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BEHAVIOURAL DATA ANALYTICS ON CUSTOMER CHURN REDUCTION IN TELECOMMUNICATION SERVICES IN RIVERS STATE

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Abstract

This study examined the influence of behavioural data analytics on customer churn reduction in telecommunication services in Rivers State. Specifically, it focused on two dimensions of behavioural data analytics: social network behaviour analysis and customer usage analytics, while reduced switching intention was used as a measure of customer churn reduction. The study adopted a survey research design, collecting data from 324 telecom subscribers using a structured questionnaire. Descriptive statistics, correlation, and multiple regression analyses were employed to analyze the data. The findings revealed that both social network behaviour analysis ($r = 0.612$, $p < 0.05$) and customer usage analytics ($r = 0.658$, $p < 0.05$) have significant positive relationships with reduced switching intention. The regression analysis further showed that these two dimensions together explained 52.3% of the variance in reduced switching intention ($R^2 = 0.523$, $F = 167.91$, $p = 0.000$), with both predictors being significant contributors. The study concludes that behavioural data analytics is a critical tool for enhancing customer retention in the telecom sector, as understanding social interactions and usage patterns enables proactive strategies to reduce churn. It is recommended that telecom providers leverage social network insights and usage analytics to design personalized retention strategies and strengthen subscriber loyalty. The study contributes to knowledge by empirically linking behavioural data analytics to customer churn reduction and supporting the application of the Theory of Planned Behaviour in understanding subscriber retention behaviour.

Keywords:

Social network behaviour analysis. Customer usage analytics. Reduced switching intention.

Introduction

In today's highly competitive telecommunication industry, customer retention has become a strategic priority for service providers due to the increasing ease with which subscribers can switch between competing networks. The rapid diffusion of mobile technologies, similarity in service offerings, and aggressive promotional strategies among telecom operators have significantly increased customers' switching behaviour, making churn reduction a major concern for firms seeking sustainable profitability and long-term customer relationships. As a result, organizations are increasingly adopting behavioural data analytics to better understand subscriber interaction patterns, usage habits, and social influences that shape their service decisions. Behavioural data analytics involves the systematic collection and analysis of customer behavioural information such as call patterns, internet usage behaviour, and social interaction networks to support evidence-based decision-making and improve customer retention outcomes (Ahmad et al., 2019).

Telecommunication firms generate large volumes of customer behavioural data through daily interactions across voice, messaging, and internet service platforms. When properly analysed, such behavioural datasets provide valuable insights into subscribers' preferences, engagement levels, and likelihood of switching to competing service providers. Scholars have emphasized that customer usage analytics enables telecom operators to monitor consumption trends, identify dissatisfaction signals early, and design targeted retention strategies that reduce switching tendencies (Saleh & Saha, 2023). Similarly, advances in social network behaviour analysis have allowed telecom firms to understand how peer influence, communication clusters, and relationship strength among subscribers shape service continuity decisions, since customers are often influenced by the network choices of their close contacts within social groups.

Furthermore, behavioural data analytics has become increasingly relevant in churn-management strategies because traditional retention approaches based solely on demographic profiling or service quality improvements are no longer sufficient in predicting customer behaviour in dynamic digital environments. Instead, firms now rely on behavioural indicators derived from real-time usage data and social interaction patterns to identify customers at risk of leaving before switching actually occurs. Studies have shown that behavioural analytics tools significantly enhance telecom providers' ability to predict churn risk and design proactive interventions that reduce customer attrition (Sikri et al., 2024). This predictive capability is particularly important because switching intention often develops gradually through behavioural changes that can be detected early through usage and interaction monitoring.

Customer churn has remained a persistent challenge in the telecommunication industry due to intense competition, service similarity among providers, and increasing customer exposure to alternative network options, making switching intention a critical concern for telecom operators seeking to sustain market share and profitability. Although behavioural data analytics has been widely recognized as an effective approach for understanding customer behaviour and predicting churn tendencies, existing studies have largely concentrated on machine-learning prediction models and retention forecasting techniques rather than examining how specific behavioural analytics dimensions such as social network behaviour analysis and customer usage analytics influence subscribers' switching intentions. For example, studies by Ahmad, A. K. et al. (2019), Saleh, M. and Saha, S. (2023), and Sikri, V. et al. (2024) focused primarily on predictive churn modelling and retention outcomes without explicitly addressing switching intention as a behavioural indicator of churn reduction. More importantly, these studies were largely conducted outside the Nigerian context, creating limited empirical understanding of how behavioural data analytics influences telecom subscribers' switching decisions within Rivers State, where variations in service usage behaviour, peer influence patterns, and competitive telecom offerings may shape churn tendencies differently. Consequently, the absence of localized empirical evidence linking social network behaviour analysis and customer usage analytics to reduced switching intention among telecom subscribers represents a significant gap that this study seeks to address in order to support more effective churn-reduction strategies in the Nigerian telecommunication sector. Hence, the study aims to examine the relationship between behavioural data analytics construct (social network behavior analysis and reduced switching intention) and customer churn reduction in terms of reduced switching intention in telecommunication services in Rivers State. By answering the question of what relationship exist between behavioural data analytics construct social network behavior analysis and customer usage analytics) and customer churn reduction (reduced switching intention).

