Leveraging Data Analytics for Effective Public Relations Practice in Nigeria Customs Service

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Abstract

In today's digital age, data analytics has become a powerful tool for enhancing public relations (PR) strategies, especially in public sector institutions like the Nigeria Customs Service (NCS). This study explores the role of data analytics in enhancing public relations (PR) practices within the Nigeria Customs Service (NCS). As public institutions face growing demands for transparency, accountability, and stakeholder engagement, the integration of data-driven strategies in PR becomes increasingly vital. This research examines how data analytics tools and techniques can support the NCS in monitoring public sentiment, evaluating communication effectiveness, managing crises, and shaping strategic messaging. Using content analysis data from media sources, and operational metrics, the NCS can foster a more responsive and informed public relations framework. The paper highlights case examples, identifies current challenges, and offers recommendations for institutionalizing data analytics in PR operations to build trust, improve public perception, and support organizational goals within the broader context of digital governance in Nigeria. The paper concludes that in an era where data-driven decision-making defines institutional credibility and stakeholder engagement, the Nigeria Customs Service stands to gain significantly by integrating data analytics into its public relations practice.

I. Introduction

In today's digital age, data analytics is transforming the field of public relations (PR) worldwide, including in Nigeria. Organizations, government agencies, and businesses are increasingly leveraging data-driven insights to enhance their PR strategies, ensuring effective communication, reputation management, and audience engagement. Public relations (PR) in Nigeria is evolving with the rise of digital media, social networks, and an increasingly data-driven communication landscape. Data analytics plays a crucial role in shaping PR strategies by providing insights into public sentiment, media trends, and stakeholder engagement. Thus, leveraging data analytics, PR professionals in Nigeria can enhance message effectiveness, manage crises proactively, and improve overall public perception (Aluko & Ibrahim, 2019). Data analytics plays a crucial role in PR by providing measurable insights that help in decision-making. It enables PR professionals to track media coverage, analyze audience sentiment, measure campaign effectiveness, and predict public reactions. Data analytics is a game-changer for PR in Nigeria, offering a more strategic and evidence-based approach to communication. By leveraging analytics tools, PR professionals can enhance audience engagement, crisis management, and campaign effectiveness, ultimately improving public perception and trust (Maiwada et al., 2025).

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Chinedu and Udeze (2021) observed that data analytics tools help PR professionals track media mentions across digital platforms, newspapers, and television. Sentiment analysis using AI and machine learning can gauge public perception by analyzing social media posts, news articles, and blogs. Organizations can proactively address negative narratives and reinforce positive messaging. Using demographic and behavioral data, PR practitioners can segment audiences based on location, age, interests, and online behavior. Targeted messaging ensures the right communication reaches the right audience, improving engagement and effectiveness. Data analytics tools such as Google Analytics, social media insights, and media monitoring software provide key performance indicators (KPIs) to measure campaign success. Metrics such as reach, engagement, impressions, and conversion rates help in evaluating PR strategies and optimizing future campaigns (Ekeanyanwu et al., 2020).

Data-driven storytelling helps organizations communicate transparently with stakeholders. Government agencies, such as the Nigeria Customs Service and the National Bureau of Statistics, can use analytics to publish reports on economic and trade activities, fostering public trust. PR campaigns backed by factual data are more credible and impactful. Data analytics is revolutionizing PR in Nigeria by enabling precise audience targeting, real-time crisis management, and measurable campaign success (Eze et al., 2023). To fully harness its potential, PR professionals must invest in analytics tools, enhance digital literacy, and adhere to ethical data practices. By leveraging data analytics, organizations can create more impactful and trustworthy PR strategies that resonate with the Nigerian audience. The objectives of the study are: to examine strategic communication with data analytics, to study customs revenue performance trend, to find out customs 2024 revenue performance, to investigate Nigeria customs service, and to find out the number of monthly publications by top 3 newspapers.

