments among European digital natives, with speed-prioritizers and value-seekers exerting the strongest influence on ISP infrastructure investment and pricing competition respectively, while Liu et al. (2022) demonstrated that high-definition streaming adoption dramatically increased bandwidth demand, compelling Asia-Pacific ISPs to invest substantially in infrastructure upgrades. Thompson and Rodriguez (2021) revealed significant generational differences in North American internet usage patterns, with Generation Z exhibiting predominantly mobile-first behavior while Baby Boomers preferred traditional customer service channels, driving differentiated ISP service portfolios. Patel and Kumar (2022) established that emerging market consumers demonstrated substantially higher price sensitivity than developed market benchmarks, with annual switching rates driven primarily by price competition rather than service quality. Al-Zahra and Mahmoud (2023) confirmed that negative social media sentiment significantly eroded ISP market share among Middle Eastern providers, while Dubois and Nakamura (2024) established that remote work adoption significantly reshaped residential internet demand patterns and ISP competitive strategies across European markets. Santos and Vargas (2021) demonstrated that competitive gaming communities drove substantial premium service uptake among Latin American ISPs.

3.0 Research Methodology

This study adopted a descriptive research design, which Cooper and Schindler (2007) define as a methodological approach aimed at systematically describing characteristics of a population or phenomenon without manipulating variables. The design is particularly suited for cross-sectional studies that collect data at a single point in time to examine variable distributions and patterns. The target population comprised 108 top management team members drawn from 12 Internet Service Providers regulated by the Communications Authority of Kenya, including Safaricom, Jamii Telecommunications, Poa Internet, Liquid Telecommunications, Telkom Kenya, and MTN among others. Since the target population was small, a census method was adopted to ensure all cases participated, eliminating sampling errors and maximizing representativeness. Primary data were collected using five-point Likert scale structured questionnaires, while a secondary data collection sheet captured ISP Return on Assets for the period 2021 to 2025.

Validity was ensured through content validity, where questions were examined for clarity, accuracy, and adequacy in measuring study variables, supported by a Content Validity Index computed from expert panel ratings that yielded a score of 1.0. Construct validity was assessed using Principal Component Analysis with Varimax orthogonal rotation, with factor loadings of 0.4 and above accepted as the minimum validity threshold. Reliability was tested using Cronbach's Alpha, with a coefficient of 0.7 and above considered acceptable. A pilot study involving a minimum of 20 respondents was conducted to detect instrument weaknesses before full data collection, with pilot participants excluded from the final study to avoid response bias. Collected data were analyzed using IBM SPSS version 23, with descriptive statistics generating frequencies, means, and standard deviations, while inferential statistics including Pearson correlation and multiple regression analysis tested relationships between variables. Diagnostic tests for normality, linearity, homoscedasticity, and multicollinearity were conducted to validate regression assumptions before model estimation.

4.0 Research Findings and Discussion

This chapter encompasses response rate, validity, reliability tests, descriptive statistics, correlation analysis, multiple regression analysis and lastly, hypothesis testing. Summarized data is presented in form of tables and graphs. A thematic approach has been adopted to guide the discussions.

4.1 Response rate

The table below presents the response rate obtained from the data collection exercise conducted among the targeted top management team respondents across all twelve ISPs.

Table 1: Response Rate

Total number of questionnaires dispatched to the field	108
Total number of questionnaires returned dully filled	105
Percentage of questionnaires dully filled	97%

Out of 108 questionnaires distributed to top management teams across 12 established ISPs, 105 were fully completed and returned, yielding a response rate of 97%. This exceptional rate was achieved through the researcher's diligence in personally waiting for respondents to complete all questionnaire sections and providing adequate time for thorough responses. A response rate exceeding 50% is considered acceptable for generalizability of research findings to a wider population (Kothari, 2009), and the 97% rate obtained in this study therefore provides a highly robust and representative dataset for drawing reliable conclusions on strategic change drivers and ISP competitiveness in Nairobi City County.

