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Search engine optimisation in WordPress

An experimental study examining the opportunities for a website to receive a high ranking on Google Search

PAPER WITHIN Informatics

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Abstract

Receiving visitors from organic search could be crucial for the traffic to a website, and the success of the company behind it. In this experimental study, it is tested if a website can be displayed on the first page of Google Search within 27 days of publishing, only using non-paid methods within search engine optimisation. The purpose is to investigate different ways to implement search engine optimisation on a newly created WordPress site, and analyse its impact on the ranking of the site in the search results page. The investigation includes constructing a field experiment, to discover its search engine optimisation possibilities using Google Search. The results of the study showed that, to get a higher ranking, both on-page and off-page optimisation should be composed and implemented to the website. Among these are techniques within the source code and content of the website, with keywords as the core element. This is crucial for search engine optimisation, where the fundamental part is to implement relevant keywords to the website and adapt it in consideration of the user input in the search engine.

There are many different ways and methods of implementing search engine optimisation on a WordPress site, to make it rank higher in Google Search. It is found out that the highest ranking is mainly achieved for specific and nished keywords, avoiding competing with well established companies.

By the end of this study, it is concluded that there are many factors that could influence the results of the experiment, in a positive or negative way. It is not possible to see the specific factor that made the variations of keywords succeed or fail, as well as the quality of the entire search engine optimisation of the website. The reason for this is because the algorithm behind Google Search is reguralily changning, which makes it difficult to determine what techniques, within search engine optimisation, that are most effective.

However, this study is confirming that search engine optimisation could generate positive results for a website regarding the ranking in Google Search, even within a limited time frame. Independent which methods that are most effective and relevant, the importance of search engine optimisation is proved through this research.

Keywords

Content

1　　　Introduction

Many organisations today run their business online, in addition to having a physical location for it. Therefore it is becoming more and more important to have a high ranking for the website in search engines, in order to attract visitors (Gudivada and Rao, 2015, p.43). The website ranking is one of the factors determining the amount of traffic a website is getting. Each search engine collects all published websites on the web in an index, Gudivada and Rao continues (2015, p.44). Based on the index, the search engine makes a decision and presents the most relevant websites first on the search results page (SERP). If a website has not been discovered by the search engine yet, it is not a part of the index, and will therefore not be displayed among the search results. By practicing methods within search engine optimisation (SEO), the position of a website on the SERP can be affected. SEO is the process of adapting web pages, or entire sites, to get a higher ranking on a SERP (Sadhana, 2018, p.1). Optimised websites receive better ranking in the SERP, that, in the other hand, attracts a higher number of visitors, Sadhana continues. Having the company on the first page among search engine results can be crucial for the website traffic and, in the long run, the general position for the company on the market.

SEO is known for growing over time and is not something that can be seen overnight (Sadhana, 2018, p.2). In this study these facts are being tested, investigating the possibility of reaching the first page of Google Search within a limited time frame, and exploring the complexity of the available SEO methods. The issue with SEO and adapting a website to a search engine algorithm is to know which methods that actually make an impact for the website among its competition (Charlesworth, 2014, p.194).

This report is describing the process of creating a website, and making it search engine optimised, with WordPress as content management system (CMS). The study will investigate methods and tools for making a WordPress site search engine optimised, with the aim to make the website reach the first page of Google Search within 27 days.

The experiment is going to be implemented on a newly created WordPress site, created for a freelance photographer in Borlänge, Dalarna. The domain is fotografemmabroberg.se and the website will work as a portfolio, with the purpose to promote the photographer and present a gallery of images.

1.1   Background

To be reliable and of as high importance as possible, for a wide range of people, this study is going to focus on the market-leading companies for search engines and CMS. In 2018, Google Search had 90 percent of the world market, which makes it the world leading search engine (Statista, 2018). Regarding the content management system (CMS), WordPress is the publishing platform for over 32% of all sites on the web. This is making it the most used CMS in the world. Among websites using a CMS, approximately 60 percent are created in WordPress (Guta, 2018). The company is therefore the market leaders within the field, and an appropriate CMS in focus for this study.

Sadhana (2018, p.1) explains that search engines dominate 93% of the Internet traffic online, which makes optimisation and adaption to search engines the key to making websites competitive and visible. SEO is about making minor modifications to a website in order to make it user friendly and improve its ranking in the organic results of the SERP. For the SERP link to be organic, it needs to be a non-paid link. The content and SEO of the page needs to be adapted for the users, and not paid by the company behind the site (Gudivada and Rao, 2015, p. 44). By practising different SEO principles, the website can more easily be discovered by a search engine and, in later step, by the customers, with the purpose to effectively find and provide the wished information. The importance of SEO can be established from the results from previous research. Sadhana (2018) and Andersson (2018) both conducted an empirical study where SEO methods were tested on published websites. The outcome of the studies conducted proved that SEO can affect the ranking of the website.

According to Sadhana (2018, p.2), there are two processes within SEO, on-site optimisation and off-site optimisation. On-site optimisation refers to the measures made in the source code and content during the development phase of the website. Off-site optimisation, in the other hand, are approaches that can improve the ranking of a website, without being connected to the development and the content of the website.

The majority of people who use search engines, do not move to any other page than the first on the SERP (Gudivada and Rao, 2015, p.44). Being one of the five first results could be crucial for a website when it comes to attracting visitors. If two sites are very similar, the chances are bigger that the visitor is choosing the alternative that has the highest ranking among the search results.

A factor of SEO that Charlesworth (2014, p.194) writes about, is that speculations of which methods are best and how they actually work are only guesses. Looking at the *Google Algorithm Change History* (2018),

Google is making changes to its algorithm 500 to 600 times a year. Therefore, people outside of search engine companies can only guess which elements of SEO is more beneficial than others, due to the fact that the matching process changes regularly. Another reason is that the specific factor of the algorithm is unknown. It is said that Google, for instance, has around 200 of them (Charlesworth, 2014, p.194). This is, consequently, the current problem within SEO. Since Google does not reveal the entire truth about the algorithm, it is a challenge to know how to best practice search engine optimisation and which methods that actually gives an impact on the position in the SERP in Google Search. By investigating methods and tools within the subject in this study, the goal is to clarify the process and get an understanding of how to optimise a website that affects that position.

For search engines, the process of crawling the web and finding a relevant match to the search query, is complex because of the large amount of website in the stored index (Sadhana, 2018, p.2). This means that it can take months before a new website or updated content of an existing website get recognised by the search engine. SEO approaches can therefore take time to see results of, which can affect the position of the website in the SERP. Kent Mauresmo (2016) has written a book that is stating contrarily. The book provides a guide on how to reach the first page of Google Search within 27 days. The guide includes multiple practical steps describing methods and tools on how to build and optimise a website with WordPress as CMS. This guide is going to be used in this study as a source of methods, in order to create and search engine optimise a WordPress site. By following the steps and theories of the guide, the study will investigate if search engine optimisation takes months to see results of, or if it can be done within less time, in this case 27 days.

Google (*Search Engine Optimization (SEO) Starter Guide,* 2019) has released a starter guide for search engine optimisation that is stating facts and techniques for getting a website discovered by a search engine, in particular, Google Search. In order to strengthen the steps carried out in Mauresmo's guide, the theories behind are compared to other techniques and methods described in the starter guide. If a method mentioned by Mauresmo is not reinforced by the guide made by Google, it will be seen as unreliable and are therefore not going to be used in the study. Also, if Google is mentioning a method that Mauresmo is not, it will, if it is relevant for the website, be implemented on the site anyway.

