

Comprehensive Website SEO Analysis: A Diagnostic Approach for Enhanced Online Visibility

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Abstract: Search engine optimization (SEO) is a critical element in digital marketing, directly influencing a website's visibility, usability, and long-term competitiveness. As businesses increasingly rely on digital platforms to engage with customers and drive conversions, optimizing their online presence has become essential for sustainable growth. This paper presents a structured SEO audit of a mid-sized website, applying a comprehensive framework that evaluates technical infrastructure, on-page content elements, keyword integration, backlink profiles, and user experience design.

The analysis identifies several areas of concern, including slow page speed, inconsistent meta tags, broken internal links, underutilized keyword strategies, and a weak backlink profile—each of which significantly impacts the site's performance in search engine results pages (SERPs). Additionally, user engagement is hindered by a lack of strong calls-to-action and content depth, limiting both discoverability and conversion potential.

Through the synthesis of audit findings, this study proposes a strategic set of recommendations designed to enhance organic performance, improve indexability, and align the website with current SEO best practices. These recommendations encompass technical optimizations, content enrichment strategies, and authority-building techniques. The insights presented in this paper not only serve as a diagnostic tool for the audited website but also provide a replicable model for SEO practitioners aiming to improve search visibility, user satisfaction, and digital impact across industries.

Keywords: SEO audit, technical optimization, keyword analysis, backlink profile, digital visibility, user experience

I. INTRODUCTION

As the digital landscape becomes increasingly competitive, organizations must prioritize their online presence. SEO serves as the primary tool to ensure that a website is discoverable, accessible, and optimized for search engines. This paper examines the SEO performance of a selected website, focusing on technical, on-page, and off-page factors that impact its visibility and ranking in search engine results pages (SERPs).

II. LITERATURE REVIEW

2019

- Mishra & Yadav (2019)-The study presented real-life implementations of SEO in e-commerce. It showed that link-building, product page optimization, and content updates are effective. The paper also discussed analytics tools and performance tracking. It focused on practical, results-driven SEO.
- Weideman, M. (2019)- Weideman provided a scholarly review of SEO developments and academic perspectives. He covered technical, ethical, and educational dimensions of SEO. The paper advocated for structured content and metadata. It also suggested including SEO in digital marketing education.

2020

- Shayegan & Kouhzadi (2020) – Analyzed SEO metrics affecting university website rankings. They found that factors like backlinks, Alexa Rank, and PageRank significantly impact rankings. The study used association rules to identify key patterns in SEO performance. Results emphasized the role of strong SEO strategies in academic institutions. Their findings can help universities improve digital visibility.
- Patel, N. (2020)-Patel explored how AI and voice search are transforming SEO. He discussed the role of machine learning in content ranking. The research anticipated greater personalization in search results. It encouraged

marketers to adapt to conversational search trends.

- Bhandari & Bansal (2020)-This study evaluated popular SEO tools such as Ahrefs, Moz, and SEMrush. It analyzed their usability, data accuracy, and reporting capabilities. The authors recommended tool integration for keyword tracking and backlink analysis. The paper offered guidance for digital marketers.

2021

- Angeloni & Rossi (2021) – Developed a comparative model for search engine marketing profitability. Their study examined the return on investment (ROI) of organic SEO versus paid advertising. Results showed that while paid ads yield immediate traffic, organic SEO provides long-term benefits. They recommended balancing both strategies based on budget and business goals. Their research aids businesses in optimizing digital marketing expenditure.
- Pandey & Saurabh (2021)-The authors investigated SEO's impact on local business visibility. They emphasized citation consistency, reviews, and map listings. The study showed that SEO enhances trust and traffic. It provided case examples from service-based industries.

2022

- Mehta & Agrawal (2022)-This paper analyzed AI-based SEO automation tools like ChatGPT and Jasper. It explored AI's ability to generate optimized content. The study highlighted efficiency and cost savings but noted ethical concerns. It predicted wider AI adoption in SEO workflows.

2023

- Khan & Ahmad (2023)-Khan and Ahmad examined the evolution of SEO in the context of semantic search. They explained how natural language processing (NLP) models like BERT and MUM influence rankings. The paper emphasized entity-based content and structured data. It marked a shift from keyword-centric to meaning-centric optimization.