4.2 Validity and Reliability of Research Instrument

Content validity was assessed by seven subject matter experts from organizations including the Communications Authority of Kenya, Afrinet Communications, Bandwidth Providers East Africa, and Fiberlink, who unanimously rated all questionnaire items as relevant, yielding a Content Validity Index of 1.0. Construct validity was subsequently assessed using Principal Component Analysis with Varimax orthogonal rotation in SPSS, requiring factor loadings of 0.4 and above as the minimum threshold. All items converged above this threshold, confirming that every item measured its intended construct. The table below presents the reliability statistics computed using Cronbach's Alpha for all study variables.

Table 2: Instrument Reliability Statistics

Variable	No. of Items	Cronbach's Alpha	Decision
Internal structural alignment	10	0.718	Reliable
Strategic partnerships	10	0.789	Reliable
Customer-centric innovation	10	0.776	Reliable
Consumer behaviour change	10	0.807	Reliable
Competitiveness of ISPs	10	0.815	Reliable
Overall score	50	0.819	Research Instrument Reliable

As shown in Table 2, all study variables recorded Cronbach's Alpha values above the accepted threshold of 0.7, confirming strong internal consistency across all constructs. Competitiveness of ISPs recorded the highest variable-level alpha of 0.815, while internal structural alignment recorded the minimum acceptable value of 0.718. Consumer behavior change and strategic partnerships recorded alphas of 0.807 and 0.789 respectively, with customer-centric innovation at 0.776. The overall instrument score of 0.819 across all 50 items confirms that the research instrument was reliable, internally consistent, and suitable for generating credible data for inferential statistical analysis.

4.3 Descriptive Statistics

The descriptive statistics are presented in sections.

4.3.1 Internal Structural Alignment

The table below presents respondents' level of agreement on how internal structural alignment contributes to ISP competitiveness in Nairobi City County, measured on a five-point Likert scale. 5 = Strongly Agree, 4 = Agree, 3 = Uncertain, 2 = Disagree, 1 = Strongly Disagree

Table 3: Descriptive Statistics of Internal Structural Alignment

Statement	5	4	3	2	1	Mean	SD
Short decision-making flows across hierarchical levels	18	48	16	12	11	3.51	0.787
Customer onboarding strengthens competitiveness in attracting and retaining customers	24	46	14	11	10	3.45	0.912
Payment systems create competitiveness through customer satisfaction and acquisition	17	43	20	14	11	3.58	0.934
Diverse payment options improve competitive position in the marketplace	16	53	13	11	12	3.53	0.916
Optimal network configuration enhances competitiveness in service quality	20	54	14	9	8	3.50	0.797
Network configuration enhances service reliability and performance competitiveness	18	48	16	12	11	3.54	0.917
Robust system security strengthens competitive position and customer trust	24	46	14	11	10	3.53	0.943
Adequate security protocols build reputation and customer loyalty	15	45	19	15	11	3.49	0.922
Seamless alignment of TMT goals with operational units	16	53	13	11	12	3.46	0.843
Adequate resource optimization of internal capital and labor allocation	19	55	14	10	7	3.71	0.912
Grand Mean						3.53	

Table 3 reveals that internal structural alignment is a significant driver of ISP competitiveness in Nairobi, with a grand mean of 3.53 indicating general agreement among respondents. Resource

optimization ranked highest with a mean of 3.71, demonstrating that ISPs are most effective at efficiently allocating internal capital and labor. Payment systems and network configuration practices followed closely, confirming their roles in improving customer satisfaction and service reliability. However, customer onboarding and top management alignment recorded the lowest means of 3.45 and 3.46 respectively, indicating bottlenecks between boardroom decisions and technical operational reality. The consistently low standard deviations below 1.0 reflect strong respondent consensus, suggesting that these structural strengths and weaknesses are shared experiences across Nairobi's ISP sector.

