International Conference on Sustainable Tourism and Entrepreneurship

Vol. 01 No. 01 August 2026, ISSN: 3163-2912

On-Page Techniques for Improved Google Search Engine Ranking: A Tourism Village Approach

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ABSTRACT

The development of digital technology has transformed many aspects of life, including business interactions and product marketing. The increase in active websites presents new challenges, particularly regarding visibility and rankings on search engines such as Google. This study aims to develop an approach to improving website search results on Google by reviewing search engine optimization (SEO) techniques. In this case, the website of Kampung Perca Sindangsari, a tourist village in Bogor City, was improved using white-hat on-page SEO techniques. Evaluation results showed that white-hat on-page SEO techniques effectively increased website visibility and engagement, as indicated by increases in total clicks, impressions, click-through rates (CTR), average SERP position, and SEO score measured using Google Search Console, Google Analytics 4, and SEO Site Checkup over a three-month evaluation period. This study concludes that SEO is an important tool for improving a destination's digital presence and competitiveness in the digital tourism market.

Keywords: *Website Optimization; Whitehat SEO; Google Search Engine; Visitor Traffic; Tourism Village*

1. INTRODUCTION

The rapid development of information and communication technology, especially the internet, has significantly impacted various aspects of human life [1]. According to the Hootsuite and We Are Social report, in January 2024, the number of global internet users reached 5.35 billion people, which is equivalent to 66.2% of the world's total population [2]. In Indonesia, data from the Indonesian Internet Service Providers Association (APJII) shows that the number of internet users reached 221.56 million people, or about 79.5% of the total population [3].This phenomenon has made the internet one of the most strategic media. In this digital era, the presence of a website is crucial for businesses or organizations. However, amid the growing competition, Search Engine Optimization (SEO) techniques are vital to improve website visibility and traffic in search engines like Google [4]

Search Engine Optimization (SEO) encompasses a wide range of strategies aimed at improving a website's visibility on search engine result pages (SERPs), especially on Google, which dominates the global search market. On-page SEO techniques are an essential element in influencing organic rankings and involve directly optimizing the content and structure of a website [5]. This includes keyword optimization, use of meta tags, developing high-quality content, semantic HTML structure, mobile friendliness, URL readability, internal linking, etc [6] According to [6]; [7]; [8], these factors

improve search engine crawling and user experience, which are two key factors in Google's ranking algorithm. Additionally, keeping pages fast and using structured data (schema markup) is becoming increasingly important as it supports Google's Core Web Vitals and contextual understanding of content [9]; [10]; [11].

2. LITERATURE REVIEW

Several studies have identified specific on-page SEO tactics that significantly correlate with improved search engine rankings [12]; [13]; [14]; [15] . For example, proper use of header tags (H1, H2) helps with content hierarchy, while keyword density and placement impacts topic relevance [16]. Recent advances have also highlighted the role of natural language processing (NLP) in search algorithms, encouraging content creators to adopt more contextually rich and semantically coherent texts [17]; [18]; [19].

In the tourism village context, integrating location-based keywords, unique cultural narratives, and multimedia content further increases relevance and engagement, which is in line with search engines' preference for localized, rich content [20]; [21]; [22]. These techniques form a comprehensive on-page SEO framework to support sustainable visibility and digital competitiveness of tourism- related web platforms [23]; [24]; [25. Although previous research has shown that the application of Whitehat SEO can significantly increase website traffic [26]; [27]. Furthermore, research is also limited in exploring the effectiveness of SEO strategies for small community websites or those with limited resources. Additionally, there is a lack of studies examining the long-term impact of Whitehat SEO on-page implementation, which represents a gap in the literature. Therefore, this study aims to optimize the Kampung Perca website using the Whitehat SEO On-Page method, focusing on improving the structure and ranking of the website on Google search engines. Although on-page SEO (search engine optimization) has been widely discussed in previous academic research, most of the studies have focused on commercial websites related to online retail, media platforms, general business services, etc [28].

Limited academic attention has been directed at the strategic application of on-page SEO in rural tourism environments. Digital content of tourism villages is often rooted in local identity, cultural heritage, and community-based narratives. In addition, existing research tends to rely on conceptual models and laboratory-based testing and lacks empirical implementation in real tourism-driven web environments [29]. To address these shortcomings, this study proposes an empirical analysis of customized on-page SEO techniques designed to optimize the digital visibility of village tourism websites, providing a novel contribution to the intersection of digital information systems and place-based tourism development. This research aims to contribute to filling the gap in knowledge regarding the long-term effectiveness of SEO strategies and provide new insights into optimizing small community websites to support economic empowerment through digital marketing.

This research objective is to examine the impact of on-page SEO techniques in improving the search visibility of rural tourism websites, and to design and evaluate a context-specific SEO framework that realizes technical optimization tailored to the cultural and informational characteristics of rural tourism content.

