

The Impact of Search Engines Optimization on Customer Experience of Startups in Algeria: A Case Study of Nrecycli, WeeWee Opticharge, Volz.

تأثير تحسين محركات البحث على تجربة زبائن المؤسسات الناشئة في الجزائر: دراسة حالة Nrecycli, WeeWee Opticharge, Volz.

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Abstract:

This research paper aims to measure the impact of search engines optimization (SEO) on the customer experience of startups in Algeria. The two researchers collected data from 210 participants who are customers of the Algerian startup companies (Nrecycli, WeeWee, Opticharge, Volz). The two researchers used Structural Equation Modeling (SEM) through Smart PLS 4 software to analyze the data. The findings of this study indicated that the role played by SEO strategies (On-Page SEO, Technical SEO, and Off-Page SEO) on customer experience was strong and influential. The results also indicated a positive relationship between SEO improvement and increased website traffic for the studied startup companies.

Keywords: Search Engines Optimization; Customer Experience; Startups; Website; Strategies.

JEL Classification Codes: M31, M37, M13, M39.

ملخص:

تهدف هذه الورقة البحثية إلى قياس تأثير تحسين محركات البحث على تجربة زبائن المؤسسات الناشئة في الجزائر. جمع الباحثان البيانات من 210 مشاركًا يعتبرون زبائنًا لمؤسسات ناشئة جزائرية (Nrecycli, WeeWee, Opticharge, Volz). كما استخدم الباحثان نموذج المعادلات الهيكلية (SEM) من خلال برنامج Smart PLS 4 لتحليل البيانات. وقد توصلت نتائج هذه الدراسة إلى أن الدور الذي تلعبه استراتيجيات تحسين محركات البحث (تحسين محركات البحث داخل الصفحة، تحسين محركات البحث التقنية، تحسين محركات البحث خارج الصفحة) على تجربة الزبائن كان قويًا ومؤثرًا. كما توصلت النتائج إلى وجود علاقة إيجابية بين تحسين محركات البحث وزيادة حركة المرور على المواقع الإلكترونية للمؤسسات الناشئة محل الدراسة.

كلمات مفتاحية: تحسين محركات البحث، تجربة الزبون، المؤسسات الناشئة، الموقع الإلكتروني، الاستراتيجيات.

تصنيفات JEL: M31، M37، M13، M39.

1- Introduction

In an era characterized by a rapid technological advancement and widespread internet proliferation, enhancing Search Engine Optimization (SEO) for websites has become a key factor for the success of companies, particularly startups. SEO is not merely a technical measure but a comprehensive strategy to improve a company's online visibility and enhance customer engagement.

Today, startups are pivotal drivers of economy and innovation. (Hadjadj et Bouchekifa) However, market competition and survival challenges remain higher. Implementing SEO techniques is considered an effective approach to bolstering their digital presence and enhancing customer experience.

Based on the above, the research problem can be posed as follows: **What is the impact of SEO on the customer experience of startup companies under study?**

Study Hypotheses

H1 : There is a statistically significant impact of On-page SEO strategy on the customer experience of startups under study.

H2 : There is a statistically significant impact of technical SEO strategy on the customer experience of startups under study.

H3 : There is a statistically significant impact of off-page SEO strategy on the customer experience of startups under study.

Study Objectives

- Measuring the impact of search engine optimization strategies on the customer experience of startup companies.
- Addressing search engine optimization strategies and demystifying their complexity.
- Highlighting the fundamental concepts of customer experience and analyzing them comprehensively.
- Shedding light on the role of search engine optimization strategies in enhancing customer experience.

Study Importance

The importance of this study lies on its examination of one of the most essential and complex tools in digital marketing, Search Engine Optimization (SEO), which is closely linked to information systems and algorithms. SEO is considered one of the most effective techniques for enhancing customer experience, making this study highly valuable for institutions, particularly startups, that aim to improve their digital presence. Additionally, the study offers insights that can enable startups to enhance their digital image and create a competitive edge compared to their counterparts in the same sector.

Study Methodology

To achieve the objectives of the study, a descriptive-analytical approach was used to present various definitions related to the topic, such as the concept of Search Engine Optimization (SEO) and its strategies, as well as the customer experience (CX) and its journey. Additionally, an approach was employed using Structural Equation Modeling (SEM) through Smart PLS4 software to analyze the data and determine the impact of SEO on the customer experience of a group of startups in Algeria.

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Previous Studies

Hamza Salim Khraim's (2015) study titled "The Impact of Search Engine Optimization Dimensions on Companies Using Online Advertisement in Jordan" attempted to address the research question : "What is the impact of SEO dimensions on online advertisement ?" The study concluded that the first dimension of SEO did not have a significant impact, in contrast to the other dimensions, which had a substantial effect on online advertisement. (Khraim, 2015)

The study by Asim Shahzad & al. (2020) titled "The New Trend for Search Engine Optimization, Tools and Techniques" attempted to address the issue : "How can websites benefit from the new trends, tools, and techniques in search engine optimization to achieve optimal search results and ensure increased visibility and traffic ?" The study concluded that SEO techniques have reached significant importance in enhancing website rankings and increasing traffic. (Asim and others, 2020)