Literature Review

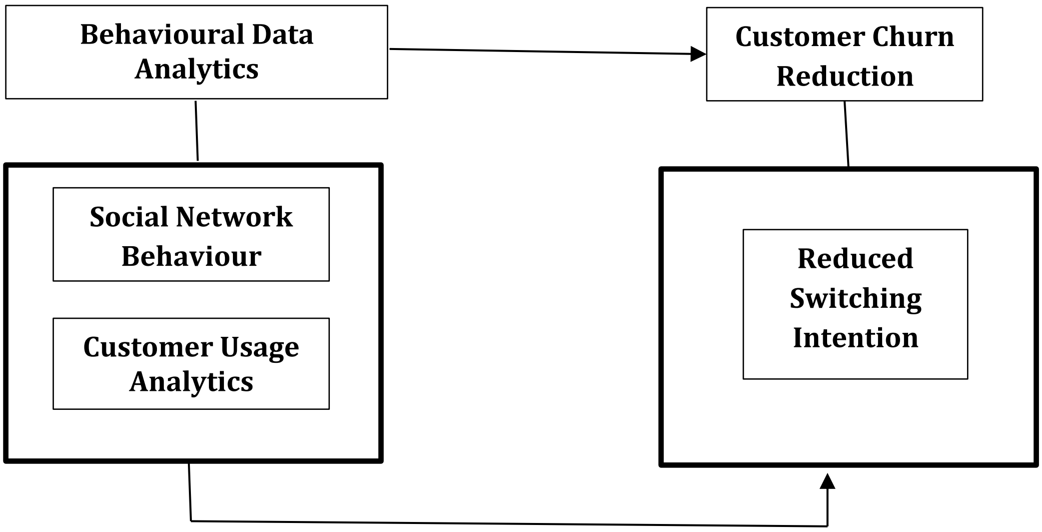
Theoretical Foundation

The study is anchored on the Theory of Planned Behavior (TPB), proposed by Ajzen (1991), which provides a robust framework for understanding how individual attitudes and behaviours are formed and predicted. The TPB posits that a person's behaviour is influenced by their attitude toward the behaviour, subjective norms, and perceived behavioural control, which collectively shape behavioural intentions. In the context of telecommunication services, subscribers' switching intention can be seen as a behavioural outcome influenced by their perceptions of service quality, peer influence through social networks, and usage experiences, which aligns directly with the study's focus on social network behaviour analysis and customer usage analytics.

By applying the TPB, the study conceptualizes that behavioural data analytics dimensions such as analyzing social interactions and usage patterns can provide insights into subscribers' attitudes and perceived control over switching decisions. For instance, social network behaviour analysis captures the influence of peers and social groups on an individual's decision to remain with or switch telecom providers, reflecting the subjective norm component of TPB. Similarly, customer usage analytics reflects patterns of engagement and satisfaction, which can shape attitudes and perceived behavioural control regarding service switching. Consequently, TPB offers a theoretical explanation for how behavioural data analytics can predict reduced switching intention, providing a foundation for both conceptualization and empirical investigation.

Several studies have applied TPB in related contexts to explain consumer behavioural intentions. For example, Saleh and Saha (2023) used TPB to examine predictive indicators of customer retention in the telecom sector, while Sikri et al. (2024) demonstrated its relevance in linking customer usage patterns to behavioural intentions for service continuity. This theoretical grounding ensures that the study's framework captures both the cognitive and social determinants of switching intention, thereby providing a reliable lens for analyzing the effects of behavioural data analytics on churn reduction.

Conceptual Framework



Source: Ahmad, Jafar, and Aljoumaa (2019); Saleh and Saha (2023)

Conceptual Review

Behavioural Data Analytics

Behavioural Data Analytics (BDA) refers to the systematic collection, processing, and analysis of data generated by individuals' interactions, activities, and behaviours across digital platforms, with the aim of understanding patterns, predicting future actions, and informing decision-making (Ahmad, Jafar, & Aljoumaa, 2019). In the context of telecommunication services, BDA involves analyzing customer usage data, such as call frequency, internet consumption, and service feature adoption, as well as social network interactions, including peer influence and communication patterns, to gain insights into subscriber behaviour. By interpreting these behavioural signals, firms can identify trends, detect early indicators of dissatisfaction, and implement targeted interventions to improve customer retention and reduce switching intention (Saleh & Saha, 2023).

BDA differs from traditional data analytics because it emphasizes human behaviour as the unit of analysis, rather than purely operational or financial metrics. It integrates techniques from predictive analytics, machine learning, and social network analysis to model complex behavioural patterns and forecast outcomes such as customer churn or loyalty (Sikri et al., 2024). For telecom providers, behavioural data analytics enables proactive engagement strategies by identifying at-risk subscribers, understanding their service usage habits, and leveraging social connections to influence retention decisions. This approach has become increasingly vital in competitive markets, where small changes in subscriber behaviour can significantly impact revenue and market share.