1.2 Previous research review

There is plenty of previous research in the field of search engine optimisation, which proves the importance of the subject. However, most information that can be found about the field SEO is not academic. Though, books have been released, as well as articles about the subject. Since SEO is changing all the time (*Google Algorithm Change History*, 2018), several of the previous research can be outdated and, therefore, not relevant in a contemporary perspective.

Sadhana (2016) implemented a study investigating existing techniques and methods for SEO in order to propose a framework of effective SEO approaches. The methodology involved examining the framework on several already published, non SEO optimised websites, to be able to analyse the efficiency of the framework. The study resulted in a difference in position in the SERP of Google and all websites involved achieved being listed in the first 10 pages of Google. This result confirm the importance of the subject, and that conducting SEO on a website can increase its ranking and trafficking.

Nyberg (2015) did a study focusing on approaches to improve the SEO of an already existing website, covering the theoretical part of SEO. The results of the study were not implemented on the website, but only pinned down to suggest improvements for the website in focus. In addition to Nyberg's study about analysing SEO techniques, Andersson (2018) carried out an empirical study exploring SEO methods affecting the position in Google Search. The study involved using SEO analysing tools in order to explore SEO improvements for a published, non optimised, website. The website was inspected and adjusted in three checkpoints before analysing the final result; the new position of the site in Google Search. The purpose of the study was to discover which improvements a website need based on the SEO analysing tools and to reach a status for the website were the number of SEO warnings was as few as possible.

In a study made by Rehman and Khan (2013), available methods within SEO was compared. This with the purpose to review existing methods, in order to construct new guidelines on how to make a website search engine friendly. The outcome of the study was only based on facts and theories discovered from research and no empirical investigation was made.

Zhang and Cabage (2017) conducted a study where the efficiency of three different SEO methods, on three different existing websites, were tested over 18 months. One website was SEO optimised through the content only, one through content and link building, and the last used content and social media campaigning to get social shares. The focus of the study was to analyse the results of the different SEO methods, without analysing any details about approaches that were made in order to manage different

SEO methods. This study was ongoing for a longer time period, and based on doing adjustments on already existing sites.

In 2018, Rasmusson Andersson and Petersson conducted a study that differentiates to the research studies presented above. The study interrogated the role of small companies in the subject of SEO, in particular exploring reasons why conducting SEO is not always something small companies prioritise. As a part of the study's outcome was the conclusion that small companies lacks technical knowledge about SEO and that it requires time and effort the companies do not afford to compensate.

1.2.1   Research gap

Based on the previous research review, several gaps in the research spectrum has been discovered. Some of the studies found, are not conducted with an empirical approach. These studies are based on analysing facts and techniques around SEO, without implementing empirical examination of SEO techniques on websites. In this way, it provides an opportunity to manage an empirical study testing SEO methods on a published website.

The majority of studies that have been carried out in this subject, are long term projects examining SEO methods and its impact over time. Considering the study conducted by Zhang and Cabage (2017) for instance, the investigation of SEO techniques was implemented in a time frame of 18 months. This provides a research gap in terms of analysing effective SEO, testing the possibility to produce results in a short period of time.

Some of the studies presented in the research review the studies that were carried out a couple of years ago, which could affect the relevance of the study. SEO is always changing (*Google Algorithm Change History*, 2018), and therefore, studies that are a couple years old could already be outdated. Due to this fact, new studies based on more contemporary and updated facts could be a necessary contribution to the research about SEO.

1.3   Purpose and research questions

The main purpose of this study is to determine the possibility to reach the first page of Google Search with a newly created WordPress site, within 27 days of publishing. By investigating SEO methods and theories, the purpose is to discover what actions can be made when it comes to the source code, content and plugins of a WordPress site. This study is made to clarify existing methods that can make a difference on the SERP of Google Search for a website, together with exploring tools in WordPress.

This study is made to cover the existing research gap, to conduct empirical research on a newly created website within a limited time frame. This to see what can accomplished regarding the SEO of a website when resources are limited, and if results could be seen within 27 days of publishing.

The experiment is to be executed through SEO methods without spending resources on advertising, plugins etc. This study is going to discover the range of free plugins, as well as what can be done through code and the content of a website to receive a positive result for the ranking of the page.

This leading to the following research questions of the study:

What position on Google Search can a newly created website receive within 27 days of publishing?

What SEO practices are available for a WordPress site, to be displayed on the first page of Google Search?

1.4 Delimitation

There are a lot of various search engines and content management systems available on today's market, but in order to limit the study and narrow down the outcome knowledge, the study is only going to focus on Google Search and WordPress. The reason for that is the leading position on the respective market the organisations have, and the already existing high amount of users. The study is not putting any focus on other competitive search engines or content management systems.

This study is based on the technical aspect of SEO, how a website can be optimised through code and via tools and content in WordPress. There are plenty of theories and evidence about websites and how to affect their position in Google Search and other SERP, beyond the technical approach. Marketing research and theories about the users, market and competitors are therefore not included in this study, since it is not a part of technical SEO.

Another aspect that can affect the popularity and position of a website on Google Search is the design and structure of the site. The information architecture of a website, for instance, is important for its overall reputation, appearance and user experience. However, these are not factors that this study is going to focus on and consider, but solely on making the website appear on the first page of Google Search.

Google Search has an ad section where organisations pay for their website to be on top of the SERP, but the focus in this study will be on the non-paid section. As Charlesworth 2014, p. 190) mentioned, the search engine is the one responsible for the organic listings, the non-paid section, and decides which content that should be displayed first. Paid advertising is not a part of this study since the focus of the study is to explore what can be done technically and through code. The purpose is to find out which methods within SEO are available without spending money on WordPress plugins and advertising, such as Google ads.

Search engine optimisation is often made within a certain geographic area (Nyberg, 2015), and websites are not optimised for the entire globe. The website in focus is a Swedish site, and will therefore be optimised for the Swedish market. People at a different location browsing another market, might not see the same results as people located in Sweden, if not using private browsing.

The website created is developed as responsive in order to be compatible to any device and screen size. The results however, are only estimated and evaluated from a desktop perspective, regardless on the device the visitors of the website used.

1.5   Outline

The following sections in the study starts with a theoretical background, which includes deeper and more complex facts and theories that are relevant to the subject. The section digs deeper into SEO, the algorithm Google Search uses and investigates more advanced how a search engine works. Details about the main functions of a CMS and the main features of WordPress are also discussed.

The methodology, the research method and how the study is going to proceed, is discussed in the next section. The section will, step for step, follow the implementation of the method, in other words, the implementation of the SEO techniques established in the guide made by Kent Mauresmo, complemented by the starter guide published by Google.

In the last section, the findings of the implementation and the overall study are being presented and analysed. By discussing the results and the methods in different perspectives, the goal is to make conclusions and investigate the query of the research questions.

2   Theoretical background

SEO and its construction is an always changing phenomenon. As stated in the *Google Algorithm Change History* (Moz, 2018) the Google Algorithm is updated 500 to 600 times each year. This results in the fact that sources that was published a couple years ago could already be outdated and therefore not relevant to this study. To avoid this, information where it is crucial that sources are up to date, might not be taken from scientific research, but from more contemporary generated sources. Scientific sources are the base of the research for this study, but to have the latest theories about newly made changes, other sources worked as a complement.