4.3.2 Strategic Partnerships

The table below presents respondents' level of agreement on how strategic partnerships influence ISP competitiveness in Nairobi City County, measured on a five-point Likert scale. 5 = Strongly Agree, 4 = Agree, 3 = Uncertain, 2 = Disagree, 1 = Strongly Disagree

Table 4: Descriptive Statistics of Strategic Partnerships

Statement	5	4	3	2	1	Mean	SD
Adequate value generated from joint R&D or shared assets unavailable to solo firms	17	46	16	14	12	3.81	0.727
Adequate volume of technical know-how transferred from partners	18	50	15	12	10	3.86	0.724
High percentage of mutually met performance targets	19	46	16	11	13	3.62	0.717
Partnership outcome metrics enhance accurate assessment of partnership value	16	47	18	13	11	3.53	0.742
Smooth partnership operationality ensures seamless collaboration and resource utilization	14	54	12	10	15	3.42	0.777
Partnership operationality maintains operational efficiencies and seamless service delivery	18	46	20	13	8	3.90	0.721
Long-term sustainability strengthens competitive position through stable relationships	20	46	13	15	11	3.85	0.727
Partnership sustainability creates stability and long-term growth opportunities	18	48	13	13	13	3.65	0.719
Strategic alliances allow access to specialized know-how and mitigate imitation risks	22	52	17	9	5	3.51	0.743
Overall, strategic partnership agreements have paid dividends	16	55	13	13	8	3.47	0.745
Grand Mean						3.66	

Table 4 reveals that strategic partnerships are a critical driver of ISP competitiveness in Nairobi, recording a grand mean of 3.66, the highest among all independent variables. Partnership operationality maintaining seamless service delivery scored the highest mean of 3.90, confirming that external alliances serve as the functional backbone of service reliability. Technical know-how transfer and joint R&D value generation followed closely, demonstrating that ISPs leverage

partnerships to access specialized assets prohibitively expensive to develop independently. Long-term partnership sustainability also scored strongly, indicating that ISPs recognize stable alliances as both a value creation engine and a competitive shield against market imitation. The lowest score of 3.42 for day-to-day operational smoothness reveals a significant execution gap, suggesting that while strategic intent is sound, administrative friction in managing daily collaboration remains a persistent challenge requiring structural improvement.

4.3.3 Customer-Centric Innovation

The table below presents respondents' level of agreement on how customer-centric innovation influences ISP competitiveness in Nairobi City County, measured on a five-point Likert scale. 5 = Strongly Agree, 4 = Agree, 3 = Uncertain, 2 = Disagree, 1 = Strongly Disagree

Table 5: Descriptive Statistics of Customer-Centric Innovation

Statement	5	4	3	2	1	Mean	SD
Customized self-service portals enhance competitiveness through improved customer experience	14	42	19	15	15	3.66	0.628
Self-service portals raise customer satisfaction and reduce operational costs	18	46	18	13	10	3.63	0.735
Reliable backup connectivity solutions strengthen competitive position and business continuity	17	47	14	14	13	3.65	0.797
Adequate backup solutions minimize customer service interruptions	16	49	17	12	11	3.58	0.733
Customized pricing strategies meet diverse customer needs and maximize market penetration	19	54	13	10	9	3.56	0.628
Customized pricing expands ability to attract diverse customer segments	16	49	21	11	8	3.61	0.623
Comprehensive value-added services strengthen competitive position and customer loyalty	20	52	18	9	6	3.67	0.737
Quality value-added services enhance ability to compete beyond basic connectivity	19	53	15	10	8	3.69	0.757
High scale of data-driven tailoring in service delivery	18	56	17	8	6	3.59	0.739
High frequency of new value-proposition launches based on customer feedback	21	59	13	7	5	3.57	0.659
Grand Mean						3.62	