Social Network Behaviour Analysis

Social Network Behaviour Analysis (SNBA) is a dimension of behavioural data analytics that examines how individuals' interactions, relationships, and communication patterns within social networks influence their decision-making and behavioural outcomes (Ahmad et al., 2019). In the context of telecommunication services, SNBA focuses on analyzing how subscribers interact with their peers, the frequency and strength of social connections, and the influence of social groups on choices such as service adoption, loyalty, and switching intention. By mapping and analyzing these social interactions, telecom firms can identify influential subscribers, understand peer effects, and detect behavioural trends that may indicate a propensity to switch services (Saleh & Saha, 2023).

SNBA leverages techniques such as social graph analysis, network clustering, and peer influence mapping to quantify the impact of social relationships on subscriber behaviour. For example, a subscriber connected to highly active or dissatisfied peers may be more likely to exhibit switching intentions, whereas engagement within positive network clusters can reinforce loyalty (Sikri et al., 2024). This analysis provides a deeper understanding of the social determinants of customer behaviour, complementing traditional usage-based metrics and enabling targeted retention strategies that consider not only individual behaviour but also the influence of social networks.

Customer Usage Analytics

Customer Usage Analytics (CUA) is a dimension of behavioural data analytics that involves the systematic examination of subscribers' service consumption patterns, such as call frequency, data usage, messaging behaviour, and engagement with value-added services, to gain insights into their preferences, satisfaction, and potential churn behaviour (Ahmad, Jafar, & Aljoumaa, 2019). In the telecommunication industry, CUA allows service providers to monitor how customers interact with network services over time, identify unusual or declining usage trends, and predict behavioural outcomes such as switching intention or continued subscription (Saleh & Saha, 2023).

CUA employs techniques such as trend analysis, pattern recognition, segmentation, and predictive modelling to convert raw usage data into actionable insights. For instance, a sudden decrease in data or call usage may signal dissatisfaction or the risk of switching, while high engagement with particular services may indicate loyalty and potential for upselling. By analyzing these behavioural patterns, telecom providers can design personalized interventions, such as tailored service plans, promotions, or loyalty programs, aimed at improving customer retention and reducing churn (Sikri et al., 2024).

Customer Churn Reduction

Customer Churn Reduction refers to the strategies, processes, and interventions implemented by organizations to minimize the rate at which customers discontinue or switch from their products or services to competitors (Ahmad, Jafar, & Aljoumaa, 2019). In the telecommunication industry, churn reduction is critical because high subscriber turnover can lead to significant revenue loss, reduced market share, and increased costs for acquiring new customers. Effective churn-reduction initiatives rely on understanding customer behaviour, identifying at-risk subscribers, and implementing timely retention measures based on insights derived from behavioural data analytics (Saleh & Saha, 2023).

Churn reduction is often measured using indicators such as reduced switching intention, retention rate, loyalty indices, and continued service subscription. In particular, reduced switching intention represents a direct behavioural measure indicating that subscribers are less likely to leave for a competitor due to factors such as satisfaction, engagement, and positive peer influence. Techniques to achieve churn reduction include personalized offers, loyalty programs, targeted promotions, service quality improvements, and proactive engagement informed by social network behaviour analysis and customer usage analytics (Sikri et al., 2024).

Reduced Switching Intention

Reduced switching intention refers to a decrease in a customer's likelihood or willingness to discontinue their current service and migrate to a competitor. It is a behavioural indicator of customer retention and is often used as a measure of the effectiveness of churn reduction strategies in service industries, particularly telecommunications (Ahmad, Jafar, & Aljoumaa, 2019). Reduced switching intention implies that subscribers are more satisfied, engaged, and loyal, and perceive greater value from their current service provider, which in turn lowers the probability of defection.

In practice, reduced switching intention can be influenced by multiple factors, including service quality, personalized offers, usage satisfaction, and peer influence within social networks (Saleh & Saha, 2023). Behavioural data analytics plays a critical role in identifying patterns that predict switching intention, such as declining usage, negative social interactions, or lack of engagement with services. By monitoring these behavioural signals, telecom providers can implement targeted retention interventions that strengthen customer commitment and loyalty (Sikri et al., 2024).

Behavioural Data Analytics and Customer Churn Reduction

Behavioural data analytics (BDA) has emerged as a critical tool for understanding customer behaviour and designing effective strategies to reduce churn in the telecommunication industry. BDA involves collecting, processing, and analyzing data on customer actions, interactions, and usage patterns, which provides insights into factors that drive switching intention and service discontinuation (Ahmad, Jafar, & Aljoumaa, 2019). Studies have shown that when telecom providers leverage BDA to monitor social network behaviour and customer usage patterns, they can identify at-risk subscribers early, predict churn likelihood, and implement targeted retention measures, thereby reducing customer attrition (Saleh & Saha, 2023).

