# **Major Research Project on**

# "Importance of website optimization through SEO"

Submitted By

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### CERTIFICATE

This is to certify Major Research Project carried out by Ms. Charu Mittal bearing USN 2K21/DMBA/42 titled "Importance of website optimization through SEO" is a bonafide work in partial fulfillment for the award of the degree of Master of Business Administration of the Delhi School of Management, Delhi Technological University during the year 2022-2023. It is certified that all corrections/suggestions indicated for internal assessment have been approved as it satisfies the academic requirements in respect of the program report prescribed for the award of Master of Business Administration degree.

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#### DECLARATION

I hereby declare that the major research report entitled "**Importance of optimization** of a website through SEO" carried out by me and submitted in the partial fulfillment for the award of the degree of Master of Business Administration of the Delhi School of Management, Delhi Technological University during the year 2022-2023. The matter embodied in this report has not been submitted to any other university or institute for the award of any other degree or diploma.

Place: Delhi, India Date: 10/05/2023

Charu Mittal (2K21/DMBA/42)

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**Charu Mittal** 

#### **EXECUTIVE SUMMARY**

Businesses can use marketing to use promotional campaigns to promote brand awareness, engagement, and sales. Any organization can benefit from marketing's advantages and broaden its reach, regardless of the industry they serve. Growing firms can profit from using marketing, but in order to remain competitive and optimize return on investment (ROI), it's critical to approach marketing as a process and take full use of all its advantages.

In today's digital era, businesses rely heavily on online presence to connect with their target audience and achieve their marketing goals. Digital marketing and website optimization play a crucial role in driving organic traffic to a website and improving its visibility on search engines. Search engine optimization (SEO) is an essential component of digital marketing, as it helps businesses optimize their websites to rank higher on search engine results pages (SERPs) and attract more qualified traffic.

This project proposal aims to explore the role of digital marketing and website optimization through SEO in improving the online visibility and performance of a website. The project will involve conducting a thorough analysis of the target website's current digital marketing strategies, including content marketing, social media marketing, and paid advertising. The project team will then conduct an in-depth SEO audit of the website to identify areas that require optimization, such as keyword research, on-page and off-page optimization, technical SEO, and user experience (UX) optimization.

Based on the findings from the analysis and audit, the project team will develop a comprehensive digital marketing and SEO strategy tailored to the specific needs of the website. This may include developing engaging and optimized content, optimizing meta tags, improving site speed and performance, implementing schema markup, creating a backlink strategy, and enhancing the website's UX. The team will also closely monitor and measure the effectiveness of the implemented strategies through key performance indicators (KPIs) such as organic traffic, SERP rankings, bounce rate, and conversion rate.

The outcomes of this project are expected to provide valuable insights into how digital marketing and website optimization through SEO can positively impact a website's online visibility and performance. The findings can be used to guide businesses in developing effective digital marketing strategies and optimizing their websites for improved search engine rankings, increased organic traffic, and higher conversion rates. Overall, this project aims to contribute to the understanding of the importance of digital marketing and SEO in the ever-evolving landscape of online marketing and website optimization.

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#### CHAPTER 1 INTRODUCTION[1]

#### 1.1 Background

The practice of increasing a website's visibility and rankings on search engine results pages (SERPs) through a variety of tactics and strategies is known as search engine optimization (SEO). An SEO-based website optimization process begins with a background investigation to understand the website's status and search engine performance, followed by the implementation of adjustments to raise the website's organic search rankings.

A thorough audit of the website's on-page and off-page components serves as the first step in the background investigation of a website's SEO. Analysis of the website's content, meta tags, URL structure, site architecture, internal and external linkages, and other pertinent elements that affect how search engines see and rank the website are part of this process.

Another essential component of website optimization using SEO is competitive analysis. It entails looking into and evaluating the rival companies' websites that are achieving high rankings for the desired keywords. Understanding their SEO tactics, spotting their advantages and disadvantages, and discovering chances to exceed them in search results are all aided by this study.

An essential part of website optimization is technical SEO. Making sure that search engines can efficiently crawl, index, and rank the website, entails optimizing the technical aspects of the website, such as its crawl ability, indexability, site speed, mobile friendliness, and security. Additionally, technical SEO involves improving the website's robots.txt file, XML sitemap, and any crawl issues or broken links.

Content optimization is another essential part of SEO. High-quality, relevant, and engaging content is key to attracting and retaining visitors, as well as improving search rankings. Content optimization involves optimizing the website's content by incorporating the target keywords strategically, creating informative and engaging content, using proper heading tags, and structuring the content in a user-friendly. Content optimization is another essential part of SEO. High-quality, relevant, and engaging content is key to attracting and retaining visitors, as well as improving search rankings. Content optimization involves optimizing the website's content by incorporating the target keywords strategically, creating informative and engaging content, using proper heading tags, and structuring the content in a user-friendly manner.

Link building is a critical off-page SEO strategy that involves acquiring high-quality, relevant, and authoritative backlinks from other websites. Backlinks act as "votes" of confidence for the website's content and can significantly impact its search rankings. Link-building efforts may include outreach to other websites, guest blogging, creating shareable content, and building relationships with industry influencers and websites.

Monitoring and analytics play a crucial role in the optimization of a website using SEO. Regular monitoring of the website's performance, rankings, traffic, and engagement metrics can provide insights into the effectiveness of the SEO strategies and help identify areas that need improvement. Analyzing data from tools like Google Analytics and Google Search Console can provide valuable information for making data-driven decisions and adjusting SEO strategies accordingly.

In conclusion, website optimization using SEO involves a comprehensive background analysis of a website's on-page and off-page elements, keyword research, competitive analysis, technical SEO, content optimization, link building, and regular monitoring and analytics. It is an ongoing process that requires continuous effort and adaptation to changes in search engine algorithms and user behavior to improve the website's visibility, rankings, and organic traffic.

#### **1.2 Problem Statement**

The low PR, traffic, usage, and visitor count of the Web site are the primary issues in this research that need to be resolved. The researcher must employ SEO strategies to raise the website's ranking and traffic in order to boost usage and exposure. These methods will assist website owners in obtaining the top SERP rankings and enhancing their businesses. The solutions to the following queries will reveal the issues:

- 1. How can website owners raise their website's exposure, traffic, and ranking?
- 2. How can SEO be utilised to get the top SERP spot?

#### **1.2.1 Objective of Study**

The objective of a study on SEO (Search Engine Optimization) optimization can vary depending on the specific context and goals of the study. However, some common objectives of a study on SEO optimization may include:

The primary goal of this research is to use SEO to raise the ranking, traffic, usage, and exposure of the websites. This will assist website owners in obtaining the top SERP rankings, boost the amount of visits to their websites, and improve their businesses. To confirm SEO strategies' effects on web site SERP, the researcher will utilise a website. The major goals of this Major Research Project have been met if the Web site receives more visits than it did before SEO strategies were applied. In order to succeed, he must repeat SEO strategies and approaches. The following can be said about the objectives:

1. Use SEO to raise a website's position, traffic, usage, and visibility.

2. Assist website owners in obtaining the top SERP rankings in order to boost their traffic and revenue.

- 1- Identify Best Practices: The study may aim to identify and document best practices for optimizing websites and content for search engines. This could involve analyzing various SEO techniques, strategies, and tactics, and determining their effectiveness in improving search engine rankings and organic traffic.
- 2- Evaluate Performance: The study may aim to evaluate the performance of existing SEO efforts, such as analyzing the current state of a website's SEO

performance, identifying areas of improvement, and evaluating the effectiveness of SEO strategies implemented in the past.

- 3- **Explore Algorithm Changes:** The study may aim to investigate recent or anticipated changes in search engine algorithms and their potential impact on SEO practices. This could involve analyzing updates to search engine algorithms, such as Google's algorithm updates, and understanding how these changes may affect SEO strategies and rankings.
- 4- **Measure ROI:** The study may aim to measure the return on investment (ROI) of SEO efforts, by quantifying the impact of SEO optimization on key performance indicators (KPIs) such as organic traffic, search engine rankings, conversion rates, and revenue. This could help determine the effectiveness of SEO efforts and justify resource allocation for SEO optimization.
- 5- Identify Competitor Strategies: The study may aim to analyze the SEO strategies employed by competitors in the industry and identify opportunities to gain a competitive advantage. This could involve conducting competitive analysis, benchmarking against competitors' SEO performance, and identifying areas where SEO efforts can be enhanced to outperform competitors.
- 6- Provide Recommendations: Based on the findings of the study, the objective may be to provide actionable recommendations for improving SEO performance. This could include developing a comprehensive SEO strategy, suggesting specific SEO techniques or tactics, and providing guidance on how to implement SEO best practices.
- 7- Enhance User Experience: The study may aim to improve the overall user experience of a website by optimizing its SEO. This could involve analyzing factors such as website speed, mobile-friendliness, site architecture, and content relevance, and making recommendations to enhance these aspects to provide a better user experience and improve SEO performance.