3. METHOD

The goal of this research is to examine how on-page SEO techniques can help tourism village websites rank higher in Google search results. It aims to create a practical SEO framework that fits the unique content and cultural identity of tourism villages, supporting their digital visibility and promotion. This research adopts a rational and systematic approach to evaluate the effectiveness of On-Page search engine optimization. Evaluating the effectiveness of on-page SEO on rural tourism websites is important because its impact in this particular context is still unclear. Most existing studies focus on commercial platforms, leaving uncertainty about whether the same techniques work well for local tourism content. Without proper evaluation, it is difficult to know which SEO elements actually support the visibility of websites promoting rural destinations. Web log data is thoroughly collected and analyzed through a comprehensive literature review.

Search Engine Optimization (SEO), especially on-page techniques, plays a crucial role in improving the visibility of websites in search engines such as Google [30]. These strategies include metadata optimization, keyword integration, page structure enhancement, semantic markup, mobile responsiveness, and site speed enhancement [31]. However, existing research largely emphasizes commercial or urban contexts, while rural community-based tourism platforms remain largely unexplored [32].

1. On-Page SEO in Rural Tourism

[32] conducted an empirical SEO assessment of 21 rural tourism websites in Portugal, revealing considerable variability in their on-page performance. Critical issues such as the absence of meta descriptions, low content density, and slow loading times were common, highlighting the need for context-specific optimizations, including voice search adaptation and local SEO enhancement systems. [33] echo these findings in a Greek tourism website, showing that higher standards in content quality, mobile usability, and page speed correlate with improved search rankings.

2. Technical and Semantic Optimization

[34] emphasize structured metadata, secure HTML implementation, and semantic markup as key to improving search engine performance, particularly when aligning technical SEO with site architecture. The importance of sitemap.xml, robots.txt, and dynamic metadata is further emphasized by several SEO case studies.

3. Integration of Local Content and Culture

[35] used a mixed-methods approach in Balinese tourism villages, showing that digital marketing tailored to SEO significantly increased visitor awareness and engagement. Meanwhile, FMI's rural image optimization study (Wang, 2024) showed that IoT and machine learning methods enhance the digital presence of rural tourism by optimizing visual content for contextual resonance with target audiences.

4. Information Systems Methodology – Design Science Research

[36] advocate Design Science Research (DSR) in information systems: a structured sequence that begins with problem identification, then artifact design, demonstration/pre-testing, implementation, evaluation, and iteration all aligned with your seven-step framework.

5. Digital Transformation in Tourism Villages

Studies such as those by [37] emphasize that tourism villages must adopt digital transformation including SEO to compete and grow sustainably. [38] confirmed in Bali that AI- powered marketing tools increase engagement and ROI, highlighting the value of empirical validation.

6. Network Analysis and User Behavior

[39]) applied social network analysis to tourism websites, revealing that interconnected architecture and content structure critically shape user paths and aggregation in the search ecosystem. This supports the argument for structured linking as part of on-page optimization.

7. Tourism Identity and Cultural Heritage

[40] illustrate how cultural heritage such as traditional costumes drives market capitalization in ethnic tourism villages through structured narratives and visual content. This is in line with research advocating for culturally adaptive SEO.

8. Sustainability and Smart Rural Tourism

[41] outline a "smart rural tourism" framework that integrates local culture with digital tools such as SEO and IoT, promoting a sustainable tourism economy. This validates your focus on aligning SEO with community-based sustainable development.

9. Rural Destination Marketing via the Internet

Studies in rural destination marketing [42] confirm that digital strategies—including SEO—are critical to bridging the information gap between destinations and potential tourists.

10. Visitor Reception of Tourism Websites

The information quality, usability, and design of village tourism websites positively influence tourist intention reinforcing on-page factors as critical to engagement

The research process is outlined in the following steps:

1. Problem Identification

   The main issue identified with the Kampung Perca Sindangsari website is its low

   visitor traffic, caused by the website not being indexed by Google's search engine.
2. Literature Review

   In this phase, relevant information and references are sought and gathered from books, journals, and other accessible online sources. The goal is to achieve a comprehensive understanding of the research topic.
3. Analysis of Existing Literature

   This step involves analyzing previous studies to obtain comparative data and relevant references. The strengths and weaknesses of past research are assessed, providing a foundation for the development of the current study.
4. Pre-Test (Initial Testing)

   The Kampung Perca website undergoes a thorough analysis using appropriate tools. This phase consists of two key stages:
   - Observation

     This process involves observing and analyzing the website to collect data for comparing results before and after the application of Whitehat On-Page SEO techniques. The tools used for this phase include Google Analytics 4, Google Search Console, and SEO Site Checkup.
   - Visitor Data Analysis

     Data on the website's most visited pages and commonly searched keywords is collected through data analysis methods. Tools such as Google Analytics 4 and Google Search Console are employed to gather this data.
5. SEO Optimization Implementation