The study by Berrin Arzu Eren (2022) on QR code m-payment from a customer experience perspective aimed to address the problem statement: "What is the impact of Information System Success Model (ISSM) dimensions, perceived risks, perceived transaction speed, and optimism on the mobile phone QR code payment experience ?" The research findings concluded that information quality, system quality, perceived transaction speed, and optimism significantly influence customer experience. However, service quality and perceived risks associated with QR code payment did not impact customer experience. (Eren, 2024)

2- Literature Review

2-1 Definition of Search Engine Optimization

Search Engine Optimization, abbreviated as SEO, is an efficient method to enhance the visibility and volume of user traffic through organic search results for a given website or domain. SEO is considered a form of natural search and can be divided into algorithmic and organic categories. The higher the ranking assigned by SEO, the greater the visibility and traffic for that particular website or domain will be. Regularly updating content, especially with relevant and valuable information, can help maintain high-ranking positions and drive more traffic. (Spencer and others, 2021, p.63)

2-2 SEO Strategies

There are three main strategies for search engine optimization:

2-2-1 On-page SEO

On-page SEO refers to factors that optimize the website internally. These factors are detailed as follows:

2-2-1-1 Keyword Analysis

Keyword research is one of the most important activities in the field of Search Engine Marketing. It helps predict demand shifts and respond to changing market conditions. Essentially, every phrase typed into a search engine is recorded in one way or another. Keyword research tools from various digital sites and applications allow us to obtain this information. (Nagpal, Petersen, 2021, p.751)

Definition of Keywords

Keywords are the words (phrases) that a search engine user types to find the results or topics they need to view or to reach a particular product. They are the phrases we use to search for something on Google, Bing, or other search engines. Analyzing these keywords and researching them is crucial for publishers and advertisers to achieve their goals and reach their audience by selecting suitable keywords for their website and online activities, considering competition levels and search rates. (Setiawan and others, 2020, p.37)

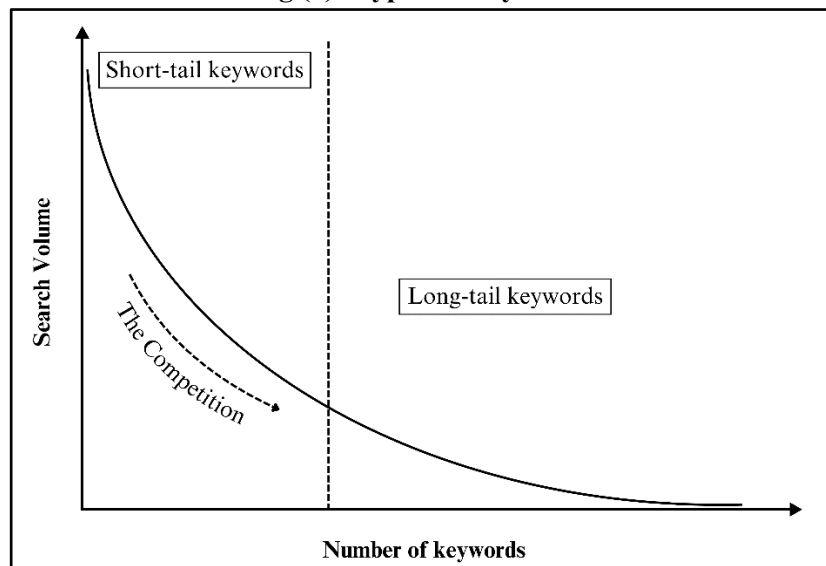
Types of Keywords

Tens of thousands of searches are conducted daily on search engines using keywords, which are categorized into two main types based on length: (Heinze and others, 2025, p.142)

- **Short-tail keywords:** Search phrases consisting of up to three words.
- **Long-tail keywords:** Search phrases consisting of more than three words.

This categorization is influenced by several factors, primarily competition, as illustrated in the following figure:

Fig (1): Types of Keywords



Source: Stephan Spencer, 2021, p.22

As shown in Figure 1, the longer the keyword, the lower the competition. Thus, there is an inverse relationship between the length of the keyword and the level of competition.

Criteria for Selecting Keywords

The process of selecting and filtering keywords is governed by several criteria, including:

- **Search Volume:** The number of searches performed for the keyword within a specified timeframe. (Mladenović and others, 2023, p.669)
- **Low Competition:** Keywords that have not been widely used by competitors or have been used by only a few. If the demand for a particular keyword is high, the search engine will select the websites that appear at the top of the search engine results pages (SERPs) based on other criteria, such as paid advertisements. (Erdmann and others, 2022, p.654)
- **Relevance and Alignment with the Field:** The selected keywords should match the website's subject and the content of its various pages, reflecting its marketing goals (purchases, subscriptions, etc.). (Baye and others, 2022, p.21)
- **Expected Traffic Volume:** When compiling relevant keywords using certain keyword tools and applications, they provide statistics such as the number of times a keyword has

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been searched, the average cost-per-click (CPC) if the demand is high, traffic volume, conversion rates, and other statistics that allow us to predict the expected number of visitors. (Kowalczyk and Szandala, 2024, p.11608)

- **Keyword Length:** Depending on the length criterion (short-tail keywords and long-tail keywords). (Lewandowski and Schultheiss, 2022, p.1032)

