INVESTIGATING WEB CONTENTS QUALITY ON ECOMMERCE WEBSITES AND THEIR IMPACT ON USER ENGAGEMENT

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ABSTRACT

The performance quality of web content is a critical determinant of success for e-commerce platforms, directly influencing user engagement and conversion rates. This is especially critical in Nigeria's mobile-first, bandwidth-constrained digital market, where many local websites struggle to meet global performance standards, leading to prolonged load times and a suboptimal user experience that risks customer loss. This study therefore aimed to investigate the performance of selected Nigerian e-commerce websites and diagnose major performance bottlenecks. To achieve this, the project employed a tool-based approach, conducting a performance investigation using Google PageSpeed Insights and GTmetrix to analyze key pages across three major platforms: Jumia, Konga, and Slot. The findings revealed significant performance disparities; Jumia demonstrated relatively optimized performance, Konga exhibited critical inefficiencies with excessively slow load times, and Slot showed inconsistent results, particularly on mobile. In conclusion, the study establishes that technical performance is an inseparable component of web content quality. It provides actionable recommendations, such as image compression and script optimization, underscoring the strategic need for Nigerian e-commerce platforms to prioritize technical excellence to meet up with global standards, enhance user trust, and ensure sustained growth and competitiveness in the evolving digital marketplace.

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

The way people shop has drastically changed in the digital era. Customers can now buy products and services from almost anywhere using computers, tablets, or mobile devices, thanks to the growth of e-commerce. Online shopping has expanded dramatically worldwide, with platforms such as Temu, Amazon, and Alibaba dominating the market. These companies set high benchmarks by delivering fast, responsive, and reliable websites that prioritize performance and mobile adaptability.

Research increasingly highlights the importance of website performance in shaping user behavior. Faster load times and smoother interactions improve customer satisfaction, reduce bounce rates, and increase retention (Fellinger & Fronimaki, 2024) while even small delays in page load (latency) can negatively impact user satisfaction and reduce sales, particularly among mobile users and first-time visitors (Basalla et al, 2021). High-performing websites also foster repeat business and trust, while slow or unstable ones discourage users and reduce conversions. Even a one-second delay in page load time has been shown to increase bounce rates and lower conversion rates (Fleexy, n.d.).

The context is more challenging in developing nations, where technical infrastructure and investment capacity are often limited (Nawir & Hendrawan, 2024). In Nigeria, for example, internet penetration has grown rapidly, with more than 109 million users recorded in early 2022, over 84% of whom access the internet primarily via mobile devices (Wikipedia, 2025). This surge creates opportunities for local e-commerce platforms, but it also raises performance demands; sites must load quickly and respond seamlessly on mobile devices or risk losing users (Nawir & Hendrawan, 2024).

Unfortunately, many Nigerian e-commerce websites struggle to meet these expectations. Common problems include slow loading times, poor mobile responsiveness, and frequent instability. Such weaknesses undermine customer confidence and push users toward better-performing international alternatives. According to Ighomereho et al. (2022), lapses in e-service quality, particularly around responsiveness and reliability, directly reduce customer satisfaction. Similarly, Enemuo, Onyejiaku, and Udoh (2023) found that service quality remains a decisive factor for loyalty in Nigerian e-commerce, with functionality and site performance being central to user experience.

Independent evaluations confirm these challenges. Many Nigerian platforms record average load times above six seconds, more than twice the global average of 2.5–3 seconds (Fleexy, n.d.). While global leaders often achieve mobile usability and performance scores above 90%, local platforms frequently struggle to reach 60% (Fleexy, n.d.). These technical shortcomings carry serious business risks in a market where switching costs are low and competition is growing.

In conclusion, website performance plays a decisive role in the success of e-commerce platforms. As international leaders continue to optimize speed and stability, Nigerian platforms risk falling further behind unless they prioritize improvements in responsiveness and loading efficiency. With internet access expanding rapidly, performance optimization is no longer optional but essential for competitiveness in the Nigerian digital marketplace.

1.2 Statement of the Problem

According to Walton, (2020), there is limited local evidence on how Nigerian e-commerce websites perform when compared to their global competitors. E-commerce has become an increasingly important part of Nigeria's digital economy, but the success of these platforms depends not only on product availability or pricing, but also on the quality and performance of their websites. In practice, many Nigerian e-commerce websites still struggle with slow loading speeds, poor responsiveness, and inconsistent performance, factors that directly affect how users experience and interact with these platforms. Most existing studies focus on consumer behaviour or business challenges without recourse to performance issues, leaving a gap in understanding the technical performance of the websites themselves. This challenge is a problem the present study intends to address.

1.3 Aim and Objectives

This study aims to investigate the performance of selected e-commerce websites and their impact on user engagement. Key objectives toward achieving this aim are:

1. to establish and diagnose major performance (web content quality) bottlenecks of ecommerce websites in the Nigerian context.

2. to examine the selected e-commerce websites for root-cause performance using tool-based approach
3. to analyze the result with a view of prescribing optimization strategies to improve performance in major e-commerce websites in Nigeria.

1.4 Scope of the Study

This study focuses on assessing the quality of web content on a subset of Nigerian e-commerce websites, particularly examining the impact of performance and overall site structure on user engagement. Three active and popular Nigerian e-commerce platforms will be the focus of the study. These websites will be used as case studies to pinpoint typical flaws in web design and comprehend how they might affect user experience and client retention.

Only the public-facing parts of these websites, such as homepage, category, search and product pages, will be evaluated. Administrative back-ends, vendor dashboards, and native mobile apps are outside the scope of this research.

The study will use standardized website evaluation tools (such as Google PageSpeed Insights and GTMetrix) alongside observational analysis to measure specific parameters. The timeframe of analysis will be limited to the current versions of these websites as they exist during the research period (2025). No direct user surveys or interviews will be conducted; instead, the research will rely on established web quality metrics and theoretical models to draw conclusions.

1.5 Research Methodology

This study adopts a practical, tool-based approach to evaluating the content quality of selected Nigerian e-commerce websites. In order to provide a more accurate picture of the true state of web content quality across top platforms, this research relies on automated, objective assessments rather than merely subjective opinions or user testimonials, which are valuable but frequently inconsistent or anecdotal.

The larger goal is to consider the true significance of those figures for the average Nigerian user, rather than merely compiling statistics or scorecards. Issues as simple as how long a page takes to load can influence a customer's decision to stay on a page or leave it after a few seconds in the rapidly evolving digital economy (Basalla, 2021). Therefore, a website's content quality is more than just a technical aspect; it affects customer retention, credibility, and, eventually, profitability.

The research uses international best practices in web evaluation to examine this topic in depth and clarity. It examines the finer points of responsiveness and performance which has an impact on how well (or poorly) a website serves its users. These components are not assessed separately. How they combine to create an overall experience and whether or not lapses in that experience are facilitating or impeding Nigeria's adoption of e-commerce are the subjects of the study.

Automated tool-based analyses and manual heuristic reviews are the two primary methods for evaluating the quality of websites. Heuristic reviews can produce deep insights and involve expert judgment, but they are often subjective and slow. Since scale, objectivity, and repeatability are the main concerns for this study, automated evaluation tools are a better approach. These tools can swiftly scan vast amounts of content and performance data, producing consistent results that are cross-platform comparable.

But it's important to remember that no one tool can give the whole picture. While some tools are better at testing mobile friendliness or SEO compliance, others are better at measuring speed and responsiveness. In order to prevent becoming overly dependent on any one system or scoring model, the research uses a triangulation approach, which combines insights from several tools.

To structure the research and maintain academic rigor, the following steps will guide the process:

1. **Literature Review:** To comprehend the development of web quality assessment, both internationally and in sub-Saharan Africa, a thorough analysis of relevant research and reports will be carried out. This will give the study a theoretical basis and assist in identifying any gaps that need to be filled.
2. **Metric Identification:** A broad range of potential quality indicators will be explored, touching on everything from speed to page size.
3. **Tool Selection:** Multiple web evaluation tools will be shortlisted based on how well they align with the chosen metrics. These tools will likely be a mix of industry-standard platforms and research-validated utilities.
4. **Site Selection:** Three major Nigerian e-commerce platforms will be selected for evaluation. Selection will be based on traffic volume, market relevance, and platform maturity.

5. **Data Collection:** Using the selected tools, each website will be analyzed under the same conditions. Care will be taken to ensure consistency and fairness across the board.
6. **Data Analysis:** The collected data will be compared and interpreted, highlighting areas of strength and weakness. The analysis will also consider how these technical scores may correlate with user perceptions or business performance, where such data is available.

The research attempts to provide more than a technical review by accomplishing all of this. It aims to spark a discussion about the level of digital maturity of Nigeria's e-commerce ecosystem and, if feasible, recommend areas for strategic development. As the number of mobile-first users increase and digital expectations rise, even minor adjustments to the quality of content could have a big impact on engagement and conversion.

1.6 Significance of Study

A company's website is frequently its most valuable asset, and occasionally its weakest link, in the modern digital economy. Web content quality is a business-critical issue for e-commerce platforms, where every user interaction has a direct impact on conversion rates. The purpose of this study is to highlight how crucial high-quality web content is in determining user experiences and maintaining user engagement, particularly in the context of Nigerian digital commerce.

Leading e-commerce companies around the world, including Amazon, eBay, and Temu, have tailored their websites to focus on key performance indicators, like quick load times (e.g., FCP, LCP), smaller page size, and mobile responsiveness. These elements are directly related to customer satisfaction and retention (Fellinger & Fronimaki, 2024; Fleexy, n.d.). Many Nigerian e-commerce platforms, however, have found it difficult to meet these international standards, frequently as a result of poor technical execution, a lack of funding, or a failure to prioritize user-centric design.

This study is significant because it:

- Sheds light on critical usability and performance gaps present in local e-commerce websites (Goodhead, 2021).
- Provides data-driven insight into how those flaws could result in lower engagement, higher bounce rates, and lower profits.

- Encourages Nigerian developers and entrepreneurs to embrace global best practices for web design and upkeep that are integral to optimization benefits (Walton, 2020).
- Contributes to the body of knowledge already available on web quality assessment in African digital markets, a field that has seen little but increasing scholarly investigation (Enemuo, Onyejiaku, & Udoh, 2023).

By bridging the knowledge gap between theoretical web quality standards and their practical application in Nigeria's e-commerce sector, the study ultimately seeks to advance the field of digital commerce both theoretically and practically.

1.7 Definition of Terms

The following important terms are defined as they relate to this research in order to maintain uniformity and clarity throughout the study:

- **Content Quality**: Refers to how well the information on a website meets the needs of users. This includes factors like clarity, usefulness, accuracy, originality, and overall readability.
- **E-commerce**: The buying and selling of goods or services online. In this study, it specifically refers to Nigerian-based online marketplaces such as Jumia, Konga, and Slot.
- **Website Performance**: A measure of how fast and efficiently a website loads and responds to user interactions. This typically includes loading speed, interactivity, and stability during use.
- **Search Engine Optimization (SEO)**: The process of improving a website's visibility in search engine results (like Google). High-quality SEO can help more people find a site when they search online.
- **Mobile Responsiveness**: How well a website adjusts and functions on smaller devices like smartphones or tablets. A responsive site provides a smooth, readable experience regardless of screen size.
- **Bounce Rate**: The percentage of visitors who leave a website after viewing only one page. A high bounce rate often indicates that users didn't find what they were looking for or had a poor experience.

- **User Experience (UX)**: The overall experience someone has when interacting with a website, including how easy it is to navigate, how visually appealing it is, and how well it meets their needs.
- **Web Accessibility**: The practice of designing websites so that all users, including those with disabilities, can access and interact with them effectively.
- **Automated Evaluation Tools**: Software or online platforms that scan and rate websites based on various quality metrics such as speed, SEO, accessibility, and more. Examples include Google Lighthouse, GTmetrix, and SEMrush.
- **Page Load Time**: The time it takes for all elements of a web page (text, images, scripts) to fully appear after the user opens it. Faster load times generally improve user satisfaction.
- **Conversion Rate**: The percentage of visitors who take a desired action on a website, such as making a purchase or signing up for a newsletter. It's a key indicator of how effective a website is in achieving its goals.
- **Digital Presence**: How visible and active a business is online, particularly through its website, social media, and search engine visibility. A strong digital presence helps attract and retain customers.
- **Heuristic Evaluation**: A method of reviewing a website based on established usability principles (or "rules of thumb") by experts. While useful, it’s more subjective compared to automated analysis.
- **Core Web Vitals**: A set of specific performance metrics defined by Google to measure key aspects of user experience on the web, such as loading speed, interactivity, and visual stability.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

The development of the Internet has changed the workings of traditional commerce fundamentally, marking a shift from physical stores to a digital market. This transition, the rise of electronic commerce (e-commerce), has changed not only consumer behavior but also the ways businesses operate at a fundamental level. Consumers no longer search for physical stores but rather purchase their goods and services from the comfort of their homes and have them delivered, often on the same day.