   The SEO optimization process follows a structured and sequential approach aimed at achieving optimal results. Proper implementation of this process is expected to resolve the issue of low visitor traffic on the Kampung Perca website. To evaluate the effectiveness of the White-Hat On-Page SEO implementation, several key SEO metrics were measured, including total clicks, total impressions, click-through rates (CTR), average position in search engine results pages (SERP), number of indexed pages, visitor sessions, number of new visitors, and SEO score. Data were collected using Google Search Console, Google Analytics 4, and SEO Site Checkup. The evaluation was conducted over a structured timeframe, consisting of a three-month pre-test period (November–January), the SEO implementation phase (February), and a three-month post-test period (March–May). These metrics provide a reliable and valid basis to assess the impact of on-page SEO strategies on the visibility and engagement of the Kampung Perca Sindangsari website.
6. Post-Test Evaluation

   The post-test involves comparing data before and after SEO optimization to assess its positive impact on both the quality and quantity of website visitors.

This evaluation is conducted using tools such as Google Analytics 4 and Google Search Console.

7. Comparative Analysis of Results
   In this step, data is collected, analyzed, and evaluated to assess the performance, effectiveness, and success of the optimization efforts. The objective is to enhance understanding and make better-informed decisions in future strategies.

Table 1. Phases of on-Page Seo Optimization

Activities	Goals
Keyword Usage	Optimize relevant keywords to increase visibility and attract visitor
Static Metadata	Use meta tags, descriptions, and page titles to improve SEO by providing descriptive information.
Dynamic Metadata	Adjust page titles, descriptions, or meta tags according to the content being loaded for a more effective SEO strategy.
URL Canonicalization	Choose canonical URLs as the primary representation of content to address duplication issues.
Sitemap.xml Dynamically	Help search engines understand the structure and hierarchy of site content to improve indexing.
Robot.txt Dynamically	Manage search engine indexing to ensure relevant information is displayed in search results

4. FINDINGS AND DISCUSSION

This study evaluates the implementation of the Sustainable Oriented Enterprise (SOE) model within the tourism sector, with a particular focus on Kampung Perca Sindangsari located in Bogor City, Indonesia. The village has become a benchmark for community-based empowerment initiatives, emphasizing the transformation of textile waste into innovative and value-added creative products. Despite its potential as a model for sustainable tourism development, the Kampung Perca official website encounters a crucial digital visibility challenge it remains unindexed by Google's search engine, which consequently limits its accessibility and online traffic.

To mitigate this issue, the research proposes the implementation of a Search Engine Optimization (SEO) strategy utilizing White-Hat SEO techniques, which adhere to ethical standards and align with established search engine algorithms. The objective is to enhance both the website's search ranking and its discoverability in Google's search results, thereby strengthening its digital outreach and promotional impact.

The methodological framework begins with an Initial Evaluation (Pre-Test) conducted over a three-month observation period prior to the optimization phase. The data collection employs Google Analytics 4, Google Search Console, and SEO SiteCheckup to establish a comprehensive baseline for post-intervention comparison and performance assessment.

a. Observation

Table 2 presents the findings derived from the initial indexing and crawling activities performed by Google. The data, obtained through Google Search Console during the preliminary testing stage, serve as the foundational reference for subsequent SEO performance analysis.

Table 2. Observation Using Google Search Console

Month	Click	Shows	CTR	Position	Number of Indexed Pages
1 (Nov)	6	35	17,1%	15,3	0
2 (Dec)	1	19	5,3%	12,6	6
3 (Jan)	18	344	5,2%	8,4	14

In the performance analysis, a decline was observed from the first to the second month, with clicks dropping by 5, impressions decreasing by 16, and the click-through rate (CTR) falling by 11.8%. However, the average site position saw an improvement of 2.7, and the number of indexed pages rose by 6, reflecting enhanced SEO optimization. In contrast, from the second to the third month, there was notable progress: clicks increased by 17, impressions surged by 325, and indexed pages grew by 8. Despite a slight dip in the CTR by 0.1%, the average site position saw a significant rise of 4.2. This improvement in indexed pages contributed to better site positioning and a broader search reach. While the second month presented some challenges, the third month demonstrated substantial performance recovery. Moving forward, the focus will be on further refining marketing and SEO strategies to meet the established objectives.

Table 3. Observations Using Google Analytics

Month	Types of Visitors	Session	New Visitors
1 (Nov)	Direct	44	29
	Organic Search	9	8
	Referral	1	1
2 (Dec)	Direct	45	24
	Organic Search	3	3
	Referral	7	-
3 (Jan)	Direct	30	21
	Organic Search	35	15
	Referral	-	-

In the three months leading up to the implementation of SEO, the website's performance exhibited some fluctuations, as indicated by Google Analytics data.

Direct traffic sessions increased slightly by one session from the first to the second month but then declined by 15 sessions in the third month. Conversely, organic search sessions decreased by six in the second month but rebounded with a growth of 30 sessions in the third month. Meanwhile, new visitors from direct traffic fell by five in the second month and dropped by an additional three in the third month. These trends highlight a significant opportunity to enhance the website's visibility through SEO efforts—particularly by refining keyword targeting and improving content quality—to attract a greater number of organic visitors.