1.1 Data Sources for PR Analytics in Nigeria Customs Service (NCS)

Public Relations (PR) analytics rely heavily on relevant and credible data sources. In the context of the Nigeria Customs Service (NCS), effective PR analytics are essential for understanding stakeholder perceptions, managing public discourse, evaluating campaign outcomes, and responding to crises. Multiple data sources, both structured and unstructured—support these functions, providing insights. Social media is one of the most dynamic and influential data sources for PR analytics in NCS. The agency uses platforms like Twitter (now X), Facebook, Instagram, and YouTube to disseminate information and engage with the public. Social media analytics tools such as sentiment analysis, engagement metrics, and audience demographics help the PR team monitor conversations and public sentiment in real-time (Olatunji, 2022; Aondover et al., 2022). These tools enable NCS to track how policy changes, enforcement activities, and public statements are received by various audience segments.

The NCS official website is a primary source of public information, providing updates on tariffs, import/export regulations, and organizational news. Web analytics tools such as Google Analytics are used to assess user behavior—e.g., number of visits, bounce rates, and time spent on specific pages. This data helps the PR unit understand which content is most relevant to stakeholders and adjust communication strategies accordingly (Chinedu & Udeze, 2021). Monitoring mainstream news coverage is another critical source of PR data for NCS. Print, broadcast, and online media are regularly scanned for mentions of the agency. Media intelligence platforms such as Meltwater and Brandwatch can automate the process of capturing and analyzing these mentions, measuring tone, reach,

and frequency of stories (Ekeanyanwu et al., 2020). This helps the NCS PR team gauge how well their narratives are being picked up and perceived by the public.

Internal data sources such as stakeholder surveys, feedback forms, and incident reports are valuable for gauging satisfaction and identifying communication gaps. For example, feedback from traders, freight forwarders, and partner agencies like the Nigerian Shippers Council and the National Association of Government Approved Freight Forwarders (NAGAFF) can provide qualitative insights into how NCS's communications are perceived on the ground (Aluko & Ibrahim, 2019). NCS also utilizes email communication for issuing alerts, newsletters, and updates to stakeholders. Analytics from email campaign platforms offer insights such as open rates, click-through rates, and unsubscribe data. When integrated into Customer Relationship Management (CRM) systems, this data helps in audience segmentation and personalized communication, boosting the overall effectiveness of PR efforts (Okoro & Nwafor, 2021). Surveys—both online and offline—are conducted to assess public awareness and attitudes toward NCS initiatives, especially after major policy rollouts or operational actions. These surveys serve as direct feedback mechanisms and are key to measuring the impact of PR campaigns (Eze & Bello, 2023).

1.2 Applications of Data Analytics in NCS Public Relations

Data analytics plays a transformative role in the public relations (PR) activities of the Nigeria Customs Service (NCS), enabling the agency to improve communication strategies, monitor public perception, and enhance stakeholder engagement. One of the key applications of data analytics in NCS's PR is audience segmentation and message personalization. By analyzing demographic, behavioral, and psychographic data gathered from various channels such as social media and the NCS website, the public relations unit can tailor messages to suit different audience groups, including importers, exporters, freight forwarders, and the general public (Okoro & Nwafor, 2021). This segmentation not only improves message relevance but also increases the likelihood of stakeholder engagement and compliance (Msughter et al., 2023).

Another critical application lies in sentiment analysis, where the NCS utilizes data analytics tools to monitor public opinion across digital platforms. Real-time monitoring of public reactions to policy announcements, enforcement actions, and press releases allows the PR team to assess the effectiveness of their messaging and respond promptly to misinformation or negative feedback (Olatunji, 2022). For instance, during controversial policy implementations such as border closures or tariff adjustments, sentiment analysis tools help the agency detect rising public dissatisfaction, enabling it to implement damage control strategies and clarify intentions through targeted communication (Oreoluwa et al., 2024).