2.1   The mechanism of a search engine

The purpose of a search engine is to satisfy the user's need and provide a result of websites that matches the desire, the search input, of the user (Charlesworth, 2014, p. 191-194). In order to achieve its purpose, the search engine strives to address the issue raised, by matching the input with the content within existing websites in the index. The search engine looks for keywords that are similar to the user input, and presents the websites that has the highest relevance to the query. The search result list is ranked from the most relevant to the least relevant, with the most relevant result on top. The process of finding the most relevant website is, according to Charlesworth, based on the search engine guessing what the searcher want, depending on the typed input. SEO in this case is the action of adapting the code and content of a website to a search engine, and making it available to respond to particular queries in an input. The goal is to make the website relevant and competitive, in order to be visible and available in a search result list.

Charlesworth (2014, p. 191-194) explains that the mechanism of a search engine consist of two parts. The first is the algorithm, the tool that match keywords from the search input with a website. The second is how the results is displayed, the SERP.

2.2   The algorithm behind Google Search

On the company's website, Google is explaining that the search engine was created in 1996 as a research project at Stanford University. Back then it was called BackRub, but short after it was renamed to Google. The founders of the company realised the need for a site that gathered all internet websites into one place, which did not exist at the time. Google soon became more than just a search engine. Among hundreds of

product releases the company have made, are products such as Google Search, Google Translate and Google Chrome. Today, the mission of the company is to organise the world's information and make it universally accessible and useful. The product within the Google suite in focus for this study is Google Search, among two additional tools, Google Search Console and Google Analytics.

In 2014, 75 percent of all search engine queries in the US was made through Google Search (David, 2015, p.3). Statista (2018) is stating that Google Search had over 90% of the world market in 2018 (figure 1), which makes Google Search the world leading search engine. In Sweden, Google Search has got even more influence of the market, compared to the rest of the world. According to Statcounter (2018) the company had 95.65 percent of the total market share in the country the same year (figure 2). None of the biggest competitors, Bing, Yahoo or DuckDuckGo, reached over 2.5 percent. The high market share of Google Search provides clear evidence of why Google Search is the most relevant search engine to use for this study.
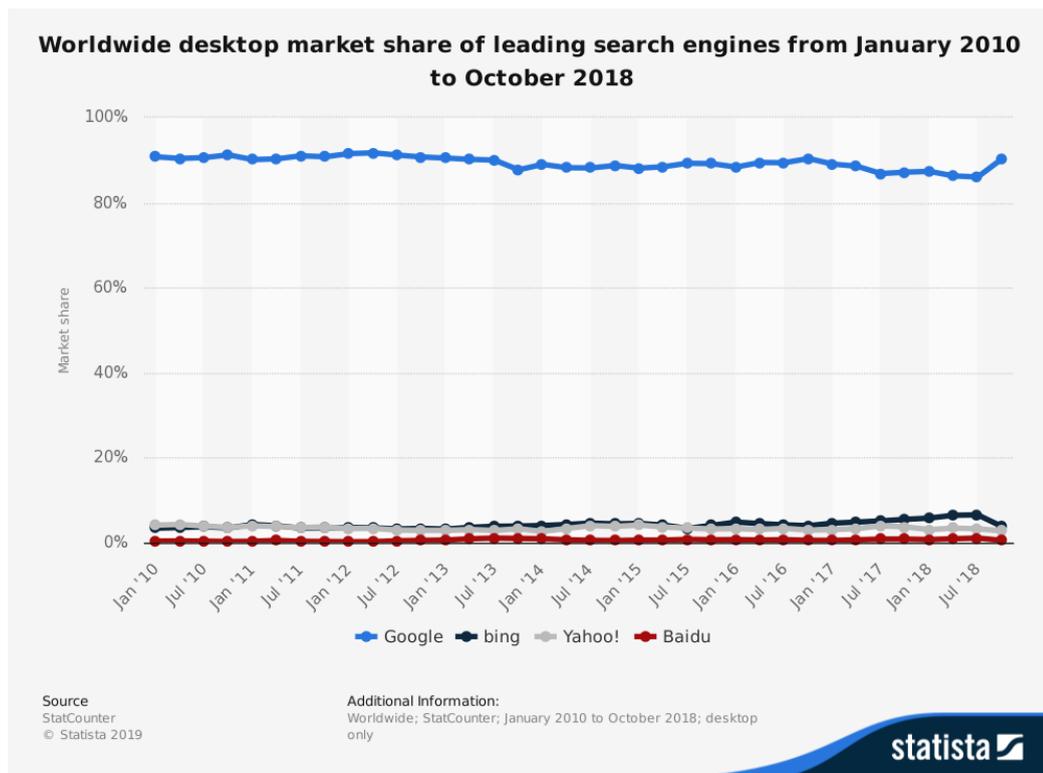

Figure 1

StatCounter Global Stats
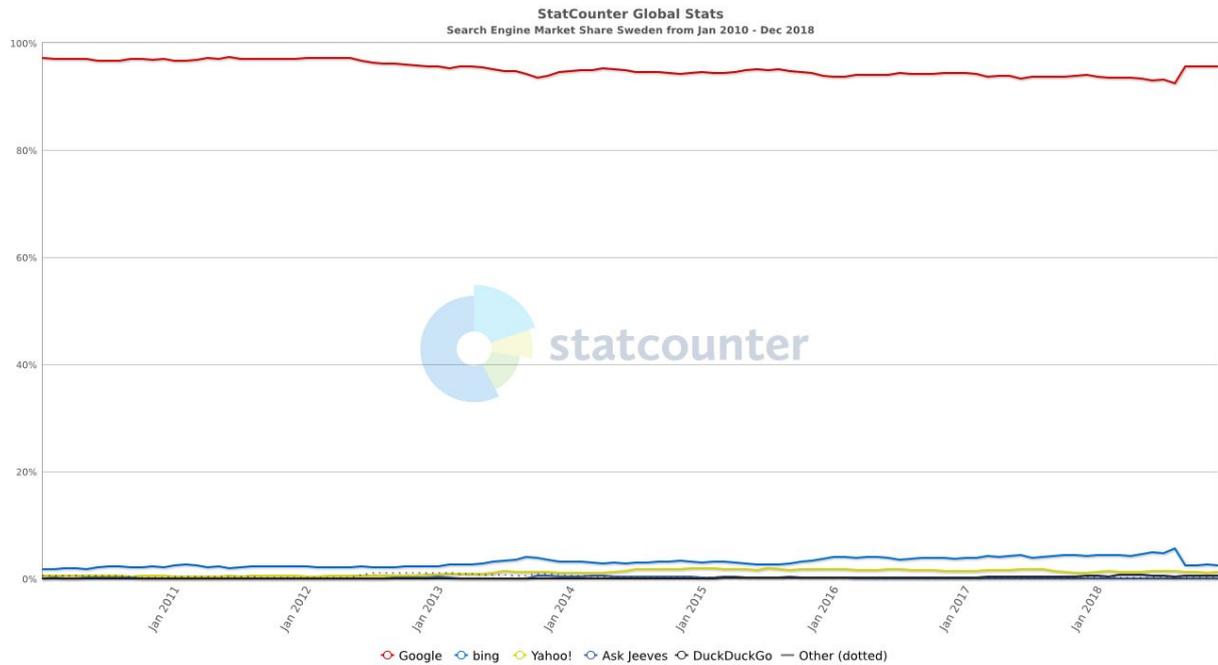Search Engine Market Share Sweden from Jan 2010 - Dec 2018

Figure 2

Google Search is using an algorithm called PageRank to evaluate the importance of any individual page in a website and placing the most important website first among the search results (David, 2015, p.155). PageRank searches through each page of the website individually, instead of the site as a whole. The ranking of a page, is a number between 0 and 10, where 10 is the highest ranking. It is possible to make steps within SEO, to secure a higher ranking for a website during the process of creating and updating it.