Figure 1. SEO Score Results Before Optimization

At this phase, the SEO Site Checkup tool was utilized to evaluate the search engine optimization (SEO) performance of the Kampung Perca website, providing an overview of how effectively the site adheres to SEO best practices. A lower score signifies that the website's optimization level is below the desired standard. Before the implementation of Whitehat On-Page SEO strategies, the Kampung Perca website achieved a score of 71 out of 100 in November 2023.

a. Visitor Data Analysis

Data on the most frequently visited pages and commonly searched keywords were collected from user activity. The top ten pages were then ranked based on the total number of clicks they received.

Table 4. Top Pages Data

Top Pages	Click	Shows	CTR	Position
https://www.kampungperca.id/	20	304	6,58	8,88
https://www.kampungperca.id/shop	3	33	9,09	8,36
https://www.kampungperca.id/shop/Ikat Rambut	3	15	20,00	4,87
https://www.kampungperca.id/sudut-edukasi	2	31	6,45	13,29
https://www.kampungperca.id/about-us	1	58	1,72	3,47
https://www.kampungperca.id/shop/Tas Samping	1	17	5,88	6,88
https://www.kampungperca.id/shop/Baju Tidur Perempuan	0	7	0,00	23,29
https://www.kampungperca.id/shop/Pouch Besar	0	3	0,00	8,67
https://www.kampungperca.id/shop/Sarung Bantal Kursi	0	1	0,00	15,00
https://www.kampungperca.id/shop/search?sort=default	0	1	0,00	23,00

The data extracted from Google Search Console offers critical insights into the performance of the homepage of https://www.kampungperca.id/. The homepage garnered 20 clicks from 304 impressions, resulting in a click-through rate (CTR) of 6.58%. However, its average position of 8.88 indicates that there is still room for improvement. The "Shop" page achieved a CTR of 9.09%, with 3 clicks from 33 impressions, while the "Ikat Rambut" page demonstrated an impressive CTR of 20.00%, despite having a relatively small number of impressions. In contrast, the "About Us" page recorded a low CTR of 1.72% from 58 impressions, suggesting an opportunity for enhancing the content. Additionally, several pages within the "Shop" section failed to generate any clicks, highlighting the need for a thorough content review. This data serves as a valuable tool for identifying areas where SEO and user experience strategies can be refined for improved outcomes.

Table 5. Top Queries (Keywords) Data

Top Query	Click	Shows	CTR	Position
kampung perca	9	135	6,67%	10,69
kampung perca bogor	2	44	4,55%	9,02
kampung perca sindangsari	0	16	0,00%	8,12
struktur organisasi koperasi	0	8	0,00%	1,25
Konsumen struktur kampung	0	8	0,00%	1,62
struktur organisasi ibi	0	6	0,00%	1,83
baju kampung perempuan	0	5	0,00%	31,20
logo kesatuan bogor	0	3	0,00%	1,00
industri tekstil	0	3	0,00%	19,67
logo ibi kesatuan	0	1	0,00%	1,00

The analysis from Google Search Console reveals that the query "kampung perca" not only receives a high volume of clicks but also demonstrates a strong click-through rate (CTR), indicating its significant appeal among users. In contrast, queries such as "baju kampung perempuan" exhibit a lower CTR, suggesting that the content may require adjustments to better align with user intent. Additionally, location-based queries like "kampung perca bogor" point to more targeted interest, presenting an opportunity to develop specialized content. This data provides valuable direction for website owners, enabling them to identify areas where optimization is required to enhance visibility and relevance in search engine results.

2. On-Page SEO Optimization

a. Keyword Strategy

This study's SEO strategy centers on optimizing the primary keyword "kampung perca". This focused approach is aimed at attracting relevant traffic that aligns with users' interests. The selection of this keyword is strategically intended to boost the website's visibility in search engine results, while also offering valuable content related to the fabric crafting traditions of Kampung Perca.

Table 6. Keyword Suggestions from Google Keyword Planner

Keyword	Avg. Monthly Searches	Competition
Crafts From Fabric	5000	Low
Crafts From Fabric Scraps	5000	Low
Scrap Fabric Crafts	5000	Low
Items Made from Fabric Scraps	500	Low
Examples Of Fabric Crafts	500	Low
Examples Of Crafts from Fabric Scraps	500	Low
Examples Of Scrap Fabric Crafts	500	Low
Figures Of Scrap Fabric Crafts	500	Low
Fabric Scraps Crafts	500	Low
Crafts From Fabric Scraps Material	500	Low

Google Keyword Planner identifies potential keywords for the Kampung Perca website, such as "fabric crafts" and "scrap fabric crafts," which have an estimated monthly search volume of approximately 5,000 and low competition. Other related keywords, like "examples of fabric crafts," with roughly 500 monthly searches, also present considerable potential due to their low competition. Optimizing content and conducting marketing campaigns around these keywords could significantly enhance the website's visibility and effectively attract user engagement.