Table 5 shows that customer-centric innovation is a pivotal driver of ISP competitiveness in Nairobi, with a grand mean of 3.62. Quality value-added services ranked highest with a mean of 3.69, indicating that ISPs are successfully competing beyond basic connectivity by offering differentiated service bundles that build loyalty. Comprehensive service differentiation and customized self-service portals followed closely, demonstrating that empowering customers with autonomy and enhanced features is a primary competitive strategy. Backup connectivity solutions

also scored strongly, confirming that business continuity assurance is a significant competitive differentiator. Pricing customization and frequency of new value-proposition launches scored slightly lower but remained firmly in agreement range, reflecting broad industry commitment to service flexibility. The consistently low standard deviations confirm strong respondent consensus that customer-centric innovation is effectively shifting the industry beyond price-based competition toward holistic user-focused experiences.

4.3.4 Consumer Behavior Change

The table below presents respondents' level of agreement on how consumer behavior change influences ISP competitiveness in Nairobi City County, measured on a five-point Likert scale. (5 = Strongly Agree, 4 = Agree, 3 = Uncertain, 2 = Disagree, 1 = Strongly Disagree)

Table 6: Descriptive Statistics of Consumer Behavior Change

Statement	5	4	3	2	1	Mean	SD
Effective collection and utilization of customer feedback enables continuous service improvement	16	49	16	12	12	3.71	0.862
Efficient feedback management system identifies and addresses service retention issues	18	50	15	12	10	3.43	0.747
Quick adaptation to customer needs variations enables targeted service delivery	14	44	13	14	20	3.39	0.917
Program for purchase decision latency assesses time elapsed during information search	13	49	16	11	16	3.37	0.867
Quick response to customer switching patterns adopts proactive retention strategies	20	54	12	10	9	3.57	0.985
Studying switching patterns addresses churn factors and stops market share loss	19	53	18	8	7	3.75	0.861
Demographic-based preferences enable targeted marketing and service customization	21	52	14	10	8	3.44	0.749
Demographic preferences effectively reach and serve different customer segments	16	49	14	13	13	3.35	0.913
Operational program for quantified customer loyalty and recommendation likelihood	15	55	17	9	9	3.41	0.868
Sentiment analysis score records real-time brand perception from social listening	22	57	12	7	7	3.59	0.981
Grand Mean						3.50	

Table 6 shows that consumer behavior change recorded the lowest grand mean of 3.50 among all independent variables, reflecting a more nuanced relationship with ISP competitiveness. Addressing customer switching patterns to prevent market share loss ranked highest at 3.75, while customer feedback utilization for continuous improvement followed at 3.71, confirming that ISPs are most proficient at defensive behavioral responses. Real-time sentiment analysis and social

listening scored 3.59, indicating growing sophistication in brand perception monitoring. However, demographic-based preference consideration recorded the lowest mean of 3.35, while purchase decision latency analysis scored 3.37, revealing that ISPs still treat their customer base as a largely undifferentiated monolith rather than developing proactive, granular, demographic-specific engagement strategies needed to deepen competitive advantage.

4.3.5 Competitiveness of Internet Service Providers

The table below presents respondents' level of agreement on the competitiveness of their respective ISPs across key performance dimensions in Nairobi City County, measured on a five-point Likert scale. 5 = Strongly Agree, 4 = Agree, 3 = Uncertain, 2 = Disagree, 1 = Strongly Disagree

Table 7: Descriptive Statistics of Competitiveness of Internet Service Providers

Statement	5	4	3	2	1	Mean	SD
The company has very stable network quality	23	50	16	9	7	3.51	0.787
The company provides a reliable network serving a wide range of customers	25	46	19	8	7	3.45	0.912
The company's average revenue per user has consistently risen	17	43	20	15	10	3.58	0.934
Higher ARPU enables greater investment in infrastructure improvements and innovation	18	54	14	9	10	3.53	0.916
The company has maintained low customer churn rate in recent years	24	54	15	7	5	3.47	0.841
The company has experienced low customer acquisition costs and increased market stability	20	53	17	9	6	3.55	0.781
Strong market share position provides economies of scale and supplier bargaining power	27	50	14	8	6	3.49	0.911
The company has experienced a steady net performance score in recent years	19	47	20	11	8	3.57	0.933
The company has significantly improved overall competitiveness compared to competitors	18	59	14	7	7	3.52	0.923
The company has steady ROA% in recent years	23	60	12	6	4	3.46	0.845
Grand Mean						3.51	