While global giants such as Amazon and eBay dominate the market, the rise of ecommerce is still significant in developing economies. The digital marketplace in Nigeria has experienced explosive growth, fundamentally altering the retail landscape. With a population of 235 million and 107 million internet users, Nigeria represents one of Africa's most dynamic digital economies (Data Reportal, 2025). The success of home-grown platforms like Jumia and Konga underscores a significant shift in consumer behavior towards online shopping (Statista, 2025).

But in today’s world, just the existence of a digital storefront is not enough to guarantee customer retainment and engagement. The ecommerce space is highly competitive and businesses must take measures to ensure their websites are of the highest quality while maintaining the least amount of friction possible. The key to maintaining this delicate balance lies in how the business manages its web content quality.

This literature review will argue that for e-commerce platforms in Nigeria, technical performance, quantified by metrics like Core Web Vitals (LCP, FCP, CLS), is an integral component of web content quality that directly impacts user engagement.

The chapter will synthesize existing research to establish this framework, first by deconstructing web content quality, then by examining the empirical evidence linking performance metrics to user behaviour, and finally by contextualizing these findings within the unique infrastructural challenges of the Nigerian digital ecosystem.

This synthesis will justify the present study's focus on conducting a performance audit of leading Nigerian e-commerce sites to analyse the tangible relationship between technical performance and user engagement.

2.2 The Multidimensionality of Web Content Quality

Web content quality in e-commerce is a multidimensional construct. While traditionally focused on informational accuracy, visual design, and security, a modern understanding must encompass the user's entire interaction experience.

Particularly in the context of e-commerce, web content quality extends beyond aesthetics and text to encompass a broad range of technical and experiential attributes such as usability, performance, accessibility, mobile responsiveness, security, and search engine optimization (SEO). In today's highly competitive digital marketplace, these attributes shape the first and most enduring impression users have of a brand, directly influencing customer trust, engagement, satisfaction, and conversion rates (Thielsch et al., 2014).

Scholars increasingly view web content quality as a multidimensional construct. Ighomereho et al. (2022), for instance, emphasized the shift from traditional service quality models to more comprehensive e-service quality frameworks that integrate system reliability, ease of navigation, page load speed, and responsive design. These elements are especially critical in online retail, where consumers rely entirely on digital interfaces in the absence of face-to-face interaction.

The traditional dimensions of web content quality can be categorized into the following:

1. Usability: Usability refers to how easy and intuitive it is for users to interact with the website. This includes clear navigation, consistent layout, readable fonts, effective use of whitespace, and logical structure. In e-commerce, usability directly correlates with conversion rates and user satisfaction (Fellinger & Fronimaki, 2024).

2. Accessibility: Accessibility involves the extent to which a website accommodates users with diverse abilities, including those with visual, auditory, cognitive, or motor impairments. E-commerce platforms that ignore accessibility standards not only exclude a significant customer base but also risk regulatory penalties in some jurisdictions. According to Ighomereho et al. (2022), accessibility is increasingly

considered a baseline requirement for digital service delivery, especially as global inclusivity standards evolve.

3. Performance and Speed: Page load time, server response time, and general website responsiveness are key performance metrics. A delay of even a second can lead to substantial drop-offs in user engagement and sales (Fellinger & Fronimaki, 2024). Fast-loading websites are more likely to retain customers, reduce bounce rates, and achieve better SEO rankings. It should be emphasized that performance is a critical determinant of perceived quality in e-commerce, particularly in regions with unstable internet connectivity such as parts of Nigeria.

4. Reliability and Uptime: Website reliability refers to the site's ability to remain functional and accessible without unexpected downtime, broken links, or errors. Consistent uptime fosters user trust and ensures uninterrupted transactions.

5. Mobile Responsiveness: With a growing number of users accessing e-commerce platforms via smartphones, mobile optimization has become essential. Responsive design ensures that a website automatically adjusts its layout and functionality to fit various screen sizes.

6. Search Engine Optimization (SEO) and Discoverability: Although SEO is traditionally considered a marketing function, it is an integral part of web content quality. Websites must be structured in a way that search engines can crawl and index effectively, improving visibility and attracting organic traffic.

7. Security: In e-commerce, secure payment gateways, data encryption, visible trust badges, and clear privacy policies reassure users that their information is safe. According to Ighomereho et al. (2022), trust is a critical factor in retaining online customers, and web security plays a foundational role in establishing that trust.

In essence, web content quality in e-commerce is not defined by a single factor but by the synergy of these interconnected dimensions. Each plays a distinct yet complementary role in shaping user perception and behavior. Scholars increasingly recognize that factors like usability, mobile responsiveness, and performance are inseparable from content quality itself.

2.3 Performance as a Core Dimension of Web Content Quality

However, performance could be argued to be the most important aspect of web content quality, perhaps submitting only to Search Engine Optimization (SEO) and Reliability.

Performance, defined as the speed, responsiveness, and visual stability of a website, is a foundational component of content quality. Factors like accessibility and mobile responsiveness are compromised if the underlying platform is slow, as users will abandon the site before they can experience them (Google, n.d.).

A beautifully designed product page is low-quality if it loads slowly or is unusable on a mobile device. This is especially true in contexts like Nigeria, where a significant portion of the population accesses the internet primarily via mobile phones (Data Reportal, 2025).

Performance, therefore, is not a back-end technicality but a core feature of the content presented to the user. When a page loads quickly and responds instantly, it communicates professionalism and reliability, building the user's trust just as effectively as high-quality images or clear product descriptions just as effectively as high-quality images or clear product descriptions.

2.3.1 The Critical Impact of Performance on User Engagement

Extensive industry research shows that in the development of websites and web applications, speed is key. The time it takes for a page to load is a significant determinant in customer loyalty. In today's society, the speed it takes to load a page has the most impact on their overall experience (Google, n.d.). State of mind also plays a role in this as people who are busy and on the move expect instantaneous page loads and are far more critical of the slightest delays.

On the other end of the spectrum, faster pages lead to better conversion rates which improve ROI (Google, n.d.). A recent study run by SOASTA demonstrates the impact of site load speed: mobile pages that loaded one second faster saw up to 27% increase in conversion rates. On the other hand, longer load times led to higher bounce rates, averaging at 13% for loads under three seconds and going up to almost 60% after nine seconds (Google, n.d.).

This impact performance has on consumer retention is only further emphasized by the global shift to mobile centric browsing. A vast majority of Internet users access the Internet through mobile devices which, while growing more and more powerful following Moore's law, are still not on the processing capacity of devices like laptops and desktop computers.

Despite this, an overwhelming majority of websites are designed and tested with only the desktop computer in mind and fail to take into account the lesser processing capabilities of the mobile device. This greatly affects website performance in a critical medium which needs it the most.

A test conducted by Google on 900,000 mobile sites globally found that the average time it takes to fully load a mobile page is 22 seconds. Another test found that 53% of users will leave a mobile site if it takes more than 3 secs to load.

Studies show that even a one-second delay in page loading can reduce conversions by up to 7%; nearly half of mobile users will abandon a page that takes longer than three seconds to load; and almost 80% of frustrated users hesitate to return to the same site (Webuters, 2025; Cloudflare, 2024). For platforms competing in saturated digital markets, such performance shortfalls translate directly into lost revenue, weakened customer loyalty, and diminished competitive advantage.

These findings only serve to further highlights just how critical performance is in the already competitive environment of ecommerce. If businesses wish to survive and not only retain customers but boost engagement, website performance is a key factor that must be accounted for.

2.3.2 The Nigerian Context: A Performance Imperative Environment

The Nigerian digital environment in particular creates a non-negotiable imperative for optimized web performance. Two key factors define this context:

- **Mobile-First Reality**: Internet use in Nigeria is overwhelmingly mobile. Data shows that over 85% of visits to some local e-commerce sites come from mobile devices. Users are often on-the-go and operate with limited data plans and on networks where the median mobile download speed is 18.91 Mbps. This contrasts with more stable broadband environments, making efficiency critical.
- **Unique Consumer Behavior**: The Nigerian e-commerce market is characterized by a high reliance on cash-on-delivery and mobile money payments, rather than credit cards.

This places a premium on trust; a slow, unresponsive website that erodes user confidence can directly prevent a sale at the final moment of truth.

In this environment, a slow website does not just mildly inconvenience users, it actively excludes a significant portion of the potential market. Performance optimization becomes a key strategy for accessibility and inclusivity, ensuring that users on average networks and devices can have a seamless experience.

2.4 Quantifying Performance: Core Web Vitals and Key Metrics

However, it is not enough to simply say website performance must be boosted. This section of the literature review aims to break down the vague and nebulous goal of improving website performance into a clear set of parameters that must be improved for performance to improve.

To move from abstract goals to measurable improvement, the industry relies on standardized metrics. Google's Core Web Vitals provide a user-centric framework for quantifying the loading, interactivity, and visual stability of a webpage (Google, n.d.).

2.4.1 Core Web Vitals as an Industry Standard

A key landmark in web quality evaluation has been Google’s introduction of Core Web Vitals, a user-centred set of metrics designed to quantify and optimize the real-world experience of loading, interactivity, and visual stability on web pages.

The three original Core Web Vitals are:

1. **Largest Contentful Paint** *(LCP)*: This vital measures the time taken for the largest visible content element to load, indicating how quickly the main content is rendered. For a good user experience, LCP should occur **within 2.5 seconds.**
2. **Interaction To Next Paint** (INP): This vital measures the sites responsiveness. It measures the delay between user interaction, like a click of the mouse or a keypress, and the time it takes the browser to visually update the screen in response to that interaction. A good score is **under 200 milliseconds**. INP replaced First Input Delay (FID) in March 2024 to provide a more comprehensive view of interactivity.
3. **Cumulative Layout Shift** *(CLS)*: This vital quantifies layout instability, such as content shifting visibly during load. A low CLS (a score of **less than 0.1**) is essential

to prevent elements from moving around and causing accidental clicks, which frustrates users.

These metrics are not just technical benchmarks; they are directly tied to user perception. A slow LCP makes a site feel sluggish, a poor INP makes it feel unresponsive, and a bad CLS makes it feel unstable and untrustworthy.

Core Web Vitals are supported by empirical thresholds that define what constitutes a "good", or "poor" experience, such as an LCP under 2.5 seconds, INP under 200 milliseconds, and CLS under 0.1, based on 75th-percentile timing of real user data (Google Chrome Engineers, 2020).

These metrics provide a clear, standardized framework for evaluating the performance dimension of web content quality. By focusing on LCP, INP, and CLS, developers and researchers can systematically diagnose and address the performance barriers that hinder user engagement.

Some other important performance metrics also include:

- **First Contentful Paint** (FCP): This vital marks the point when the first piece of content (such as text or images) are rendered onscreen. It is an indicator of the user's perceived load speed.
- **Speed Index** (SI): This metric measures the speed with which the page contents are visibly populated during loading. A lower speed index means the page appears to load faster to the user.
- **Time To First Byte** (TTFB): This metric measures the time span between the user requesting a page (clicking a link) and when the first byte of information is received by their browser from the server. A longer TTFB indicates slow response times.
- **HTTP Object Requests** (or Number of Requests): This metric does not measure speed but rather it counts the total number of individual files (like images, CSS stylesheets, Javascript files) that a web page has to fetch from the server in order to fully load. More requests generally indicate a slower load time.
- **Page Size:** This is the total data volume, measured in Megabytes (MB) or Kilobytes (KB), of all the resources that make up the webpage. Intuitively, a larger page size takes longer to download and this can be especially slower on slower mobile networks.

- **Page Speed:** This is a general term but in tools like GTMetrix and PageSpeed Insights, it's a measurement, in seconds or milliseconds, of how long it takes the page to fully load.

2.5 The Business Aspect: How Performance Affects User Engagement

The connection between website performance and business outcomes is not merely theoretical; it is a causal relationship that affects the bottom line. There are two main reasons for this:

- **The Speed-Conversion Link**: Data consistently shows that even minor delays have significant financial consequences. According to industry analysis, a 100-millisecond delay in page load time can reduce conversion rates by 7% (CoreWebVitals, 2025). This is real revenue lost due to user impatience and frustration.
- **SEO and Visibility**: Google has confirmed that Core Web Vitals are a ranking factor in search results. Sites that pass these thresholds are more likely to rank higher, driving organic traffic. This is critical in a market like Nigeria, where search engines are the second-most important channel for brand research, used by 85.6% of consumers.

Real-world optimizations validate this link. For instance, the Renault Group implemented server-side rendering to improve its First Contentful Paint (FCP), which in turn helped improve LCP. This led to a 22% increase in the number of visitors experiencing a fast LCP, which correlated with improved bounce and conversion rates. Another case study found that an e-commerce store that improved its LCP from 6 seconds to under 2 seconds saw a 30% decrease in bounce rates (Google, 2023).