Meta tags are essential in HTML, as they use the "keywords" attribute to communicate relevant terms to search engines. This study utilizes both primary and secondary keywords to provide deeper insights into the page's content, offering critical context to improve search engine indexing and visibility. By strategically targeting these keywords, websites can better reach their intended audience and strengthen their online presence.

```
<meta name="keywords" content="Kampung Perca,kerajinan dari kain,kerajinan dari kain perca,keraj
inan kain perca,barang dari kain perca,contoh kerajinan dari kain,contoh kerajinan dari kain per
ca,contoh kerajinan kain perca,gambar kerajinan kain perca,kain perca kerajinan,kerajinan dari b
ahan kain perca">
```

Figure 2. Keyword Implementation

b. Static Metadata

In Next.js, static metadata refers to information that is defined during the compilation phase and remains consistent throughout the application's runtime. This type of metadata is essential for controlling how a page's information is displayed in search engine results and on social media platforms. In this study, the metadata is specified within the Layout.tsx file, encompassing elements such as the page title, description, keywords, canonical URL, and search engine indexing instructions. This method ensures proper indexing and presentation of the page across various platforms, thereby improving the website's visibility and overall, SEO performance.

```
<title>Website Resmi Kampung Perca Sindangsari Kota Bogor</title>
<meta name="description" content="Kampung Perca Sindangsari, Desa Wisata di Kota Bogor, me
nghasilkan oleh-oleh khas dengan memanfaatkan kain perca. Inisiatif Pemerintah Kota Bogor
untuk memajukan kampung tematik.">
<meta name="keywords" content="Kampung Perca,kerajinan dari kain,kerajinan dari kain perc
a,kerajinan kain perca,barang dari kain perca,contoh kerajinan dari kain,contoh kerajinan
dari kain perca,contoh kerajinan kain perca,gambar kerajinan kain perca,kain perca kerajin
an,kerajinan dari bahan kain perca">
<meta name="robots" content="index, follow, nocache">
<link rel="canonical" href="https://www.kampungperca.id/">
<meta property="og:title" content="Kampung Perca Sindangsari Kota Bogor">
<meta name="twitter:card" content="summary">
<meta name="twitter:title" content="Kampung Perca Sindangsari Kota Bogor">
```

Figure 3: Static Metadata Output

c. Dynamic Metadata

Dynamic metadata in Next.js allows for the generation of metadata that adapts based on the content or conditions of a web page. This feature provides flexibility, enabling developers to customize the title, description, keyword tags, and other metadata for each page according to the unique needs and characteristics of the content. By dynamically adjusting the metadata, this approach ensures that each page is accurately represented across search engines and social media platforms, thereby improving its relevance and engagement with

```
<title>Alas Mangkuk Besar - Kampung Perca</title>
```

users.

Figure 4. Dynamic Metadata Output

d. Canonical URL

In Next.js, a canonical URL refers to the link recognized as the original version of a web page, serving as the primary source of content. This is vital for SEO because it signals to search engines that the page is the authoritative version of content that may be accessible through multiple URLs. By implementing canonical URLs, websites can prevent issues related to duplicate

```
<link rel="canonical" href="https://kampungperca.id">
```

content, ensuring that search engines index the correct page and ultimately improve the site's search ranking.

Figure 5. Canonical URL Output

The <link rel="canonical"> element in HTML defines the original URL of a webpage, helping search engines determine the correct page to index. This tag is essential for preventing content duplication across multiple URLs, promoting consistency in indexing by ensuring that search engines are more likely to index the official version of the page.

e. Dynamically Generated Sitemap.xml

A Sitemap.xml file contains metadata with the URLs of key content, allowing crawlers to efficiently index website pages. This file is often submitted to Google

Search Console to facilitate the indexing process. The latest version of Next.js 13 introduces a feature for dynamically generating sitemaps, making it easier for search engines to crawl and index pages. This feature utilizes a sitemap.ts file within the App folder, which is accessible to search engine bots. The sitemap.ts file generates a list of URLs that are included in the Sitemap.xml file, which can be accessed via the link https://www.kampungperca.id/sitemap.xml. This approach ensures that indexing remains up to date and enhances visibility in search engine results pages.