Overall, the objective of a study on SEO optimization is to gain insights, make datadriven decisions, and develop actionable recommendations to improve a website's visibility on search engines, increase organic traffic, and achieve better search engine rankings.

#### 1.3 Need for Study

**1.3.1** Understanding and implementing business forms both within and between businesses are managed through Marketing.

**1.3.2** To deal and gain a competitive advantage than the competitors of the same industry through digital marketing.

**1.3.3** Knowledge of the procedures required to engage the customers and implement the marketing strategies and procedures.

#### 1.4 Scope of the Study

The scope of a study on the topic of website optimization through could include:

1. **SEO Techniques:** The study could explore various SEO techniques used to optimize websites, such as keyword research, on-page optimization, technical SEO, link building, and content creation. The effectiveness of different SEO techniques could be evaluated, and best practices could be identified based on industry standards and current trends.

2. **Website Performance:** The study could investigate how website performance, including page load speed, mobile responsiveness, and user experience, affects SEO. The relationship between website performance and search engine rankings could be analyzed, and recommendations for optimizing website performance for SEO could be provided.

3. **Content Optimization:** The study could delve into the role of content optimization in SEO, including content creation, keyword usage, and content structure.

The study could assess the impact of high-quality, relevant, and optimized content on search engine rankings and user engagement, and provide recommendations for optimizing content for SEO.

4. **Technical SEO:** The study could focus on technical aspects of SEO, such as website architecture, URL structure, metadata, header tags, schema markup, and XML sitemaps. The study could investigate how technical SEO practices impact search engine rankings, website visibility, and crawlability, and provide recommendations for optimizing technical SEO for better website optimization.

5. **SEO Tools and Metrics:** The study could evaluate various SEO tools and metrics used for website optimization, such as Google Analytics, Google Search Console, and third-party SEO tools. The study could assess the effectiveness of these tools in measuring and analyzing SEO performance, and provide insights on how to use these tools to optimize websites for search engines.

6. **Local SEO:** The study could explore the specific techniques and strategies used for optimizing websites for local search results. This could include researching local keywords, optimizing Google My Business listings, managing online reviews, and creating localized content. The study could assess the impact of local SEO on local search rankings and provide recommendations for optimizing websites for local SEO.

7. **SEO Best Practices:** The study could identify and evaluate best practices for website optimization through SEO, based on industry standards, guidelines, and case studies. This could include researching the latest trends and updates in search engine algorithms, understanding user intent, and adopting ethical and sustainable SEO practices. The study could provide recommendations for implementing SEO best practices to achieve long-term, sustainable results.

Understanding how a search engine operates is the first step in learning the fundamentals of SEO. Crawler-based search engines, directories run by people, and hybrid search engines, sometimes known as mixed results, are the three main categories of Web search engines. Only the crawler-based search engine, used by the bigger search engines like Google and Yahoo, is covered by SEO. The spider, usually

referred to as "the crawler," the index, and the search engine software are the three main components of crawler-based search engines. On-site optimization, off-site optimization, and assessing outcomes are the steps of SEO, which is based on search engine ideas.

**1.4.1** The study will concentrate on looking at customer conversion and reach through digital marketing.

**1.4.2** Marketers will benefit from the study's findings.

**1.4.3** Research will assist the firm in better understanding the customers and competitors.

## **CHAPTER 2 LITERATURE REVIEW**

S.No.	Study	Reference	Focus	Findings
	Parameters			
1	• Selection of	AN ANALYSIS	• To analyse the	Increase in the
	website	OF THE	application of	number of visitors
	domain	APPLICATION	SEO	on the website.
	name.	OF SELECTED	techniques.	
	• Implementa	SEARCH		Improvement in the
	tion of on	ENGINE		search engine
	page and	OPTIMIZATIO	• To improve the	rankings after SEO.
	off page	N (SEO)	website's	
	SEO.	TECHNIQUES	visibility on	Implementation.
	• Success	AND THEIR	google search	Rise in the number
	measureme	EFFECTIVENE	engines.	of the page views.
	nt on	SS ON		
	Google	GOOGLE'S		
	analytics of	SEARCH		
	the website	RANKING		
		ALGORITHM		
		Ochoa E		
		(2012)[2]		
2	• To develop	"Search Engine	• Extending	Understanding of
	the	Optimization	the Bedny's	the search engines
	application	(SEO) as a	Perspective	can be used for the
	of bedny's	dynamic online	theory to	promotion of firms
	activity	promotion	Apply for	online.
	theory for	technique: The	SEO	
	the SEO	implications of	campaigns.	SEO can result in
	technique	activity theory		boost in the
	for	for promotion		revenue and sales
	promotions	managers"	• Benefit of	of the company.
	•	NUMBER OF	SEO for	

• Study of the da collected from Visibility Inc.	n REFERENCES n 0 NUMBER OF ta FIGURES 0 NUMBER OF TABLES 0(2010)[3]	brand promotion in online marketplaces	
collection and minin of da	AddLibraryedLibrarywebsites from Standpoint FivectEffectiveCFactors on Google SEO: IranianctUniversityctLibrarydWebsites and Google SEO Tavosi M,dNaghshineh InternationalceN2021 7th Internationalconference on Web Research,Web Research, 310[4]	<ul> <li>To study impact for factors such as bounce rate, visitor's count, backlinks, errors and indexes on website of library of website.</li> <li>To analyse the significance of google SEO on the website.</li> </ul>	Increase in the click rate on the website was observed. More Backlinks were observed in the website. Websites of the university were observed with the greater visibility on the google search engine. Three websites were spotted having least error on W3C.

4	• Sample		• Focus of this	Results of the
	data of	The effect of	research	testing showed that
	about 71	implementing	study was to	on page SEO
	tourism	SEO techniques	quantify the	affects the most for
	industries	and websites	impact of	the website with
	was	design methods	SEO on e-	beta value of about
	collected	on e-Tourism	Tourism	0.883.
	for the	development: A	websites.	
	analysis of	study of travel		After on-page
	the e-	agencies e-	• How the	SEO, Content
	Tourism	Tourism	quality of	design came out as
	websites.	websites	content,	a major key factor
		Shafiee M,	quality of	for the site
	• Analysis of	Rahimzadeh S,	webpages,	performance of
	the data	Haghighizade R	software	tourism industry.
	was	10th	development	
	executed on	International	affects the	Off- Page SEO,
	the basis of	Conference on	ranking of	visual design and
	several	e-Commerce in	the website	social cue design
	factors like	Developing	of tourism	were other three
	website	Countries: With	agencies.	important factors
	design,	Focus on e-		for the online
	background	[5]		presence of e-
	and			Tourism websites.
	Optimisatio			
	n of the			
	website.			
	• Hypothesis			
	testing was			

	conducted				
	on the data.				
5	Analysis of the	Quality analysis	•	To determine	Site contained too
	website of the	of an		the linked	many links.
	Faculty of	educational		URL in the	
	Electrical	website in terms		website.	Website was
	Engineering on	of search			observed lacking in
	www.site-	engine	•	To determine	keywords.
	analyzer.com.	optimization		the right	
		(SEO) analysis		keywords in	Website was not
		subject: The		the website.	linked with other
		website of the			social media
		Faculty of	•	To analyse	platforms like
		Electrical		the title tah	Facebook,
		Engineering		and	LinkedIn,
		(www.electro.p		description	Instagram, Quora
		ub.ro)		tag of the	etc.
		Fartinescu C,		website with	
		Popescu M,		the	
		Deaconu A		appropriate	
		2015 9th		target	
		International		keywords.	
		Symposium on			
		Advanced			
		Topics in			
		Electrical			
		Engineering,			
		ATEE 2[6]			