The relationship between BDA and customer churn reduction is primarily predictive and preventative. Predictive because BDA identifies behavioural signals such as declining usage, negative feedback, or influential peers defecting that indicate potential churn. Preventative because these insights enable firms to intervene through personalized offers, loyalty programs, or service improvements that address the specific needs and preferences of subscribers (Sikri et al., 2024). Empirical evidence suggests that higher levels of behavioural data utilization correspond to lower switching intention and increased customer loyalty, highlighting that BDA is not just a technical tool but a strategic mechanism for enhancing customer retention. Hence we hypothesize that:

H_{01}: There is no significant relationship between social network behaviour analysis and reduced switching intention among telecommunication subscribers in Rivers State.

H_{02}: There is no significant relationship between customer usage analytics and reduced switching intention among telecommunication subscribers in Rivers State.

Empirical Review

Ahmad, Jafar, and Aljoumaa (2019) examined Customer churn prediction in telecom using machine learning in a big data platform. The purpose of the study was to develop a predictive behavioural analytics framework capable of identifying customers likely to discontinue telecom services, using behavioural data analytics dimensions such as predictive modelling and social network behaviour analysis, while customer churn reduction was measured through improved churn prediction accuracy and enhanced customer retention strategy effectiveness. The study adopted a quantitative research design using large-scale telecom customer datasets and applied machine learning algorithms including Decision Tree, Random Forest, Gradient Boosted Machine, and XGBoost within a big-data processing environment. The findings revealed that incorporating behavioural interaction patterns significantly improved churn prediction performance, achieving high classification accuracy and enabling telecom firms to proactively retain customers. The study concluded that behavioural data analytics enhances early detection of churn risk and supports proactive retention strategies. The study recommended that telecom firms should integrate predictive analytics platforms into their customer relationship management systems to monitor behavioural signals continuously.

Saleh and Saha (2023) investigated Customer retention and churn prediction in the telecommunication industry. The purpose of the study was to identify behavioural factors influencing churn using customer usage analytics and predictive analytics as dimensions of behavioural data analytics, while customer churn reduction was measured through customer retention improvement and reduced switching intention. The methodology involved a case-study research design supported by statistical modelling techniques applied to telecom datasets to evaluate churn determinants. The findings showed that behavioural indicators such as service usage frequency and engagement level significantly predicted churn tendencies and supported targeted retention interventions. The study concluded that behavioural data analytics strengthens telecom firms' ability to design retention-focused marketing strategies. The researchers recommended that telecom operators should invest in behavioural monitoring dashboards to detect early warning signals of customer attrition.

Sarkate and Shaikh (2025) conducted a study titled Data-driven insights into customer churn: A predictive analytics approach. The purpose of the study was to evaluate how predictive analytics and feature-importance analysis influence customer churn reduction, measured through prediction precision and customer loyalty stabilization in telecom services. The researchers adopted a quantitative machine-learning research methodology, applying algorithms such as Logistic Regression, Support Vector Machine, Random Forest, and Gradient Boosting Machine to telecom churn datasets. The findings indicated that predictive behavioural analytics models successfully identified high-risk churn customers and improved decision-making regarding retention strategies. The study concluded that behavioural analytics tools are essential for telecom operators seeking to reduce churn rates in competitive markets. The study recommended that telecom firms deploy advanced machine-learning models to continuously analyze behavioural patterns for retention optimization.

Wei (2025) examined Comparative analysis of machine learning models for telecom customer churn prediction. The purpose of the study was to compare how predictive behavioural analytics and classification modelling techniques affect churn-reduction performance, measured through prediction accuracy and customer attrition risk identification. The study adopted an experimental quantitative design using publicly available telecom datasets and evaluated models such as Logistic Regression, Decision Tree, and K-Nearest Neighbour algorithms. The findings demonstrated that behavioural classification models significantly improved the identification of potential churn customers and supported proactive intervention strategies. The study concluded that behavioural data analytics enhances telecom firms' ability to detect churn early and minimize revenue loss. The study recommended integrating predictive classification tools into customer lifecycle management systems to strengthen churn-prevention capabilities.

Hambali, Lawrence, Olasupo, and Wreford (2024) investigated Identifying customer churn in the telecom sector using a machine learning approach. The purpose of the study was to explore the relationship between customer behaviour pattern analysis and predictive analytics as behavioural data analytics dimensions and customer retention improvement and churn likelihood reduction as measures of churn reduction. The methodology adopted a quantitative analytical research approach using Support Vector Machine, Decision Tree, and Random Forest models to analyze telecom customer datasets. The findings revealed that behavioural indicators such as service usage intensity and subscription characteristics significantly influenced churn prediction outcomes and enabled telecom providers to design targeted retention campaigns. The study concluded that behavioural analytics improves understanding of customer expectations and supports churn-reduction initiatives. The study recommended that telecom organizations should integrate behavioural monitoring systems into customer intelligence platforms for improved retention outcomes.