Figure 5. The XML process

f. Dynamic robots.txt

The robots.txt file on the Kampung Perca website is used to control which pages are accessible for indexing by search engines. This file includes directives such as user-agent, allow, disallow, and sitemap, which guide web crawlers on which pages can be indexed and which should be excluded. As a result, the robots.txt file plays a vital role in protecting sensitive pages and optimizing search engine performance. Next.js 13 introduces a feature that simplifies the creation of the robots.txt file, allowing it to be stored in the root directory of the app. This file informs crawlers about the URLs that are permitted for indexing, ensuring better control over search engine behavior.

```
User-Agent: *
Allow: /

Sitemap: https://www.kampungperca.id/sitemap.xml
```

Figure 7. Robots.txt Output

3. Final Testing (Post Test)

In the final phase, the website's performance is assessed using Google Analytics 4 and Google Search Console between March and May. The primary focus is on monitoring improvements in organic search traffic to evaluate the effectiveness of the implemented SEO strategies.

a. Verification Using Google Search Console

Table 7. Displays the Outcomes of the Verification Process Conducted Through Google Search Console

Month	Clicks	Impressions	CTR	Position	Indexed Pages Count
1. Pre Test (Nov)	6	35	17.1%	15.3	
2. Pre Test (Dec)	1	19	5.3%	12.6	
3. Pre Test (Jan)	18	344	5.2%	8.4	
4. SEO Optimization (Feb)	22	409	5.4%	8.4	
5. Post Test (Mar)	29	784	3.9%	7.3	
6. Post Test (Apr)	41	1425	2.9%	10.2	
7. Post Test (May)	76	2173	3.5%	10.1	

During the pre-test period, from November to January, both clicks and impressions saw an increase, rising from 6 clicks and 35 impressions in November to 18 clicks and 344 impressions in January. After the implementation of SEO optimization in February, performance further improved, with the website receiving 22 clicks from 409 impressions, resulting in a CTR of 5.4%.

In the post-test period, from March to May, a substantial improvement was noted. By May, the website recorded 76 clicks from 2173 impressions, resulting in a CTR of 3.5%. This significant increase highlights the effectiveness of the applied SEO strategies.

b. Verification Using Google Analytics 4

Table 8. Presents the Results from Google Analytics 4 Verification

Month	Visitor Type	Sessions	New Visitors
1. Pre Test (Nov)	Direct	44	29
	Organic Search	9	8
	Referral	1	1
2. Pre Test (Dec)	Direct	45	24
	Organic Search	3	3
	Referral	7	-
3. Pre Test (Jan)	Direct	30	21
	Organic Search	35	15
	Referral	-	-
4. SEO Optimiztion (Feb)	Direct	33	15
	Organic Search	35	15
	Referral	-	-
5. Post Test (Mar)	Direct	40	27
	Organic Search	57	20
	Referral	-	-
6. Post Test (Apr)	Direct	52	43
	Organic Search	57	34

	Referral	7	-
7. Post Test (May)	Direct	68	68
	Organic Search	82	58
	Referral	9	1

In January, the website recorded 30 direct sessions (with 21 new visitors) and 35 organic search sessions (with 15 new visitors). February saw slight improvements, with 33 direct sessions and 35 organic search sessions, both maintaining 15 new visitors. During the post-test period, March experienced further growth, with 40 direct sessions (including 27 new visitors) and 57 organic search sessions (with 20 new visitors). April continued the upward trend, reaching 52 direct sessions (with 43 new visitors) and 57 organic search sessions (with 34 new visitors). The most significant increase occurred in May, which saw 68 direct sessions (all 68 new visitors) and 82 organic search sessions (with 58 new visitors).

b. SEO Results Testing

The SEO analysis conducted using SEO Site CheckUp indicated an improvement in the website's SEO score, which increased from 71/100 to 80/100 over three months. By June 2024, the score had surpassed the average SEO optimization score of 74/100, marking a significant achievement in the site's SEO performance.



Figure 8. SEO Results Testing

c. Alternative Testing Using Google Gemini

In this phase, the website underwent alternative testing using Google Gemini, a platform that provided deeper insights into how Kampung Perca's content could be further optimized for improved visibility and engagement. By utilizing the capabilities of Google Gemini, the website's reach was extended, and its search rankings were further enhanced. This approach enabled a more refined SEO strategy, as real-time user interactions were analyzed and the content was adapted to meet the evolving requirements of search algorithms.

Following the SEO optimization, the Kampung Perca website gained recognition from Google Gemini, which significantly boosted its visibility and earned valuable backlinks, contributing to an improved search ranking. This emphasizes the success of the implemented SEO strategy. By continuously refining its approach to align with search engine algorithms, Kampung Perca ensures its position in search results while expanding its reach, ultimately introducing its patchwork crafts to a wider audience.



Figure 9. Alternative Testing of Kampung Perca Website on Google Gemini

d. Long-Term On-Page SEO Testing

The effectiveness of the white-hat on-page SEO method was assessed over a three-month period, yielding significant results. During this time, the website's ranking remained consistently stable on the first page of Google's SERP without requiring any additional modifications. This stability indicates that the on-page SEO optimization successfully maintains rankings over time. However, if rankings were to decline in the future, supplementary strategies such as off-page SEO (e.g., link-building) or technical SEO (including site speed optimization, URL structure improvements, and enhanced security) may be considered to further strengthen the website's performance.