2-2-1-2 Sitemaps Content

Search engines consider the content of each web page a crucial criterion for determining the page's subject. They perform a detailed analysis of all the words and phrases appearing on a web page, then create a map of that data (Sinaga and others, 2024, p.13). This map helps search engines decide whether to display the page in the SERPs when a user performs a relevant search. The map is designed to help search engines understand how to match the correct web pages with user's searches. If there is no semantic match between the web page content and the search query, the likelihood of the site appearing in the SERPs is minimal. Therefore, keywords and the page's subject play a significant role in ranking. Identifying unique content on the page is an important part of what the search engine does, and this understanding of a unique page content is used by the search engine to determine the types of searches that the web page might be relevant for. (Poturak and others, 2022, p.62)

2-2-1-3 Creating and Analyzing the Robots.txt File

Robots.txt is a protocol for robot exclusion. In other words, it is a text file directed to search engines, telling them not to index a part or the entirety of the site. Robots.txt is the first element that search engines can have access to. It typically appears as "https://site_name.com/robots.txt". If a search engine does not find the robots.txt file, it starts loading the site, moving through its pages, and indexing them, assuming nothing is restricted. (Google Search Central, 2024)

Each search engine has its own algorithms. For example, Google has several algorithms that match different indexes like text, images, videos, etc. Using robots.txt, it is possible to block access to certain content of site pages while allowing access to others. (Silva, 2022)

2-2-1-4 Internal Links

Internal links are hyperlinks between pages and content within a site, allowing the user to navigate from one place to another within the site. This navigation space has recently been known as the Semantic Cocoon Strategy, which aims to improve the site's architecture and internal links by semantically arranging content on the pages (main page, secondary pages, etc.). (Asim and others, 2020, p.1573)

2-2-2 Technical SEO

2-2-2-1 Internal Site Map (HTML)

The internal site map is the first step in the SEO process, ensuring that the site can be found and crawled by search engines. This process is highly complex due to many common web designs and implementations that search engines might not understand. (Triyanto and Susanti, 2017, p.3)

To achieve a good search engine ranking, the content of the pages available to site visitors must be in HTML format, a language used to format information on the internet through tags that indicate how to place files on the page and create hyperlinks from one page to another.

(Asiri and others, 2024, p.6427) Each tag's purpose is to restrict specific content like headings, paragraphs, tables, etc. The coordination between these tags and styles is essential for indexing on the site. Finally, HTML is interpreted by search engines, and the clearer and more consistent the tags and styles are, the faster search engines can translate and access them. (Asrigo and Kaburuan, 2024, P.434)

2-2-2-2 Meta Tags

As mentioned in the previous section, the set of meta tags forms the internal HTML site map. These tags are divided into two main types: (Kumar and others, 2019, p.201)

- **Head Meta Tags:** These tags provide information about the main title and naming of the site and cannot be crawled or translated by search engines as they are intended for the site owner, not its visitors.
- **Body Meta Tags:** These tags represent all the information that search engines can access and convert from HTML to the final form visible to site visitors, such as images, links, buttons, etc.

2-2-2-3 Improving User's Experience (UX)

This process involves several tests, the most important is A/B testing. It involves creating two different versions of a page and randomly selecting which version is shown to a new visitor to the site. (Beauty and Suartana, 2024, p. 326) Visitor's behavior and response to the different versions of the page are measured. This test takes time to gather sufficient data statistically to reach the desired conclusion. Once the data is collected, it is analyzed to decide whether to choose the final page design or to make further improvements to the site to achieve an optimal user experience that ensures the visitor's returns to the site. (Connell, 2015)

2-2-2-4 Page Load Time

A quickly displayed page is more satisfying and encourages further exploration of the site. Therefore, site load time, also known as "site speed," is considered in Google's algorithm. However, page load time is only counted if Google finds two similar pages. If two pages provide the same type of response to a search query, the faster site will rank higher in the SERPs. Generally, two factors are considered to determine optimal load time: (Attia and others, 2022, p.8706)

- Users' use of the site.
- Competitors' site speed.

2-2-3 Off-page SEO

Off-page SEO refers to factors that optimize the website externally. These factors are detailed as follows:

2-2-3-1 Creating High-quality External Links

An external link, also known as an "outbound link," is a hyperlink that leads to a page or resource outside a particular website, unlike internal links that connect to URLs within the same domain. External links create connections between websites, allowing users to navigate from one site to another easily. (Mmeje, 2024)

In terms of SEO, an external link on one site serves as a backlink to another. Backlinks are one of the most important ranking factors for search engines. They pass authority and help the linked pages rank higher on the SERPs. To improve the quality of these links: (Egri and Bayrak, 2014, p.338)

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- Use descriptive anchor texts so that users understand where the link will take them;
- Regularly review external links through periodic audits to ensure they continue to function;
- Carefully select the websites on which to publish these links.

2-2-3-2 External Content Marketing

The competitive pressure in SEO and new marketing rules have changed the norms of digital business. External content marketing is the basis for online marketing campaigns aimed at expanding market share. (Lopes and Casais, 2022, p.8)

On search engines, content search depends on optimal content, and social engagement is enhanced through shareable content. When performing external content marketing, it is recommended to: (Asrigo and others, 2024, p.436)

- **Produce multilingual content:** This broadens the search engine reach and targets new audiences.
- **Build awareness on social media:** This involves producing engaging and stimulating content that can be shared on preferred information channels to gain trust and improve the credibility of your business.

By creating interesting information and great content, people become aware of the site and gain interest in it. Additionally, by sharing content related to what your business sells, people receive the information they need to become aware of, like, and trust the brand enough to do business with it.