Data analytics also supports media performance evaluation. Through media monitoring tools, the NCS PR unit tracks the frequency, tone, and reach of its mentions in newspapers, blogs, and broadcast media. This information is used to assess the success of press campaigns and to inform future media relations strategies (Ekeanyanwu et al., 2020). Furthermore, web analytics on the NCS portal help the agency understand how users interact with their content, identify high-traffic areas, and make data-informed decisions about content creation and placement (Saint et al., 2024). For example, if analytics show high engagement with information on customs duties, the PR team may prioritize content in that area and optimize the site's structure to facilitate access.

Additionally, data analytics aids in crisis communication management. In times of operational mishaps or public scandals, the PR department relies on analytics to track the

spread of information and the nature of public discourse. This data-driven insight allows the team to formulate appropriate responses and choose the most effective communication channels to mitigate reputational damage (Chinedu & Udeze, 2021). Another important application is campaign performance measurement. After implementing public awareness campaigns, data on key performance indicators such as reach, engagement rate, and behavioral outcomes are collected and analyzed to assess impact. This feedback loop improves strategic planning and ensures accountability in communication efforts (Aluko & Ibrahim, 2019).

Moreover, stakeholder feedback analysis through surveys and digital forms provides the PR team with qualitative and quantitative insights into public satisfaction and areas of concern. These findings inform policy communication, public education campaigns, and service improvements. The integration of email and customer relationship management (CRM) data into analytics frameworks also allows the NCS to maintain consistent and informed engagement with stakeholders by tracking responses to communication and adjusting follow-up strategies accordingly (Eze & Bello, 2023). In all, the applications of data analytics in the NCS's public relations practice have moved the agency toward more proactive, evidence-based communication strategies that foster transparency, trust, and improved public relations outcomes.

1.3 Benefits of Leveraging Data Analytics in NCS PR

The adoption of data analytics in the public relations (PR) strategy of the Nigeria Customs Service (NCS) has brought numerous benefits, transforming how the agency communicates with the public and manages its reputation. One of the most significant advantages is the improvement in strategic communication planning. Data analytics allows the NCS PR team to base communication strategies on evidence rather than assumptions. By analyzing trends in public behavior, feedback, and digital engagement, the agency can plan more targeted campaigns that align with public interest and organizational goals (Okoro & Nwafor, 2021). Another major benefit is enhanced audience understanding and segmentation. Through social media metrics, website analytics, and stakeholder surveys, the PR unit gains deep insights into the preferences, concerns, and demographics of its diverse audience groups—ranging from freight forwarders and business owners to civil society and the general public. This level of granularity enables the NCS to deliver more personalized and relevant messages, which increases engagement and fosters stronger stakeholder relationships (Eze & Bello, 2023).

Data analytics also improves crisis management and real-time decision-making. In a volatile media environment, issues concerning border enforcement, import tariffs, or smuggling cases can escalate rapidly. Analytics tools, particularly those that monitor media and social sentiment, help NCS detect early warning signs of a crisis. With access to real-time data, the PR unit can craft timely, accurate responses, thereby minimizing reputational damage and maintaining public trust (Olatunji, 2022; Vitalis et al., 2023).

Furthermore, the use of data analytics strengthens performance measurement and accountability in PR campaigns. Metrics such as campaign reach, engagement rates, sentiment scores, and changes in public opinion provide clear indicators of success or failure. This allows for the continuous optimization of communication efforts and ensures that public funds and resources allocated to PR activities are effectively utilized (Chinedu & Udeze, 2021). Such accountability is particularly important in public sector institutions like the NCS, where transparency is a key mandate.

An additional benefit is improved stakeholder engagement. By analyzing data from emails, CRM systems, and social media conversations, the NCS can respond more

effectively to inquiries, complaints, and suggestions. This responsiveness helps build credibility and trust, which are crucial in a government agency tasked with revenue generation and trade facilitation (Aluko & Ibrahim, 2019; Vitalis et al., 2025). Consistent and data-informed engagement ensures that stakeholders feel heard and valued, thereby strengthening institutional reputation.