6	Optimisation of the website of an Indonesian wellness and beauty Spa to attain the higher rank in search engines in order to be known nationally and internationally using SEO methods.	Implementation of Search Engine Optimization (SEO) in Wellness and Beauty Tourism Industry Sipayung E, Fiarni C, Febrian M International Conference on Electrical Engineering, Computer Science and Informatics [7]	<ul> <li>Key focus for the website was the content on the website, HTML in the title tag and the description title.</li> <li>Main research focus was to build the more links and trust of the website among the audience.</li> <li>Other focus was the architecture of the design such as keywords.</li> </ul>	Website rank was achieved to be appeared on the first page of the search results. After SEO, site speed was reduced. Therefore, there was increase of about 437% in the visitor's numbers to the website.
7	Application of On-Page and Off-Page techniques to be at the top rank of Job portal website	On Page & Off Page SEO Optimization of a Job Portal Website on Google Search Engine	• This researcher paper aimed to evaluate the effect of both On-Page and Off- page	This research approved to gain the backlinks up to 149 in numbers which was initially nil.

	using different SEO tools.	Kumar Jaiswal V, Kumar Paul R, Kumar G(2019) 2321- 0613[8]	<ul> <li>optimisation techniques.</li> <li>To increase more backlinks in order to enhance Off- Page strategy.</li> <li>As well as implementati</li> </ul>	Therefore, on page and off page optimisation resulted in the topmost ranking of the website on the google search engine results.
			on of on-page strategies such as page title, heading tag, description tag.	
8	SEO using .NET	Study on SEO Monitoring	The focus of this	A Search Engine
	framework.	System Based	paper was to propose the	Management (SEM) network
	The main	on Keywords &	strategy of SEO	platform was
	methods used	Links (Wu Oil,	monitoring	constructed with
	are:	Luan Tianl, Bai	based on	high reliability,
	• Doorwa	Yanl, Wei	keywords and	high accuracy,
	y pages	Liyuanl, Li	links using the	security and
	• Keywor	Yanhui2	.NET	convenience.
	d	lSoftware	framework.	This system is
	stuffing	Technology		capable enough to
	• Hidden	Institute, Dalian		provide good
	Text	Jiaotong University 2		performance in monitoring site in
		Oniversity 2		monitoring site ill

	• Hidden	Augmentum,		search engine
	Link	Inc.dlwudi@16		optimization.
	Cloake	3.com)[9]		Marketing using
	d Page			SEO is one of the
	_			best applications
				where this strategy
				can be used.
9	Application of	Abstract	The study used	The results showed
	SEO on the	proceedings of	the SEO audit	that just one (1)
	Higher	International	metrics- domain	HEI had obtained a
	Education	Conference on	authority score,	good domain
	Institution	Computation,	linking root	authority rating,
	websites for	Automation and	domains and	while all the others
	improving the	Knowledge	ranking	had only received a
	ranking.	Management	keywords, and	low rating. The
		(ICCAKM-	spam score	same HEI received
		2020) : 9th-10th	which are	high marks for both
		January	provided by	ranking keywords
		2020Amity	Moz.	and linking root
		University.		domains. However,
		Dubai Campus,		just 24% of HEIs
		Institute of		have achieved a
		Electrical and		spam score of zero,
		Electronics		while 76% have
		Engineers. UAE		achieved a low
		Section,		spam level. The
		Institute of		study suggests that
		Electrical and		HEIs should work
		Electronics		harder on
		Engineers[10]		enhancing their
				SEO in order to
				gain greater

				exposure and influence online.
10	SEO techniques applied on the website to improve the page rank.	Search Engine Optimization And Its Importance for Business Visibility and BrandingVo T, Thesis B[11]	<ul> <li>This study optimised the website named as ''3qds.com'' to increase the online presence of the website.</li> <li>It focusses on to increase the number of visitors to the page and page views, so that customer engagement and acquisition can be executed.</li> </ul>	After implementing SEO on the website "3qds.com", there has been an increase in the page views of the website. Within the span of 15 days after the SEO implementation on the "3qds.com", there was significant increment in the number of visitors was observed. Initially, before the implementation of the SEO technique, new visitors were zero in numbers
				and then it rose to 38 new visitors as well as returning

		visitor's count also
		shoot from 2 to 16.
		This study suggest
		that SEO should be
		implemented by
		the businesses to
		increase sales and
		profits.

#### **CHAPTER 3 SEARCH ENGINE BASICS**

The main purpose of the search engine optimization process is to improve websites' ranking in search engine results pages. Hence, it is essential for everyone who works in this field to have fundamental knowledge about the concept of search engines as well as their core operations so as to maximize the optimization's results.

In theory, the search engine can be divided into two elements: back-end and front-end. On the backend, the search engine is software that collects information about websites. The information may include the URL of the page, keywords or phrases that can describe the content of the page and links that point in and out of the page.

After gathering the data, search engines will index and store it in enormous data centers spread around the globe. In contrast, a search engine's user interface allows users to input a search phrase in order to locate a particular piece of information. A search algorithm checks the data in the back-end database once the query is delivered, and it then retrieves links to websites that seem to fit the user's search query.

#### 3.1 The Development of Search Engine Throughout History

In the 1990s, users could connect to a network of FTP (File Transfer Protocol) servers to download or upload data. This was the Internet as we knew it. Users had to search through each file individually in order to discover a particular file in that collection, and they could only speed up the process if they were aware of the exact location of the file on the FTP server. There were around twenty web pages when things first started, making it simple to find a file.

However, as there are more and more online sites, people now find the entire search procedure to be challenging and time-consuming. In 1990, a student from McGill University in Montreal named Alan Emtage developed Archie, which might be regarded as the first search engine on the Internet, as seen in Figure 1. Archie is a tool for indexing FPT files. In

Generally speaking, Archie was a program that downloaded directory listings for every file that was kept on a network of FTP servers. These listings were then added to the website's searchable database.

However, because to a lack of resources, Archie was only able to index the file's title rather than its actual content. Users have to provide the file's precise name in order to locate it as a consequence.



Figure 3.1. User interface of Archie

A program was developed in 1991 by University of Minnesota student Mark McCahill to overcome Archie's restriction. He developed Gopher, a program that extracted plaintext documents from files and indexed them. Gopher, on the other hand, was only an indexing system; it required a tool to locate references in its database. In order to search the files that were kept in the Gopher Index System, Veronica (Very Easy Rodent-Oriented Net-wide Index to Computerized Archives) and Jughead (Jonzy's Universal Gopher Hierarchy Excavation and Display) were developed. The search engine era that Veronica and Jughead started allows people to look up information using keywords rather than just the file name.

When Google introduced the PageRank algorithm in 1997, it fundamentally altered how search engines functioned. The algorithm's goal is to rank websites on Google search results pages based on their value in order to provide users with the most accurate and pertinent information. According to Wikipedia, "PageRank uses the quantity and quality of links pointing to a page to measure the relative importance of a website. The basic presumption is that more significant websites will probably get more connections from less important websites. Modern search engines are sophisticated software that enables users to look for all types of files and documents using words and phrases that are common in everyday speech. Additionally, they include helpful options like contextual search, voice search, and picture search. Depending on the consumers' geological location and other factors. Additionally, search engines may improve on their own by gathering and learning from users' search habits so they can display search results before they have finished inputting any terms.

#### 3.1.1 Fundamentals of Google SEO

Search engine optimization, or SEO, is the process of raising a website's visibility in search results. SEO is primarily concerned with acquiring unpaid organic traffic and fits into a bigger digital marketing plan. Other facets of digital marketing may closely cooperate with an SEO strategy. Search engine marketing, which forbids sponsored adverts and search engines, is one of the additional jobs within the digital marketing umbrella. Social media marketing, which includes interaction and social media advertising strategies that are both free and paid. Written content for blogs, newsletters, and other online publications is the emphasis of content marketing. Developing connections, promoting noteworthy information, and other related tasks are the main goals of public relations.

There are several less well-known search engines, but Google, Yahoo, and Bing are the three main ones. These include global search engines like Baidu, the top search engine in China. Major search engines in Russia and South Korea include Yandex and Naver, respectively. Out of all the search engines, Google has the biggest market share. This is so because Google has the most market share and is the most extensively used search engine. Additionally, by optimizing for Google and adhering to best practices for websites, websites will rank higher generally.

This is an illustration of a typical search results page. There are 10 organic results on each page, along the top and down the side of the search result.