2-2-3-3 External Site Reports (Performance Indicator)

Each search engine has a rich set of data sources that enable it to measure a wide range of user behaviors on the site. Below are some performance measurement tools provided by search engines: (Plaza, 2011, p.478)

- **Click-through Rate (CTR):** Search engines can measure the click-through rate on links displayed on the SERPs and within other sites where external links specific to our site are published.
- **Bounce Rate:** This measures the percentage of users who visit only one page on the website. However, search engines extend this definition to include the user's interaction with the search results. For example, if a user clicks on a search result and then returns to the SERPs to click on another result, it may indicate that the first result did not provide a good response to the search query.
- **Time Spent on Page:** Search engines can measure the amount of time spent on a particular page using browsers or their toolbars. This is also referred to as dwell time, and more time spent on a page may indicate higher site quality.

2-3 Customer Experience

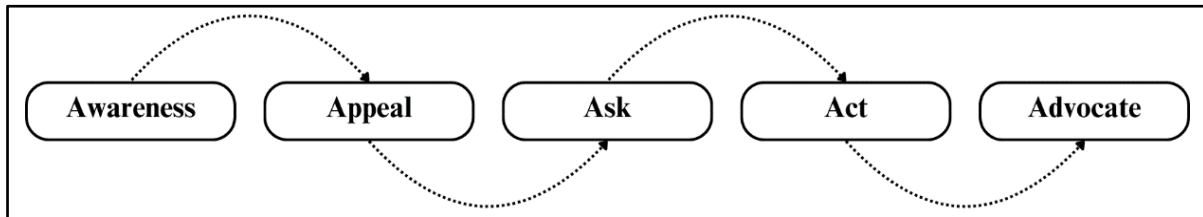
2-3-1 Definition of Customer Experience

Customer Experience (CX) refers to the comprehensive perceptions and interactions a customer has with a company or a brand throughout all stages of their relationship. This includes every touchpoint from initial awareness and discovery, through the purchasing process, and onto post-purchase support and services. (Klaus and Maklan, 2013, p.12) CX encompasses all aspects of interaction that influence customer satisfaction, loyalty, and advocacy, making it a critical element for competitive differentiation and sustainable business growth. (Kotler and others, 2021, p.132)

2-3-2 Customer Experience Journey (5A's)

Since the concept of customer experience complements the narrow focus on innovation, it is crucial to view it from a broader perspective. Customer experience is not limited to the purchase process or customer service: it begins longer before a customer buys a product and continues well beyond that point. It encompasses all touchpoints between customers and the product: brand communications, online store experience, interactions with sales representatives, product usage, customer service, and conversations with other customers. Figure 2 below illustrates the customer experience journey model :

Fig (2): The customer experience journey model



Source: Kotler and others, 2021, p.138

This model is a versatile tool applicable across all industries. When used to describe customer's behavior, it provides a more accurate depiction of the actual customer journey. This tool is important not only today but also offers a solid foundation for understanding how humans and machines integrate into the overall customer experience. The customer journey model shows that the various decisions customers make, which may seem personal, are essentially social decisions. (Arkadan and others, 2024, p.1568) Customers face difficulty in making decisions due to the fast-paced nature of life, the abundance of content, and diminishing attention spans. Therefore, they turn to the most trusted source of advice : friends and family. Customers are now actively engaged with brands, asking questions and recommending them to others. (De Keyser and others, 2020, p.441) As a result, measuring customer loyalty has shifted from retention and repeat purchases to advocacy. (Becker and Jaakkola, 2020, p.638)

The "awareness" stage, customers are exposed to a multitude of brands through a variety of avenues, including experiences, marketing communications, and endorsements from others. (Berry and others, 2002, p.86) Once customers have become aware of a number of brands, they process all of the messages they have encountered, creating either short-term memories or amplifying long-term memories. This results in their attraction to a shortlist of brands. This is the "attraction" stage. (Bleier and others, 2019, p.105) Driven by curiosity, customers often continue their journey by seeking further information about the brands they are attracted to from various sources, including friends or family, the media, or directly from the brands themselves. This is the "inquiry" stage. (Bathla and Ahuja, 2024, p.135)

If the additional information provided during the inquiry stage is satisfactory, customers will proceed to take action. It is important to note that desired customer actions extend beyond purchases. (Bolton and others, 2018, p.791) After purchasing a brand, customers engage further through consumption and use, in addition to post-sale services. (Brocato and others, 2012, p.389) Over time, customers may develop a sense of loyalty to the brand, which translates into retention, repeat purchases, and ultimately brand advocacy. This is the "advocacy" stage. (Ünal, Bağcı and Taşcıoğlu, 2024, p.4811)

The ultimate objective of any company is to facilitate the transition of customers from awareness to advocacy by providing exemplary interactions throughout the customer journey.