Table 7 reveals that ISPs in Nairobi maintain a solid and stable competitive position, evidenced by a grand mean of 3.51. Average Revenue Per User ranked highest at 3.58, indicating that financial value extraction from existing subscribers is the primary competitive strength, closely supported by a steady net performance score of 3.57 and low customer acquisition costs of 3.55. These figures suggest that Nairobi's ISPs are financially resilient and effective at managing market entry costs. However, network reliability in serving a wide range of customers recorded the lowest mean of 3.45, followed by ROA stability at 3.46 and churn rate maintenance at 3.47, revealing fragility in

technical consistency, asset efficiency, and long-term subscriber retention as the most critical competitive improvement areas.

Secondary Data Analysis -Return on Assets

The table below presents the Return on Assets trend for all 12 ISPs in Nairobi City County over the five-year period 2021 to 2025, sourced from Communications Authority of Kenya condensed audited annual reports.

Table 8: ROA % (profit before tax as a % of total assets) of ISPs

ISP	2021	2022	2023	2024	2025
ISAT	3.34%	4.00%	4.20%	2.11%	3.49%
Wananchi Group K ltd	4.44%	4.56%	4.67%	3.09%	4.41%
Wananchi Telkom	2.94%	3.10%	2.00%	1.31%	3.07%
Safaricom	4.68%	4.60%	4.98%	2.11%	4.69%
Simbanet	3.68%	3.20%	3.20%	2.13%	3.37%
Jamii Telecommunication Ltd	2.34%	3.10%	2.80%	1.92%	2.96%
Poa Internet Kenya Ltd	3.05%	3.30%	3.20%	1.23%	1.48%
Liquid Telecommunications Kenya Ltd	4.09%	3.80%	4.70%	3.51%	3.43%
Mawingu Networks Ltd	4.31%	4.30%	4.50%	3.36%	3.77%
Dimensions Data Solutions East Africa Ltd	4.29%	4.420%	4.43%	4.14%	4.51%
Mobile Telephone Network (MTN)	3.50%	4.10%	4.31%	3.11%	4.27%
Telkom Kenya Ltd	4.59%	4.78%	4.47%	1.96%	4.09%
Source, CAK, condensed report 2025; ISPs condensed audited annual trend analysis,2025					