Google is sharing some facts about their algorithm, but the specifics are a secret. Google wants to avoid sharing crucial code to their competitors and not giving them the key to the success of Google Search. Also, it is important that users are unaware of how the algorithm specifically works, in order to avoid people abusing the system to get higher up at Google Search results (David, 2015, p.14).

David (2015, p.12) demonstrates that the SEO of a website is depending on several factors, containing heading tags as well as the quality of the HTML and CSS of the page. One main factor is the content of the page. If the web page in focus is relevant, according to the PageRank algorithm, it should have many other pages that consist of links connecting to the website. The amount of links leading to a certain website can be affected by how PageRank are ranking the results on the SERP, according to David (2015, p.26).

2.2.1 Google Featured Snippet

From the Knowledge Graph, a function Google launch based on human curated data, the Featured Snippet was born as a solution to provide information in real time (Meyers, 2016). The Knowledge Graph consisted of an information panel that appeared on the SERP when a question from the input could be answered with facts and data. The Featured Snippet, also known as the position zero, is a developed version of the Knowledge Graph and displayed in different formats depending on what is relevant for that type of information. For instance, the snippet can include tables and lists of information for a recipe for instance, or real time information such as airport departures or live updates for sports results. Other snippet types are the Image Search, Google Maps and Google My Business. These types includes an excerpt of images, locations of places on a map and information of a certain business.

The position zero is an organic result, Meyers explains, but displayed above the other websites on the SERP, and containing an answer for the input question by the user. It also contains a title, and a URL to the site the information origin from. The snippet is usually showed when the search input is a question, but can also be presented for a keyword.

Meyers continues by discussing advantages with having the website in the Featured Snippet. If the website that is at position zero also is the first results among the organic results, it will get two listings before the second site get its first. In addition, if the position zero website is not the first result among the organic results, it will be put before the others without being the most relevant site for the query. An argument that Meyers mention is if the Featured Snippet is good for click-through rate (CTR), the ratio of clicks on a certain link, or not. In some cases, the user gets the answer of the question by just reading the excerpt of information in the snippet, and in those instances the CTR decreases and the website receive less traffic. Meyers on the other hand believes that the CTR increases for the website placed in the position zero, in the way that the user gets interested while reading the excerpt and wants to know more by clicking on the link and visiting the website.

Stapert (2018) mention that it is necessary to be high up in the rankings from the start, before taking action to be placed in the Featured Snippet. If the website already has a good position in the SERP, the keywords that affects the good position can be recognised and used to match questions for the snippet. The keywords appropriate for the position zero is questions including how, what and where. If these kinds of questions are not included in the list of successful keywords, new keywords in that formulation needs to be created. It is also essential to connect the query to related questions, that can be identified with Google autocomplete, in links in the content of the website.

The development of the content of the website needs to be adapted and carefully considered, regarding the Featured Snippet. Stapert points out that the information meant to answer the search query is more suitable if it is structured into lists, rankings and tablets, for instance. The text paragraphs in the content should contain a limited amount of words, where 54-58 is a reasonable amount. Lastly, Stapert mentioned that the website needs to be updated in terms of general SEO in order to have a change to be placed in the Featured Snippet.

2.3   A CMS allows content to be controlled

Deane Barker (2016, p. 5-7) explains that a CMS is a software package that manages content in an effective and relative automatic level, in order to prevent issues to occur within the content. The purpose is to make it possible for people with no or little technical knowledge to create and edit online content. The system behind is advanced with a complex mechanism, but the surface is simple and adapted for the user experience. There are different types of CMS available, within different business areas. WordPress is included in the type called web content management (WCM), whose purpose is to deliver content through a website.

Some CMS provides supplements that adds to their main functionality of the system (Barker, 2016, p. 243-244). Those can be called plugins, add-ons, extensions, components or modules. In WordPress, they are referred to as plugins. There are thousands of plugins available in order to widen the functionalities of the CMS and achieve the wished purpose or requirement.

2.4   WordPress provides freedom

There are two different parts of WordPress, WordPress.com and WordPress.org, where the .com version is primarily used for blogging (Sabin-Wilson, 2015, p.8). This study is not going to include the blog version of WordPress, and only using WordPress as a CMS for publishing websites.

As the most popular CMS, WordPress is available for everyone (WordPress, no date). One main feature of WordPress, and a key to its huge success, is its simplicity. People with no, or little, coding experience can be able to create and publish their websites without hiring a third party. For developers, features such as creating custom themes for clients, and custom content types, post types and taxonomies for instance, are available. This is minimising the limitations for websites created through WordPress.

WordPress is a free service, the only service that requires payment is for publishing the website through a web hosting company, and if non-free plugins versions are to be used. As stated on the website of WordPress, the mission of the organisation is: "WordPress is software designed for everyone, emphasising accessibility, performance, security, and ease of use. We believe great software should work with minimum set up, so you can focus on sharing your story, product, or services freely. [...]" What the company is saying, is that WordPress is for everyone. It should be accessible, secure and easy to use. The software should work with minimum set up, so anyone could be able to publish their website, without knowing how to code or putting a lot of money into it.

Brazell (2011, chapter 3) is explaining several ways of getting a higher ranking in search engines for WordPress sites. It can be done through code, plugins and the content on the website. Preferably all three ways should be used. Plugins give people that are lacking coding experience the opportunity to adapt their website to search engines.

2.5   SEO requires balance

SEO is about developing a relationship between a website and a search engine, which can take time (Charlesworth, 2014, p.190-194). The search engine is careful and checks the validity of a new website before it gains trust in it. When a website is trusted by a search engine, it will be presented in the list of search results. The validity in the other hand is based on, for instance, if the website is what it claims to be and if any other, already approved, websites have links or relationships to the new site.

The definition of SEO is easily misunderstood. The key is to realise that the idea is to optimise the website for search engines, and not optimise the search engine itself. Charlesworth describes that it is possible to successfully practice SEO without any advanced knowledge within computer science or engineering. Some methods, for instance, does not require any experience in coding at all (Charlesworth, 2014, p.190-194).

It is necessary to find a balance when it comes to SEO, Charlesworth continues. If no effort has been put into optimising the website for search engines, the website will risk struggling to be found and presented on the SERP. No matter how good or relevant the content of a website is, the search engine needs some help to match and find a relationship between the search input and a website. Contrarily, a website that is over optimised with spammed keywords and manipulated structures could be ignored by the search engine, as a penalty for misusing the system. Search engines nowadays have the ability to reject websites

that use that kind of illegitimate SEO measures. Sadhana (2018, p.2) comments to this fact and explains that SEO methods that are valid and are following the guidelines the search engine provide, are referred as "white hat" approaches. While "black hat" SEO includes the illegitimate SEO approaches.