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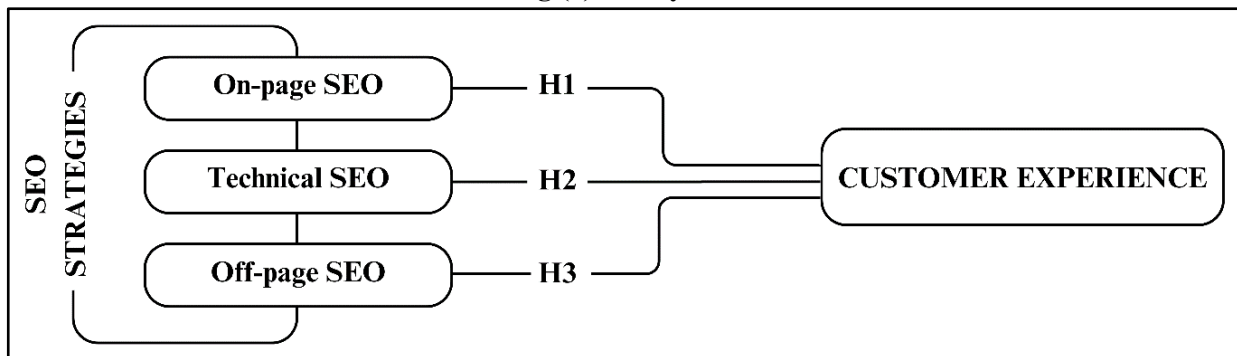
(Dose and others, 2019, p.442) To achieve this, companies must meticulously design each touchpoint, determining the optimal use of automation and human interaction. Automation is advantageous when customers demand speed and efficiency, such as in booking and payment processes. (Gao and others, 2020, p.179) Conversely, humans remain the preferred choice for tasks requiring flexibility and contextual understanding, such as consultative interactions and hospitality. (Eren, 2024, p.109)

4. Method

4.1. Study Model

The study model that emerged from the theoretical framework is as follows:

Fig (3): Study Model



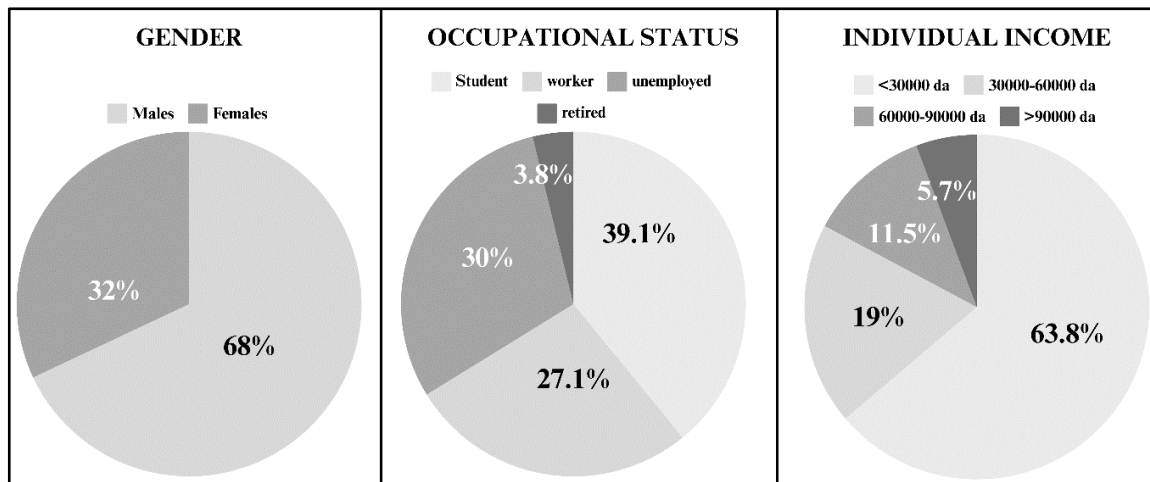
Source: Prepared by the two researchers

4.2. Study Population, Sample, and Data Collection

The current research community consists of customers from four startup companies in Algeria (Nrecycli, WeeWee, Opticharge, Volz), which operate in various fields (delivery of goods and parcels, recycling, tourism, and travel).

To collect the primary data related to this study, a random sampling method was adopted. The total number of responses was 217, and after examination and removal of invalid responses, the usable answers for statistical analysis were 210. The results of the sample characteristics analysis showed that 68% of the respondents were male and 32% were female. The sample included 39.1% university students, 30% unemployed individuals, followed by 27.1% workers and 3.8% retirees. Furthermore, 63.8% of the sample had an income not exceeding 30,000 dinars, 19% had an income ranging between 30,000 and 60,000 dinars, 11.5% had an income ranging between 60,000 and 90,000 dinars, and 5.7% had an income exceeding 90,000 dinars.

Fig (4): Personal variables for the study



Source: Prepared by the two researchers

4.3. Study Tool

The study tool was designed online using Google Forms and published via social media to the customers of the startup companies under study. The study was divided as follows:

Independent variable: In this study, “Search Engines Optimization (SEO)” is considered the independent variable, consisting of 12 statements distributed across 3 dimensions as follows:

First Dimension: “On-Page SEO” consists of 4 statements, for example: “The company's website can be searched with easy and short keywords.”, it was coded as «On-Seo».

Second Dimension: “Technical SEO” consists of 4 statements, for example: “The loading time of the company's website from the SERP page is fast.”, it was coded as «Tc-Seo».

Third Dimension: “Off-Page SEO” consists of 4 statements, for example: “The company's website offers high-quality digital content.”, it was coded as «Off-Seo».

Dependent variable: “Customer Experience”, consisting of 8 statements, for example: “The appearance of the company's website at the top of the SERP page contributed to reducing the time and effort in searching.”, it was coded as «CX».