High page load times increase bounce rates and reduce conversion likelihood, as users are less inclined to complete transactions on slow or unstable platforms (Ighomereho, Ojo, Omoyele, & Olabode, 2022). Structural barriers in the Nigerian digital environment, such as intermittent electricity, limited bandwidth, and infrastructure costs, exacerbate these challenges (Ayo, Adewoye, & Oni, 2011; Khan & Uwemi, 2018). These realities underscore the urgency of optimizing performance in order to sustain user engagement.

Findings from global human–computer interaction (HCI) and information systems (IS) research further confirm the link between latency and user behavior:

- Experimental studies demonstrate that adding even minor client-side delays significantly lowers user satisfaction, perceived task success, and willingness to continue. The negative effect compounds as delay lengthens (Galletta, Henry, McCoy, & Polak, 2004).
- Tolerance studies establish that web users' "acceptable waiting time" is remarkably short, often only a few seconds. Violations of this threshold sharply reduce perceived usability and intention to return (Nah, 2004).
- Mobile contexts, now dominant in Nigerian e-commerce, are particularly sensitive to performance. Research shows that even small increases in response latency measurably degrade search efficiency, satisfaction, and willingness to continue browsing (Zhang, McCreadie, Lang, & Culpepper, 2021).

These findings align directly with the performance indicators evaluated in this study. High Time to First Byte (TTFB) and Largest Contentful Paint (LCP) extend delays before users can see or interact with primary content and extended Total Blocking Time (TBT) and Time to Interactive (TTI) prolong the period when a page feels unresponsive, prompting abandonment. Excessive page size and requests compound all of these issues, especially on constrained mobile networks common in Nigeria.

In essence, performance should not be treated as a technical afterthought but as an embedded element of user trust and commercial viability.

2.5.1 Case Examples from Global E-Commerce Leaders

Global e-commerce leaders exemplify the financial implications of performance. Amazon, for example, has taken speed optimization as a core strategy, continuously investing in performance engineering, personalization, and accessibility to maintain competitive advantage (Hawley, 2019; Frugal Testing, 2023). Alibaba has likewise prioritized scalable infrastructure and mobile optimization, recognizing that performance bottlenecks would cripple high-demand events such as Singles' Day, when millions of simultaneous transactions occur within minutes (Adeyemi, 2024; Metrics Rule, 2024).

Such practices highlight that high-quality web content is inseparable from technical performance. Responsiveness, accessibility, and scalability are treated by global leaders as strategic assets directly tied to revenue and user loyalty. For emerging markets like Nigeria, the lesson is clear: building trust and driving conversions requires not only accurate and compelling content but also fast, reliable, and resilient performance.

2.5.2 Why Websites Fail In Developing Regions

While web performance standards are universally defined, their implementation varies significantly across regions, particularly in developing economies. E-commerce platforms in these regions often face structural, technological, and resource-based limitations that hinder their ability to deliver high-quality web experiences. This section explores common pitfalls specific to developing regions, especially in the African and Nigerian context.

1. **Infrastructure and Hosting Limitations:** A major barrier to optimal web content quality is unreliable infrastructure. Poor internet connectivity, power instability, and limited access to high-performance hosting services reduce website responsiveness and uptime. Many local e-commerce sites are hosted on low-cost, shared servers that struggle to handle peak traffic or high-resolution content. Studies such as Fellinger and Fronimaki (2024) highlight that Nigerian websites often score low on performance metrics due to long server response times and slow content delivery, especially for users outside major urban centers.
2. **Lack of Mobile-First and Accessible Design:** Despite the dominance of mobile users in Africa, as over 80% of internet traffic in Nigeria originates from mobile devices (KeywordsEverywhere, 2025; Wikipedia, 2025), many websites remain poorly optimized for smaller screens. Elements like touch targets, text scaling, and layout responsiveness are often ignored, leading to poor usability on mobile devices and compliance with accessibility standards such as WCAG remains low. Features that aid users with disabilities, such as alt-text for images, keyboard navigation, or screen reader compatibility, are rarely implemented. This exclusionary design limits engagement from a significant portion of the population.
3. **Neglect of Technical SEO:** Search engine optimization is a critical component of web content quality, yet many Nigerian and African e-commerce platforms fall short in applying technical SEO best practices. Common issues include broken links, uncompressed images, and lack of structured data, poor metadata usage, and failure to implement canonical tags. These oversights limit organic visibility and user acquisition. Several Nigerian e-commerce sites struggle with visibility and mobile

SEO, affecting their ranking in search engine results despite offering competitive products.

2.6 A Framework for Analysis: Connecting Architecture to Experience

For the purpose of this study, it is essential to understand the causal chain that leads to the Core Web Vitals scores. A user's perception of speed and responsiveness (LCP, INP) is the direct result of the page's underlying technical architecture. This review posits the following analytical framework:

Root Causes: These are the fundamental technical attributes of a webpage. They include:

1. **Total Page Size**: The overall weight in megabytes of all resources. Larger pages take longer to download, especially on mobile networks (Foursets, 2025).
2. **Number of HTTP Requests**: The count of individual files (images, CSS, JavaScript) the browser must fetch. More requests generally mean longer load times (Foursets, 2025).
3. **Time to First Byte (TTFB)**: A measure of server response speed. A high TTFB delays the entire loading process (Foursets, 2025).

Core User Experience: These are the resulting Core Web Vitals and other key metrics. The root causes directly influence them:

1. A large page size and many HTTP requests directly lead to a poor LCP (Foursets, 2025).
2. Large, unoptimized JavaScript files can block the main thread, harming INP (Foursets, 2025; Crystallize, n.d.).
3. Images without specified dimensions are a primary cause of high CLS (DBS Interactive, n.d.).
4. Acceptable performance scores start at 60% and above while lower scores can lead to user frustration and a high bounce rate (Google 2025; Foursets 2025)

Finally, as established in Section 2.5, poor scores in the Core Web Vitals lead to higher bounce rates, lower pages-per-session, and reduced conversion rates.

This framework allows for a diagnostic analysis: rather than just noting that a site has a poor LCP, we can investigate whether the cause is an oversized hero image, too many render-blocking resources, or a slow server response.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Research Method and Methodology

This study adopts a case-based research method to explore the web content characteristics of Nigerian e-commerce websites and their impact on user engagement. A case-based approach is suitable because it allows for an in-depth investigation of specific websites, treating each as a distinct case study to identify patterns, similarities, and differences in content structure and performance attributes (Goodhead et al., 2021; Esiti & Akhimien, 2025).

The methodology is conceptual in nature, outlining the systematic steps taken to conduct the research. The study focuses on three selected Nigerian e-commerce websites, Jumia, Konga, and Slot, chosen for their relevance, accessibility, and popularity within the local market (Fellinger & Fronimaki, 2024).

The methodological steps are as follows:

1. **Case Studies**: Each of the three platforms is treated as a separate case study to allow comparative analysis of their web content and performance.
2. **Data Collection**: Data is collected by inspecting their web pages, primarily the homepage. Key content elements such as images, text, layout structures, multimedia, and interactive components are observed and documented.
3. **Performance and Engagement Evaluation:** Diagnostic tools GTmetrix and Google PageSpeed Insights (mobile and desktop modes) are used to evaluate non-functional aspects such as page delivery metrics and core web vitals. These include quantitative insights into First Contentful Paint (FCP), Largest Contentful Paint (LCP), Cumulative Layout Shift (CLS), Speed Index (SI), and Total Blocking Time (TBT), among others (Fleexy, n.d.; Ighomereho et al., 2022).
4. **Analysis Preparation**: All collected data and tool configurations (device type, browser, test time, and network conditions) are documented to ensure consistency and repeatability. The data is then structured and prepared for interpretation in Chapter 4.

Through this systematic approach, the study aims to uncover how the structure and quality of web content influence user engagement on Nigerian e-commerce platforms. The findings are expected to provide practical recommendations for improving performance-driven design in the Nigerian digital commerce space.

3.2 Case Studies

The primary data sources for this research are three active Nigerian e-commerce platforms selected using predefined criteria to ensure relevance, accessibility, and variation in online retail offerings. These websites are treated as distinct case studies, allowing for comparative analysis of their web content features and technical performance. This multi-case method enhances the validity of findings by providing diverse perspectives on how content delivery and site structure influence user engagement.

The following criteria informed the selection of websites:

- **Relevance to the Nigerian Market**: Each platform must have a strong presence in Nigeria and actively serve its local consumer base.
- **Functional and Visual Diversity**: Selected websites offer a wide array of product categories and user interface designs, capturing multiple approaches to content layout and organization.
- **Public Accessibility**: Only openly accessible websites (without login or paywalls) were considered to ensure unbiased testing and reproducibility of results.
- **Popularity and Market Impact**: Platforms with a strong market reputation or influence on digital shopping behaviours in Nigeria were prioritized.

The selected platforms include:

- Jumia Nigeria
- Konga
- Slot Nigeria

Each of these sites will be evaluated by analyzing high-traffic pages such as homepages, product listings, and selected item pages using both content analysis and performance testing tools. The evaluation results will help determine how web design choices align with or hinder user engagement.

3.2.1 Jumia Nigeria

Jumia is widely regarded as one of the largest and most influential e-commerce platforms in Nigeria and across Africa. Launched in 2012, the company has since expanded its offerings to include a wide array of product categories, ranging from fashion and electronics to home appliances, groceries, and even food delivery. Its strong market presence and continued innovation make Jumia a compelling case study for analyzing both web content structure and performance in the Nigerian context.

One key reason for Jumia’s inclusion is its broad product base and consistent efforts to improve customer engagement through digital innovation. According to Enemuo, Aronu, and Anekwe (2023), Jumia has successfully employed various internet marketing strategies to reach a vast audience and maintain a robust online presence. The platform’s homepage and major category pages are packed with multimedia elements such as carousels, promotional banners, and personalized product recommendations, making it an excellent candidate for evaluating web performance and content organization.

Adeyemi (2024) further emphasizes Jumia’s investment in AI-driven personalization techniques. These include real-time recommendation systems that adjust product listings based on user browsing behavior, which play a significant role in boosting user satisfaction and conversion rates. The implementation of such dynamic content systems also affects front-end performance metrics such as First Contentful Paint (FCP), Largest Contentful Paint (LCP), and Cumulative Layout Shift (CLS), all of which will be examined during analysis.

From a strategic perspective, Jumia is often referred to as the “Amazon of Africa” due to its attempt to mirror the operational structure and scale of global e-commerce giants. As noted by Hawley (2019), Jumia’s ambition is to dominate African online retail by blending international standards with local consumer needs, a goal reflected in the website’s user interface and content design.

Recent figures reinforce Jumia’s significance. As of 2024, the platform reported over 3.1 million active customers across Africa and processed more than 9 million orders annually, with Nigeria remaining its largest market (Jumia Group, 2024). In Nigeria alone, the website receives an average of 7.5 million visits per month according to Similarweb (2025), ranking it among the most visited local e-commerce websites. These high traffic levels make performance optimization critical, further justifying Jumia's selection as a case study..

3.2.2 Konga

Konga is one of Nigeria's longest-standing e-commerce platforms and a notable competitor in the country's digital retail space. Launched in 2012, Konga has evolved into a comprehensive online marketplace offering a wide variety of goods including electronics, fashion, groceries, and household items. Unlike some of its competitors, Konga operates a hybrid model that combines online retail with physical pickup locations, giving it a unique position in Nigeria's e-commerce ecosystem.

The inclusion of Konga in this study is driven by its sustained presence in the market, its commitment to improving customer satisfaction, and its approach to content structuring and site navigation. According to Goodhead, Agu, and Nwaneri (2021), Konga has made significant improvements in logistics, return policies, and integrated payment systems such as KongaPay, which have helped boost customer confidence and loyalty. These service enhancements are often reflected in the web content itself, including clearly visible "Pay on Delivery" options, intuitive menu systems, and carefully segmented product categories.

Konga's website is structured to promote seasonal campaigns and limited-time offers through rotating banners and category-specific highlights on the homepage. These dynamic elements not only enhance user engagement but also play a role in how the site performs under various content loads. Compared to other platforms like Jumia, Konga's layout is typically more spacious and less densely packed, with fewer algorithm-driven personalisation features. This difference offers a useful contrast when evaluating how content density and layout philosophies affect user experience in Nigerian e-commerce.

In terms of user traffic, Konga receives an estimated 787,900 monthly visits, with an average session duration of 1 minute and 32 seconds and approximately 3.42 pages viewed per visit. The platform records a bounce rate of 43.7%, suggesting moderate levels of user engagement. Over 84% of its traffic originates from within Nigeria, reinforcing its relevance as a local case study. These metrics position Konga as a viable reference point for understanding how indigenous content structuring choices affect performance and usability in the Nigerian e-commerce sector.