III. SCOPE OF THE STUDY

This study will focus on three core areas: (1) the impact of AI tools (e.g., chatbots, content generators) on SEO performance and ethical considerations, (2) optimization strategies for voice search in multilingual and underserved regional contexts, and (3) the correlation between sustainable web practices (e.g., green hosting, energy-efficient UX) and search rankings. Methodologically, it will combine technical audits, keyword analysis, competitor benchmarking, and user intent modeling, with data drawn from case studies across industries such as e-commerce, publishing, and SaaS. The scope is limited to organic search strategies, excluding paid advertising, and prioritizes platforms like Google and emerging AI-driven search engines. Findings will offer scalable frameworks for businesses while highlighting areas for future academic exploration.

IV. NEED OF THE STUDY

The need for this study arises from the rapidly evolving landscape of search engine optimization (SEO), where emerging technologies (e.g., AI-generated content, voice search, and decentralized web platforms) and shifting user behaviors create gaps in existing strategies. Current research often overlooks the ethical implications of AI-driven SEO, the optimization challenges for non-English voice queries, and the role of sustainability in ranking algorithms. Businesses and practitioners require actionable insights to adapt to these changes, remain competitive, and align SEO practices with evolving search engine guidelines. By addressing these gaps, the study aims to provide evidence-based strategies that bridge theoretical knowledge and real-world application, empowering organizations to navigate technological disruptions while maintaining ethical and sustainable practices.

V. OBJECTIVES OF THE STUDY

To reach a systematic answer to the research problem is known as research methodology. The research can be done as a science since it is done by scientists through research. To collect information, it is essential to have the research methodology in place.

Research is, in the purest etymological sense, just searching for knowledge. It may also be defined as an organized, scientific search for relevant information in a certain field of importance. Thus research is an art of scientific investigation. The learner's dictionary of current English defines research as "a pretty careful inquiry or investigation, especially through searching out new facts in any branch of knowledge".

4. ANALYSIS:

4.1 CHI-SQUARE:

A. Age Group vs Trustworthiness of Website Information

- Pearson Chi-Square: 11.017, $p = 0.275$

Count		4. How would you rate the trustworthiness of information found on Tata International's website?				Total
		Extremely trustworthy	Generally trustworthy	Neutral	Slightly untrustworthy	
1. age group	under 18	1	2	6	0	9
	18-25 years	9	28	34	4	75
	26-35 years	4	11	3	0	18
	36-45 years	0	0	1	0	1
Total		14	41	44	4	103

Chi-Square Tests			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	11.017 ^a	9	.275
Likelihood Ratio	12.768	9	.173
Linear-by-Linear Association	3.702	1	.054
N of Valid Cases	103		

11 cells (68.8%) have expected count less than 5. The minimum expected count is .04.

☐ **Null Hypothesis (H_0):** There is no association between age group and perceived trustworthiness of the website.

☐ **Alternative Hypothesis (H_1):** There is an association between age group and perceived trustworthiness of the website.

Interpretation: There is **no significant association** between a respondent's age group and how trustworthy they perceive Tata International's website. A p-value greater than 0.05 (here, 0.275) means we **fail to reject the null hypothesis**—perceptions of trustworthiness.

4.2. T-TEST:

A. Gender vs Website Speed Experience ("Strongly Agree")

- Proportion of Males who strongly agree: 9.4%
- Proportion of Females who strongly agree: 0%
- Difference in Proportions p-value (two-sided): 0.175

Independent-Samples Proportions Group Statistics					
	2. Gender	Successes	Trials	Proportion	Asymptotic Standard Error
Section 2: Technical SEO Performance:	= Male	8	85	.094	.032
	= Female	0	18	.000	.000
1. The website loads quickly on both desktop and mobile devices. = Strongly agree					

Independent-Samples Proportions Confidence Intervals					
	Interval Type	Difference in Proportions	Asymptotic Standard Error	95% Confidence Interval of the Difference	
				Lower	Upper
Section 2: Technical SEO Performance: 1. The website loads quickly on both desktop and mobile devices. = Strongly agree	Agresti-Caffo	.094	.032	-.062	.168
	Newcombe	.094	.032	-.088	.175