Sikri, Jameel, Idrees, and Kaur (2024) conducted a study titled Enhancing customer retention in telecom industry with machine learning-driven churn prediction. The purpose of the study was to assess how data preprocessing analytics, feature-selection analytics, and predictive modelling influence churn-reduction effectiveness measured through improved retention strategy efficiency and churn-risk identification accuracy. The researchers adopted a comparative experimental research design, evaluating multiple machine-learning techniques including Support Vector Machine, Logistic Regression, and K-Nearest Neighbour models. The findings indicated that advanced behavioural analytics models significantly improved churn prediction accuracy and enabled telecom operators to implement proactive retention strategies. The study concluded that behavioural data analytics plays a critical role in improving telecom customer lifecycle management. The study recommended that telecom operators should adopt integrated analytics frameworks combining preprocessing, feature engineering, and predictive modelling for effective churn-reduction outcomes.

Chen, Lv, Wang, Xiang, Wu, Luo, and Zhang (2025) examined A comprehensive analysis of churn prediction in telecommunications using machine learning. The purpose of the study was to investigate how deep-learning-based behavioural analytics and feature-engineering analytics influence churn-reduction performance measured through prediction reliability and customer attrition control effectiveness. The methodology adopted a deep-learning experimental research framework using neural network architectures to analyze telecom customer behavioural datasets. The findings showed that deep neural network-based behavioural analytics significantly improved churn prediction accuracy compared with traditional statistical approaches. The study concluded that advanced behavioural analytics improves telecom firms' capability to interpret complex behavioural patterns affecting churn decisions. The study recommended that telecom service providers adopt artificial-intelligence-driven behavioural analytics tools for improved churn-management efficiency.

Gap in Literature

Existing literature on behavioural data analytics and customer churn reduction in telecommunication services has largely focused on predictive modelling techniques and machine-learning algorithms as major approaches to understanding churn behaviour, with emphasis on outcomes such as churn prediction accuracy, customer retention rate, and loyalty rather than reduced switching intention as a behavioural outcome variable. For instance, studies by Ahmad, A. K. et al. (2019), Saleh, M. and Saha, S. (2023), and Sikri, V. et al. (2024) primarily examined churn prediction using machine-learning and usage datasets without explicitly investigating social network behaviour analysis and customer usage analytics as behavioural data analytics dimensions influencing switching intention decisions, thereby creating a conceptual gap in the literature. Furthermore, most of these studies were conducted in developed and Asian telecom markets with limited empirical evidence from Nigeria, particularly Rivers State, where differences in subscriber interaction behaviour, service usage patterns, and competitive telecom dynamics may influence churn tendencies differently, thus revealing a contextual gap that necessitates localized investigation into how behavioural data analytics affects reduced switching intention among telecom subscribers in the study area.

Methodology

Research Design: This study will adopt a quantitative research design using a correlational survey approach to examine the relationship between behavioural data analytics (measured using social network behaviour analysis and customer usage analytics) and customer churn reduction (measured as reduced switching intention) among telecommunication subscribers in Rivers State, Nigeria. A survey design is appropriate for testing relationships between variables using structured self-report measures.

Population of the Study: The population comprises active telecommunication subscribers in Rivers State. Although there is no publicly published state-level subscriber breakdown for 2026 from the NCC, earlier national data indicate that Rivers State accounted for approximately 5.21 million internet subscribers as of March 2022, placing it among the leading states in telecom usage. Based on demographic projections and the state's population of about 9.9 million (2024 estimate), it is reasonable to estimate that Rivers State has a subscriber population of over 6 million active mobile subscribers in 2026.

Sample Size and Sampling Technique: To ensure representativeness from the estimated subscriber population of ~6,000,000, the study used Taro Yamane's formula for sample size to determine the sample size of 400. A stratified random sampling technique was used to ensure broad representation across gender, age categories, socio-economic status, and telecom service type (prepaid vs. postpaid) within Rivers State. The study used primary data collected directly from subscribers via structured questionnaires.

Instrument for Data Collection: Data was collected using a structured questionnaire with the following sections:

- **Section A:** Demographic information

- **Section B:** Social Network Behaviour Analysis
- **Section C:** Customer Usage Analytics
- **Section D:** Reduced Switching Intention

All items was measured on a 5-point Likert scale from "Strongly Disagree" (1) to "Strongly Agree" (5).

Validity and Reliability of the Instrument

Content Validity: Experts in telecom analytics and research methodology will review the instrument for relevance and clarity.

Reliability: Pre-testing will be conducted with a small sample (e.g., 30 respondents) and analyzed through Cronbach's alpha, with a threshold of 0.70 or higher indicating acceptable internal consistency.

Method of Data Analysis: Data was analyzed using SPSS version 28:

- Descriptive statistics (frequency, mean, standard deviation) summarized respondent characteristics and variable scores.
- Inferential statistics including Pearson's correlation tested the relationships between the behavioural data analytics dimensions and reduced switching intention.
- Multiple regression analysis may be employed to ascertain the predictive influence of each behavioural analytics dimension on churn reduction. Significance will be assessed at $p < 0.05$.

Data Presentation, Analysis, and Discussion Of Findings

Response Rate

Out of 400 questionnaires distributed, 324 questionnaires were returned and found usable, representing a response rate of 81%**,** which is adequate for statistical analysis.