According to studies, the first page of search results generates about 71% of all visits

to a website. Instead of going to the second page of search results, users are more likely to just modify their original search term. In fact, the top five results in the organic rankings drive the majority of traffic, generating around 68% of all page hits. A website's traffic can increase dramatically by moving up merely a few spots in the search results. As an alternative, it's critical to ensure that the website is stable and properly optimized to prevent rankings or traffic losses. The secret, though, is to focus on the keywords that have the highest conversion rates and are most suited for optimization.



Figure 3.2 search engine query and search results

#### 3.1.2 How Search Engine Works

Robots have been programmed using search engines. These robots, which are also

known as crawlers or spiders, are used by each section engine specifically. These robots scour the Internet looking for fresh Web sites and data. Through links, robots may find new websites. A robot's path is much easier to follow if another website links to yours. This map may be used by robots to browse the Web and continuously find new pages. Webmasters had to submit their website to search engines in the early days of the Internet in order for the robots to find it.

Robots can use this map to explore the Web and continually discover new pages. In the early days of the Internet, Webmasters had to submit their site to search engines so it could be discovered by the robots.

Now that the site has been added to free platforms like Google Webmaster Tools, robots will locate it on their own. A robot that finds a new page or website examines all of the information on it to decide what the page is about and what search terms it should rank for. The website is then added to an index, a sizable database. Each page has been categorized so that search engines may easily access the information when needed and respond to users' search queries with relevant results. There are several data centers located all over the world, which provide rapid access to a bigger volume of information and aid in accelerating the process. Search engines used to focus solely on your page's content or the terms that were used most frequently, or so-called keywords, on it. The relevancy of a search result is now influenced by hundreds of parameters thanks to the increased intelligence of search engines. These variables are all included in an algorithm.

#### 3.2 Search Engine Algorithms

Too many algorithm modifications continue to have an impact on current SEO best practices. About 12 percent of search results were affected by the Panda update that was implemented in 2011. Panda devoted itself to enhancing user experience by removing websites that were deemed to be of low quality or to have low quality material. This included a lot of duplicate content, either taken directly from other websites or even from the users' own websites. Google would also look at the information they considered to be of low quality, which would include material that was obviously created by a computer, such as a lot of strange phrases that made no sense, material that had numerous grammatical and spelling errors, or material that was just perceived as unnatural and something a person probably wouldn't have written. Bad quality sites, pages with a lot of advertisements, or pages that just lacked a significant quantity of material that would be seen as important to what the site was about are some causes of bad content.

Penguin, which debuted in 2012, was another crucial algorithm that continues to influence how SEOs operate today. To counteract spammy and unethical link-building strategies, this was done. This update's goal was to crack down on link-building techniques that Google deemed to be unethical, such as obtaining numerous connections from directories, receiving numerous links from spammy and irrelevant websites, and using a large proportion of anchor text that contains targeted particular keywords.

The other upgrades were RankBrain and Hummingbird. The RankBrain upgrade was preceded by the Hummingbird update. These modifications were developed with the goal of better comprehending human search by using a process known as semantic indexing to grasp the context. In essence, this implies that while determining the subject relevance of a query, the algorithm considers the employment of synonyms and other related terms and phrases. The next upgrade, which was among the first to integrate mobile-friendliness as a ranking factor for SEO, was ironically called Mobilegeddon by the SEO community. With this upgrade, mobile-friendly and devicecompatible websites are given preference. This prepared the way for mobile-first, another change that debuted in 2018. Google implemented these adjustments to guarantee that mobile versions of a website were indexed above desktop versions because the bulk of visitors now uses mobile devices to search the web. The most significant improvements that continue to have an influence on SEO today are those in the algorithms. However, there are still many updates that have a significant impact on SEO, including the addition of personalized search functionality by Google, the Caffeine update, which concentrated on speed and building a faster web, and voice search, which affects how users discover content across devices, and local search and location-based search functionality.

#### 3.3 The operation of search engine

Users are not truly searching a website on the World Wide Web when they use a search engine's user interface; rather, they are searching the page's index data. Crawling, indexing, retrieval, and ranking are the three activities that make up the entire process. Although there are various search engines available and they all operate in a somewhat different way, they all cover those duties.

#### 3.3.1 Crawling

A search engine must first discover all of the sites on the World Wide Web in order to know where to look for responses to user search queries. This action is referred to as crawling. Google estimates that there are 60 trillion unique pages on the Internet is expanding continuously. Therefore, search engines use a unique program known as spiders or crawlers in order to explore all that enormous number of online pages. Crawlers or spiders examine the content of such pages as well as the relationships between them.

Spiders may effortlessly access billions of interconnected documents since the connection structure of web servers connects every page. The crawling procedure often begins with a well-known and reliable website. Spiders index the text on its pages and then follow each link on each page of the website that leads to other websites so that you can find new web pages. Search engines do not actually attempt to crawl the whole Web. They could be aware of some pages that they choose not to crawl since they are unlikely to be crucial enough to appear in a search result. However, some people choose not to index certain files because of personal reasons, such as the fact that certain websites have enormous source files that may overburden servers when crawled. The robot exclusion protocol is the method that webmasters like to use to stop spiders from indexing a certain page or clicking on links on that page.

Spiders record two things while indexing a page: the words on the page and their locations. Whether a word is a keyword or not depends on where it appears. Therefore, the following terms are highlighted for particular consideration in the decision-making

process: rating and retrieval. Some webmasters, however, take advantage of this occurrence by stuffing the page's genuine content with unrelated terms. In order to prevent such, spiders compare keywords to page content and will not index those keywords if they cannot discover the correlation.

Although spiders or crawlers are incredibly powerful programs that can scan hundreds of pages per second, they have limits and can only comprehend a small fraction of the text on most websites. Spiders, for instance, may recognize the presence of photos, movies, or music. They have a difficult time figuring out what the graphics, movies, or sounds on online pages are about. Additionally, spiders find it challenging to interpret pages that contain Flash, JavaScript, or AJAX files. In order to avoid interfering with the crawling process, it is necessary for search engine optimization to carefully examine when integrating certain types of data into the content of webpages.

#### 3.3.2 Indexing

Search engines must find a means to store the data after they have finished gathering it from web sites so that users may quickly access it whenever they submit search queries. An index is built throughout this procedure.

An index is a huge database that groups and organizes all the important phrases on every page that spiders explore into distinct categories. These phrases can refer to words, locations where they exist (in this example, URLs), the frequency with which certain words appear on a website, and the "weight" of each word.

Some of the most popular search engines, like Google, Yahoo!, and Bing, utilize a specific word called "weight." It highlights the significance and applicability of words on a web page. As a term occurs at the top of the document, such as in a header, meta tag, or page tile, its value rises. Similarly, search engines catalog all of the pages that each page connects to as well as the anchor text for those connections links, including whether or not the links could be regarded as advertisements, etc.

Search engines companies have built hundreds of enormous data centers all over the

world to handle the enormous work of keeping and processing massive amounts of data on trillions of pages that can be accessed in a split second whenever a user does a search query. The Figure clearly illustrates the entire spider crawling and indexing procedure.



Figure 3.3 A diagram illustrates the crawling and indexing process of spiders

#### 3.3.3 Retrieval and ranking

Search engines will search its corpus of billions of pages when users enter words or phrases into the user interface of search engines, and they will then deliver results that are related to the users' search queries. Search engines, however, must rank the hundreds of pages that include similar search terms in order of priority in order to provide users with the most satisfactory response. The name of this crucial procedure is results ranking.

A search for a word or phrase will provide different results from different search engines because of the somewhat varied results ranking methods used by each search engine. However, they consider some comparable characteristics when determining a website's rating.

An attribute called relevance is used to indicate whether or not the content of the pages returned by a search corresponds to the user's search query. Having terms on a page that are pertinent to the word or phrase the user typed in, or having links to the page that come from pages that are pertinent and employ pertinent anchor text, both boost the relevance of a website.

How a page gets ranked in search results depends on where specific words or phrases are placed on the page. The rank may be greater if certain terms appear more prominently on the page (in the URL, heading, title, or meta tag). For instance, regardless of the identical search terms being used by searchers, a website with keywords in the title or meta tag tends to score higher than a similar site without keywords in the meta tag.