3.2.3 Slot Nigeria

Slot Nigeria (Slot.ng), operated by SLOT Systems Ltd., is one of Nigeria's most recognizable electronics retailers, specializing in mobile phones, gadgets, and accessories. Established in the early 2000s with a strong network of physical shops, the company has since expanded to over 60 nationwide outlets while simultaneously developing an active online platform. This dual model positions Slot as a trusted omnichannel retailer, balancing in-store services such as warranties, repairs, and trade-ins with the convenience of digital shopping.

The retailer's catalogue extends beyond phones and tablets to include laptops, solar solutions, appliances (such as televisions, microwaves, and freezers), and accessories, sourced from more than 30 global manufacturers. This breadth of products, combined with consumer-oriented features like flexible payment options and Pay on Delivery, has helped maintain Slot's reputation for authenticity, affordability, and dependable after-sales support.

Slot's online visibility continues to strengthen. According to SEMrush (June 2025), the site attracts around 505,000 monthly visits with an average session length of 7 minutes 41 seconds, alongside an 8.6% month-over-month growth rate. Ahrefs (July 2025) further highlights traffic peaks exceeding 1 million monthly visits, with 88–94% of users based in Nigeria, underscoring the brand's strong domestic orientation. Hypestat estimates 426,800 monthly visits with an average of 4.21 pages per session, while Wikipedia (2025) notes that over 85% of visits come from mobile devices, a figure that emphasizes the critical role of mobile responsiveness in user experience.

Commercially, Slot remains a competitive player in Nigeria's e-commerce space. EcommerceDB (2024) reports an estimated US $6.2 million in net e-commerce sales, ranking Slot among the country's leading electronics-focused platforms. Its combination of brand heritage, physical reach, and a mobile-first online audience makes it a strong contrast to broader multi-category rivals such as Jumia and Konga.

3.3 Evaluation Strategy

This research adopts a structured, performance-focused evaluation strategy to assess the non-functional aspects of web content quality across selected Nigerian e-commerce platforms. The objective is to quantify technical performance based on key indicators, such as page speed, total page size, and number of request objects, which collectively influence user experience, resource efficiency, and perceived responsiveness.

Plan and Scope

Unlike studies limited to homepages, this research evaluates four representative page types across Jumia, Konga, and Slot.ng to mimic a typical user journey:

1. **Homepage** – the first point of contact for new visitors.
2. **Category Page (Phones & Tablets)** – simulating browsing for a device.
3. **Search Results Page** – using the query "Samsung Galaxy A56 5G." Where this model was unavailable, the closest match (e.g., Samsung Galaxy A55 5G) was used to maintain consistency.
4. **Product Page** – the first product result matching the search query.

Testing was conducted between 12:00–13:30 pm WAT, a high-traffic period reflecting realistic user conditions in Nigeria. Testing was conducted over a one month period for each of the pages with the multiple runs being averaged.

By incorporating repeated measures over different days and times, this approach accounts for natural fluctuations in network/server load while maintaining consistency in testing conditions. Focusing on a high-traffic period ensures that results capture performance under realistic peak usage scenarios.

The comparative analysis was carried out across two device categories:

- **Mobile devices** – reflecting the dominant mode of internet access in Nigeria, often under bandwidth-constrained conditions.
- **Desktop devices** – reflecting traditional browsing environments with greater bandwidth capacity.

Only publicly accessible pages were tested; no login-required or dynamically personalized content was included.

Approach: Testing Design and Configuration

Tools

The following tools were employed:

Two complementary diagnostic tools were employed to balance laboratory accuracy with field realism:

- **GTmetrix**: Tests were run using the Vancouver, Canada server, Chrome browser (Incognito mode), and an unthrottled 4G connection. This setup highlights the upper-bound technical capacity of each platform when bandwidth limitations are removed.
- **Google PageSpeed Insights (PSI)**: Tests were run in both mobile and desktop modes on a throttled 4G connection. The mobile profile emulated a Moto G1 device, while the desktop profile reflected a modern PC environment. Each test was repeated three times per page, and the median value was used to reduce variability from outliers.

This deliberate contrast between GTmetrix (unthrottled 4G) and PSI (throttled 4G) results is essential for interpretation: GTmetrix reveals raw technical optimization, whereas PSI mirrors the constraints of real-world users in Nigeria's bandwidth-limited environment.

All tests were conducted from Benin**,** Nigeria, ensuring contextual relevance to the local audience. Running from this location accounts for regional latency, network routing, and other localized variables that directly affect user experience.

Type: Non-Functional Testing

This research focuses exclusively on non-functional testing**,** emphasizing three measurable performance dimensions:

1. **Efficiency** – load speed, page size, and number of requests.
2. **Usability** – visual stability (CLS) and responsiveness.
3. **Responsiveness** – time until interactivity (FCP and LCP).

These indicators are particularly critical in Nigeria's mobile-first, bandwidth-limited context, where users are more sensitive to delays and unstable layouts.

3.4 Evaluation

This section outlines the overall plan and execution process for evaluating the homepage performance of the selected Nigerian e-commerce websites. The evaluation is centered on non-functional attributes, particularly those performance indicators that directly influence usability, user satisfaction, and engagement. By adopting a structured approach, the study ensures consistency, replicability, and comparability across all case sites.

Quality Attributes to Evaluate

The evaluation prioritizes performance-related quality attributes that are widely recognized as critical to user experience. These include:

- **Page Load Speed (seconds)** – the general time required for the homepage to fully render visible content.
- **First Contentful Paint (FCP, seconds)** – the time it takes for the browser to display the first element of content, a key indicator of perceived responsiveness.
- **Largest Contentful Paint (LCP, seconds)** – the time at which the primary content becomes visible to the user, reflecting when the page feels useful.
- **Cumulative Layout Shift (CLS, unitless score)** – the degree of visual instability caused by unexpected element shifts, which can frustrate users.
- **Speed Index (SI, seconds)** – a measure of how quickly content is visually displayed during load.
- **Total Blocking Time (TBT, milliseconds)** – the duration in which the main thread is blocked, preventing responsiveness.
- **Time to Interactive (TTI, seconds)** – the point at which the page becomes fully interactive and responsive to user input.
- **Total Page Size (MB)** – the overall weight of the homepage, which influences efficiency and data consumption.
- **HTTP Requests (count)** – the number of resources requested, affecting loading speed and bandwidth usage.
- **Performance Score (%)** – an aggregated score summarizing overall site efficiency.
- **Structure Score (%)** – an indicator of technical optimization quality.

These indicators align with Google's Core Web Vitals and widely recognized front-end performance metrics. Poor results in these areas are strongly correlated with higher bounce rates, weaker engagement, and reduced conversion potential for e-commerce platforms.

Evaluation will rely on a combination of manual observation and tool-assisted analysis using two diagnostic platforms: GTmetrix and Google PageSpeed Insights. This ensures a reliable, multi-perspective view of each site's technical performance.

Tools Used and Metrics Recorded

Evaluation relied on the aforementioned two diagnostic tools, each capturing specific categories of metrics:

- **GTmetrix**
    - *Category 1: Page Delivery Metrics* – Page Size (MB), Page Speed (s), HTTP Requests (count).
    - *Category 2: Vitals* – FCP (s), SI (s), LCP (s), TBT (s), TTI (s), CLS, Performance Score (%), Structure Score (%).
- **Google PageSpeed Insights (Mobile & Desktop)**
    - *Category: Vitals* – FCP (s), SI (s), LCP (s), TBT (ms), CLS, Performance Score (%).

This triangulation provides a multi-perspective view of each homepage's efficiency across devices and network conditions.

Test Strategy

The test strategy was designed to provide a structured, repeatable assessment of site performance across different pages. The focus remained exclusively on front-end and user-facing metrics. Functional workflows such as checkout, search logic, or account management were excluded to maintain scope boundaries.

Test Plan

Testing was conducted over a one month period for homepages, category, search, and product pages (multiple runs averaged). Tests were performed during peak business hours (12:00–13:30 pm).

The standardized setup was as follows:

- **Browser**: Google Chrome (latest version), Incognito mode (cache disabled).
- **Network**: Simulated mid-range 4G mobile connection for mobile tests; standard broadband for desktop tests.
- **Devices**: User-agent profiles emulating real-world mobile and desktop experiences..

Risks and Mitigation

Three key risks may affect the reliability of results:

- Server proximity: While GTmetrix's Vancouver server introduces transatlantic latency, results were interpreted as a measure of raw technical optimization under unconstrained bandwidth. By contrast, PSI results reflected real-world, throttled performance in line with Nigerian user conditions. Analysis in Chapter 4 explicitly separates these perspectives.

- Network instability: Local connectivity fluctuations could skew results. This risk will be mitigated by averaging results to minimize anomalies.
- The query 'Samsung Galaxy A56 5G' was used to simulate a realistic user search. Where this device was unavailable, the closest match (e.g., Samsung Galaxy A55 5G) was selected for the product page evaluation. This ensured consistency while reflecting an authentic customer journey.

Deliverables and Execution

The evaluation will produce structured outputs including tabulated performance metrics and the average Core Web Vitals scores for each website. This will provide a clear comparison of performance across the selected platforms.

All evaluation outcomes will be synthesized in Chapter 4. The analysis will emphasize patterns and differences across Jumia, Konga, and Slot.ng, demonstrating how homepage performance influences perceived usability and engagement in Nigeria's mobile-first e-commerce environment.

CHAPTER FOUR
RESULTS AND ANALYSIS

4.1 Introduction

This chapter presents the results of the performance evaluation carried out on the selected e-commerce platforms: Jumia, Konga, and Slot.ng. As earlier stated in the research methodology, evaluation was carried out on multiple page types, namely the homepage, category page, search page, and product page, to provide a comprehensive view of each platform's web quality.

The findings gathered are structured around the core performance and user experience metrics identified, including page delivery characteristics (page size, page speed, and HTTP requests), as well as very vital indicators of web performance such as FCP, LCP and SI. Results were obtained from both GTMetrix and Google Page Speed Insights (PSI) for mobile and desktop contexts.

To ensure clarity and comparability, the raw numerical data has been translated into bar charts, with each page type presented separately. This allows for a clear visual representation of performance differences across platforms, while also highlighting key strengths and weaknesses in user experience delivery.

The analysis within this chapter is comparative and interpretive rather than descriptive of raw values. Observations focus on:

- Performance efficiency – how quickly and smoothly each page loads.
- Optimization quality – whether the websites are well-structured and optimized for both desktop and mobile use.
- User experience implications – how performance metrics may affect navigation, engagement, and conversions.

By structuring the results in this way, the chapter provides a comprehensive yet practical assessment of the selected e-commerce platforms, enabling a balanced discussion on their relative strengths, weaknesses, and opportunities for improvement.

This research analyses the results using a top-down approach, with each page analysis beginning with a top level view of its performance and other high level metrics such as page size, page speed and HTTP Object requests before transitioning to a low level view of its Core Web Vitals and how the high level metrics affect them.

4.2 Homepage Results and Observations

The homepage represents the digital front door of an e-commerce platform, shaping first impressions and influencing whether visitors continue to use the site. Performance at this stage has a well-documented impact on bounce rates, session depth, and conversion likelihood, particularly in mobile-first markets like Nigeria where bandwidth constraints are significant.