2.5.1   Personalised searches

Personalised searches are based on the context around the user and the previously made searches stored in the search history (Tan, Shen, Zhai, 2006, p.718). The purpose is to extend the search by not solely present result based on the keywords inputted, but personalise the SERP and provide information suited for the particular user.

On social media, personalised searches can make impact on the user experience. If a person is doing a Facebook search for instance, they might not want a result of all people with the name from the search input. People that are connected with friends in common, or that is living nearby might be more of an interest. Personalised search is not only for Facebook. According to Lofgren, Banerjee and Goel (2016, p.163) this has been very useful for the social media channels YouTube and Twitter, in terms of making the channels more user friendly and personalised in general.

The search history of a user is stored in a log format with all the search inputs made for that user (Tan, Shen, Zhai, 2006, p.718). Google (*Personalized Search,* 2009, 00:00:45) released a video, explaining that personalised search is only existing if the user have search inputs stored in the search history. It is not required for the user to have a Google account for a search history to be saved, since Google is using a cookie function that stores search history data in the browser, and not in an account storage.

The search result of an input may be affected by personalised search, which concludes in different SERP for each user, depending on previous searches for that particular user. Consequently, personalised search and search history could influence the outcome of the experiment included in this study. To avoid this, the user need to use private browsing, where the browser does not store any data about the search (Gritzalis et al. 2017 p.181). Even though it is possible for the result to be 100 percent accurate, if the user is browsing through private browsing, it can not be completely sure that the user do so. According to Gritzalis et al. (2017 p.182), 39.5 percent of people are using private browsing. This might not be the case when looking for a photographer, since the search do not include any sensitive or insecure data. With that said, personalised search is a factor worth to consider when discussing and analysing the result of the experiment.

2.6   Keywords as the core of SEO

The keyword selection process is important, due to the fact that keywords are the core of all search engine marketing (Charlesworth, 2014, p.198). The keywords that the user inputs in the search field are the words the search engine use to match with pages and content in the stored website index. The major challenge with keywords is to know which ones to use to be discovered by as many people as possible.

David (2015, p.17) describes some general rules regarding keyword usage on a specific website. There are guidelines of what to do, and to avoid, when working with keywords. If a keyword only appear once on a page, it is not positive for the ranking of the current page, but it is also negative if keywords are overused. The words should be narrowed down to maximum 15. The keyword of the selected page should appear several times, among different conjugations of the word. If a keyword is being misused, and placed too many times in an unnatural sense, it could have an opposite effect for the pagerank of the site, since the search engine is spamming sensitive (David, p.225).

2.6.1   Keyword selection

Charlesworth (2014, p.198) discuss the fact that there is a difference between how website owners are thinking and how the users are thinking. For example, for medicine, the website owner refers to the product with a medical term, the actual name of the product. While the user probably searches for the issue, "my stomach hurts" for example. In this way, the product name does not match the user input and the search engine cannot find a connection between them. The solution to this is to get in the mind of the user, and understand their need and desire. By practicing user research the knowledge about characteristics, needs and behaviours of the user can be increased and can, in a later step, be worth to consider.

In order to get to know of the user, and understand keywords that would be relevant to them, without doing developed user research, there are three routes to apply, Charlesworth continues. The first is for the developer to try to walk in the shoes of the user, and think about keywords that the user might input in the search query. Asking the customer about which keywords they regularly use on different occasions, or for that specific website, is another route that can be necessary to conduct. Practically, it can be made in surveys or interviews etc., depending on time and resources available. The last route is using technology as a measurement tool to track, analyse and define the users' behaviours. By using keyword research tools, data about which terms have been searched on during what time and environment can be gathered.

Mauresmo (2016, ch.1) points out that many keywords can be found by only input some typical keywords in a search engine and the engine will provide similar and related keywords to the input, in other words, use the autocomplete function in Google Search. Relevant keywords can also be found by thinking about the subject and browsing around exploring other competitive websites. In order to further generate keywords, visiting websites that has the function to create keywords is an option. There are three different sites with this function mentioned in the book; Keywordini, Ubersuggest and Google's own keyword tool.

Mauresmo mention that it could be profitable to have keywords with three or more words. People rarely search for only one word, and therefore a higher ranking among search results could be generated if having several words in the keywords. These keywords are called long tail keywords. In the end of the keyword research phase, the outcome should be a narrowed down to a list with a reasonable amount of relevant keywords, maximum 15 keywords as David (2015, p.17) stated.

2.6.2   Keyword analysis

The keywords collected need to be analysed against the surrounding and with a narrowed list of keywords, the analysis will become easier, more relevant and more effective. Mauresmo (2016, ch.2) describe that keyword analysis can be made either manually or with help from tools. In this case, Mauresmo points out MOZ toolbar and Market Samurai. These tools analyse keywords in a complex manner, which sometimes can be waste of time and effort, according to Mauresmo, and therefore not always necessary to conduct. Some tools provide information that would be wrong to consider for some keywords. For example, a tool can give a result that a keyword is impossible to be ranked in the environment of major domains. In other words, the tool implies that the website will have a hard time to compete with well established corporations. The problem is that many sites offer individual profile pages, such as Youtube where anyone can create their own page, that can be ranked. With that said, this study is going to leave this analysis tools behind, and only analyse the keywords in the list manually to avoid getting the wrong information from tools.

To manually analyse keywords, the keyword in question is inserted in the search input and analysed through the result the search engine provides. There are some factors to look for during this process, Mauresmo continues. If the result of the search input displayed paid, advertised websites it is a profitable business. It is important that there are smaller companies within the results as well. If there are only big franchises presented it will be nearly impossible to knock them down in the result ranking, and it would be favorable to rethink the keywords. Additional to this is another essential aspect. If the businesses

displayed in the first SERP is connected to something bad, such as nation businesses that practise illegal acts, it would have a negative affect for the keyword and the website.

2.7 On-page optimisation

On-page optimisation is about the changes made on the site, to improve its visibility and ranking in search engines. It includes the content of the pages, as well as the source code behind. The methods that should be used is depending on the website in focus. If on-page optimisation is done properly, an increase in the ranking and readability of the website is going to be achieved (Gunjan et al. p.207).

2.7.1 Domain name and SSL certificate

The URL is important to the search engine. Therefore, the choice of domain name and URL snippets need to be carefully considered and evaluated (Google, *Search Engine Optimization (SEO) Starter Guide,* 2019). When Google Search crawl the website index looking for an appropriate result to the search query, it is looking for a unique URL for each website and its content. Google states in the guide that it is necessary to use separate URLs for each page and content piece, in order to present the relevant content and page in the SERP. Mauresmo (2016, ch.3) also discussed the domain name and explained that the name should include one of the keywords selected, to achieve higher ranking on Google Search. Sadhana (2018, p.7) also mentioned that the pertinent keywords should be included in the domain name.

As more businesses are based online, the requirement of security has increased (Chou, 2002). Https stands for hypertext transport protocol secure, and is a secure version of the http protocol that is standard on websites. A secure website means that all the information from the visitor is encrypted by a security protocol called secure sockets layers (SSL), Chou explains. Administrate SSL is required by pages that are handling payments or personal information about customers. Today, it has, according to Chou, become standard for e-commerce sites. Mauresmo (2016, ch.3) mentioned that, even though many websites only are informative, it could be crucial for its SEO to have a SSL certificate and be presented as a secure website. In some cases, a SSL certificate requires an additional fee when purchasing the domain, depending on what is included in the chosen web hosting deal. The website created for the purpose of this study is published with Miss Hosting as web hosting company. This company is offering a security extension that makes the website secured and the https valid. The website do not necessarily require the SSL since it is not an ecommerce site or require storing sensitive personal data from the visitors. Yet,

based on the fact Mauresmo mention, that a SSL certificate can affect the ranking of the website, it can be significant to make the website secure for the SEO quality of the site.