The number of times a term occurs on a page or keyword frequency may also have an impact on a website's rating. When the frequency was one of the key ranking factors for websites in the early days of search engines, several webmasters exploited this characteristic by employing hidden keywords as much as possible in headers, titles, or meta tags in an effort to improve the rating of their website. As a result, SERPs (Search Engine Results Pages) became overrun with spammy and pointless websites, a practice known as keyword spamming or term stuffing. Most search engines can detect websites that have utilized keyword stuffing or spamming, preventing them from appearing on search engine results pages (SERPs).

When search engines rank a website, they also take into account the type and quantity of links on a page. These links include those that enter the website, those that exit the website, and links that are located within the website. But that does not imply that the more links a website has on it or that go to it, the higher it will be ranked. In reality, "the number of relevant links entering one page, compared to the number of relevant links within the page, compared to the number of relevant links leading off the page will have an impact on the rank that page gets in the search results."

Search engines also keep track of how long it takes users to visit other websites after leaving the SERPs (Search Engine Results Pages) and to return to the original SERPs by pressing the back arrow key. If visitors browse websites for a too short time, search engines will presume that those websites don't satisfy consumers' needs or intents because they have inadequate content or a poor user interface. As a result, a website would rank lower in the number of people who spent a short time on it. A key factor in separating a good search engine from a bad one is page ranking. The search engine optimization procedure invests the greatest time and energy into achieving this final objective.

#### 3.4 Market Share of Different Search Engines

According to the information gathered, Google dominates its rivals by holding 93.18% of the market share for search engines, leaving Bing (2.87%), Yahoo! (1.12%) and Baidu (0.42%) far behind.

At Google, the user experience is the company's strength and main focus. It is also the foundation of Google's commercial strategy and operations, encompassing a user-friendly user interface, clever ad services, and a dedication to quickly and accurately offer relevant search results. Those are the explanation of Google's overall success over the past 23 years.


https://gs.statcounter.com/search-engine-market-share/mobile/worldwide

	E Bern	Ð			Z
Google	bing	Yahoo!	YANDEX	DuckDuckGo	Baidu
85.53%	8.24%	2.45%	1.42%	0.74%	0.4%
	Distance	esktop Search Engine Marl	ket Share Worldwide - Mai	rch 2023	A Bay

https://gs.statcounter.com/search-engine-market-share/mobile/worldwide

Google	bing	Yahoo!	DuckDuckGo	YANDEX	Baidu
91.97%	4.73%	1.05%	0.86%	0.79%	0.17%
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https://gs.statcounter.com/search-engine-market-share/mobile/worldwide

<sup>Google</sup>	vandex	<sup>Yahool</sup>	<sup>bing</sup> Ваіdu	DuckDuckGo
96.6%	0.85%	0.54%	0.45% 0.43%	
6	Company M	obile Search Engine Mark	et Share Worldwide - March 2023	and a

https://gs.statcounter.com/search-engine-market-share/mobile/worldwide

## CHAPTER 4 BACKGROUND OF SEARCH ENGINE OPTIMIZATION

#### 4.1 Search Engine Optimization

The term "search engine optimization" (SEO) is preferred to the strategies and tactics used to modify a website's visibility in organic search results, which are the listings that appear when people search for certain terms or phrases, that are not same as sponsored contents of advertisements. However, SEO is a method that makes sure a company's website remains at the top of search engine results pages whenever customers enter a search phrase for specific goods or services that company offers. In other words, the more visits a website draws that may be turned into prospective consumers, the better rank it earns.

A thorough audit of the website's on-page and off-page components serves as the first step in the background investigation of a website's SEO. Analysis of the website's content, meta tags, URL structure, site architecture, internal and external linkages, and other pertinent elements that affect how search engines see and rank the website are part of this process.

Another essential component of website optimization using SEO is competitive analysis. It entails looking into and evaluating the rival companies' websites that are achieving high rankings for the desired keywords. Understanding their SEO tactics, spotting their advantages and disadvantages, and discovering chances to exceed them in search results are all aided by this study.

An essential part of website optimization is technical SEO. Making sure that search engines can efficiently crawl, index, and rank the website, entails optimizing the technical aspects of the website, such as its crawl ability, indexability, site speed, mobile friendliness, and security. Additionally, technical SEO involves improving the website's robots.txt file, XML sitemap, and any crawl issues or broken links.

#### 4.2 The three main areas of SEO:

- On -page Optimization
- Technical Optimization
- Off Site Optimization

# Three Main Areas of SEO



Figure 4.1 - Three Main Areas of SEO

In conclusion, SEO, being one of the most crucial strategies in the Search Engine Marketing (SEM) procedure as well as Internet marketing strategy, not only increases a company's exposure online but also multiplies its revenue. Therefore, in order to

For webmasters to properly use SEO and get the best results, they must learn about other pertinent topics, such as how search engines work, how search results are laid out, which search engines are targeted during the SEO process, how websites are designed, how to conduct keyword research, and how people behave psychologically when using search engines.

The process of search engine optimization uses a variety of techniques, from modifying the website's structure and coding to producing user-friendly user interfaces and informative content to advertising websites on social media and other websites that are relevant and constructing inbound connections. Despite varying opinions and

For the sake of those strategies, there are two main parts to the optimization process: on-page SEO and off-page SEO.

The phrase "on-page SEO" refers to strategies used on the website itself in an effort to lower obstacles that prevent search engines from properly indexing the website's content. Additionally, the improvement of user experience is a key goal of on-page SEO by providing a user-friendly interface and informative content, of user experience. Choosing an appropriate domain name for the website is a step in the onpage SEO process. The domain name should be relevant to the resource, product, or service that the business offers, or it should incorporate the name and identification of the firm. Making the meta tag, which contains details about the website such its title, description, and keyword, and adding it to the HTML file are further steps. On-page SEO, however, focuses on other elements of the website, such as improving the speed at which material loads, designing an easy-to-use navigation system, and developing useful content. Importantly, it is recommended that On-page SEO be the initial step in the entire SEO process in order to maximize the results of this approach (Rafiq 2013, 6). In conclusion, even though On-page SEO techniques does not directly drive traffic to the website compared to Off-page SEO techniques, it helps search engines' spiders or crawlers reach and index the content of the website easier as well as improve user experience, which is a crucial factor to determine whether users want to stay and return to the website or leave it at the first glance.

On the other hand, off-page SEO refers to any actions taken to improve a website's position in search results as well as its traffic and exposure. Building links, which refers to the idea of utilizing third-party resources, forums, blogs, and pertinent increasing the number of websites or social networking sites that connect to the content of the website. A website that offers users helpful content is likely to have more reference links from other websites. It also tends to get more shares and mentions among communities and social networks. To be more precise, the total number of links serve as an indicator on how other websites and users perceive a specific webpage. As a consequence, search engines presume the webpage has excellent content based on the quantity of those connections and rank it higher on the search engine results pages.

In order to increase the number of people who are aware of a website, off-page SEO also involves promoting it through other marketing channels, such as press releases, blogs, articles, social networks, and more. Additionally, adding websites to search engines to speed up indexing and listing websites in online directories to reach more visitors are also regarded as off-page SEO operations.

When it comes to optimizing the website for a higher rank in search engine results pages, on-page SEO is just as crucial as off-page SEO. Therefore, it is a wise plan to run both of them concurrently and split the time and effort between them in order to make an SEO campaign effective.

#### 4.3 Keyword

The most significant words or groups of phrases that characterize the content of a webpage are referred to as keywords in terms of the SEO process. It increases the effectiveness of search engines' indexing processes and aids SEO experts in achieving higher ranks on search engine results pages.

In addition, these links link clients to companies' websites. To get the greatest results from the SEO procedure, three distinct sorts of keywords should be used simultaneously.

Generic or head phrase keywords are the earliest and most popular sort of keyword; they typically have a length of one to three words. Most users of search engines are not well-defined while looking for information about anything.

As a result, people gradually start utilizing generic keywords like "sport car," "laptop," and "smartphone," which tend to provide them a wide variety of results. In compared to other keyword classes, generic keywords therefore have the largest search traffic. Since generic keywords do not sufficiently represent the actual content of the webpage and there is a lot of competition from well-known websites, it is challenging to rank higher with them. Additionally, generic keywords have a poor conversion rate, or the proportion of visitors who engage in activities beyond than browsing a website or reading information casually, including making purchases or signing up for email newsletters, because people who find a website by employing generic keywords frequently look for general topics and lack specific intentions.