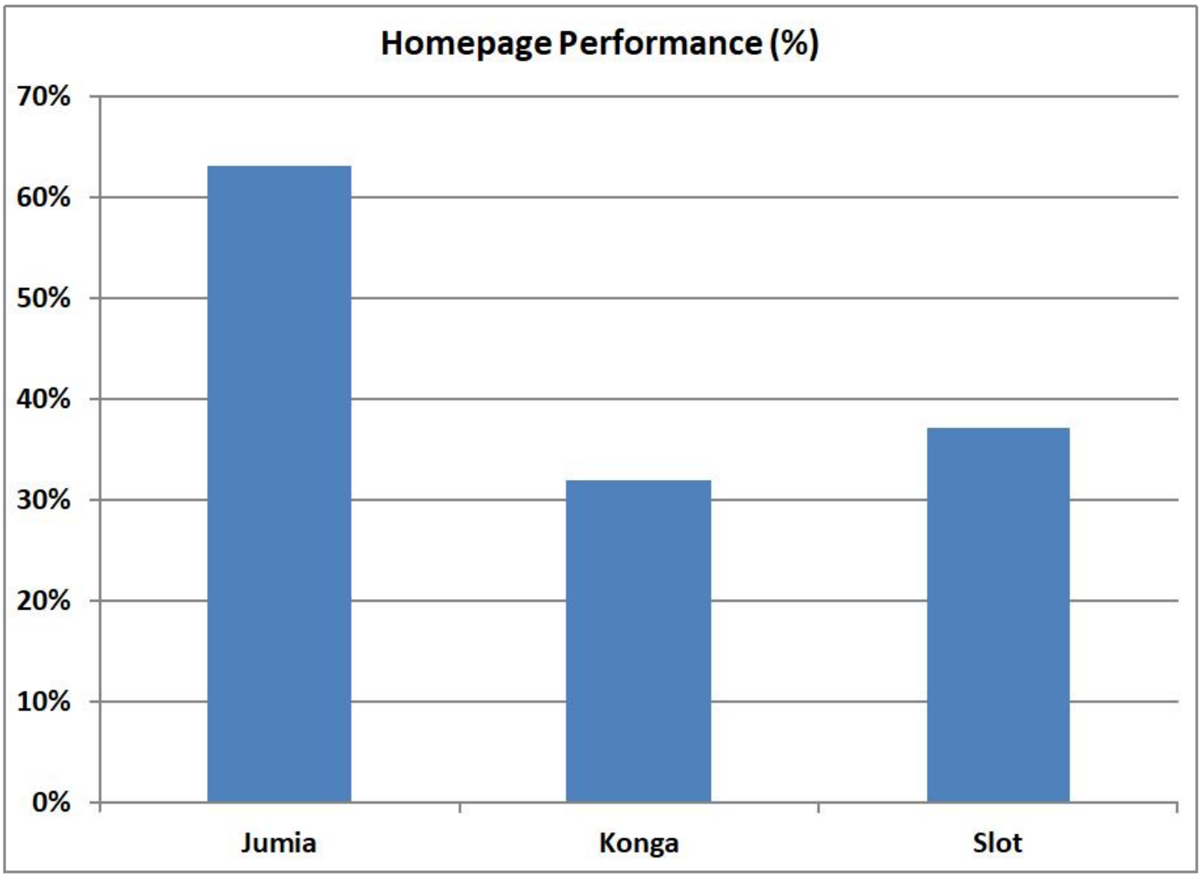

Figure 4.1 Homepage Performance Metrics

Across all three e-commerce platforms tested, the GTMetrix performance scores displayed in Figure 4.1 reveal significant differences in overall technical efficiency and adherence to performance best practices. Jumia achieved the highest average homepage performance score at 63%, followed by Slot at 37%, and Konga at 32%. As established in Chapter Two, performance scores below 50% generally indicate poor optimization and can be expected to result in noticeable user frustration, while scores above 60% reflect acceptable but still improvable levels of performance (Google, 2025; Foursets, 2025). Thus, while Jumia’s homepage shows moderate optimization, both Konga and Slot perform below acceptable standards, aligning with the broader trend of underperformance among Nigerian e-commerce platforms highlighted by Fellinger and Fronimaki (2024).

A clear pattern emerges when the root causes, page size, page speed, and HTTP requests, are considered.

- Jumia’s homepage has the smallest page size at 2.58 MB, the fastest page speed at 11.04 seconds, and the fewest HTTP requests at 140.43.
- Konga’s page is significantly larger at 4.19 MB, loading in 22 seconds with 261.57 requests.
- Slot, despite being in the middle range for speed (15.29 seconds), has an extremely large page size of 8.96 MB and the highest request count (387.14).

As Chapter Two (Section 2.6) established, larger page sizes and higher numbers of HTTP requests increase the amount of data the browser must process, directly lengthening load times and degrading perceived speed (Foursets, 2025). Consequently, both Konga and Slot’s inflated resource loads explain their low performance percentages, as every additional request compounds server latency and increases TTI. Jumia’s relatively smaller resource footprint allows it to maintain a shorter load sequence, which corresponds to its higher performance score.

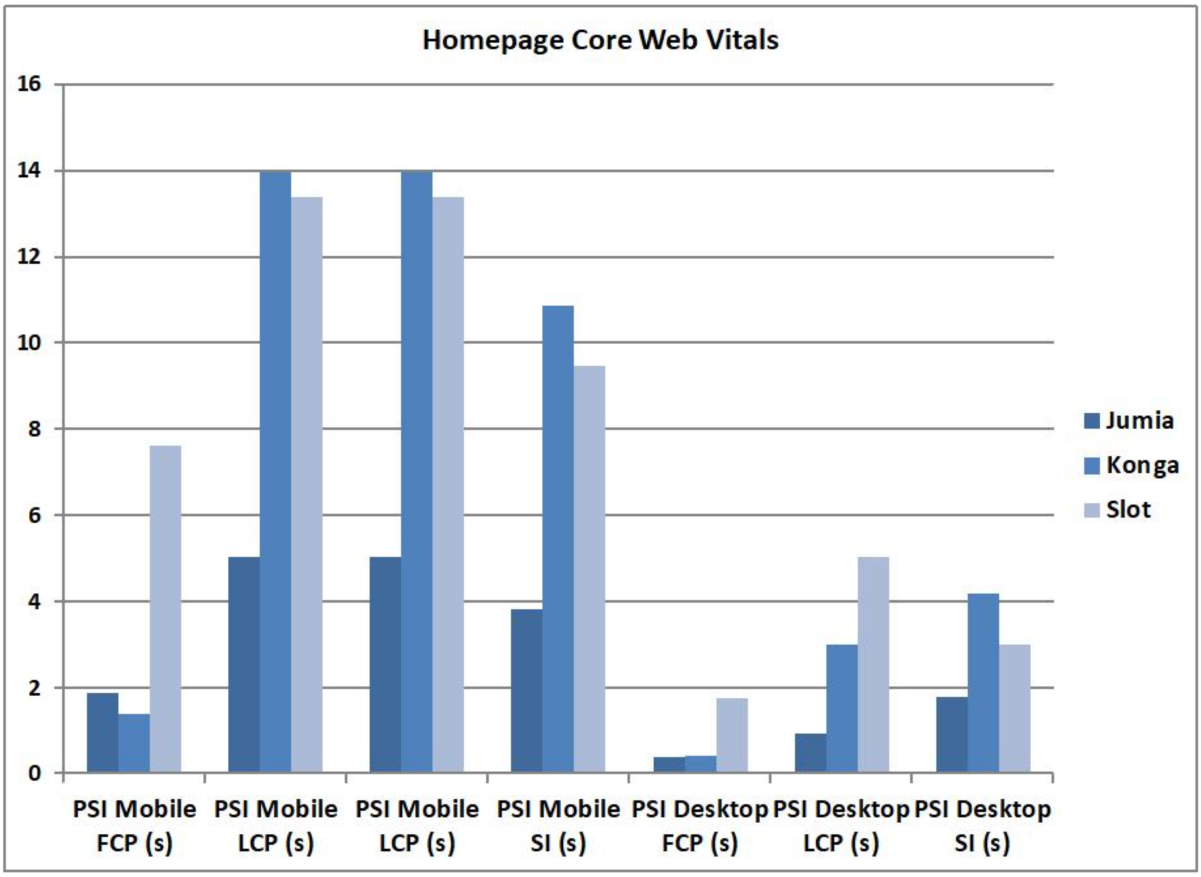

Figure 4.2 Homepage Core Web Vitals Metrics

At the Core Web Vitals level shown in Figure 4.2, the homepage data reveal how structural inefficiencies and network constraints translate directly into perceptible slowdowns, particularly in mobile contexts.

- Jumia's homepage demonstrates relatively consistent rendering behaviour compared to its competitors. The FCP of 1.88 s indicates that meaningful content appears at a moderate speed, aligning with its smaller 2.58 MB size and lighter 140 requests. However, the LCP of 5.04 s on mobile suggests that key content takes noticeably longer to become fully visible, a delay likely caused by image-heavy banners and multiple promotional sections common on the homepage. The desktop results (0.4 s FCP; 0.94 s LCP) confirm that when bandwidth and CPU constraints are removed, the site structure itself is efficient enough to deliver smooth loading. This balance suggests that Jumia's bottlenecks lie less in design complexity and more in mobile optimization and asset compression.
- Konga's homepage reveals severe performance degradation across all key loading stages. Despite a slightly faster FCP on mobile (1.39 s), its LCP extends to 13.94 s,

which is nearly triple the threshold for poor performance, implying that most of the visible interface takes a long time to complete rendering. This is consistent with its large 4.19 MB page size and high request volume of 261, which create heavy render-blocking overhead. The Speed Index (10.84 s) and TBT (2457 ms) reinforce this inefficiency, showing that scripts and external resources delay visual completion. Desktop results (0.41 s FCP; 3 s LCP) improve but remain behind Jumia, confirming that the problem lies primarily in excessive asset weight and resource dependency rather than just network speed.

- Slot's homepage performs the worst in terms of visual completion and layout stability. The mobile FCP of 7.6 s already indicates a long delay before any visible content appears, while an LCP of 13.36 s means users must wait more than ten additional seconds before the main content is fully visible. These values mirror the page's extremely large 8.96 MB size and heavy 387 requests, suggesting that the site's design prioritizes high visual richness at the expense of usability. The desktop results (1.76 s FCP; 5.04 s LCP) improve slightly but remain poor by modern standards. The high CLS of 0.1134 on mobile further reflects instability during load, possibly from dynamically resizing banners or delayed image placement, making the page visually disruptive until fully rendered.

Taken together, these patterns reveal how Jumia's leaner structure sustains steadier rendering behaviour, whereas Konga and Slot experience cumulative slowdowns from oversized payloads and numerous requests. Across all three, desktop conditions mitigate some of the observed delays, but mobile environments continue to expose inefficiencies more sharply due to limited bandwidth and device constraints. The Core Web Vitals confirm that structural optimization, particularly reductions in size and request count, remains the key determinant of consistent, high-quality performance across e-commerce platforms.

These findings validate the theoretical model established in Chapter 2.6:

- High page size leads to poor FCP and LCP (due to increased data transfer).
- Many HTTP requests lead to higher TBT and TTI (due to resource queuing and main-thread blocking).
- Slow page speed leads to overall low performance percentage, confirming that performance deterioration propagates upward from these base inefficiencies.

In summary, Jumia demonstrates moderate performance and structural efficiency relative to its competitors, while Konga and Slot exhibit critical performance deficiencies across both desktop and mobile contexts. The relationship between large page sizes, high HTTP request counts, and poor user-centric metrics such as LCP and TBT reinforces the theory that technical performance is an inseparable dimension of web content quality (Ighomereho et al., 2022; Fellinger & Fronimaki, 2024). As such, performance optimization is not merely a technical exercise but a prerequisite for user engagement, trust, and conversion in the Nigerian e-commerce landscape.

4.3 Category Page Results and Observations

Category pages serve as the backbone of user navigation within e-commerce platforms, displaying product listings that test the efficiency of content loading and dynamic rendering. Their performance is crucial, as users often browse multiple category pages before making a purchase decision.

Across the three e-commerce platforms tested, category page performance showed wider variance than the homepage results, reflecting different optimization strategies and levels of technical efficiency.

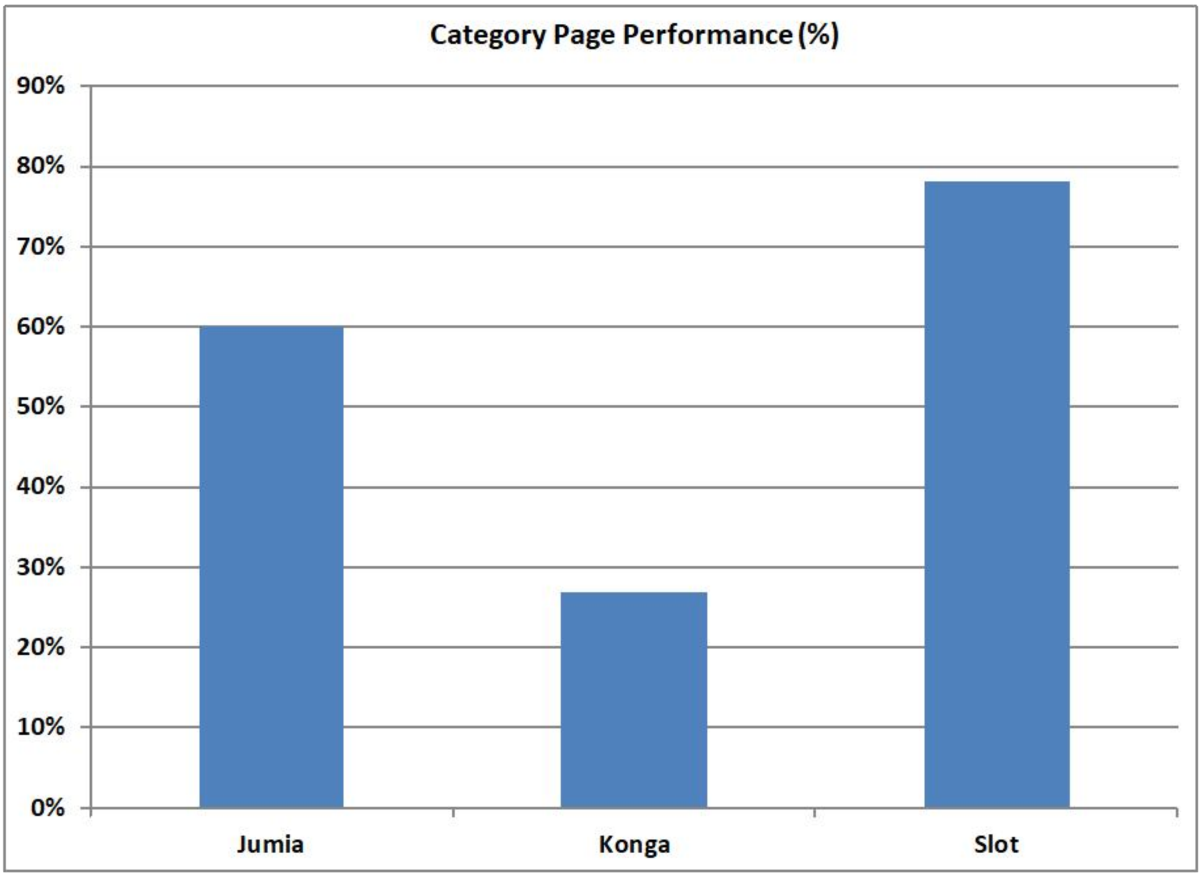

Figure 4.3 Category Page Performance Metrics

From GTMetrix data shown in Figure 4.3, Slot recorded the highest performance at 78%, followed by Jumia at 60%, while Konga performed poorly at 27%. As established in Chapter Two, performance variations of this scale directly indicate differences in page weight, resource efficiency, and render-blocking behavior (Foursets, 2025).