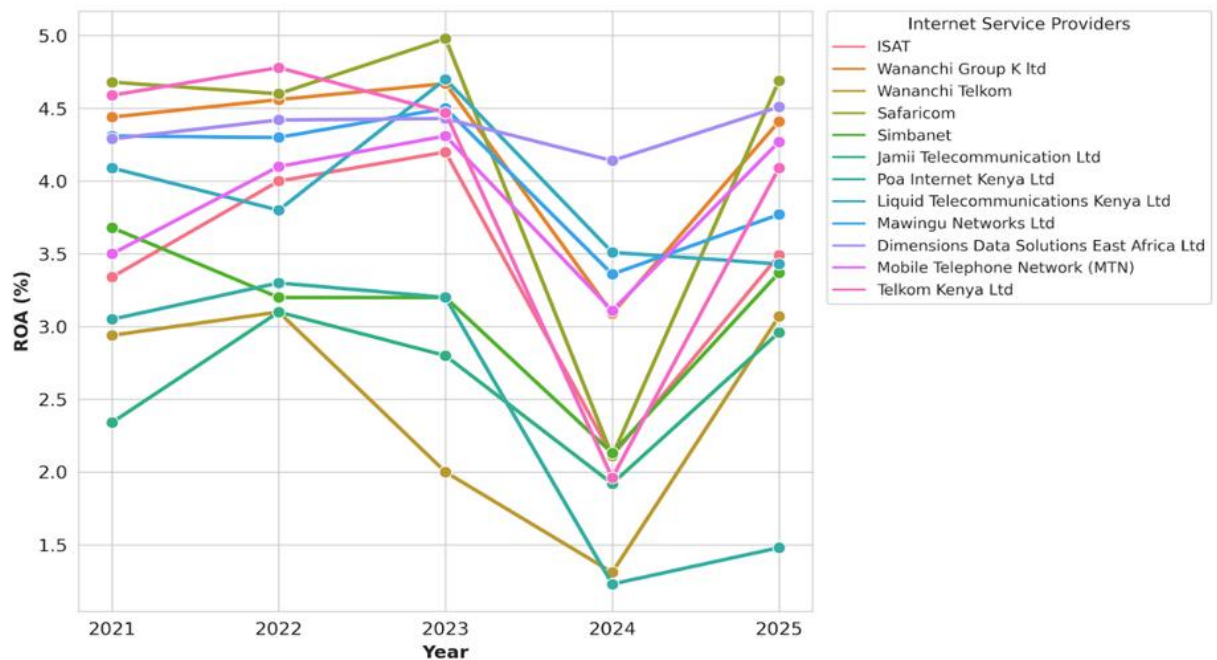


Figure 2: ROA Trend Analysis of ISPs in Nairobi (2021-2025)

The ROA trend analysis (table 8 and Figure 2) reveals a volatile yet resilient competitive landscape for Internet Service Providers in Nairobi between 2021 and 2025. The industry initially enjoyed a period of moderate growth, with the average ROA rising from 3.77% in 2021 to a peak of 3.96% in 2023, signaling effective asset utilization and operational efficiency during those years. However, the sector faced a severe industry-wide downturn in 2024, characterized by a sharp drop in the mean ROA to 2.50%. This significant dip suggests that ISPs likely grappled with external shocks, such as increased infrastructure costs or heightened market competition, which temporarily eroded profit margins across nearly all firms.

4.4 Inferential Statistics

4.4.1 Assumptions of Multiple Regression Analysis

Before running inferential statistics, all four diagnostic assumptions of multiple regression were verified. The study's sample of 105 met the minimum case requirement of 80 for four independent variables. All measurement scales demonstrated construct validity and Cronbach's alpha values above 0.7. Categorical primary data was transformed to continuous data using SPSS before regression, while secondary ROA data required no transformation. Linearity was confirmed through Pearson correlation, with all predictor variables recording positive significant relationships with ISP competitiveness. The table below presents the multicollinearity test results for all independent variables.

Table 9: Multicollinearity Test Results

Model	Variable	Tolerance	VIF
1	Internal structural alignment	0.441	2.941
	Customer centric innovations	0.429	3.263
	Strategic partnerships	0.458	2.965
	Consumer behavior change	0.379	3.277

Table 9 confirms that all independent variables satisfied the multicollinearity assumption for multiple regression analysis. Tolerance values for internal structural alignment, customer-centric innovations, strategic partnerships, and consumer behavior change were 0.441, 0.429, 0.458, and 0.379 respectively, all exceeding the minimum threshold of 0.1. Corresponding Variance Inflation Factor values of 2.941, 3.263, 2.965, and 3.277 were all well below the maximum acceptable threshold of 10, confirming the absence of problematic multicollinearity among predictors. These results validate that all four independent variables can be simultaneously included in the multiple regression model without risk of statistical redundancy or inflated coefficient estimates that could compromise analytical reliability.

4.4.2 Correlation Analysis

The table below presents the Pearson correlation matrix showing the strength and direction of relationships between all study variables at the 0.01 significance level.

