

Chapter 8


Impact of Artificial Intelligence on SEO and Online Visibility

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ABSTRACT

This chapter examines the growing impact of Artificial Intelligence (AI) on Search Engine Optimization (SEO) in the experience-driven economy. AI, defined as a set of systems that simulate human cognitive functions, equips companies with powerful tools to analyze complex data and automate processes. As SEO remains crucial for capturing user attention on search engines, it must continually adapt to increasingly sophisticated algorithms. AI is transforming SEO by enabling in-depth analysis of user behavior and delivering personalized search results. Tools such as Google RankBrain and ChatGPT are driving this evolution while also introducing new challenges. This research analyzes the fundamental principles of AI and its key components—including machine learning, deep learning, and natural language processing—and their distinct roles in SEO enhancement. Additionally, the applications, benefits, and challenges of AI-driven SEO are evaluated, and the future trends that could redefine the relationship between AI and SEO in an increasingly digital world are examined.

INTRODUCTION

In an increasingly digital world, artificial intelligence (AI) is emerging as a major technological revolution (Popkova & Gulzat, 2020). AI is defined as a set of systems and techniques that enable machines to simulate human cognitive functions such as learning, reasoning, and decision-making (Sarker, 2022).

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AI provides companies, organisations, and content creators with powerful tools for analysing complex data, predicting trends, and automating processes (Haleem et al., 2022).

Before the introduction of artificial intelligence, traditional SEO relied heavily on manual strategies to improve website rankings. Techniques like keyword stuffing, meta tag optimization, and link-building dominated early SEO practices (Chanthati, 2024). Search engines, such as Yahoo and early versions of Google, used relatively simple algorithms that prioritized exact keyword matches and backlink quantity over content quality (Naamha & Abdulmunim, 2024). However, this approach often resulted in low-quality, spammy content ranking higher. Over time, updates like Google's Panda and Penguin algorithms began to prioritize user experience, content relevance, and ethical practices (Dobbala & Lingolu, 2023). These changes set the stage for AI-driven SEO, which focuses on understanding user intent, semantic search, and delivering highly personalized results. Traditional SEO thus evolved from technical optimization to a more user-focused approach, paving the way for intelligent automation.

The growing importance of search engine optimisation (SEO) and online visibility in this digital environment is undeniable (Mladenović et al., 2023). Companies, whether local or multinational, are seeking to capture the attention of users via search engines. SEO, which involves optimising online content to reach the top positions of search results, has become a strategic lever for attracting qualified audiences (Singh, 2024). However, with the increasing complexity of search algorithms and user expectations, traditional SEO approaches are reaching their limits (Rathore, 2016).

This is where artificial intelligence comes in. AI is transforming SEO practices by providing innovative solutions: analysing user behaviour, personalising search results, and improving the user experience (Elkhatibi & Benabdelouhed, 2024). Tools such as Google RankBrain and SEMrush and content generators such as ChatGPT and Jasper enable SEO specialists to automate tasks, predict trends, and optimise their strategies (Vu, 2024).

In the modern digital economy, search engine optimization (SEO) serves as a cornerstone for online visibility, and artificial intelligence (AI) is reshaping this field in unprecedented ways (Kilimas & Murthy, 2024). Research shows that 93% of all online experiences begin with a search engine, underlining the pivotal role of SEO in driving website traffic and business growth (Makrydakakis, 2022). Over the decades, SEO strategies have evolved from basic keyword placements to advanced AI-powered solutions that enhance personalization, optimize content, and predict user intent.

However, this transition is not without its challenges. How is AI changing SEO practices in concrete terms? What are the benefits, but also the limits and potential risks? This chapter sets out to explore these questions in several stages: firstly, by presenting the foundations of AI and its main applications in SEO; secondly, by highlighting its benefits and positive impacts; thirdly, by discussing the limits and risks associated with its use; and finally, by examining the future trends that will redefine the interaction between AI and SEO.

SEO EVOLUTION OVER TIME

SEO (Search Engine Optimization) has evolved significantly over the years. (Dulloo, 2022). The advent of Information technology reshaped the marketing scenario. In the early days of search engines, SEO was primarily about keyword stuffing. Marketers would cram as many keywords as possible into meta tags, headers, and content to rank higher (Hendrie & Funk, 2018). This approach was simple but highly effective for a time. Traditional practices also involved backlinking—acquiring links from any

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