A clear trend emerges when examining the underlying page delivery metrics:

- Jumia maintains the smallest page size at 1.90 MB, moderate page speed at 6.87 seconds, and a balanced 152.67 HTTP requests.
- Konga exhibits the heaviest structure, with a page size of 5.64 MB, the slowest load time of 9.51 seconds, and 179.13 requests.
- Slot, while having the highest HTTP requests (358), still loads the fastest at 4.57 seconds, owing to smaller and more efficiently delivered assets.

This pattern supports the framework discussed in Chapter Two (Section 2.6): larger file sizes and greater numbers of HTTP requests increase the browser's workload, resulting in longer render times. However, Slot's performance indicates that efficient asset delivery, asynchronous loading, and compression can mitigate the impact of high request counts.

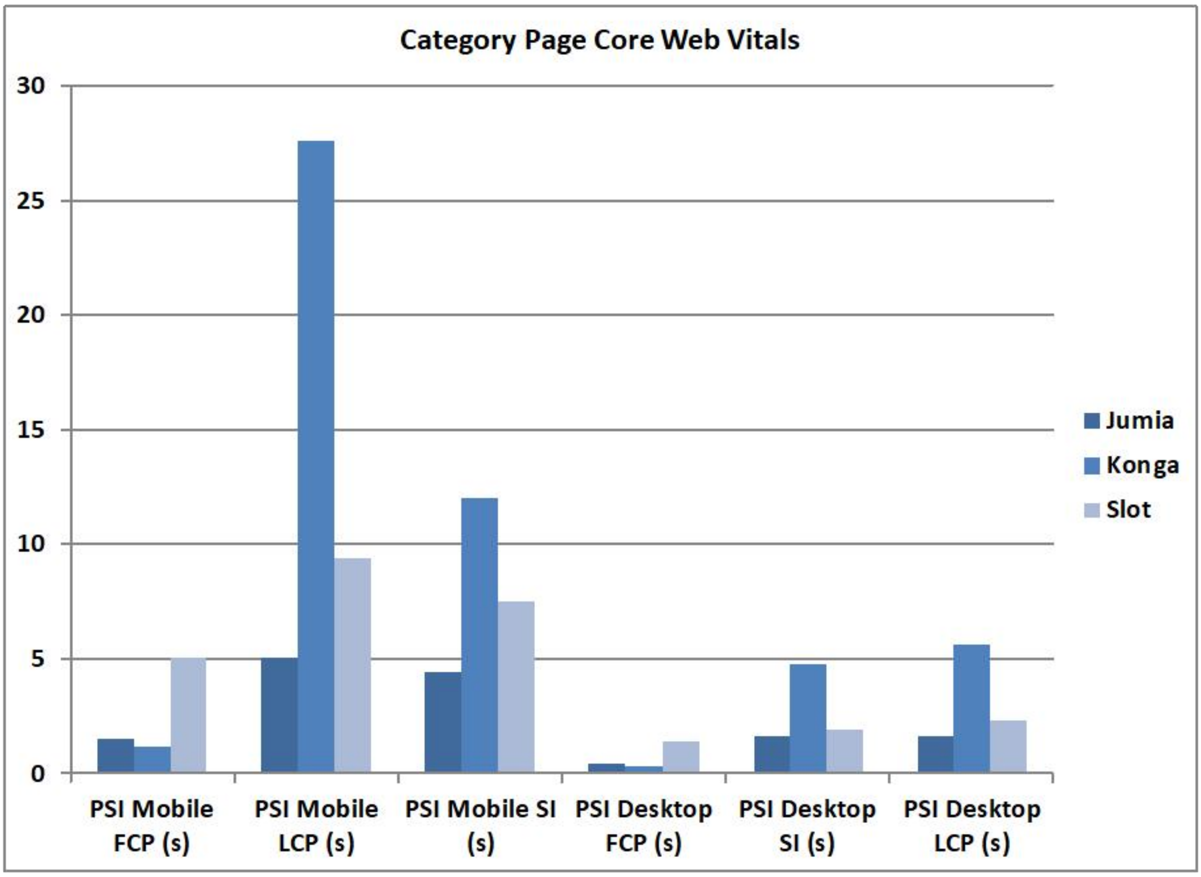

Figure 4.4 Category Page Core Web Vitals

At the Core Web Vitals level, whose values are shown in Figure 4.4, the category pages of all three e-commerce platforms reveal how effectively each system handles product listing environments, where multiple images, price elements, and filters load concurrently. The data clearly distinguish between optimized and unoptimized front-end structures, particularly under mobile conditions.

- Jumia's category pages demonstrate balanced, mid-level optimization consistent with its smaller 1.90 MB structure and moderate request count. On mobile, its FCP of 1.57 s ensures that users see initial content relatively quickly, while an LCP of 5.10 s indicates a noticeable but manageable delay before the largest product grids or hero images fully render. The Speed Index of 4.43 s and TBT of 1037 ms suggest that while visual progress begins early, some interactivity is deferred due to script-heavy components such as filtering or promotional carousels. Desktop results (FCP 0.43 s; LCP 1.63 s) confirm that when device and bandwidth constraints are lifted, the page structure performs efficiently, aligning with its stable CLS of 0.0. Jumia's overall category page performance of 57% (mobile) and 60% (desktop) reflects competent but improvable optimization, especially around mobile asset compression and render-blocking scripts.

- Konga's category pages exhibit severe inefficiencies, particularly in mobile rendering, where excessive page weight (5.64 MB) and network requests (179) create cascading slowdowns. Although its mobile FCP of 1.2 s appears competitive at first glance, the LCP of 27.6 s exposes critical delays in loading main content such as banners and large image assets. This indicates that early visual feedback is deceptive, most visible elements remain incomplete for over twenty seconds. The Speed Index (12.07 s) and TBT (1607 ms) confirm high JavaScript blocking and unoptimized resource sequencing, leading to sluggish scrolling and input responsiveness. On desktop, these problems persist in milder form (LCP 5.67 s; CLS 0.08), showing that the inefficiency is structural rather than network-induced. Konga's consistently low performance scores therefore stem from excessive asset payloads and poor layout prioritization, severely degrading usability and conversion potential.
- Slot's category pages present an interesting contrast: despite the highest HTTP request volume (358), they achieve strong rendering speeds through efficient asset delivery and possibly asynchronous loading strategies. On mobile, FCP of 5.07 s indicates a slightly delayed start, but the LCP of 9.45 **s** remains far below Konga's extremes, suggesting the site completes visual loading in under ten seconds even under mobile constraints. Its low TBT (285 ms) shows that interactivity remains responsive, while a CLS of 0.018 indicates stable visual structure throughout loading. Desktop performance improves substantially (FCP 1.4 s; LCP 2.33 s; TBT 153 ms). These results suggest that Slot's performance strategy emphasizes back-end efficiency and delivery optimization, allowing fast interactive readiness even with high request counts.

Taken together, the Core Web Vitals confirm a direct and consistent relationship between page structure, resource management, and user experience quality. Jumia balances structural simplicity and responsiveness effectively, Slot achieves superior interactivity through efficient delivery, and Konga’s excessive page weight undermines visual and functional performance at nearly every stage.

These results reaffirm the theoretical model established earlier:

- Larger page sizes and request counts extend LCP, slowing the delivery of visible content.
- High TBT values extend TTI, delaying interactivity and frustrating users.
- Efficient delivery (as in Slot’s case) can offset structural heaviness, while unoptimized layouts (as seen in Konga) amplify delays at every stage of rendering.

In summary, Slot’s category pages demonstrate the best technical optimization, achieving fast paint and interaction times despite a high number of requests. Jumia maintains consistent, balanced performance with strong structural discipline, while Konga continues to show critical inefficiencies across nearly all metrics. The clear correlation between page weight, request volume, and vital responsiveness metrics reinforces that page delivery efficiency directly determines user experience quality. This supports Ighomereho et al. (2022) and Fellinger and Fronimaki (2024), who emphasized that poor front-end optimization degrades user engagement and satisfaction, particularly in mobile first environments with limited network connectivity such as Nigeria.

4.4 Search Page Results and Observations

The search page serves as a functional hub within e-commerce platforms, directly influencing product discovery, user satisfaction, and conversion probability. Since users often navigate through multiple search results before making a purchase, the speed and responsiveness of this page are vital to overall engagement and retention.

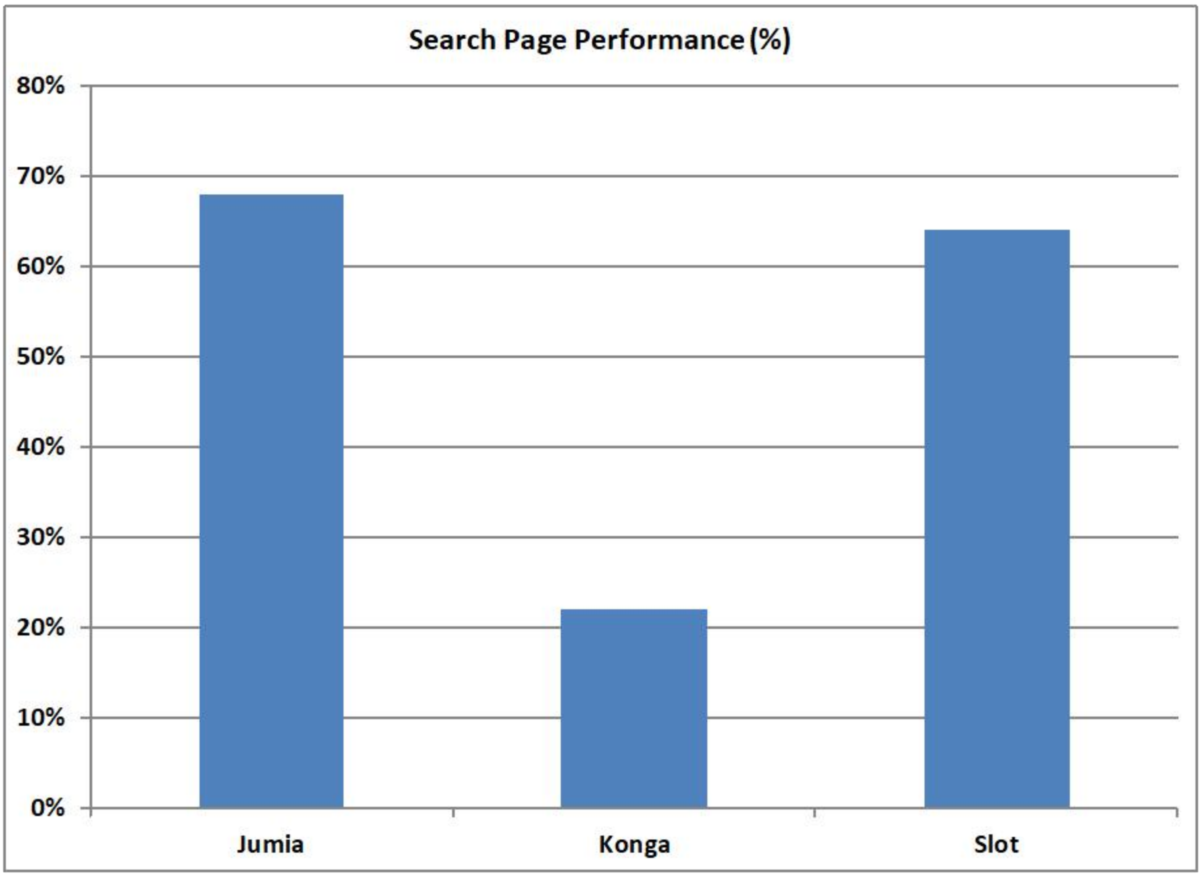

Figure 4.5 Search Page Performance Metrics

Figure 4.5 shows how the platforms performance fared in the search page delivery. Jumia achieved a balanced performance with relatively optimized delivery metrics, while Slot demonstrated faster interaction times despite a larger page footprint. Konga, however, underperformed significantly across all key indicators, reflecting inefficient optimization and resource management.