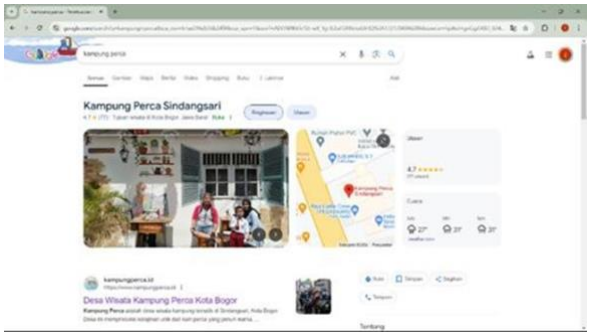


Figure 10. Website Position on Google's SERP After Testing Period Without Metadata Modifications

Figure 10 illustrates the website's position following three months of testing, conducted without any modifications to the on-page SEO.

During this testing period, with no changes made to the on-page SEO strategy, the website's SEO score showed a consistent improvement, rising from 80/100 during the pre-test period (March–May) to 84/100 by the end of the testing phase. This demonstrates that the SEO strategy implemented was effective and had a positive impact on the website's long-term performance. Figure 11 presents the SEO score at the conclusion of the three-month testing.

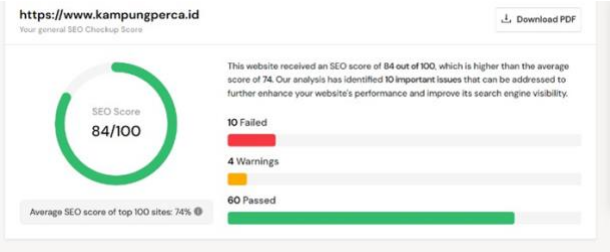


Figure 11. SEO Score After the Testing Period Without Metadata Modifications

4. Analysis of Comparison Results

a. Comparison Before and After SEO Implementation Using Google Search Console

Table 9 provides a comparison of the website's performance before and after the SEO implementation, as assessed using Google Search Console. The data highlights the website's key performance metrics, including clicks, impressions, CTR, and average position, showing how these indicators changed following the application of SEO strategies. Prior to the implementation, the website had a lower CTR and fewer clicks, reflecting less effective optimization. However, after the SEO strategies were applied, there was a noticeable improvement in both click-through rates and overall search rankings. The comparison emphasizes the positive impact that the SEO changes had on the website's visibility and performance, confirming the effectiveness of the strategies in driving organic traffic. The table also underscores the website's enhanced position on search engine result pages (SERPs), showcasing a clear upward trend in key SEO metrics.

Table 9. Comparison of the Website's Performance Before and After the SEO Implementation

Metric	Before SEO	After SEO	Difference
Total Clicks	25	146	121
Total Impressions	398	4346	3948
Average CTR	6.3%	3.4%	2.9%
Average Position	9.2	9.7	0.5

The SEO analysis of the Kampung Perca website reveals a substantial increase in clicks and impressions following the SEO optimization. The total clicks grew from 25 (with 398 impressions) in the pre-test period to 146 (from 4,382 impressions) during the post-test phase. While visibility improved, the click-through rate (CTR) decreased from 17.1% in November to 3.5% in May, indicating that the content might not be fully aligned with user expectations or search intent. Additionally, the average position of the site improved to 8.4 in February, though some fluctuations occurred during the post-test period. This analysis highlights the importance of maintaining a continuous SEO strategy to sustain rankings and ensure content relevance in the face of evolving search algorithms.

b. Comparison Before and After SEO Implementation Using Google Analytics 4

Table 10 provides a comparison of the website's performance before and after the SEO implementation, as measured by Google Analytics 4. This comparison presents key metrics such as user sessions, bounce rate, and average session duration, offering a deeper understanding of the website's effectiveness in engaging visitors and retaining their attention post-SEO optimization.

Table 10. Comparison of the Website's Performance Before and After the SEO Implementation

Visitor Type	Before On-Page SEO Sessions	After On-Page SEO New Visitors
Direct	119	74
Organic Search	47	26
Referral	8	1
Total	174	101

Before the SEO optimization, direct traffic recorded 119 sessions and 74 new visitors, while organic search accounted for only 47 sessions and 26 new visitors, with minimal referral traffic of 8 sessions and 1 new visitor. After the implementation of on-page SEO, direct traffic increased to 160 sessions and 138 new visitors. A significant improvement was observed in organic search, which reached 196 sessions and 112 new visitors, demonstrating enhanced visibility in search engines. Although referral traffic rose to 16 sessions, the number of new visitors remained unchanged at 1. Overall, the implementation of on-page SEO was effective in improving website performance, particularly in attracting new visitors through organic search.

c. Comparison of Website Position on Google's SERP Before and After SEO Implementation

In the context of SEO, a website's position on the Search Engine Results Page (SERP) serves as a crucial indicator of its online visibility. Prior to the application of SEO strategies, the Kampung Perca website did not appear on the first page of search results for the keyword "kampung perca" and was not indexed by Google. This lack of visibility significantly limited the website's potential for online interaction and negatively affected the volume of visitors. The absence of an indexed site in Google's search results meant that the website missed out on a substantial amount of organic traffic, which is essential for improving both reach and engagement.