The other categories of keywords that SEO professionals should focus on include prominent keywords or Based on the subject it is connected to, the board match keyword may be two to five words long. More precise than general, these keywords frequently provide certain product or service categories, such as "apple phones," "best colleges in India," "buy Alexa," etc. Furthermore, wide match keyword competition is less fierce than genetic keyword because there are various versions of this type of phrase. The discussion rate for broad match keywords is average.

The long tail keyword is the final of those kinds of keywords. Long tail keywords are highly particular, lengthy phrases or sentences that are similar to everyday speech, such as "e-textbooks for kids aged 5 to 10," "durable toys brand for kids in India," etc. Figure 4 shows how just a small portion of all Internet searches—less than 30%— involve genetic and wide match keywords. The remaining 70% of queries involve long tail keywords. To be more accurate, long tail keywords only receive a modest amount of individual search traffic, but when joined together, they account for the vast majority of internet search queries.

Additionally, even though long tail keywords don't drive as much traffic as other kinds of phrases, they still have a greater chance of appearing in search results if webmasters know how to correctly target them due to the low competition.

Additionally, long tail keywords have a considerably higher conversation rate than generic or wide match keywords since customers who search using them are already aware that certain goods or services exist.

It is amazing to work with keywords that receive 5,000 or even 500 searches per day, but in truth, these "popular" search terms could really account for less than 30% of total Web searches. According to information [12], the remaining 70% of searches are found in what is known as the "long tail" of search (see Figure 4.1). When considered collectively, the hundreds of millions of unique queries in the tail account for the majority of the global demand for information through search engines. These searches

may only be made sometimes during the day or perhaps never.





Figure 4.2 Search Engine Keyword Demand (Fishkin, cited 02.10.2016).

#### **CHAPTER 5 IMPLEMENTATION OF SEO**

#### 5.1 Keyword Research

The foundation and key element of search engine optimization is keyword research. SEO experts carry out keyword research to learn about the target market, including consumer insights and competitive analysis, in addition to finding the actual words and phrases that people type into search engines. In other words, companies are able to respond to changes in demand and improve their product, services, or contents in order to adapt for the increasingly changing market by analyzing data and metrics that are gathered during the keyword research process. That is to say, conducting keyword research is the most crucial task and should come first in any SEO strategy.

#### 5.1.1 Locating the Niche Market and Compiling a Keyword List

Identification of the niche market is the first and most crucial step in the keyword research process. Typically, a niche market is a tiny market sector that makes up a broader market or sector at which a particular commodity or service is focused. It comprises of a group of individuals who share certain traits, including those related to demographics, psychological behavior, geography, social and religious beliefs, interests, and hobbies. Therefore, by effectively focusing on the correct consumer base, firms may maximize their profit by recognizing the niche market. Additionally, the creation of a list of keywords is greatly aided by the use of specialty markets, which provide webmasters with fresh ideas for keywords and help them eliminate useless and unproductive ones.

The next step in the keyword research process is to create a strong list of keyword prospects after determining the specialized market that organizations should target. SEO experts may generate keyword suggestions using a variety of techniques.

The first approach is doing a quick round of brainstorming and putting down as many keyword suggestions as you can. SEO professionals must put themselves in the shoes

of their target audience and consider the real terms or phrases that they would enter into search engines to look for the goods or services that businesses offer. It's crucial to emphasize that these keyword suggestions must be pertinent to the chosen niche market.

Using Google's autocomplete tool, which it offers as a service to improve users' search engagement by suggesting terms or phrases similar to users' search queries when they do searches, is another way to find more keywords. Keyword Researchers can enter the list they generated during the brainstorming process into Google, then carefully observe the pertinent phrases that Google shows and note them down in keyword lists.

Using keyword research tools is an additional method for acquiring fresh keywords. The primary method for generating the keywords utilized in SEO is a keyword research tool.

On the Internet, there are many different kinds of keyword research tools, but the most well-known is Google AdWords Keyword Planner. Keyword researchers can enter the primary keyword to discover new suggestions.

By entering a term that is closely linked to a company's goods and services into the Google AdWords term Planner, a list of relevant keywords will be suggested. For instance, when the term "keyword research" is entered into the Google Keyword Planner tool as shown in Figure 5.1, a list of pertinent keywords connected to the term "keyword research" is immediately suggested.

In actuality, Google anonymously records real search phrases when users conduct searches and uses those as recommended keywords.

C	L blue shirt		♡ India 🛛 ネ E	English EQ.	Google	Apr 2022 – Mar 2023	Ŧ	
Broad	len your search:	+ men's clothing + clot	hing + suits	+ blue backg	round + blue	e apron + white	shirt + blue je	eans
7	7 Add filt	er 1,447 keyword idea	as available					
	Keyword (by relevance)	Avg. monthly searches	Three month change	YoY change	Competition	Ad impression share	Top of page bid (low range)	Top of page bid (high range)
Keyw	ords you provided							
	blue shirt	10K - 100K	0%	0%	High	-	₹1.25	₹13.60
Keyw	ord ideas							
	navy blue shirt	10K - 100K	0%	0%	High	-	₹1.04	₹13.02
	sky blue shirt	10K - 100K	0%	0%	High	-	₹1.05	₹11.49
	light blue shirt	10K - 100K	0%	0%	High	-	₹1.07	₹8.79
	blue t shirt	1K - 10K	+900%	0%	High	-	₹1.19	₹43.65
<b>∢</b> ]	dark blue shirt	10K - 100K	0%	0%	High		₹1.08	₹9.91

Figure 5.1 Relevance keywords for the term "keyword research" (Google Adwords Keyword Planner, 02.04.2023).

#### 5.1.2 Determining keywords with a commercial objective

A useful keyword transforms website visitors into prospective clients in addition to bringing traffic to businesses' websites. A commercial keyword is often one with a high discussion rate keywords with purpose. In other words, commercial purpose keywords are those that provide results for the searcher's transactional inquiries. Commercial purpose keywords often fall into one of two groups:

'Buy now' is a commercial intent term that denotes a prospect's immediate willingness to purchase goods or services and their search for deals that satisfy their needs. Commercial keywords that include "buy now" frequently contain the following: terms like "buy," "coupon," "deal," "purchase," and "discount."

A product, product category, service, or brand name is the subject of a product commercial keyword. People who search for product commercial keywords are curious about the product or service, but they are hesitant to purchase it because they require more details before making a choice. These terms and phrases are frequently used in product marketing keywords: "Review," "Best," "Top 10," "Comparison," "Cheap," "Affordable," etc.

To identify whether a keyword has commercial purpose or not, there are a number of tools on the Internet that may be employed. Among these, the Google Adwords Keyword Planner is a free and effective tool that works well for this thesis despite being designed to serve Google users of Adwords.

The process of utilising the Google Adwords Keyword Planner to determine a keyword with a commercial aim is comparable to finding fresh keyword suggestions in phase one.

However, in this circumstance, SEO experts must pay special attention to two crucial data points displayed on the results page: suggested bid and competition.

The amount of advertisers bidding on a specific term in Google Adwords is referred to as competition. In other words, this component displays how competitive a keyword ad placement is. As a consequence, the keyword is more profitable the more individuals who bid on it. Low, medium, and high levels of competition exist. Figure 5.2 displays facts and statistics regarding each keyword's value when the term "keyword research" is entered into the Google Keyword Planner tool.

Q blue shirt	𝔊 India	🛪 English	≘a Google	🛗 Apr 2022 – Mar 2023 📼
Broaden your search: + men's clothing + cl	othing +	suits + blue	background +	blue apron + white shirt + blue jeans

#### Add filter 1,447 keyword ideas available

	Keyword (by relevance)	Avg. monthly searches	Three month change	YoY change	Competition	Ad impression share	Top of page bid (low range)	Top of page bid (high range)
Keyw	rords you provided							
	blue shirt	10K - 100K	0%	0%	High	-	₹1.25	₹13.60
Keyw	rord ideas							
	navy blue shirt	10K - 100K	0%	0%	High	-	₹1.04	₹13.02
	sky blue shirt	10K - 100K	0%	0%	High	-	₹1.05	₹11.49
	light blue shirt	10K - 100K	0%	0%	High	-	₹1.07	₹8.79
	blue t shirt	1K - 10K	+900%	0%	High	-	₹1.19	₹43.65
<b>∢</b> ]	dark blue shirt	10K - 100K	0%	0%	High	-	₹1.08	₹9.91

Figure 5.2 (Google Adwords Keyword Planner ,02.04.2023) shows the amount of competition and suggested bid for the search term "keyword research" and its related

keywords.In conclusion, a term with a commercial aim is one that satisfies the criteria of a high or medium level of competition and a high propose bid value.