At the foundational level, page size, page speed, and HTTP requests directly reveal the performance hierarchy:

- Jumia recorded the smallest average page size at 1.77 MB, a fast load speed of 5.53 seconds, and 148.67 HTTP requests, reflecting streamlined resource loading and balanced asset use. This resulted in a performance level of 68%.
- Konga's search page was substantially heavier at 5.73 MB, requiring 13.57 seconds to load and generating 243.67 HTTP requests, indicating excessive resource dependencies and unoptimized scripts or media. This resulted in a poor performance level of 22%.

- Slot maintained a middle ground in page size (4.18 MB) but achieved a relatively fast load time of 5.47 seconds, despite having the highest number of requests (357), implying that its hosting infrastructure or caching mechanisms may mitigate the performance impact of multiple assets. This resulted in a performance level of 64%, right behind Jumia.

As explained in Chapter Two, larger page sizes and a higher number of HTTP requests prolong browser processing time, resulting in slower rendering and degraded responsiveness. Therefore, Konga's significantly bloated search page architecture directly correlates with its extended load time, while Jumia's smaller, more efficient structure contributes to a smoother search experience.

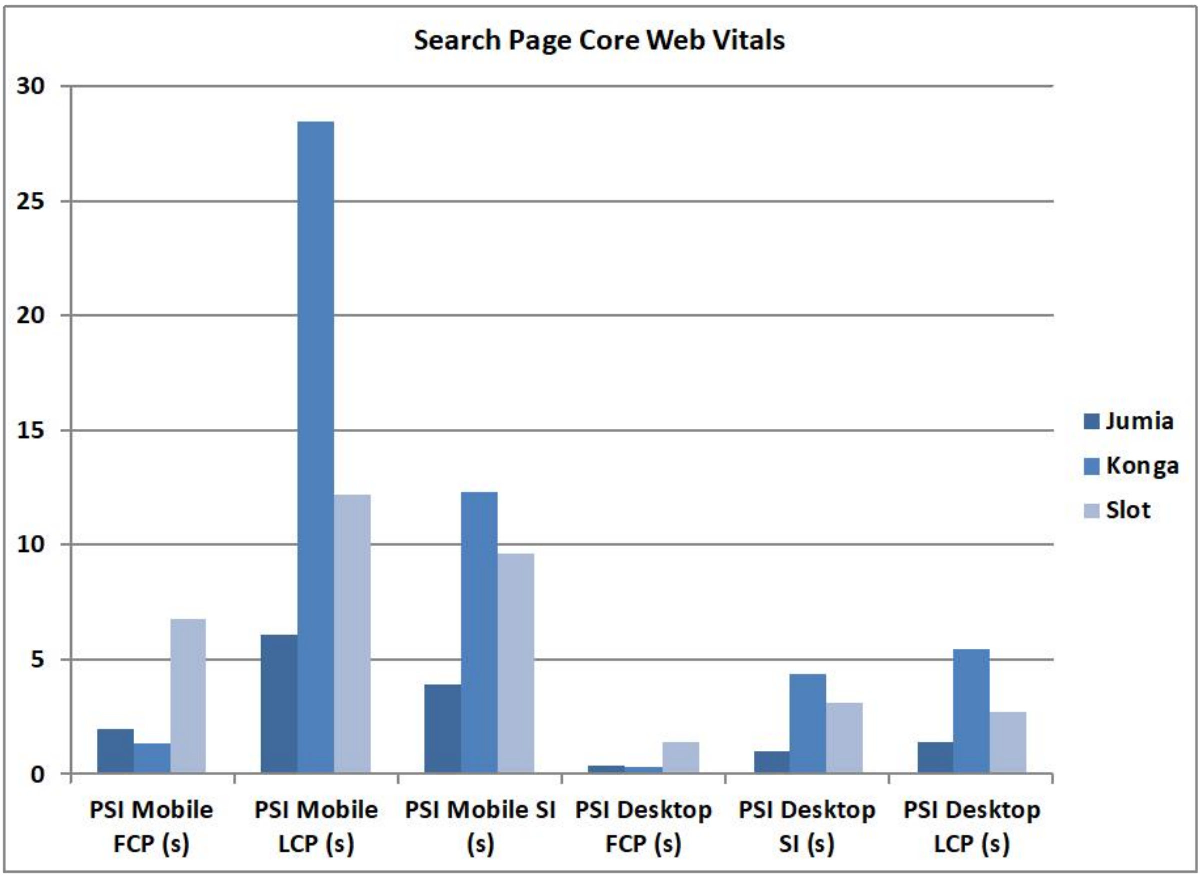

Figure 4.6 Search Page Core Web Vitals

The Core Web Vitals for the search pages, shown in Figure 4.6, reveal how efficiently each platform manages content rendering and interactivity during user-driven operations like keyword searches and product filtering. Since these actions dynamically load multiple elements at once, the search page is a crucial indicator of how well a platform sustains performance under heavier, user-initiated demands.

Across all metrics, a clear hierarchy emerges. Jumia delivers consistently faster loading and interaction times, Slot achieves solid responsiveness despite a heavier structure, while Konga significantly underperforms due to excessive page weight and resource blocking.

- Jumia's search page demonstrates balanced and efficient rendering across both mobile and desktop environments. On mobile, its FCP of 2.00 s indicates that initial content becomes visible relatively quickly, and an LCP of 6.13 s, while though above the ideal 2.5-second range, remains manageable for complex e-commerce layouts. The SI of 3.97 s shows visual completeness, while its TBT of 813 ms suggests that some JavaScript execution delays interactivity but not severely. A stable CLS of 0.00 further confirms that users experience minimal layout movement during load. On desktop, Jumia performs much more efficiently with an FCP of 0.40 s and LCP of 1.43 s, well within recommended limits. The low TBT (710 ms) and CLS (0.00) reinforce its structural optimization. Jumia's overall web vital scores highlight that its search page delivers fast, stable experiences under typical browsing conditions.
- Konga's search page, by contrast, performs poorly across every vital metric, pointing to deep structural inefficiencies. Although its mobile FCP of 1.37 s initially suggests a quick start, the LCP of 28.47 s exposes severe delays in rendering main content such as search results and product grids. The Speed Index (12.37 s) and TBT (1873 ms) confirm heavy main-thread blocking and excessive script execution, which stall interactivity and frustrate users attempting to scroll through the page. Its CLS of 0.24 is also the highest among all sites, although it is not high enough to lead to any great page shifts during loading. On desktop, the pattern remains similar: LCP 5.47 s**,** TBT 1583 ms**,** and CLS 0.18 all demonstrate persistent inefficiency despite improved bandwidth and device power. These results validate the impact of excessive page size (5.73 MB) and request count (243) on Konga's overall responsiveness.
- Slot's search page achieves an intermediate but impressive balance between size and responsiveness. Despite a heavier structure (4.18 MB) and numerous requests (357), it maintains steady performance through efficient delivery and caching. On mobile, its FCP of 6.80 s is higher than Jumia's, but an LCP of 12.23 s, while being outside the ideal range, is still far superior to Konga's. The TBT of just 267 ms stands out as the

lowest among the three, meaning users can interact with the page relatively early in the loading process. The CLS of 0.09 remains low enough to ensure visual stability. On desktop, Slot continues to perform reliably with an FCP of 1.43 s**,** LCP of 2.73 s**,** and TBT of 257 ms, delivering a near-instant interactive experience that reflects efficient resource sequencing and back-end responsiveness.

Taken together, these web vitals confirm that page weight, request count, and resource management directly determine user experience in the search environment. Jumia's leaner structure enables quick visibility and steady interactivity; Slot's optimization strategies offset its heavier framework; while Konga's excessive asset payloads cause severe degradation across every key metric.

These results reinforce the principle established in Chapter Two:

- High page size leads to slower LCP and FCP.
- High request count leads to increased TBT and TTI.
- Optimized delivery leads to faster visual completion and interactivity.

Consequently, Jumia demonstrates the best search performance consistency, while Konga requires urgent optimization to reduce resource load and blocking time. Slot's results show that good performance can still be achieved with larger pages if server response and caching systems are effectively configured.

4.5 Product Page Results and Observations

The product page represents the core of user engagement and conversion in e-commerce performance analysis. It is the stage where potential customers evaluate details, images, and reviews before deciding to purchase. As such, speed, responsiveness, and stability on this page are directly tied to sales performance, with even minor slowdowns significantly affecting conversion rates.

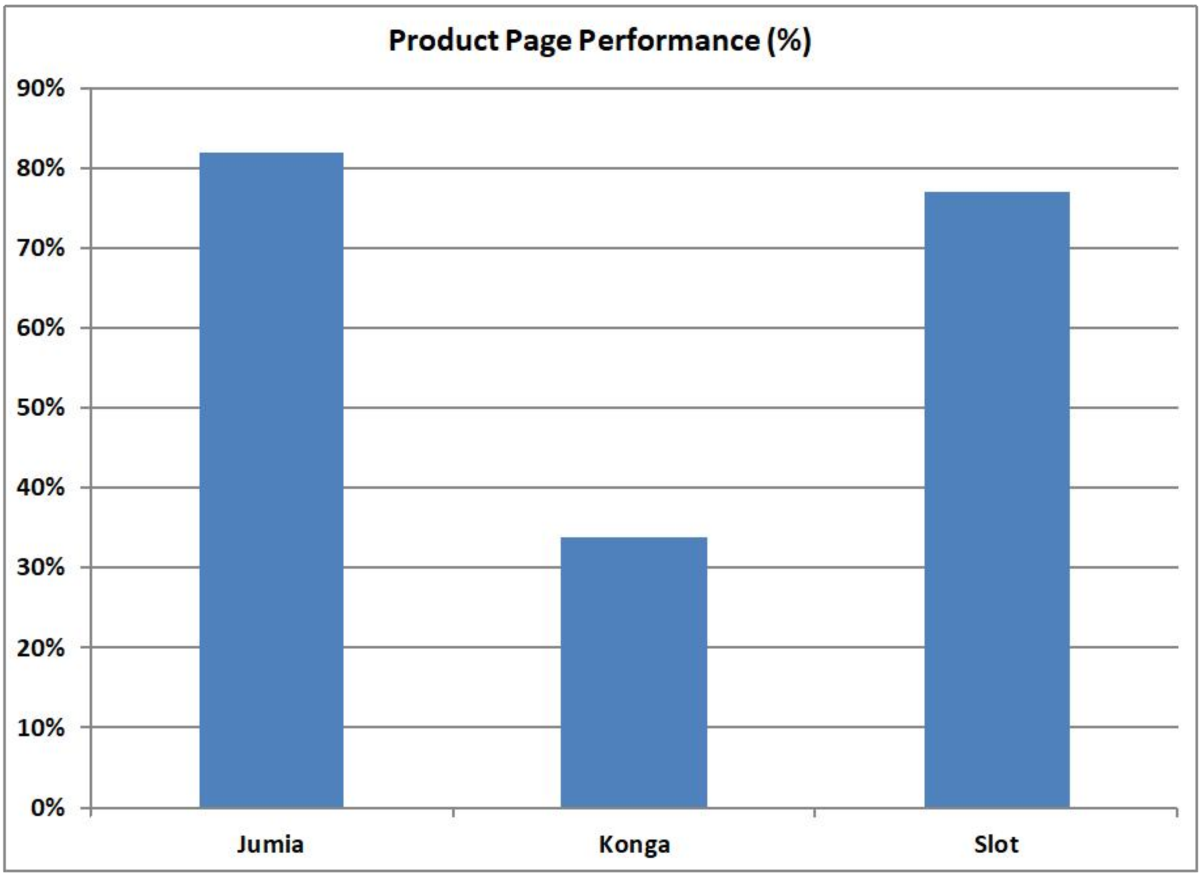

Figure 4.7 Product Page Performance Metrics

Across all three e-commerce platforms, the GTMetrix performance results shown in Figure 4.7 show once again the common trend across the three platforms. Jumia achieved the highest performance score at 82%, followed by Slot at 77%, while Konga lagged far behind at 34%. These percentages align with industry benchmarks indicating that sites above 75% generally provide smooth user experiences, while those below 50% exhibit noticeable delays and usability issues (Foursets, 2025; Google, 2025).