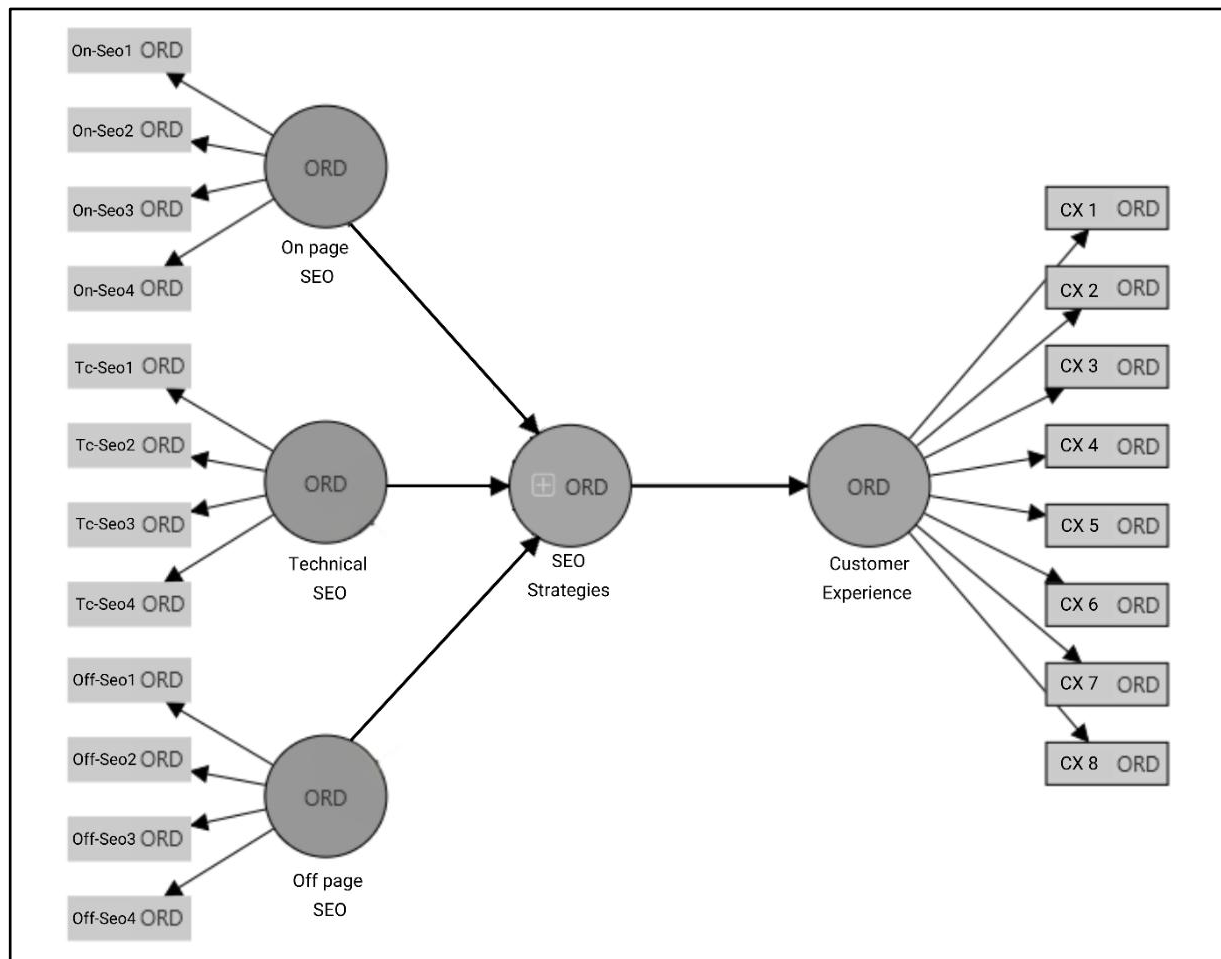
All these elements were measured using a Likert pentagon scale.

4.4. Measurement Model

As shown in Figure 5, the measurement model illustrates the relationships between the indicators (items) and the latent variables that these indicators measure, in addition to the expected relationships between these variables. It demonstrates that search engines optimization (SEO) consists of three strategies: On-Page SEO, Technical SEO, and Off-Page SEO, along with the measurable elements for each. It then shows the expected relationship between the independent variable, which is SEO, and the dependent variable, which is customer experience.

Fig (5): The measurement model

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Source: Outputs of Smart PLS software considering the research framework and measurement

In order to ensure that the indicators represent their latent variables and that the items meet sufficient convergent and discriminant validity, the researchers used factor loadings, composite reliability, and average variance extracted (AVE), as suggested by Hair and others. (Hair and others, 2005) As a result of this test, all items met the required standards. Table 1 lists the converging credibility indicators.

Table 1 indicates that, as proposed by Bagozzi and Yi (Bagozzi and Yi, 1998), all reflective indicator loadings exceeded the minimum required threshold of 0.60. Composite reliability values exceeded the recommended threshold value of 0.70 for all reflective combinations. (Hair and others, 2005) where, as suggested by Fornell and Larcker (Fornell and Larcker, 1981), AVEs are above the recommended value of 0.50 per build. As an embryo, the Cronbach alpha values are acceptable since, as suggested by Taber (Taber, 2018), they are between 0.791-0.847. These indications point to the validation of the affinity.