2.7.2   Meta tags and page titles

When a website is presented in the SERP there are a couple of elements displayed for each site snippet, such as title, description and URL. Google describes in the *Search Engine Optimization (SEO) Starter Guide* (2019) that there are a couple of things to consider while writing the content for the site snippet. The snippet should describe the content of the page, and the title of it should naturally and effectively communicate the topic of that content. Default or vague page titles called "Untitled" or "Page 1" for instance, should be avoided. Depending on the search input, Google Search can display an individual page in the SERP and the title for each page needs therefore to be unique in order to be separated from the others. Considering the length of the title is crucial, in order to get the wished title displayed. Google can present a different title or a shorter version of it, if it is not suitable for the page content or swamped with unnecessary keywords. The title of the website should include the main keyword, or keyword phrase, in order to connect the website to the search query (Sadhana, 2018, p.7).

Google (*Search Engine Optimization (SEO) Starter Guide*, 2019) continued by explaining that the description element, meta tag, of the snippet is a summary of the content of that particular page, in order to make Google Search understand what the page is about. By manually writing a unique description meta tag for each page of the site is essential. This in order for Google to match pages to the search query and to display the right page description for the right page in the SERP. The description should be relevant to the content and both inform and interest the potential visitor. Mauresmo (2016, ch.4) adds to this fact and mentioned that it is necessary to put the keywords in the description, with the most important keyword written first in the phrase, as long as the tag still includes relevant information about the page. Meta tags for both title and description should be filled in for each post and page published on the website, in order to connect keywords to the content and increase the possibility for the search engine to match it to a user's search query. Same rule applies for the function of connecting posts and pages into categories and adding tags that WordPress provides (Mauresmo). By structuring the posts into categories and adding keywords in the form of tags to each post and page, it becomes easier for the search engine to understand the content of the page or post, which in the other hand can affect the SEO.

Headlines have the purpose to give the reader a clue of what the page consist of. They are also good for providing structure and hierarchy to the content of the page (Google, *Search Engine Optimization (SEO) Starter Guide,* 2019). In order to make it clear for the search engine of what the main headline, and subheadlines, are, the semantic elements for the headlines, H tags, should be used. Mauresmo (2016, ch.5)

explains that the keywords for the website would be appropriate to be in the headline tags, primarily in the H1 and H2 tags. Each page can only consist of one H1, according to Mauresmo, in order to avoid confusion for the search engine while looking for the title of the page.

2.7.3   The landing page

The homepage of the website is the first page the user lands on when entering the website through the initial URL, with exception if the user directs via one of the specific pages of the website. The search engine in this case, can also be treated as a user in that sense that the homepage is important for a first impression. Mauresmo (2016, ch.5) explains that the homepage should consist of, if possible, a longer set of text including the keywords in the first few sentences. Google (*Search Engine Optimization (SEO) Starter Guide,* 2019) describes that the title of the homepage is important and should state the name of the business. The navigation of the website should be based on the homepage and give the user a clear guidance of the structure of pages included in the website. Meta tags regarding the homepage is part of the overall website meta tags, with the title of the website as the title of the homepage. The last factor mentioned by both Google and Mauresmo is to include a link to a HTML sitemap or navigational page on the homepage, that explains how the website is structured with pages and content. In this way, the user gets the opportunity to understand the website and easy find the needed information.

2.7.4   Optimising images

Publishing images into a website requires process of optimisation in order to make the images SEO appropriate (Google, *Search Engine Optimization (SEO) Starter Guide,* 2019). Optimising an image means to adapt and configure the filename, alternate (alt) text and description of the image. Google explains that the alt text is "hidden" information about the image available for assistive technologies, such as screen readers. In SEO, the alt text can be used to connect keywords to the image and make it more attractive to search engines (Mauresmo, 2016, ch.6). Mauresmo describes that keywords should be used in both the filename, alt text and description when uploading an image to the website. A detail Mauresmo mentioned regarding this fact, is to use the relevant keywords in attributes for an image, while being careful of spamming them. Both the filename, alt text and description can include keywords, but needs to be arranged and manipulated in different ways. Google adds to this by explaining that the alt text and the filename should be brief, but descriptive with unique content for each image. The format for the image should be one of the standards, such as JPEG, GIF and PNG, in order to be supported by most browsers and fit well together with a search engine.

2.7.5   Analysing the SEO

Mauresmo (2016, ch.7) mentioned that it can be useful to analyse the on-page SEO measures made in order to get see if they were managed in the correct way. Mauresmo recommended to use an analysis tool, Traffic Travis in this case, to be able to browse through the website and evaluate the SEO made. The tool will prompt warnings for pages and contents that needs improvements regarding the SEO and will guide in detail what needs to be done in order to achieve the requirements for being a well optimised website. It can be improvements in, for instance, meta description, content of a certain page or for the information in the alt text for an image.

2.7.6   The structure of the website

The information architecture and structure of the website is another aspect crucial for SEO (Rehman and Khan, 2018, p.106). The search engine can more easily crawl the website and understand its content when the architecture of the website is logically structured. Google (*Search Engine Optimization (SEO) Starter Guide,* 2019) mentioned that the navigation of the website has a purpose to quickly direct the users to the wished content, but also for the search engine. With a structured and relevant navigation the search engine can get a sense of the site hierarchy, the role of each page in the bigger scope and can understand what content is important.

The content of the website should be interesting and useful in order to make the website relevant and available to search engines (Goolgle, *Search Engine Optimization (SEO) Starter Guide,* 2019). When optimising the content, Google mentioned that considering the structure of the topics and knowing what the users want and needs is two important aspects, as well as keeping the content fresh. Sahana (2018, p.7) explains that website needs to stay updated, with the latest, current and relevant content and keywords. By ensuring this, the website can both stay competitive and comply with the ever changing trends on the web, which affects the status with the search engines.

When the development of the website is done and it is published online, there are ways of making it easier for the site to be discovered by search engines. When Google is discovering websites to put in the web index, the website needs to be crawled first, which is the process when Google is looking for new websites. This could be done though the sitemap of a website, which is a file telling search engines about the pages on the website in focus, and the hierarchy of them. *Search Engine Optimization (SEO) Starter Guide* (2019) is stating that the best way to be discovered and indexed by Google, is by uploading a sitemap.

Mauresmo (2016, ch.5) is stating that search engines prefer websites with much content. Preferably, the homepage should contain 2000 words or more. The more content, the better. However, this is not confirmed in the *Search Engine Optimization (SEO) Starter Guide* (2019), making it less reliable and not considered in this study. Mauresmo (2016, ch.6) also talks about the advantage of sharing and tagging articles and posts published on the website. In that way, the news and blog feed of the site can get more attraction and make it clearer for the search engine what the content is about. However, the plan for the website in focus, is to only include images and texts in the site content, no news or blog feed. That means that the SEO techniques Mauresmo mentions about that type of content is not going to be considered in this study.