The underlying page delivery metrics explain this performance hierarchy:

- Jumia had the smallest page size at 1.56 MB, a fast average load speed of 5.1 seconds, and the lowest number of HTTP requests (137.67), indicating strong optimization and efficient asset delivery.
- Konga's product pages were significantly heavier at 5.44 MB, with a slow load speed of 18.27 seconds and 220.67 HTTP requests, suggesting unoptimized product media, redundant scripts, and poor caching practices.

- Slot, despite having the highest number of HTTP requests (411.33) and a moderate page size of 4.19 MB, still maintained a respectable load speed of 5.8 seconds. This implies that its server-side delivery and compression mechanisms partially offset the high request count.

As discussed in Chapter Two, the direct relationship between large page sizes, excessive HTTP requests, and prolonged load times stems from increased resource processing and main-thread blocking (Ighomereho et al., 2022). Consequently, Konga's high latency reflects cumulative inefficiencies in both network transfer and rendering sequence, while Jumia's smaller, leaner structure contributes to its superior performance metrics.

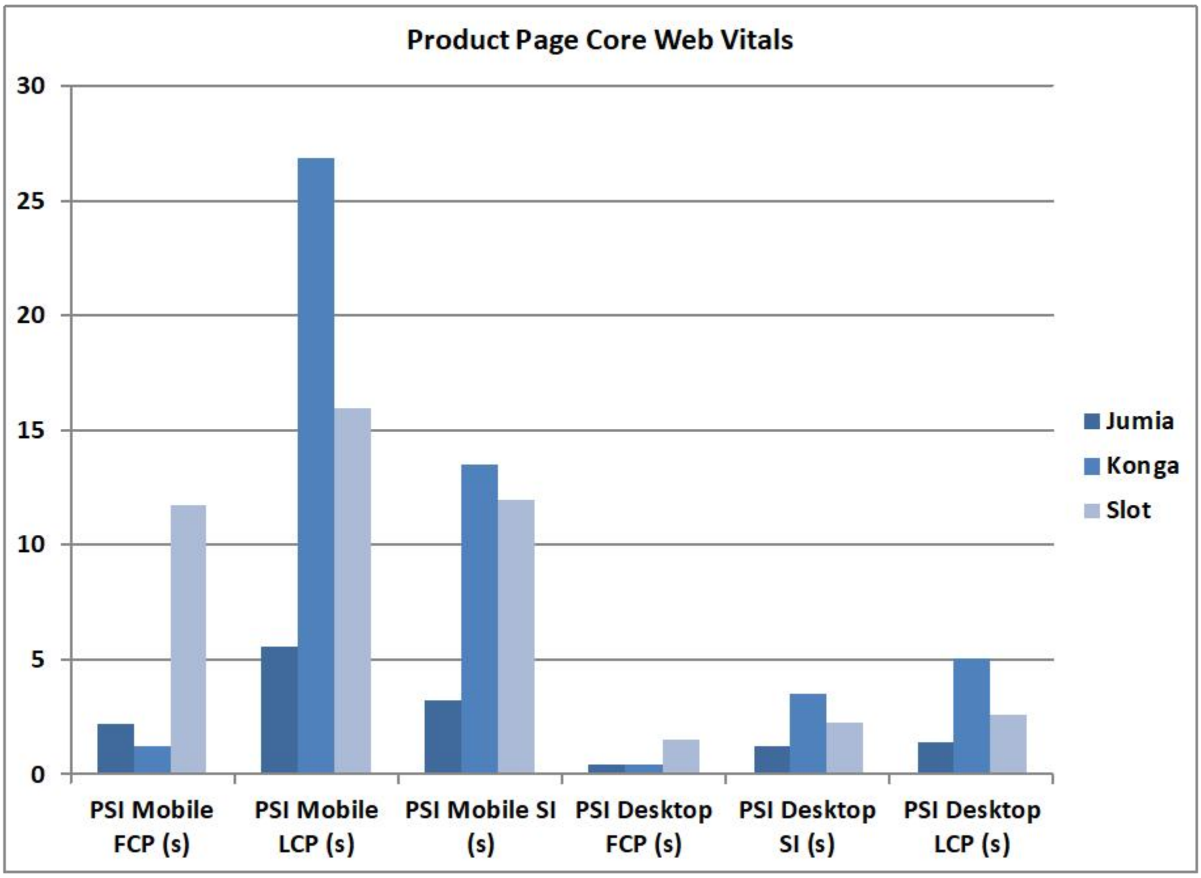

Figure 4.8 Product Page Core Web Vitals

Figure 4.8 shows the Core Web Vitals, further clarifying these dynamics and revealing how effectively each platform manages loading, interactivity, and stability at the most conversion-critical stage of the e-commerce experience. Since users depend on product pages to view images, specifications, and reviews before making purchasing decisions, performance on this page directly influences engagement and sales.

Across all key indicators, Jumia demonstrates efficient rendering and smooth interactivity across devices, Slot maintains balanced performance despite its heavier structure, while Konga significantly underperforms due to slow rendering and high blocking times.

- Jumia's product page exhibits balanced rendering and responsiveness across both mobile and desktop. On mobile, its FCP of 2.23 s indicates that initial visual content appears promptly, while an LCP of 5.60 s, although above the optimal 2.5-second range, remains moderate for media-heavy product listings. The Speed Index of 3.27 s shows steady visual progression during loading, and the TBT of 750 ms indicates that main-thread blocking is present but not severe. A CLS of 0.00 confirms complete layout stability throughout the load process. On desktop, Jumia performs much more efficiently, with an FCP of 0.47 s and an LCP of 1.43 s, both within optimal thresholds. The TBT of 730 ms suggests smooth interactivity, while the CLS of 0.01 indicates a stable layout with no disruptive shifts.
- Konga's product page performs poorly across all Core Web Vitals, revealing major rendering inefficiencies and resource-heavy execution. On mobile, the FCP of 1.23 s initially suggests a quick start, but the LCP of 26.83 s exposes extreme delays in displaying the main product content. The Speed Index of 13.50 s and a high TBT of 1,237 ms confirm heavy JavaScript processing and blocking tasks that slow responsiveness. The CLS of 0.00 indicates that layout stability is maintained, but it does not offset the critical delays in loading. On desktop, similar issues persist. While the FCP of 0.43 s is fast, the LCP of 5.10 s and TBT of 957 ms show that key elements still take several seconds to render interactively. These values reflect the negative impact of excessive page size (5.44 MB) and numerous HTTP requests (220), which overload both client and server-side resources.
- Slot's product page achieves a middle ground, performing reliably despite its heavier content and higher request count. On mobile, its FCP of 11.77 s is notably slow, but the LCP of 15.93 s, though outside the optimal range, is considerably faster than Konga's, reflecting more efficient rendering prioritization. The TBT of 477 ms is the lowest among all three platforms, meaning the page becomes interactive much earlier in the loading process. The CLS of 0.04 remains low, ensuring that product layouts remain visually stable. On desktop, Slot performs far better with an FCP of 1.53 s, an LCP of 2.63 s, and an exceptionally low TBT of 40 ms, delivering rapid interactivity

and smooth operation. The CLS of 0.05 confirms continued visual stability during loading.

Taken together, these web vitals demonstrate the direct link between resource efficiency, interactivity, and usability on product pages. Jumia's lean structure and effective optimization ensure quick visual feedback and reliable interaction. Slot's efficient caching and script sequencing mitigate its heavier structure, while Konga's excessive resource load results in severe rendering delays that degrade user experience.

These findings reinforce the principles established in Chapter Two:

- High page size leads to slower LCP and FCP.
- High script execution time increases TBT and delays interactivity.
- Efficient delivery and asset management lead to faster rendering and stable layouts.

Consequently, Jumia achieves the most consistent and responsive product page performance, Slot demonstrates balanced efficiency despite its size, while Konga's high latency and heavy content confirm the need for substantial optimization to improve usability and conversion reliability.

CHAPTER FIVE

SUMMARY, CONCLUSION, AND RECOMMENDATIONS

5.1 Summary of Findings

The preceding analysis revealed significant disparities in the web performance of Jumia, Konga, and Slot across homepage, category, search, and product pages. While Jumia demonstrated relative consistency, Slot displayed fragmented optimization priorities, and Konga consistently underperformed across all critical metrics. Building on the findings and the literature review in Chapter 2, this chapter provides actionable recommendations to improve performance outcomes, followed by broader conclusions on the implications of web quality for e-commerce in Nigeria's mobile-first digital economy.

5.2 Strategic Implications for Nigerian E-commerce

The results highlight a broader insight: web quality is not merely a technical attribute but a competitive differentiator. In markets such as Nigeria, where mobile is the dominant access point, the performance of product pages directly influences customer trust, engagement, and conversion.

- **User Experience as Revenue Driver:** Literature consistently links slow load times with increased abandonment and reduced sales. The catastrophic 26.83s mobile LCP on Konga's product page exemplifies how performance failures directly translate into lost customers.
- **Mobile-First Imperative:** Slot's neglect of mobile-first optimization, despite strong desktop scores, demonstrates a misalignment with user behavior in Nigeria. Firms must prioritize mobile design, not treat it as a secondary adaptation.
- **Competitive Benchmarking:** Jumia's stronger performance shows that consistent optimization provides not only a smoother user experience but also a brand advantage. Competitors lagging in performance risk permanent customer attrition.

5.3 Conclusion

This study demonstrates that the technical underpinnings of e-commerce platforms, page weight, HTTP requests, rendering speeds, and Core Web Vitals, carry direct consequences for business performance. Jumia, Konga, and Slot represent three distinct optimization profiles: Jumia’s balanced but improvable performance, Konga’s critical inefficiencies, and Slot’s fragmented strategy.

The evidence underscores that performance optimization is no longer optional but essential. As Nigerian consumers increasingly rely on mobile devices for e-commerce, platforms that fail to meet speed and stability expectations will lose competitiveness.

In practical terms, adopting asset compression, reducing HTTP requests, improving Core Web Vitals, and aligning strategies with mobile-first behavior are not only technical necessities but strategic imperatives for sustainable growth.

This project therefore contributes to the academic and practical understanding of e-commerce web performance, highlighting both the critical gaps in Nigerian platforms and the pathways to improvement. By addressing these issues, e-commerce firms can enhance user satisfaction, build trust, and ultimately secure a stronger position in the digital marketplace.

5.4 Recommendations

5.4.1 Recommendations for Jumia

Jumia’s performance indicates a mature optimization strategy, yet there is room for improvement, particularly in mobile rendering speed and interactivity:

- **Optimize Mobile Rendering:** Largest Contentful Paint (LCP) values on mobile remain above recommended thresholds in PSI results. Implementing server-side rendering (SSR) or adopting Next.js-style hydration strategies could improve responsiveness.
- **Reduce Blocking Times:** With Total Blocking Time (TBT) nearing 750 ms on some pages, Jumia should consider deferring or asynchronously loading non-critical JavaScript.
- **Sustain Competitive Edge:** Continuous monitoring of Core Web Vitals using field data (Real User Monitoring, RUM) would ensure Jumia maintains a lead as competitors improve.

5.4.2 Recommendations for Konga

Konga's product pages, category pages, and overall site architecture suffer from asset bloat and critically delayed mobile rendering. Immediate interventions are necessary:

- **Compress and Resize Assets:** Heavy hero images and banners should be optimized with modern formats (e.g., WebP, AVIF) and adaptive image sizing based on viewport.
- **Reduce HTTP Requests:** Konga should bundle or defer non-critical requests, adopt lazy loading for below-the-fold content, and minimize third-party scripts.
- **Prioritize Mobile Optimization:** Given Nigeria's mobile-first market, optimizing PSI mobile LCP (26.83s on product pages) should be a top priority. Leveraging a content delivery network (CDN) and enabling caching would reduce mobile latency.
- **Holistic Audit:** A full front-end audit to identify redundant scripts, render-blocking CSS, and unused libraries would address the root of the inefficiencies.

5.4.3 Recommendations for Slot

Slot displays paradoxical results having fast desktop interactivity but severe inefficiencies on mobile. Its excessive HTTP requests (411 on product pages) are a major bottleneck.

- **Streamline HTTP Requests:** Consolidating CSS/JS files and reducing dependency on redundant assets would improve both mobile and desktop performance.
- **Enhance Mobile First Paint (FCP):** The 11.77s PSI FCP suggests Slot's mobile pages remain blank for too long. Preloading key resources and prioritizing visible content should be adopted.
- **Improve Layout Stability:** A Cumulative Layout Shift (CLS) of 0.052, though within tolerance, may disrupt product detail visibility. Static placeholders and defined image dimensions would reduce layout shifts.
- **Balance Optimization Priorities:** Slot must avoid focusing exclusively on desktop users and adopt a unified optimization framework that prioritizes Nigeria's mobile-first users.

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