Finally, leveraging data analytics contributes to policy support and advocacy. When communicating complex customs policies or reforms, analytics can help determine which messages resonate best and which formats (e.g., infographics, press releases, or video explainers) are most effective. This enhances public understanding of NCS initiatives and reduces resistance to change, especially in sensitive areas such as border closures, customs digitization, or tariff reviews (Ekeanyanwu et al., 2020). Data analytics equips the NCS with the tools to transition from reactive to proactive communication, optimize its outreach strategies, and fulfill its public relations objectives more efficiently.

1.4 Empirical Review

The integration of data analytics into public relations (PR) practice has revolutionized how organizations manage their image and communicate with stakeholders. In the context of the Nigeria Customs Service (NCS), the need for efficient communication strategies has become increasingly important, especially as the agency deals with issues such as revenue generation, anti-smuggling campaigns, and trade facilitation. Empirical studies have shown that data analytics enhances message targeting, audience segmentation, and the evaluation of communication effectiveness. A study by Okoro and Nwafor (2021) found that public relations practitioners in Nigerian government agencies who utilized data analytics tools reported a higher level of stakeholder engagement and better decision-making outcomes. Similarly, Ekeanyanwu et al. (2020) reported that digital platforms such as social media and web analytics significantly improved public perception and responsiveness to NCS activities.

In the specific case of the Nigeria Customs Service, empirical evidence points to the gradual adoption of digital tools for communication. Olatunji (2022) conducted a case study on NCS's use of social media analytics and found that real-time monitoring of public sentiments allowed the service to tailor its messaging and manage misinformation during controversial operations. The findings emphasized that the use of data dashboards and sentiment analysis tools enabled NCS's public relations unit to improve transparency and trust with the public. Furthermore, empirical insights from Aluko and Ibrahim (2019) suggest that big data analytics, when integrated with PR strategies, enhanced the ability of government agencies to predict public reactions and pre-empt crises. Their study involved interviews with senior PR officers in federal agencies including NCS, where participants confirmed the usefulness of data-driven reports in strategic planning and stakeholder engagement.

Despite these benefits, empirical studies also highlight challenges such as limited technical capacity, data privacy concerns, and resistance to innovation within the public sector (Chinedu & Udeze, 2021). These factors hinder the full-scale integration of data analytics in NCS's PR practices. Nevertheless, with proper training and investment in technology, the potential for improved PR outcomes through data analytics remains substantial.

II. Review of Literatures

2.1 Theoretical Framework

The paper adopted Excellence Theory of Public Relations. The theory was developed by James E. Grunig and colleagues, is a comprehensive framework that explains how public relations can contribute to organizational effectiveness. At its core, the theory advocates for two-way symmetrical communication—a model where organizations not only disseminate information but also listen, evaluate, and adapt based on stakeholder feedback (Grunig & Hunt, 1984; Grunig et al., 1992).

This theory aligns well with data analytics because analytics empowers organizations to engage in real-time listening, feedback analysis, and evidence-based response, which are core components of the two-way symmetrical model. In the case of the Nigeria Customs Service (NCS), leveraging data analytics allows the PR unit to monitor public sentiment, evaluate campaign effectiveness, segment audiences, and tailor messages all of which contribute to a more ethical, dialogic, and responsive communication process.

In applying the Excellence Theory, NCS can shift from a traditional one-way communication approach (which is often top-down and reactive) to a more strategic, interactive, and data-informed model of public engagement. This not only improves transparency and trust but also enhances the agency's legitimacy and stakeholder satisfaction. For instance, Grunig and Grunig (2008) emphasize that for public relations to be truly excellent, it must be strategic, research-based, and management-focused, three qualities that data analytics directly supports. Also, Grunig (2009) later reaffirmed that digital media and analytics technologies, when used to listen and adapt to stakeholder needs, enhance the symmetrical communication model.