#### 5.2 On-Page SEO

The next crucial step after developing a list of commercially focused keywords is appropriately integrating those keywords into the website. This procedure is a part of on-page SEO. In general, on-page SEO refers to the process of optimizing the website itself in order to improve search engine rankings and increase visitors. Code optimization and user experience optimization are the two fundamental components of optimization.

#### 5.2.1 Optimization of code

The practice of changing and updating the core HTML components to speed up search engine indexing and better user experience is known as code optimization. These HTML tags include alt attribute, header tag, picture file name, title tag, and meta description tag.

An element that is added to the section of an HTML document is the title tag or page tag. Users frequently see it in search engine results pages or at the top of the window and tab bar of their browser. Giving consumers and search engines a clear and succinct explanation of the website's content is the primary goal of page tags. Therefore, the title tag is essential for both user experience and search engine optimization. In fact, it is thought to be the most crucial component of on-page SEO. Search engines only allow a certain number of characters to be displayed on search results pages, thus a title tag should ideally be around 70 characters.

As a result, if the title tag is too lengthy, it will be cut down and an ellipsis (...) will be shown in lieu of the extra letters (King, quoted on October 26, 2016). Additionally, according to Moz, an ideal title tag should be structured as indicated in Figure 5.3 and contain the keywords that are most relevant to the page (Moz,02.04.2023).

<head> <title> Primary Keyword - Secondary Keyword | Brand Name </title> </head>

Figure 5.3 The ideal structure for a title tag (Moz,02.04.2023).

As shown in Figure 5.4, the HTML element known as the meta description tag is used to give a brief overview of the website's content. In other words, it is a chance for a website to promote its content to consumers and aid them in determining if it has the data they need or not. Although meta description tags have little impact on search engine rankings, they are incredibly useful for boosting users' click-through rates; according to SurveyMonkey, meta descriptions are the reason why 43.2% of consumers choose to click on certain results. In order to draw in searchers, the meta description should carefully use keywords and provide interesting content. Figure 5.5 illustrates the meta description tag's syntax.

Additionally, similar to the title tag's rule, the meta description should be between 150 and 160 characters in length to avoid having additional characters omitted from search results. search engines show a webpage's meta description as a preview of the data it contains.



Figure 5.4 The Google search results page's title and meta description tags.

<head> <meta name="description" content="The webpage description is here"> </head>

Figure 5.5 A sample meta description tag's syntax.

The heading tag is a crucial component of HTML that is intended to give the webpage's content a headline hierarchy, as seen in Figure 5.6 In other words, it enables both users and search engine spiders to quickly understand the subject matter of the webpage. Consequently, search

Search engines give websites with keywords in the heading tag a little ranking boost. The heading tags are from "h1" to "h6," with "h1" having the highest font size and the most significant headline. Additionally, search engines will give a term more weight based on the heading tag level it is put at if a page has several heading tags. Therefore, the most significant topical keywords should be included in the h1> tag, followed by a subdivision of that topic that should have a h2> tag, and so on.

<body> <h1>This is most important topic headline </h1> <h2>Sub heading </h2> </body>

Figure 5.6 syntax of heading tag

In the SEO process, image is essential. In the beginning, it enhances user experience by making the content on the webpage more appealing and intriguing to users. In addition, several search engines, like Google, Yahoo!, and Bing, include a facility for searching by image in addition to the more common search by words or phrases. As a result, by utilising images in the content, search engine image results can increase organic traffic to the website. Search engines can only detect the presence of a picture on a webpage, as discussed earlier, they cannot read the content of photos. As a result, it is crucial to include an alt-text element inside of a tag, as shown in Figure 5.7, to give search engines the description and the purpose of that picture on the page. Additionally, alt-text is intended to provide viewers with an explanation of the picture in the event that it cannot be loaded or shown.

## <img src="image.jpg" alt="image description" />

#### Figure 5.7 Syntax of Alt-text

As shown in Figure 5.8, the ideal conclusion of the code optimization step should have pertinent keywords in the title tag, meta description, the webpage's content, and the alt-text.



Figure 5.8 Use of keywords in an HTML text.

#### 5.2.2 Improvement of user experience

Many companies have the false belief that they should just concentrate on using various SEO strategies to rank as highly as possible while ignoring the user experience when customers visit their websites. In actuality, servicing people rather than search engines is the ultimate purpose of the entire SEO process. To be more exact, businesses' efforts to improve their SEO will be for naught if customers only briefly browse their websites before clicking back to the search engine results. Additionally, certain search engines, like Google or Bing, track how long people spend reading a webpage's content and use that data to rank that webpage. This section discusses several key elements that directly impact the user experience, such as website design and content, loading speed, and usability.

According to recent study by Marlow Keith, 47% of Internet users anticipate websites to load in little more than two seconds, and 57% of website visitors would leave if it takes more than three seconds to open fully (Marlow, reported on October 29, 2016). Therefore, it is crucial for webmasters to increase the loading speed of the homepage

by paying attention to the following SEO rules in order to attract consumers to read the content.

First and foremost, the size of the photographs used on the website should be optimized. It is not essential for the webmaster to upload high quality photographs and then scale them down to meet the webpage's dimensions. Because bitmap format images have a big file size and slow down website loading time, it is preferable to use images that perfectly match the size of the page rather than utilizing enormous images. Additionally, it's crucial for webmasters to separate the HTML file's CSS and JavaScript code in order to make the HTML code as short as possible. Examples of needless code include excessive commenting. In fact, the perfect website will have less HTML code than it does actual content.

The most crucial component of the entire SEO process is content. A strong website's content encourages users to return to the site, which increases the rate of discussion for the business and helps it draw in more people. 75% of consumers prefer to learn more about a company's goods and services through its articles and blogs than through commercials, according to a HubSpot marketing analysis from 2014.[13]

Additionally, a website that has interesting and compelling content is more likely to link to it, which is a crucial component of off-page SEO. For a website to have quality material, the owner needs adhere to two guidelines.

When it comes to the readers' convenience and usefulness, the content should be of the highest caliber. In addition, webmasters should steer clear of duplicate material. because each URL (Uniform Resource Locator) is treated as a separate entity by search engines. Therefore, duplicate material, regardless of the page's intended purpose, will have a detrimental impact on the website's ranking.

Additionally, the material's length is crucial since Google does not like websites with little content that rank well in its search results pages. It's also critical to draw attention to research by Kevin Espiritu, who discovered that websites in the top 10 of Google search results often had at least 2000 words, independent of the search phrases.

The functional design of the website is a key component of user experience optimization.

No matter how informative and useful the information is, businesses cannot effectively reach prospective clients if the content is not shown properly. Avoid cramming every category into the main navigation of a user-friendly website design; instead, webmasters can shift less important categories under sub-navigation, such as the footer navigation or side navigation. The importance of responsive design cannot be overstated for website owners.

Additionally, search engines like Google are concerned about the mobile user experience as they announced in April 2015 that a website's mobile friendliness will be a significant criterion for ranking. Multiple platforms may easily access websites thanks to responsive design, and visitors can navigate the site without having to zoom in or out to read the content of the page. In further depth, responsive design resizes images to fit the screen as well as automatically adjusting the website's screen resolution.

#### 5.3 Off-page SEO

All techniques used outside of a website's bounds and often used after on-page SEO are referred to as off-page SEO. Off-page SEO is thought to have the most influence on how well a website ranks. Link building, social media, and social bookmarking are the three primary components of the process.

#### 5.3.1 Link creation

Because search engine robots, sometimes referred to as spiders or crawlers, use links as a way to scan and index every page on the World Wide Web, links play a crucial part in search engine functioning. In addition, links are viewed by search engines as endorsements of the importance, fame, and caliber of a website. More specifically, a website that provides quality user experience and rich material is more likely to receive reference links from other websites or to be shared on social networking sites like Facebook, Twitter, Google+, etc. As a result, link building is regarded as one of the most crucial Off-Page SEO processes. Link building is a strategy used to get external links pointing to the target website from other websites. Although there are several ways to get connections from other websites, they may be divided into three categories links that are one-way, triangular, and reciprocal.

Link exchange, often referred to as reciprocal linking, is a link built on an understanding between two parties.

websites to include an internal link to one another's websites in their content. For instance, in Figure 5.9, website A will swap a link back to website B for an incoming link from website B.