The structure and the user's experience of the website can be improved by having customised and useful 404 pages (Google, *Search Engine Optimization (SEO) Starter Guide,* 2019). 404 pages are pages that appear if the user arrives at the site through a broken link or with a wrong URL. The Starter Guide mentioned that the 404 page should have the same design as the rest of the site, and present a link to the root page, preferably the home page. The page could also provide links to other related pages. By increasing the user experience of the site, the SEO quality also improves. The possibility of the user to stay on the site increases when directing the user to the root page, or another page, when doing something wrong and appearing on an error page.

2.8 Off-page optimisation

Off-page optimisation is the part of SEO that is done on the side of the website and content creation, to improve the SERP ranking. Creating backlinks and marketing on social media is the main part of off-page optimisation (Gunjan et al., 2012, p.207).

There are several ways of getting backlinks to a website, according to Mauresmo (2016, ch.8). The most popular includes commenting on blogs, marketing articles, creating forum posts, social bookmarking and linking through user profiles. This process can be time consuming, due to the importance that links should be coming from sites with good reputation. Blog commenting is better for branding your site, rather than getting backlinks, Mauresmo continues. Google (*Search Engine Optimization (SEO) Starter Guide*, 2019) is stating that there are different kinds of links, where links from bad reputed websites may harm your website. Therefore, backlinking from other sites could harm the website and be bad for the SEO. It is a safer option to link to user profiles, since you are in charge of where the link is coming from.

3 Method and implementation

3.1 Methodology

The methodology of this study involves managing an experimental study of the statement Kent Mauresmo make in his book. The statement that it is, with certain SEO methods, possible to reach the first page of Google Search within 27 days. The study was practiced by following the guide of SEO techniques constructed by Mauresmo, to investigate the validity of the statement. The web is constantly changing, and therefore, everything stated by the author needs to be strengthened by the *Search Engine Optimization (SEO) Starter Guid*e released by Google (2019).

A website was created and published in order to test the statement and implement the experiment. The website was adapted for search engines following the SEO methods included in the guide by Mauresmo, and reinforced by the *Search Engine Optimization (SEO) Starter Guide.* The experiment was conducted for 27 days, between the first and 27th of February, starting when the website was published. After the chosen time frame, the results were evaluated and analysed. The discussions are considering the results of the experiment, if the website could reach the first page of Google for any of the chosen keywords, or what could have been done differently in order to receive another result. The website is, as mentioned in the introduction, a portfolio of a freelancing photographer. All SEO methods implemented were adapted to that fact, in order to make the website relevant for its cause. The website was created with a purpose to promote the photographer, and not solely created with the intention to be optimised for search engines. The SEO approaches that was not relevant for the website was therefore ignored during the development. This is a decision that could be discussed by its legitimacy when the experiment is completed.

3.1.1 The experimental research method

This research method, experimental research, is based on controlled variables, doing careful measurements and achieve a correlation between cause and effect (McLeod, 2012). This type of research is done through an experiment, by scientifically testing a stated hypothesis (Blomkvist and Hallin, 2015, p.72). This is done through a deductive approach, since a hypothesis is formulated based on existing theory to see if the it is verified or falsified, Blomkvist and Hallin explains (2015, p.72). McLeod mentions that the advantage of experimental research is that it is objective, without biased views and opinions from the researcher. To specify the research method, this study goes under the section field experiment. This type of experiments are conducted in the natural environment of the participant,

McLeod continues. In this case the participants are people making queries in Google Search. The purpose of the field experiment is to reflect how successful the result would be in real life. The experiment is made to test the hypothesis, that a website can be shown on the first page of Google Search within 27 days from publishing (Mauresmo, 2016).

The experiment is executed using a quantitative method. Data is gathered in the form of numbers, when the position of the website in the SERP is evaluated. However, the second research question is investigating methods available to optimise a WordPress site for Google Search, based on the development of the website. This results in making this study collecting qualitative data as a complement to the quantitative (Blomkvist and Hallin, 2015, p.61).

The users for a website can vary in many aspects, since the topic, relevance and availability are closely related to the character of the target audience. For this website, a portfolio for a photographer, the users could have various characteristics, from both age range, behaviours and needs, and are therefore hard to define. This fact makes it difficult to estimate which users to use as participants for an experiment. Therefore, a field experiment was appropriate for this study, because the participants of the experiment are the natural users of Google Search. In addition to this, field experiment was a convenient choice for research method, in order to see how the website and the SEO works from a real life perspective. The method is based on receiving results from the natural environment of the users and their search habits.

The downside of this method, is that it is not possible to decide the amount of users that are going to visit the site. The amount of visitors and the search inputs of the users can influence the SEO quality of the website, and can therefore affect the final result of the experiment. However, the importance of a real life setting for the experiment was worth the risk of lacking visitors to the website.

With an experiment in a natural environment, it can be hard to predict and control the outcome of the experiment. There were few aspects available that could have been manipulated, in order to affect the final result. The algorithm behind Google Search, the paid advertised section of the SERP and the users are examples of that. This could, because of the field experiment, be considered as a margin of error in the result of the experiment.

3.1.2 The research method in comparison to other methods

When exploring other, potentially applicable, research methods for this study, the interview methodology could have been appropriate for examining the second research question. Interviews are suitable when

there is a need for collecting inputs from individuals in order to develop a deeper knowledge about a specific phenomenon (Blomkvist and Hallin, 2015, p.74-75). Blomkvist and Hallin explains that the data gathered from interviews are qualitative, which gives the research more complex insights in a subject. The methodology for this study could have benefited from interviews, in the terms of exploring SEO techniques available for a WordPress site. By asking experts within the field, SEO in WordPress, the research could have received significant data about existing SEO methods and the quality of the different techniques. Because this research is studying the results of SEO during a limited time frame as the basic research query, an experiment is the relevant research method.

There are many, both qualitative and quantitative, research methods available. Focus groups, case studies and surveys are examples of methods Blomkvist and Hallin (2015, p.65-90) mentions. None of these methods would have been appropriate to use for this study, since neither of the methods are testing a hypothesis, or are placed in a natural setting of a website. This concludes that the chosen research method is relevant for this study in comparison to the other methods available.

3.1.3   Monitoring the experiment

The experiment was monitored through several practices, all based on tools constructed by Google. The primary method, was to observe the position of the website in the SERP of Google Search for different search queries. The position is resulting in a number in the organic list of the SERP for each search input made. In the keyword research part of the implementation, a list of keyword phrases was created and became the core of the whole SEO practice. These keyword phrases was equal to the search queries the result was analysed from. The first step of the experiment was to note the current status of the SERP, in other words, what websites were presented in the ranking for the each search query and what position the website in focus had right after publishing the site. After optimising the website, the site was published and available online for 27 days, before analysing the result of the experiment and the position of the website in the SERP of Google Search.

The second Google service used to monitor the experiment was Google Search Console, where the performance of a website can be inspected. The average position in the SERP of the website can be identified, together with more detailed information about the position for a certain search query. The tool provides statistics about how many times in total the website is displayed in the SERP, called impressions. From that number, the total amount of clicks and the CTR can be defined in order to understand how many times the users have clicked on the website from the search results.

Google Analytics is another tool used to analyse the website in terms of users and traffic. Information about pages on the website that has the most traffic, how long the user stays on a certain page and details about when, where and how a user access the website is available. This tool was used in this study to analyse the status of the website regarding the traffic and user behaviours, which can affect the SEO quality of the website.