Table 10: Pearson Correlation Matrix

	Internal Structural Alignment	Customer Centric Innovations	Strategic Partnerships	Consumer Behavior Change	Competitiveness of ISPs
Internal Structural Alignment	1.000				
Customer Centric Innovations	.420**	1.000			
Strategic Partnerships	.433**	.445**	1.000		
Consumer Behavior Change	.472**	.441**	.472**	1.000	
Competitiveness of ISPs	.731**	.756**	.883**	.781**	1.000

** Correlation is significant at the 0.01 level (2-tailed). N = 105

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Table 10 reveals that all four independent variables have highly significant positive relationships with ISP competitiveness, with p-values of .000 across all correlations. Strategic partnerships recorded the strongest correlation with competitiveness at 0.883, confirming external alliances as the single most influential driver of market edge in Nairobi. Consumer behavior change and customer-centric innovation followed at 0.781 and 0.756 respectively, underscoring that market responsiveness and user-focused innovation are critical competitive differentiators. Internal structural alignment recorded the lowest but still robust correlation of 0.731, confirming that competitive outward-facing strategies must be supported by sound internal organizational foundations. Moderate inter-variable correlations ranging from 0.420 to 0.472 confirm healthy synergy without problematic multicollinearity, suggesting a virtuous cycle where improvements across all four strategic change drivers collectively strengthen ISP competitiveness.

4.4.3 Multiple Linear Regression Analysis

The table below presents the model summary, ANOVA results, and regression coefficients from the multiple linear regression analysis examining the collective influence of the four strategic change drivers on ISP competitiveness in Nairobi City County.

Table 11: Multiple Linear Regression Analysis

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error	F Change	Sig. F Change
1	.901	.813	.805	.52429	108.474	.000

Predictors: Internal Structural Alignment, Customer Centric Innovations, Strategic Partnerships, Consumer Behavior Change

ANOVA

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	119.270	4	29.817	108.474	.000
Residual	27.488	100	0.275		
Total	146.758	104			

Coefficients

Variable	B	Std. Error	Beta	t	Sig.
(Constant)	1.389	.221		6.278	.000
Internal Structural Alignment	.228	.075	.238	3.025	.003
Customer Centric Innovations	.277	.103	.311	2.082	.040
Strategic Partnerships	.638	.068	.782	9.439	.000
Consumer Behavior Change	.430	.134	.435	3.217	.007

Dependent Variable: Competitiveness of ISPs in Nairobi County

The regression model is;

$$Y = 1.389 + 0.228X_1 + 0.277X_2 + 0.638X_3 + 0.430X_4.$$

<https://doi.org/10.53819/81018102t5447>

Table 11 model summary reveals a very strong positive relationship between the combined independent variables and ISP competitiveness, indicated by an R-value of .901. The R-square of .813 establishes that internal structural alignment, customer-centric innovations, strategic partnerships, and consumer behavior change collectively explain the vast majority of variance in the competitiveness of ISPs in Nairobi City County. This implies that only a small proportion of variation in competitiveness is attributable to factors outside this study's model. The adjusted R-square of .805 further confirms the model's high predictive power even after accounting for the number of predictor variables used, demonstrating that the four strategic change drivers identified in this study constitute a robust and comprehensive framework for understanding and predicting ISP competitiveness in Nairobi's dynamic telecommunications environment.

The ANOVA results confirm that the overall multiple regression model is a statistically significant fit for the data. The regression sum of squares of 119.270 substantially exceeds the residual sum of squares of 27.488, indicating that the model accounts for far more variance than unexplained error. The mean square for regression of 29.817 against a residual mean square of 0.275 yields an F-statistic of 108.474, which is exceptionally high. The associated significance value of .000, well below the standard threshold of .05, confirms that the four independent variables collectively have a significant and non-random influence on ISP competitiveness. This means the regression model is reliable, statistically valid, and suitable for making predictions about how strategic change drivers shape the competitive positioning of Internet Service Providers operating in Nairobi City County, Kenya.