From A many webmasters have in the past abused this strategy by spamming links to one another in an effort to distort search engines' ranking algorithms. Search engines discourage this kind of link development as a result. Apart from that, they have altered their search algorithm to impose a negative ranking effect to websites with an excessive number of reciprocal links and to lower the value of reciprocal links as a ranking component.



Figure 5.9 Reciprocal connecting diagram

Another challenging kind of reciprocal connecting is triangular linking. Triangular linking, as shown in Figure 5.10, is a linking strategy where website A offers to

connect to website B in exchange for website B including a link to website A on a third, neutral website. In this situation, website C may be a joint venture with website A, an online directory, a local listings website, etc. To get around search engines' revised guidelines about the declining significance of reciprocal linking. Though the algorithms used by search engines, particularly Google, are becoming complex programmes that simply implements the triangle connection system design. As a result, this kind of link creation is equally valuable as reciprocal linking in terms of ranking factors.



Figure 5.10 Triangle connection diagram

As implied by the name, one-way linking is a connecting strategy in which website A receives a link from website B without having to link back to website B. The most effective kind of link building is one-way linking since it shows that the website being linked has other people's support and confidence, and because search engines place a high value on this kind of link building. There are several ways for webmasters to get

connections from other websites. For example, they may generate original, valuable material that is beneficial to visitors and those websites will inevitably receive promotion by themselves. Additionally, website owners can participate in online forums or communities that are directly linked to their industry and attempt to respond to discussions, offer advise, respond to queries, etc. Participating actively in those forums or communities' aids website owners in establishing a positive reputation for their businesses. Developing high-quality content and participating in online communities are sustainable, long-term goals that are safe ways to get one-way links.

Conversely, those methods are difficult, time-consuming, and need a lot of patience and work from webmasters. As a result, purchasing link—an alternate option to obtain a one-way link—is introduced. In general, purchasing links favours any actions connected with trading money for links. In certain cases, businesses will provide highranking website owners with complimentary goods or services in exchange for their placement of a link to their website. Obviously, since it interferes with their purely ranking methods, search engines do not favour this kind of link building.

They expect websites to rank highly in search results because they merit it rather than because they paid for it. As a result, search engines have improved their algorithm for ranking websites to identify those that sell or buy links and impose penalties on those websites. Even Nevertheless, there are some circumstances in which search engines let webmasters to purchase links from well-known and highly ranked websites for advertising and raising their company's brand recognition.

However, in that particular instance, search engines demand that those commercial links do not pass any "vote," even if links might be viewed as a vote of confidence for the websites that purchase them. Search engines are used to introduce the "nofollow" special tag. A "nofollow" element, as seen in Figure 5.11, generally informs search engines that a certain link is not a "vote" for the page being referred. Webmasters can add links from other websites by using the "nofollow" tag without worrying about being accused of buying or trading links.

Additionally, "nofollow" tags deter users from spamming links because they are ineffective in terms of giving credit to the linked websites and are included in practically all forums and online directories. This helps the fight against spamming websites.

<a href=http://www.example.com rel="nofollow"> Example </a>

Figure 5.11 syntax of "nofollow" tag

Over the past few years, search engines' ranking algorithms have improved in sophistication and effectiveness in order to safeguard their search results from spam and low-quality websites. As a result, the approach to link development has evolved, with quality now taking precedence above number. Thus, in order to prevent having a detrimental influence on search engine rankings, webmasters should always keep in mind a few key criteria.

The factor of link relevancy is based on the relationship between the content of the website from which it comes and the content of the page it points to. In other words, search engines will give a link greater importance if the website from which it originates has a more closely linked topic to the page to which it points.

The website's quality and pertinent material that links to other websites is referred to as the link's quality. To put it another way, links from well-known, reputable websites will be worth more than links from subpar or even spammy websites. The factor of link relevancy is based on the relationship between the content of the website from which it comes and the content of the page it points to. In other words, search engines will give a link greater importance if the website from which it originates has a more closely linked topic to the page to which it points.

The website's quality and pertinent material that links to other websites is referred to as the link's quality. To put it another way, links from well-known, reputable websites will be worth more than links from subpar or even spammy websites.

Natural links are links that other people gain organically when they utilise those links as references on their own websites because they think the websites being mentioned are beneficial in some way.

#### 5.3.2 Presence on Social Media

Popular social networking networks like Facebook, Twitter, LinkedIn, Google+, and others have grown quickly during the past several years. Social media has, in fact, taken over our everyday lives and is now indispensable. The idea is supported by several statistics.

- With about 3 billion monthly users, Facebook is the most popular social networking platform. This indicates that 37% or so of people on Earth use Facebook.
- After Facebook, YouTube is the second-largest social media platform with around 2.2 billion members. [14]

Social media has grown tremendously, and it now plays a crucial role in off-page SEO.

Link building also takes place on social media. All connections obtained from social media, it is crucial to remember, are "nofollow" links. As previously mentioned in the preceding section, creating links from social media does not directly improve a website's rating. All connections obtained from social media, it is crucial to remember, are "nofollow" links. As previously mentioned in the preceding section, creating links from social media does not directly improve a website's rating. However, social media does not directly improve a website's rating. However, social media may be viewed as the most effective broadcasting method for promoting a company and raising brand awareness among a sizable population of active users. Many people who use social media to communicate with their friends, relatives, or coworkers also use it to find information, suggestions, and amusement. Additionally, there will be several possibilities for your company to develop a relationship with your clients if you can meet their wants.

#### 5.4 SEO Implementation on Website



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Marketing Home SEO		
Email Marketing	Add the Employers page's meta description for search results	
Google Ads	Add alt text to all images on your <b>Employers</b> page	
Google Business Profile	Add links to your Employers page	
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Figure 5.12: SEO Implementation on Website

#### **CHAPTER 6 CONCLUSION AND RECOMMMENDATION**

#### 6.1 Conclusion

A long-term approach called search engine optimization (SEO) should result in a higher ranking on the search results page and, as a result, more visitors to a website. The ideal blend of off-page and on-page optimization strategies is crucial, even though the outcome of optimization cannot be guaranteed. A distinctive and engaging website content must be produced at all costs. Another recommendation essential to on-page SEO is a user-friendly URL structure, a domain name that is clear, relevant titles, descriptive headers, and structured source code with a swiftly loading interface. Publishers must concentrate on establishing high-quality ties with pertinent partners and cannot ignore the off-page component.

SEO will be a crucial technique for website ranking in the future. We can display any term in search results from search engines like Google and Bing on your website page with the use of SEO. In the future, Google will rank websites with articles that are 500–1000 words long and have low bounce rates because there are many websites with articles of very poor quality that appear at the top of Google's search results. If Google encourages websites with low bounce rates, we will be able to find websites with high-quality content on Google[15]

After implementing SEO on the website "**3qds.com**", there has been an increase in the page views of the website as shown in the figure 6.1

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Figure 6.1 google analytics page views comparison[11]

Within the span of 15 days after the SEO implementation on the **3qds.com**, there was significant increment in the number of visitors was observed. Initially, before the implementation of the SEO technique, new visitors were zero in numbers and then it rose to 38 new visitors as well as returning visitor's count also shoot from 2 to 16 as depicted in the figure 6.1.

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1. New Visitor			
18-Jul-2013 - 31-Jul-2013	38 (70.37%)	100.00%	38 (100.00%)
01-Jul-2013 - 15-Jul-2013	0 (0.00%)	0.00%	0 (0.00%)
% Change	*****	00%	~~%
2. Returning Visitor			
18-Jul-2013 - 31-Jul-2013	<b>16</b> (29.63%)	0.00%	0 (0.00%)
01-Jul-2013 - 15-Jul-2013	<b>2</b> (100.00%)	0.00%	0 (0.00%)
% Change	700.00%	0.00%	0.00%

Figure 6.2 google analytics comparison of visitors

#### 6.2 Recommendation

Nowadays, Companies works in Click-and-Mortar model, so companies need to know and target their customers in order to convert them into the leads and generate ROI and this digitalized era, they must sure to be at the top search results on the search engines. Thus, they to optimize their website through different SEO techniques.

SEO techniques helps the firms to be at the top above all the competitors on search engine pages. Therefore, I recommend to consider SEO technique as need and an important aspect of marketing field because it will help in increasing sales and boost the profit and revenues of the business entities.

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