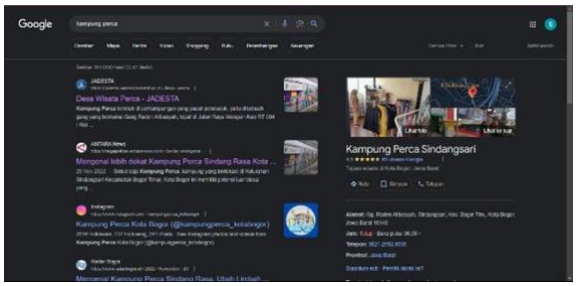


Figure 12. Google SERP Before Optimization

Following the implementation of the SEO strategy, the Kampung Perca website attained the top position on Google's SERP for the keyword "kampung perca", reflecting a significant enhancement in both visibility and competitiveness. This improvement highlights the effectiveness of the applied SEO techniques, which contributed to better performance in search engine rankings and increased the website's presence on search result pages.

This ranking, though, demonstrated instability, influenced by factors such as fluctuations in search algorithms, keyword competition, and the ongoing content optimization efforts of competitors. Consequently, it is essential to continuously monitor and adjust the SEO strategy to preserve or further improve this position over the long term. Regular evaluation and adaptation are crucial for maintaining competitive advantage and securing sustained high rankings.

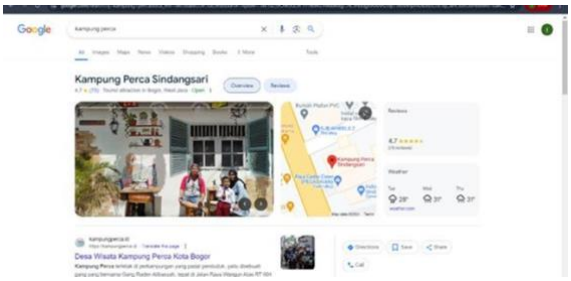


Figure 13. Google SERP After Optimization

5. CONCLUSIONS

This study seeks to address the gap in empirical evidence and the lack of contextual models for the application of on-page SEO techniques to culturally-driven, non-commercial tourism village websites. To fill this gap, a tailored SEO implementation framework was developed and applied to optimize the Kampung Perca Sindangsari website using white-hat on-page SEO techniques. Key steps in this process included strategic keyword placement, the implementation of dynamic and static metadata, the use of sitemap.xml and robots.txt, as well as improvements to the page structure to ensure that the content was effectively indexed by search engines. These modifications were designed to increase the visibility of the website, enhance user engagement, and improve overall search rankings.

The application of these techniques led to a significant increase in website traffic, session count, and the number of new visitors, as well as securing the top ranking on Google's SERP for the primary keyword. This marked a clear success in implementing SEO strategies tailored to the tourism village's unique content. Despite this improvement in visibility and user engagement, the click-through rate (CTR) experienced a decline, signalling the need for further content enhancement. This suggests that while the technical aspects of SEO were effective, additional efforts to align the content with user expectations and search intent are necessary to maximize user interaction.

Furthermore, the SEO score of the website improved from 71/100 to 80/100, indicating tangible progress in the optimization process. This increase in score reflects the effectiveness of the applied SEO techniques in improving the website's technical performance and search engine visibility. As part of the ongoing testing process, it was observed that the SEO score continued to rise, reaching 84/100 without any modifications to the strategy, highlighting the potential for long-term sustainability in search rankings. The testing phase demonstrated that the chosen SEO methods were successful in maintaining stable rankings, reinforcing the importance of an ongoing, adaptable SEO strategy.

Despite these positive results, fluctuations in ranking can still occur due to factors such as algorithm updates, increased keyword competition, and changes in content optimization strategies by competitors. In the event that rankings decrease or if there are issues with page visibility on Google's SERP, the introduction of off-page SEO techniques, such as link-building, or the application of technical SEO methods, like site speed optimization or URL structure improvements, would be necessary to address these challenges and sustain the website's high performance.

This study makes a valuable contribution to the academic debate by providing an evidence-based framework for applying on-page SEO techniques specifically to tourism village websites, a category often overlooked in mainstream SEO research. By demonstrating the effectiveness of these techniques within the unique context of culturally-driven, non-commercial websites, this research offers a model for others in the field, enabling them to optimize tourism village websites while considering their unique content and structure.

ACKNOWLEDGMENTS

We would like to express our sincere gratitude to all the academic staff and faculty members at Institut Bisnis

dan Informatika Kesatuan (IBI Kesatuan), Universiti Tun Hussein Onn Malaysia (UTHM), Avans University, the Netherlands, and Metropolitan Community College Longview-Lee's Summit. We are especially grateful for their generous support in providing access to their laboratories, which played a crucial role in the successful execution of this research titled On-Page Techniques for Improved Google Search Engine Ranking: A Tourism Village Approach. Their invaluable assistance and collaboration have greatly contributed to the smooth progression and completion of this study.

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