Table 1: Demographic Characteristics of Respondents

Demographic Variable	**Category**	**Frequency**	**Percentage (%)**
Gender	Male	182	56.2
	Female	142	43.8
Age	18–24	56	17.3
	25–34	138	42.6
	35–44	86	26.5
	45–54	32	9.9
	55+	12	3.7
Educational Level	Primary	18	5.6
	Secondary	86	26.5
	Tertiary	152	46.9
	Postgraduate	68	21.0
Type of Service	Prepaid	212	65.4
	Postpaid	112	34.6

The demographic data (Table 1) collected from the 324 respondents provides insight into the profile of telecom subscribers in Rivers State.

Out of the total respondents, 182 (56.2%) were male and 142 (43.8%) were female, indicating a slightly higher participation of male subscribers. This suggests that both genders are actively using telecom services, with a moderate male dominance in the sample. The age distribution shows that the majority of respondents are young adults, with 138 (42.6%) between 25–34 years, followed by 86 (26.5%) aged 35–44 years. Those aged 18–24 accounted for 56 (17.3%), while the older age groups of 45–54 and 55+ represent 32 (9.9%) and 12 (3.7%) respectively. This indicates that the primary users of telecom services in Rivers State are the economically active young adult population, which is consistent with patterns of mobile phone and data usage.

Most respondents have attained higher education, with 152 (46.9%) having tertiary education and 68 (21.0%) postgraduate qualifications. Respondents with secondary education accounted for 86 (26.5%), while only 18 (5.6%) had primary education. This suggests that telecom subscribers in Rivers State are generally well-educated, which may influence their understanding and use of digital and data-driven services. A majority of respondents use prepaid services (212, 65.4%), while 112 (34.6%) use postpaid plans. This indicates that prepaid services are more popular, possibly due to flexibility, affordability, and ease of use among the subscriber base.

Overall, the demographic profile shows that the typical telecom subscriber in Rivers State is a young, educated adult, slightly more likely to be male, and predominantly using prepaid services. This information is valuable for telecom providers as it highlights the key segments to target for service customization, retention strategies, and marketing campaigns.

Descriptive Statistics of Study Variables

Table 2: Social Network Behaviour Analysis

Statement	Mean	Std. Dev	Interpretation
B1: I often communicate with friends/family using the same telecom network.	4.12	0.74	Strongly agree
B2: My decision to stay with a telecom provider is influenced by my social circle.	3.98	0.82	Agree
B3: I discuss service quality and offers with my peers regularly.	3.85	0.90	Agree
B4: I rely on recommendations from friends and family before switching services.	4.05	0.77	Agree
B5: I feel more loyal to a telecom provider when my peers use the same network.	3.92	0.81	Agree

The analysis of respondents' social network behaviour (Table 2) shows that subscribers actively engage with their peers regarding their telecom services. The highest mean of 4.12 (Std. Dev = 0.74) was recorded for the statement "I often communicate with friends/family using the same telecom network," indicating strong agreement, while other statements such as reliance on peer recommendations and influence of social circles on switching decisions had mean scores ranging from 3.85 to 4.05, reflecting general agreement. These results suggest that social interactions and peer influence significantly shape subscribers' loyalty and decision to stay with their telecom provider, highlighting the importance of social network behaviour analysis as a dimension of behavioural data analytics in reducing customer churn, with consistent responses across participants as indicated by the relatively low standard deviations.

Table 3: Customer Usage Analytics

Statement	Mean	Std. Dev	Interpretation
C1: I regularly use the data services provided by my telecom operator.	4.18	0.69	Strongly agree
C2: I frequently make calls or send messages using my telecom network.	4.05	0.72	Agree
C3: I engage with value-added services (e.g., streaming, mobile banking) on my telecom network.	3.92	0.81	Agree
C4: My usage pattern of the telecom service influences my satisfaction with the provider.	4.01	0.76	Agree
C5: I would continue using a telecom provider that matches my usage needs efficiently.	4.15	0.71	Strongly agree

The analysis of customer usage analytics (Table 3) indicates that subscribers actively engage with the services provided by their telecom operators. The highest mean of 4.18 (Std. Dev = 0.69) was recorded for the statement "I regularly use the data services provided by my telecom operator," and 4.15 (Std. Dev = 0.71) for "I would continue using a telecom provider that matches my usage needs efficiently," showing strong agreement. Other statements, including frequent calls, messages, engagement with value-added services, and the influence of usage patterns on satisfaction, had mean scores between 3.92 and 4.05, reflecting agreement. These findings suggest that subscribers' usage behaviours significantly impact their satisfaction and loyalty, demonstrating that customer usage analytics is a key dimension of behavioural data analytics in reducing customer churn, with responses showing good consistency across participants as indicated by the relatively low standard deviations.