III. Research Methods

A content analysis of the was employed using Nvivo to analysis and Alt Text tool for data interpretation and analysis. Alternative text, often called alt text, is a short description added to images on websites and digital content. It's written in the HTML of a webpage or added through content platforms like WordPress, social media, etc. Thus, Alt Text was used to analysed the figure 1, 2, 3, 4, 5, and 6 as shown below:

IV. Result and Discussion

Figure 1. Strategic Communication with Data Analytics

Source: (Authors' computation, 2024).

Flow chart illustrating the Nigeria Customs Service's key trade facilitation initiatives for 2024. Central circle labeled "NCS Trade Facilitation" connects to six surrounding initiatives: technology and infrastructure advancements, local and international recognition, time release study and international partnerships, advanced ruling system, authorised economic operator, and stakeholder engagement initiatives. Each initiative is accompanied by specific goals, such as reducing checkpoints by 50%, improving clearance processes, and supporting SMEs. The chart emphasizes collaboration, efficiency, and international partnerships.
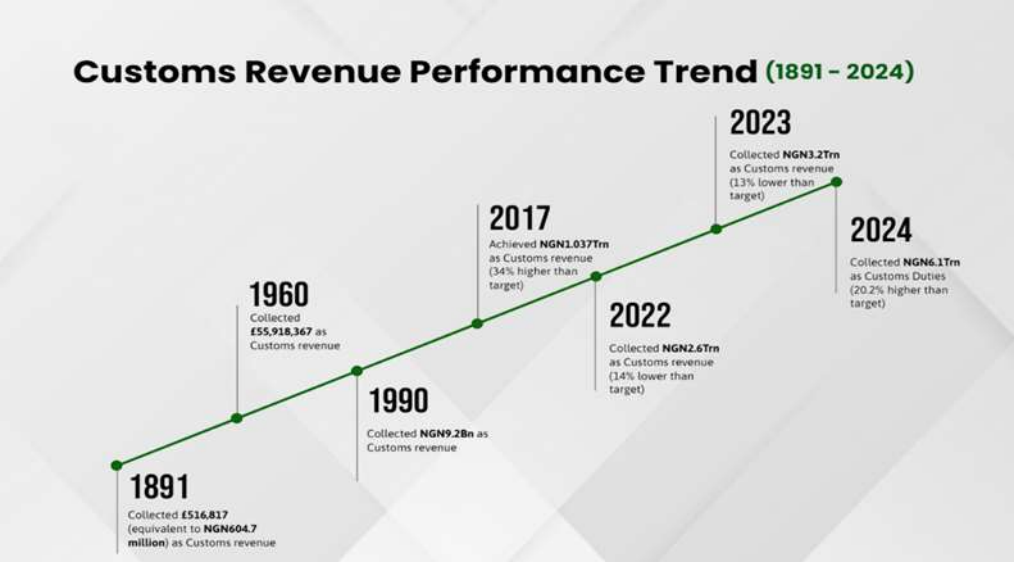
**Figure 2.** Customs Revenue Performance Trend

Source: (Authors' computation, 2024).