Table (1): Convergent validity

Item Indicators	Type of Measure	Item Loadings/Weights	Composite Reliability	Cronbach Alpha	AVE
On-page SEO					
On-Seo 1	Reflective	0.811	0.769	0.791	0.622
On-Seo 2		0.837			
On-Seo 3		0.780			
On-Seo 4		0.743			
Technical SEO					
Tc-Seo 1	Reflective	0.798	0.794	0.817	0.590
Tc-Seo 2		0.805			
Tc-Seo 3		0.723			
Tc-Seo 4		0.916			
Off-page SEO					
Off-Seo 1	Reflective	0.802	0.826	0.841	0.562
Off-Seo 2		0.739			
Off-Seo 3		0.782			
Off-Seo 4		0.901			
Customer Experience					
CX 1	Reflective	0.721	0.838	0.847	0.601
CX 2		0.769			
CX 3		0.804			
CX 4		0.700			
CX 5		0.942			
CX 6		0.838			
CX 7		0.908			
CX 8		0.784			

Source: Outputs of statistical analysis using Smart PLS software

For a further validity check, as suggested by Bollen and Lennox (Bollen and Lennox, 1991), Diamantopoulos and Winklhofer (Diamantopoulos and Winklhofer, 2001), MacKenzie (MacKenzie and others, 2005), the two researchers conducted discriminant analysis to check the degree of variation between the different compositional measures. They conducted the discriminant analysis by contrasting structural associations with the square root of the structure's AVE (Fornell and Larcker, 1981). Table 2 presents the results of the discriminant validity :

Table (2): Discriminant validity

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	On-page SEO	Technical SEO	Off-page SEO	Customer Experience
On-page SEO	0.708			
Technical SEO	0.569	0.542		
Off-page SEO	0.393	0.478	0.697	
Customer Experience	0.288	0.198	0.562	0.532

Source: Outputs of statistical analysis using Smart PLS software

Table 2 shows that the values in the diagonals of the matrix representing the square root of AVEs were in all cases greater than the non-diagonal elements in the corresponding row and column. This means that the correlation of each variable with itself is greater than its association with the rest of the research variables. This confirms the fulfilment of the discriminatory validity.

4.5. Structural Model

The structural model involves an analysis of the model's presumed association of exogenous and endogenous variables. Table 3 summarizes the structural model's path coefficient and regression result.

Table (3): Structural model's path coefficient and regression result

Hypo	Relationship	Std. Beta	Std. Error	t-Value	p-Value	Decision
H1	On-Seo => CX	0.753	0.046	12.781	0.000	Supported ***
H2	Tc-Seo => CX	0.690	0.071	9.832	0.003	Supported **
H3	Off-Seo => CX	0.786	0.042	16.002	0.000	Supported ***

Significant at *** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$

Source: Outputs of statistical analysis using Smart PLS software.

Hypothesis 1 (H1). There is a statistically significant impact of On-page SEO strategy on the customer experience of startups.

As shown in Table 3, the value of the standard beta (Std. Beta) was (0.753), which is statistically significant, and the p-value was (0.000), which is less than the adopted significance level of 0.05. This means that the first hypothesis is accepted. Thus, there is a positive impact of the on-page SEO strategy on the customer experience of the studied startups.

Hypothesis 2 (H2). There is a statistically significant impact of technical SEO strategy on the customer experience of startups.

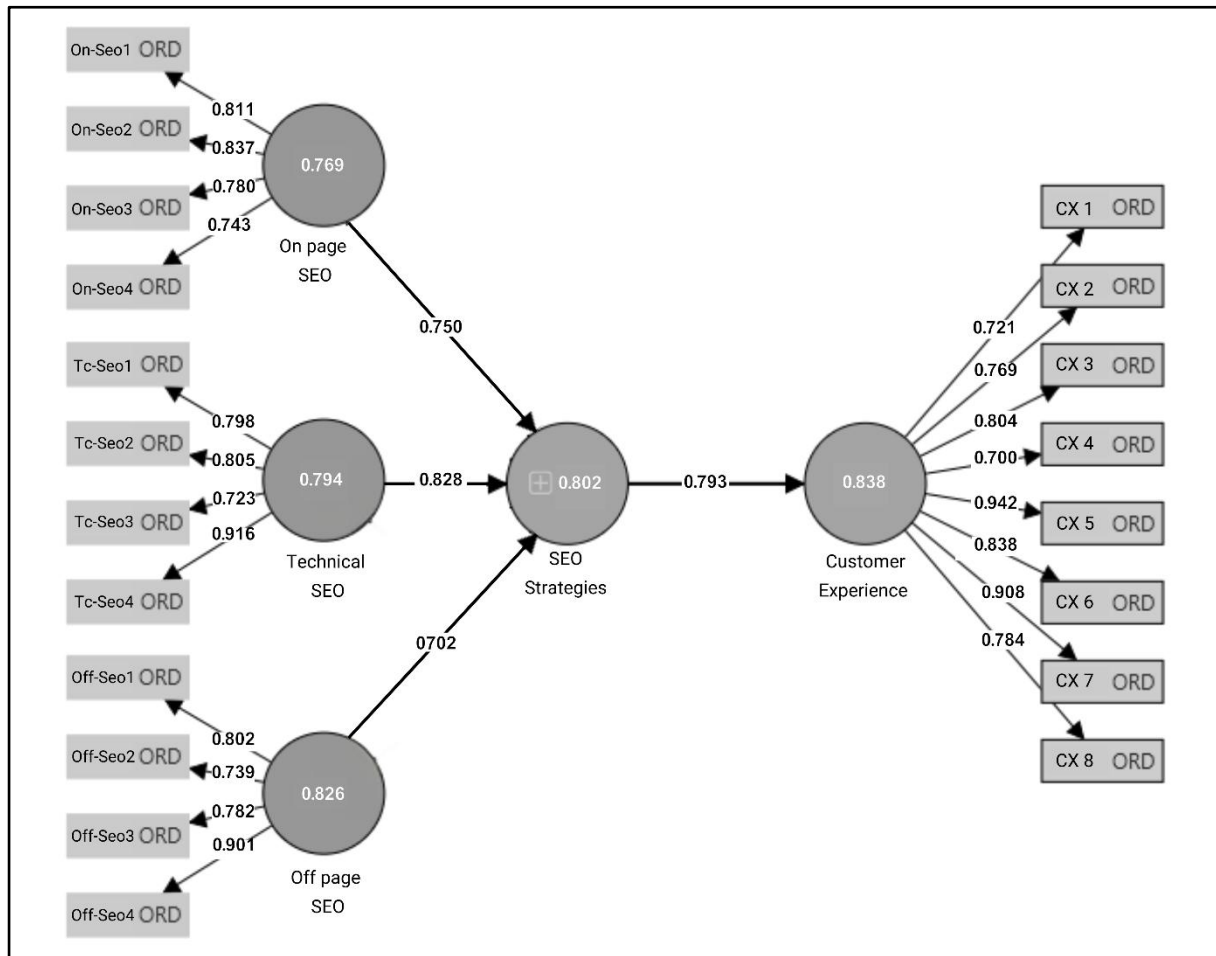
As shown in Table 3, the value of the standard beta (Std. Beta) was (0.690), which is statistically significant, and the p-value was (0.003), which is less than the adopted significance level of 0.05. This means that the second hypothesis is accepted. Thus, there is a positive impact of the technical SEO strategy on the customer experience of the studied startups.