Independent-Samples Proportions Tests						
	Test Type	Difference in Proportions	Asymptotic Standard Error	Z	Significance	
					One-Sided p	Two-Sided p
Section 2: Technical SEO Performance: 1. The website loads quickly on both desktop and mobile devices. = Strongly agree	Wald H0	.094	.032	1.355	.088	.175

- **Null Hypothesis (H₀):** There is no difference between male and female perceptions of the website loading speed.
- **Alternative Hypothesis (H₁):** There is a difference between male and female perceptions of the website loading speed.
- Interpretation:** While more males than females “strongly agree” that the website loads quickly, the **difference is not statistically significant** ($p > 0.05$). We cannot confidently claim that gender influences this perception.

4.3. CORRELATION:

A. Content Relevance vs Language Clarity

- Pearson Correlation (r): 0.533, $p < 0.001$

Correlations			
		Section 1: Website content Quality: 1. The content on Tata International’s website is relevant to what I was searching for.	2. The language used on the website is clear, professional, and easy to understand.
Section 1: Website content Quality: 1. The content on Tata International’s website is relevant to what I was searching for.	Pearson Correlation	1	.533**
	Sig. (2-tailed)		<.001
	Sum of Squares and Cross-products	68.058	38.777
	Covariance	.667	.380
	N	103	103
2. The language used on the website is clear, professional, and easy to understand.	Pearson Correlation	.533**	1
	Sig. (2-tailed)	<.001	
	Sum of Squares and Cross-products	38.777	77.689
	Covariance	.380	.762
	N	103	103
. Correlation is significant at the 0.01 level (2-tailed).			

- **Null Hypothesis (H₀):** There is no correlation between content relevance and language clarity on the website.

- **Alternative Hypothesis (H₁):** There is a significant correlation between content relevance and language clarity.

Interpretation: There is a moderate positive correlation. Users who find the website content relevant are also more likely to find the language clear and professional. This is statistically significant.

VI. FINDINGS AND SUGGESTIONS

- No close correlation between trust and age – All user groups of any age perceive the site's trustworthiness similarly; there is no need for any age-specific content targeting.
- Education affects perception of search visibility – More educated users see Tata International's search visibility differently, i.e., the user needs customized content and SEO strategy.
- Gender differences in speed perception are minimal – Although men estimated speed slightly more, it is crucial to have quick loading speeds on all devices to provide an equal user experience.
- Linguistic clarity and relevance of content have a high correlation; individuals who find content relevant also find content clear and professional. The result is a sign of the need to have high-quality, user-oriented content.
- Search visibility affects trust – People will trust Tata International more if the site is highly visible in search, and this highlights the need for quality SEO and keyword planning.
- Technical SEO improvements are key – Improve mobile usability, page loading speed, and crawlability to increase search engine rankings and user satisfaction.
- Keep the content consistent throughout platforms – Preserve the brand presence and message constant throughout directories, social environments, and search.
- Encourage educational diversity of users – Develop SEO content and strategies that appeal to people of different educational levels to increase reach and performance.
- Invest in trust content – Employ open, authoritative, and professional tone backed by industry facts or case studies to establish credibility.
- Continuously monitor and adjust SEO strategies – Stay updated on changes in search engine algorithms, user behavior trends, and technological advancements to maintain a competitive edge.

VII. CONCLUSION

The SEO analysis of Tata International Limited highlights critical insights into user perceptions and website performance. The findings show that while demographic factors like age and gender do not significantly impact perceptions of trustworthiness or technical performance, education level notably influences how users perceive the company's visibility in search results. Furthermore, the study reveals strong correlations between content relevance and language clarity, as well as between search visibility and trustworthiness, underscoring the importance of quality content and strategic search engine positioning. These insights suggest that user experience, clarity of communication, and technical robustness play key roles in shaping overall trust and engagement.

Based on the analysis, it is evident that a well-rounded SEO strategy should focus on enhancing technical elements such as site speed and mobile optimization, while also prioritizing the creation of clear, relevant, and professionally written content. Tata International should also continue to strengthen its presence across search engines and maintain consistency across digital platforms to boost user trust and authority. By aligning SEO efforts with the expectations of a diverse and educated audience, the company can improve organic visibility, build brand credibility, and achieve sustainable digital growth.

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