Line chart titled "Customs Revenue Performance Trend (1891 - 2024)" showing revenue growth over time. Key data points include: 1891 with £516,817, 1960 with £5,918,367, 1990 with NGN9.2bn, 2017 with NGN1.037tn (34% above target), 2022 with NGN2.67tn (14% below target), 2023 with NGN3.2tn (13% below target), and 2024 with NGN6.17tn (20.2% above target). The chart highlights significant increases in customs revenue over the years.
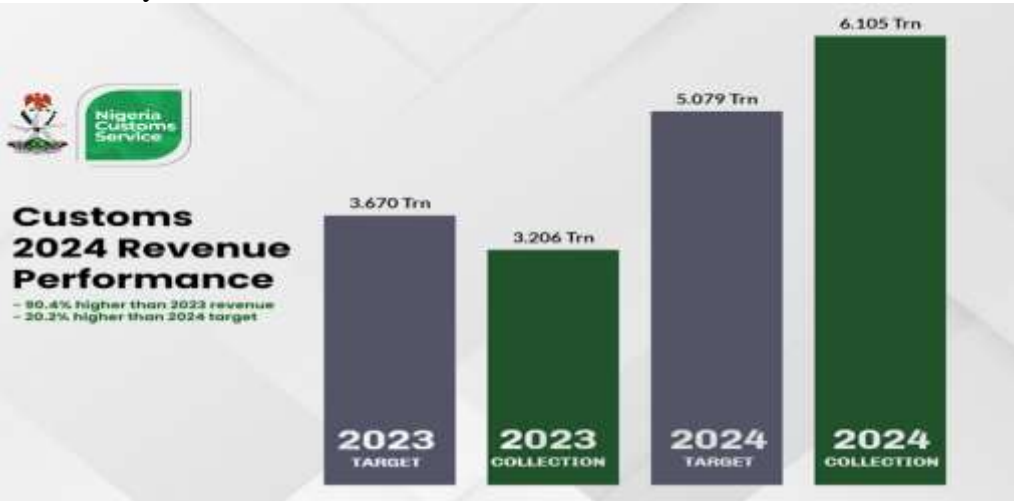

Figure 3. Customs 2024 Revenue Performance

Source: (Authors' computation, 2024)

Bar chart titled "Customs 2024 Revenue Performance" from Nigeria Customs Service. It compares revenue targets and collections for 2023 and 2024. The 2023 target is 3.670 trillion, with a collection of 3.206 trillion. The 2024 target is 5.079 trillion, with a collection of 6.105 trillion. The text notes a 90.4% increase over 2023 revenue and a 20.2% increase over the 2024 target.

Figure 4. Nigeria Customs Service

Source: (Authors' Computation, 2024)
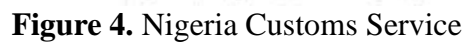
Bar chart showing the 2024 newspaper review by the Nigeria Customs Service. A total of 1,453 publications were reviewed across 16 newspapers. The "number of publications" bar chart lists newspapers with "daily sun" having the highest at 169, followed by "new telegraph" at 166. A pie chart titled "perception" shows 73.96% positive, 23.41% neutral, and 2.62% negative perceptions. Another pie chart labeled "Content Category" highlights news at 83.71% as the largest category. A bar chart titled "negative news published" shows "Vanguard" with the highest at 7 negative articles.
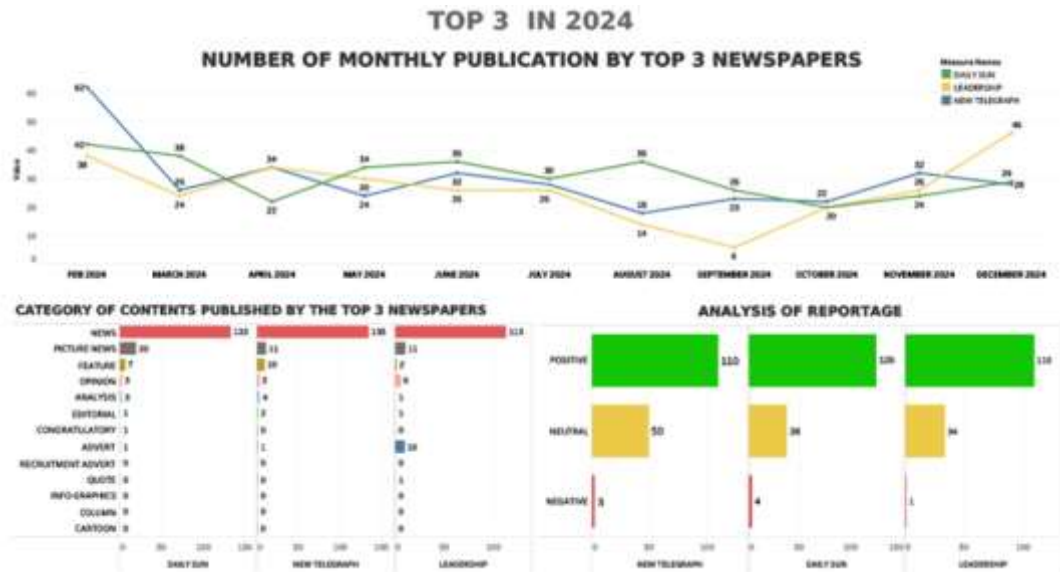
Figure 5. Number of Monthly Publication by Top 3 Newspapers