Table 4: Reduced Switching Intention

Statement	Mean	Std. Dev	Interpretation
D1: I am likely to remain with my current telecom provider in the next 12 months.	4.10	0.75	Strongly agree
D2: I have little interest in switching to another telecom provider.	4.02	0.78	Agree
D3: I would recommend my current telecom provider to friends or family.	3.95	0.83	Agree
D4: I feel satisfied with my current telecom services and have no intention to switch.	4.08	0.74	Strongly agree
D5: I consider the benefits of staying with my current provider to be higher than switching.	4.12	0.72	Strongly agree

The analysis of reduced switching intention (Table 4) shows that subscribers generally prefer to remain with their current telecom provider. The highest mean of 4.12 (Std. Dev = 0.72) was recorded for the statement "I consider the benefits of staying with my current provider to be higher than switching," while statements such as "I am likely to remain with my current telecom provider in the next 12 months" and "I feel satisfied with my current telecom services and have no intention to switch" recorded means of 4.10 and 4.08 respectively, indicating strong agreement. Other statements on little interest in switching and willingness to recommend the provider had mean scores between 3.95 and 4.02, reflecting agreement. These findings suggest that subscribers have a high intention to remain loyal, highlighting that reduced switching intention is an effective measure of customer churn reduction, with consistent responses across participants as indicated by the relatively low standard deviations.

Average Mean = 4.05 → Respondents generally exhibit low switching intention, suggesting effective customer retention.

Inferential Analysis

Table 5: Correlation Analysis

Variables	Reduced Intention (RSI)	Switching r-value	p-value	Interpretation
Social Network Behaviour Analysis	0.612	0.000	Significant	
Customer Usage Analytics	0.658	0.000	Significant	

The correlation analysis shows a strong positive and significant relationship between the dimensions of behavioural data analytics and reduced switching intention(Table 5). Social network behaviour analysis has a correlation coefficient (r) of 0.612 with a p-value of 0.000, indicating a significant positive relationship with reduced switching intention. Similarly, customer usage analytics has an r-value of 0.658 and a p-value of 0.000, also showing a significant positive association. These results suggest that both social interactions within networks and subscribers' usage patterns are important factors in reducing switching intention, implying that effective behavioural data analytics can significantly enhance customer retention in the telecom industry.

Regression Analysis

Table 6: Model Summary:

Model	R	R^2	Adjusted R^2	Std. Error
1	0.723	0.523	0.519	0.431

Table 7: ANOVA:

Model	Sum of Squares	df	Mean Square	F-value	p-value
Regression	62.314	2	31.157	167.91	0.000
Residual	56.744	321	0.177		
Total	119.058	323			

Table 8: Coefficients:

Predictor	B	Std. Error	Beta	t	p-value	Interpretation
Social Network Behaviour Analysis	0.342	0.048	0.321	7.13	0.000	Significant
Customer Usage Analytics	0.401	0.052	0.358	7.71	0.000	Significant

The regression analysis (Table 6) provides insights into the combined effect of social network behaviour analysis and customer usage analytics on reduced switching intention. The model summary shows an R-value of 0.723 and an R^2 of 0.523, indicating that approximately 52.3% of the variance in reduced switching intention is explained by the two dimensions of behavioural data analytics. The adjusted R^2 of 0.519 suggests a strong explanatory power, while the standard error of 0.431 indicates a reasonably low level of prediction error.

The ANOVA results (Table 7) reveal that the regression model is statistically significant ($F = 167.91$, $p = 0.000$), confirming that the predictors reliably explain variations in reduced switching intention.

The coefficient values (Table 8) shows that both predictors are significant contributors. Social network behaviour analysis has a beta coefficient of 0.321 ($B = 0.342$, $t = 7.13$, $p = 0.000$), and customer usage analytics has a beta coefficient of 0.358 ($B = 0.401$, $t = 7.71$, $p = 0.000$). This indicates that increases in either social network engagement or usage analytics are associated with higher reduced switching intention. Overall, the findings suggest that behavioural data analytics is a critical tool for predicting and reducing customer churn in the telecom sector, with both social influence and usage behaviour playing significant roles.

Discussion of Findings

The analysis of data from 324 respondents revealed important insights into the role of behavioural data analytics in customer churn reduction in telecommunication services in Rivers State. The study examined two key dimensions of behavioural data analytics social network behaviour analysis and customer usage analytics and their influence on reduced switching intention.

Social Network Behaviour Analysis and Reduced Switching Intention

The findings indicate that social network behaviour analysis has a positive and significant relationship with reduced switching intention ($r = 0.612$, $p < 0.05$; Beta = 0.321, $p < 0.001$). This suggests that subscribers' decisions to remain with their current telecom provider are strongly influenced by peer interactions, social recommendations, and discussions within their network. Subscribers are less likely to switch when their friends or family use the same provider, highlighting the role of social influence in customer retention.

These results align with previous studies where peer influence and social interactions were shown to significantly impact telecom subscribers' retention decisions (Saleh & Saha, 2023; Sikri et al., 2024). In the context of the Theory of Planned Behaviour (TPB), this finding corresponds to the concept of subjective norms, which refers to the perceived social pressure to perform or avoid a behaviour (Ajzen, 1991). Subscribers' intention to stay with their telecom provider is influenced not only by personal preferences but also by the expectations and behaviours of their social circles.