The coefficients table establishes the individual contribution of each strategic change driver to ISP competitiveness. Internal structural alignment recorded a positive and significant influence, confirming that improvements in internal decision-making flows, resource optimization, and TMT alignment meaningfully strengthen competitive positioning. Customer-centric innovation also recorded a positive and significant effect, confirming that tailoring innovations to consumer needs through self-service portals, value-added services, and customized pricing is a viable competitive strategy for Nairobi ISPs. Strategic partnerships emerged as the most influential predictor, with the highest unstandardized and standardized coefficients, highlighting that collaborative alliances providing shared infrastructure, technical know-how, and joint R&D generate the most substantial and immediate competitive advantage. Consumer behavior change ranked second in standardized importance, reflecting that ISPs capable of adapting to shifting switching patterns, demographic preferences, and sentiment signals gain significant competitive differentiation.

5.0 Conclusion

The study concludes that internal structural alignment and customer-centric innovation are foundational drivers of ISP competitiveness in Nairobi City County. While Nairobi ISPs have mastered internal resource optimization, competitiveness remains hindered by slow decision-making flows and inefficient customer onboarding processes, revealing a critical disconnect between top management goals and technical operational units. Transitioning from basic capital efficiency to a more agile structural model is therefore essential for reaching higher competitive tiers. Simultaneously, the shift from providing basic connectivity to delivering holistic user experiences is a verified survival strategy, with value-added services and self-service portals successfully enabling most ISPs to move beyond price-based competition. Together, these internal

drivers establish the organizational foundation upon which outward-facing competitive strategies must be built to achieve sustainable market differentiation.

The study further concludes that strategic partnerships are the primary engine of ISP competitiveness in Nairobi, providing essential shared infrastructure, technical know-how, and joint research capabilities that solo firms cannot independently sustain. These alliances function simultaneously as a functional backbone for service reliability and a defensive shield against market imitation, yet administrative friction in daily collaboration management remains a significant hurdle limiting return on investment. Consumer behavior change emerged as the second most powerful predictor of competitiveness, with ISPs demonstrating proficiency in defensive churn management but lacking proactive demographic-specific strategies. The ultimate competitive edge in Nairobi's volatile telecommunications landscape lies in moving beyond reactive behavioral tracking toward leveraging real-time sentiment analysis and purchase decision latency measurement to anticipate segment-specific consumer shifts before rivals respond.

6.0 Recommendations

The study recommends that ISPs should prioritize automating customer onboarding processes and establishing structured alignment task forces to bridge the communication gap between top management and technical operational units. Reducing the disconnect between boardroom strategic goals and operational reality should transform internal structures from static resource allocators into agile competitive assets capable of rapid decision-making and improved service delivery. Simultaneously, ISPs should invest in advanced data-driven tailoring and AI-powered predictive service delivery rather than launching generic value-added services. Firms should utilize customer feedback loops to develop personalized features addressing the specific behavioral nuances of the Nairobi market, thereby deepening customer loyalty, reducing churn, and creating meaningful service differentiation that competitors cannot easily replicate through basic connectivity improvements or price reductions alone.

The study recommends that ISPs should implement standardized partnership management frameworks to systematically reduce the administrative friction and operational hurdles that currently limit the return on investment from strategic alliances. Formalizing collaborations with clear performance metrics, structured governance protocols, and streamlined operationality will enable firms to more effectively leverage shared assets and technical know-how while simultaneously creating higher barriers to market imitation. Furthermore, ISPs should urgently evolve from reactive churn management toward proactive demographic market segmentation by incorporating demographic-based preference analysis and purchase decision latency tracking into their core competitive strategies. Utilizing real-time sentiment analysis to predict consumer shifts including streaming trends, remote work demands, and segment-specific connectivity needs will enable ISPs to target diverse customer groups more effectively and secure dominant market share positions before competitors identify and respond to emerging behavioral changes.

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