Source: (Authors' computation, 2024)

Line chart and bar charts showing newspaper publication data for 2024. The line chart tracks monthly publications by three newspapers: Daily Sun, Leadership, and New Telegraph, with varying trends over the year. Bar charts categorize content types like news, picture news, and features, with Daily Sun leading in news. Another set of bar charts analyzes reportage sentiment, showing positive, neutral, and negative reports, with positive reports being the highest across all newspapers.

Figure 6. Likes, Comments and Retweets
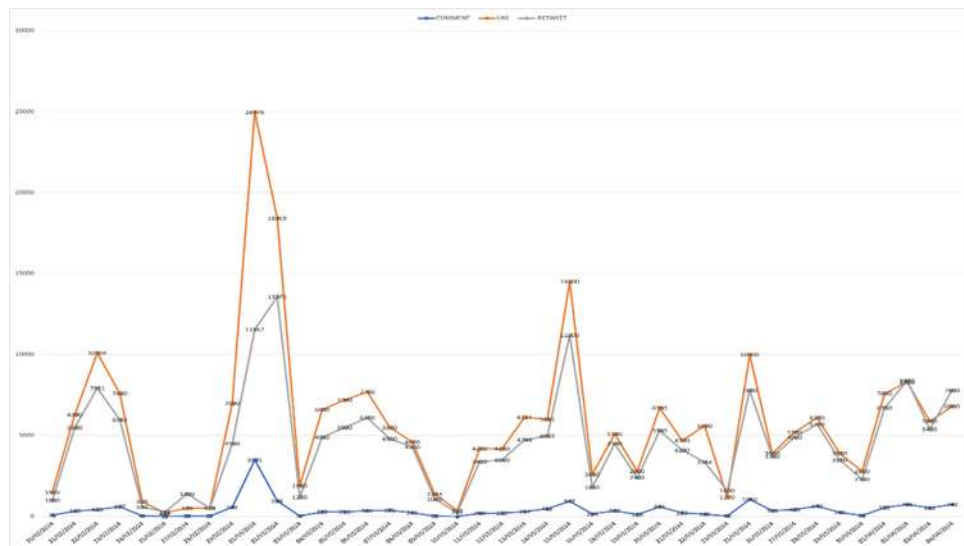
Source: (Authors' computation, 2024)

Line chart showing the number of comments, likes, and retweets over time. The x-axis represents dates from 20/09/2018 to 04/10/2018, and the y-axis shows the count ranging up to 25000. The orange line indicates likes, peaking at 24976 on 04/10/2018. The gray line represents retweets, with a notable peak at 13795 on 04/10/2018. The blue line shows comments, remaining relatively low throughout.

V. Conclusion

In an era where data-driven decision-making defines institutional credibility and stakeholder engagement, the Nigeria Customs Service stands to gain significantly by integrating data analytics into its public relations practice. Effective use of data enables the Service to monitor public perception, measure the impact of communication efforts, and respond proactively to emerging issues. Adopting analytics tools, the NCS can move beyond traditional PR methods to a more strategic, targeted, and responsive communication framework. However, realizing this potential requires investment in digital infrastructure, staff training, and a cultural shift toward embracing innovation and transparency. When fully leveraged, data analytics will not only enhance the Service's public image but also foster greater trust, accountability, and collaboration with stakeholders, ultimately supporting the agency's broader mission of trade facilitation, revenue generation, and national security.

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