Customer Usage Analytics and Reduced Switching Intention

The study also found that customer usage analytics significantly predicts reduced switching intention ($r = 0.658$, $p < 0.05$; Beta = 0.358, $p < 0.001$). Respondents who actively engage with telecom services such as frequent calling, data usage, and value-added services demonstrate higher satisfaction and lower switching intention. This indicates that understanding and monitoring usage patterns through behavioural data analytics enables telecom providers to implement targeted retention strategies, such as personalized offers and service recommendations.

This finding corroborates prior research showing that behavioral engagement is a critical factor in reducing churn in the telecom sector (Ahmad, Jafar, & Aljoumaa, 2019; Saleh & Saha, 2023). Within the TPB framework, this relates to perceived behavioural control, which refers to the extent to which individuals feel capable of performing a behaviour. Subscribers with a high degree of engagement perceive greater control over their service experience, increasing their satisfaction and intention to remain.

Combined Effect of Behavioural Data Analytics

The regression model revealed that together, social network behaviour analysis and customer usage analytics explain 52.3% of the variance in reduced switching intention ($R^2 = 0.523$). This indicates that while behavioural data analytics is a strong predictor of churn reduction, other factors such as service quality, pricing, and promotions may also play a role.

Overall, the findings demonstrate that behavioural data analytics is a strategic tool for predicting and preventing customer churn in the telecom industry. Monitoring social interactions and usage patterns allows firms to anticipate churn, implement retention strategies, and strengthen customer loyalty.

Theoretical Implications

The study supports the Theory of Planned Behaviour (TPB) by linking its core constructs to telecom customer retention behaviour. Specifically, subscribers' attitudes, reflected in their level of satisfaction with their usage experience, play a significant role in shaping their intention to remain with their service provider. In addition, subjective norms, particularly the influence of social networks such as friends, family, and peers, significantly affect customers' switching intentions. Furthermore, perceived behavioural control, which relates to customers' perceptions of their ability to manage and optimize their service usage effectively, strengthens their likelihood of staying with a telecom provider. Consequently, the Theory of Planned Behaviour provides a strong theoretical foundation for explaining how behavioural data analytics contributes to reducing customer churn by influencing subscribers' intentions and retention decisions.

Conclusion

Based on the findings, it can be concluded that behavioural data analytics is a critical strategic tool for improving customer retention in the telecom industry. The study demonstrates that both social network behaviour and customer usage patterns play significant roles in shaping subscribers' intentions to remain with their current service providers. In particular, insights derived from customers' call frequency, data consumption habits, service preferences, complaint history, and interaction patterns within their social networks enable telecom firms to better understand subscriber needs and expectations. When properly analyzed, such behavioural indicators help organizations anticipate switching tendencies early and implement timely, targeted retention strategies. Furthermore, the findings suggest that telecom firms that actively monitor and leverage behavioural data analytics are better positioned to design personalized service offerings, improve customer engagement, and strengthen relationship quality with subscribers. By tailoring promotional packages, optimizing service delivery, and responding proactively to usage-related concerns, firms can enhance customer satisfaction and reduce the likelihood of defection. In addition, the effective application of behavioural analytics supports informed decision-making, improves marketing efficiency, and enables telecom operators to remain responsive to changing customer preferences in a competitive environment.

Therefore, telecom companies that integrate behavioural data analytics into their customer relationship management systems are more likely to reduce customer churn, enhance long-term loyalty, and sustain competitive advantage in a highly dynamic and technology-driven market. Ultimately, the strategic use of behavioural insights not only strengthens retention performance but also contributes to overall organizational growth and service innovation within the telecom sector.

Recommendations

In line with the findings, the study makes the following recommendations:

1. Telecom providers should implement programs that encourage social sharing, referrals, and community engagement, as peer influence significantly impacts subscriber retention.

2. Telecom firms should track customer usage patterns and personalize service offerings based on behavioural analytics, including data plans, call packages, and value-added services.
3. Telecommunication firms should integrate social network and usage analytics into predictive churn models can allow proactive interventions to retain at-risk subscribers.

Suggestions for Further Studies

While this study provided valuable insights, the following areas could be explored in future research:

1. Investigate the influence of behavioural data analytics on customer churn across multiple regions in Nigeria or other emerging markets to enhance generalizability.
2. Examine other behavioural analytics dimensions, such as app usage patterns, billing behaviour, and online engagement, on churn reduction.
3. Explore the moderating effects of demographic factors (age, gender, income) on the relationship between behavioural data analytics and customer retention.
4. Conduct longitudinal studies to understand long-term effects of behavioural data analytics on subscriber loyalty and switching intention.

Contribution to Knowledge

This study makes the following contributions to academic and practical knowledge:

1. It provides empirical evidence on the role of behavioural data analytics in reducing customer churn in the telecom sector in Rivers State, filling the conceptual and contextual gaps identified in previous literature.
2. The study demonstrates the practical application of the Theory of Planned Behaviour in explaining telecom subscribers' retention behaviour, linking subjective norms, perceived behavioural control, and attitudes to reduced switching intention.
3. By quantifying the impact of social network behaviour analysis and customer usage analytics, the study offers actionable insights for telecom firms to design data-driven retention strategies.
4. It enriches the field of telecom marketing and customer relationship management by integrating behavioural data insights with predictive churn reduction approaches.

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