Hypothesis 3 (H3). There is a statistically significant impact of off-page SEO strategy on the customer experience of startups.

As shown in Table 3, the value of the standard beta (Std. Beta) was (0.786), which is statistically significant, and the p-value was (0.000), which is less than the adopted significance

level of 0.05. This means that the third hypothesis is accepted. Thus, there is a positive impact of the off-page SEO strategy on the customer experience of the studied startups.

Fig (6): This study's final structural model



Source: Outputs of statistical analysis using Smart PLS software considering the measurement model

5. Discussion of Study Results

The data was collected and analyzed using the Structural Equation Modeling (SEM) approach with Smart PLS 4 software. The findings revealed that all three SEO strategies positively influenced the customer experience of the studied startups.

The off-page SEO strategy demonstrated the highest impact (Std.Beta = 0.786, t-value = 16.002, p-value = 0.000), highlighting the role of this strategy in using external links that increase website traffic and in designing user's interface that reflects the quality of the website content and attracts visitors. Additionally, relying on performance indicators allows for future actions that can improve the company's website.

Following that, the on-page SEO strategy (Std.Beta = 0.753, t-value = 12.781, p-value = 0.000) emphasized that the proper selection of keywords simplifies the search process, thereby, enhancing the customer experience. Moreover, the essential role of sitemap content helps in making the site's data easier to read and understand by search engines, as well as the quality of internal links for navigating between pages. All of this increases the likelihood of the site appearing at the top of the SERP.

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Lastly, the technical SEO strategy (Std.Beta = 0.690, t-value = 9.832, p-value = 0.003) contributes to improving the customer experience through the internal HTML sitemap and meta tags that ensure search engines can access the company's website. Additionally, the page load time plays a significant role in enhancing the customer experience and increases the likelihood of the site appearing at the top of the SERPs based on the algorithms used by search engines.

6. Conclusions

The primary aim of this study was to measure the impact of SEO on the customer experience of startups by analyzing three SEO strategies: On-Page SEO, Technical SEO, and Off-Page SEO. Additionally, the study addressed the customer experience map in its five stages.

The study's findings indicated that SEO plays a significant role in enhancing the customer experience of startups. Researchers found a positive relationship between SEO strategies (On-Page SEO, Technical SEO, Off-Page SEO) and increased traffic to the websites of the studied startups. The results also showed that SEO improved the ranking of these websites on the search engine results page (SERP).

Based on these findings, the two researchers propose the following recommendations:

- Institutions should widely adopt SEO techniques to achieve success in the digital environment, especially startups, as digital technology is a fundamental characteristic of these institutions.
- Institutions should enhance their knowledge of various aspects of digital marketing through the continuous development of their employees in this field to keep pace with the current digital boom.
- Startups should integrate artificial intelligence techniques with SEO strategies to increase the efficiency and effectiveness of their websites.
- Institutions should study the risks associated with the digital environment and work to mitigate them to ensure a safe and enjoyable experience for their customers.
- Institutions should also be transparent in their dealings with customers and strive to build trust through continuous communication and clear information dissemination to enhance their customer experience.

The two researchers recommend conducting future studies in diverse environments and with a larger number of startups over different periods, using various measures and research methods. Additionally, incorporating intermediary variables such as artificial intelligence and marketing automation into the study would enhance our understanding of the impact of SEO on the customer experience of startups.

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