The advantage of using tools released exclusively by Google, is the fact that the services can collaborate in an effective way. Information and details about the website can easily be transferred between the different tools, in order to receive a wider perspective. This makes it easier to control and analyse the information of websites and achieve conclusions about its SEO qualities.

3.1.4 Analysing the result

The list of long tail keywords, that was used during the SEO implementation of the website, was tested in Google Search by inputting the keywords in the search input and analysing the SERP for each keyword. The keyword phrases were tested with several variations where the words was placed in different order, with a purpose to see if it was making any difference for the search results. In order to narrow down the outcome of the search results, the first five pages on Google Search was analysed, to see if the website and/or page in focus was displayed for the keywords inputted. The majority of people who use search engines do not move any further than the first page (Gudivada and Rao, 2015, p.44). Even though the majority stops there, there are users that go further, and therefore it was determined to be relevant to analyse the first five result pages of Google Search. Results that were displayed further back than page five was counted as not shown.

The numerical data of the position of the website for all the different keywords was collected and presented in circle diagrams, one for the main keywords and one for all variations of keywords. The purpose of the diagrams was to obtain an overview of what page in Google Search the website was presented in. This in order to evaluate the success and be able to analyse the result in the context of the first research question. This was an effective way of analysing the data and draw conclusions regarding the position of the website for certain keywords, and the overall outcome of the experiment. A more qualitative analysis about which keywords that resulted in the website appearing on the SERP of Google Search was conducted in relation to the numerical data analyse. This included to find correlations of types of keywords related to the page ranking and to resonate around its cause.

Quantitative data about users and the average position in the SERP, gathered from Google Analytics and Google Search Console, was analysed in the perspective of SEO. The analysis included how the outcome of the tools could have affected the SEO quality of the site and therefore the results of the experiment.

In order to analyse the results in the context of the second research question, the approaches implemented during the SEO development of the website was considered. By inspecting this, SEO techniques available for a WordPress site were explored and stated. In addition to only analysing existing methods, the techniques was evaluated and discussed in a pros and cons perspective.

In the end, the overall outcome of the experiment was analysed in a perspective of what factors that could have affected the result of the website position in the SERP.

3.2 Implementation

After reading up on theories and methods about SEO the implementation of the methodology and study was constructed. A website was created with WordPress as CMS and structured with the main pages and content. The domain name, fotografemmabroberg.se, was chosen based on the aspects mentioned by Google (2019) in the Starter Guide and Mauresmo (2016, ch.4), in order to be relevant to the website and its market. The content of each page within the website was adapted for the purpose, to promote and store images in a portfolio for a freelance photographer. The website was created solely for this study, and therefore completely unknown by Google Search at the start of the experiment. This means that the website was not among the results on the first page, or any page for that matter, of Google Search for the chosen keywords before the experiment.

Following the literature and the research, the steps suggested for better SEO results was implemented to the photography site. Most of the adaption of the site was done before, or in relation to, the publishing of the site.

3.2.1 Keyword research

Based on the research made for this study, keyword research was constructed including generating relevant keywords. Initial keywords, the most obvious ones, was written in a first step in order to have an idea of which keywords that were suitable for the subject. Mauresmo (2016, ch.2) mentioned a couple of keyword online tools that could be used to generate keywords. These tools were tested, to see if they were

relevant for the created website. During this process, it was realised that Ubersuggest was the tool that was most useful in terms of efficiency and relevance, and therefore the only tool used in this study. The tool suggested countless of keywords related to the initial keywords within a short period of time, and a long list of various terms and phrases could be build.

The outcome from the keyword tool and exploring the subject and competitive websites resulted in a long list of keywords. With the keywords gathered a narrowed list with 14 long tail keywords, keyword phrases, was made. The purpose with the list was to narrow down all words found and point out the main keywords that were most relevant and profitable for this particular website. These are the words the site was optimised for, to receive a ranking as high as possible in the SERP of Google Search. As stated by David (2015, p.17) the maximum amount of keywords should be no more than 15, making it possible for all keywords to appear multiple times on a page, without risking over-optimising the site.

3.2.2 Keyword analysis

Mauresmo (2016, ch.2) mentioned that using keyword analysis tools could be unnecessary, due to the fact that their outcome can be misguided regarding big organisations. Based on Mauresmo's statement, any of the suggested tools were chosen not to be used in this study. Alternately, the keyword analysis was made manually by evaluating the search results for each keyword. The analysis contributed to the conclusion that the 14 keywords in the list was appropriate for the website. Mauresmo stated that there was various parameters to look for when analysing the keywords manually, and the analysis made for these keywords did match the criterias for being profitable.

3.2.3 Setting up the site and on-page optimisation

The next step in the implementation was to create the website with pages and content. During the process of setting up the site, on-page optimisation was made based on techniques collected from the research. The on-page optimisation included installing WordPress plugins, constructing meta tags for both page titles and content description and considering headlines. Both Mauresmo (2016, ch.5) and Google (2019) stated that the home page, the landing page, of the website is important and requires consideration in terms of the content and navigation, which was made during the implementation phase. The structure of the pages and navigation in the website was made carefully in order to follow the guidelines mentioned in Google's Starter Guide. Regarding the content of the website, it was adapted to SEO, but carefully considered in order to stay relevant to the purpose of the site and not become black hat SEO. Images is the core of the website since it is a website for a photographer and the process of

optimising the images was therefore crucial. The alt texts, file names and image descriptions were adapted to fit the guidelines made by Google and Mauresmo. The last practise of the on-page optimisation involved analysing the SEO made, in order to find improvement. Travis Traffic was a tool mentioned by Mauresmo, and used in this study. The warnings alerted from the tool were adjusted in such a manner that the website still made sense and suited its purpose. When the content of the website had been created and optimised for search engines, the site was published online through WordPress and the web hosting company chosen. Regarding the web hosting, some hosting companies have a hosting service for WordPress sites, making it easier to publish a WordPress site. According to Mauresmo (2016, ch.3), a slow website is bad for the user experience and the SEO. A managed WordPress hosting could fix 90 percent of speed issues. However, this fact is not strengthened by the *Search Engine Optimization (SEO) Starter Guide* (2019). Since it is not mentioned by Google, it is not going to be considered in the optimisation of the site and the hosting company was chosen based on economy and availability.

3.2.4   Off-page optimisation

The main technique of off-page optimisation is backlinking, linking the website in external places. Since the photographer behind the website is a real photographer, the places where to link the website needed to be carefully considered, in order to be relevant and avoiding putting the photographer in a bad situation and reputation. The site was therefore only linked through the photographer's own social media channels.

3.2.5   SEO on the published site

Once the website was published online, it was connected to Google Analytics and Google Search Console, to be able to track and monitor the experiment. A sitemap was uploaded for making it easier for Google to find the new website, and to store it in the website index. Uploading a sitemap could either be done through plugins in WordPress, or by uploading a file to the server where the website is located. In this case, the sitemap was uploaded as a file. Since the chosen keywords were not formed as questions, the website could struggle to being placed in the Featured Snippet answering a user's query. The snippet relevant for this particular website is, therefore, the location snippet in Google Maps, Google My Business and the excerpt from Image Search. The photographer's business was submitted into the list of Google My Business and as a location in Google Maps. When practicing the SEO for the images, the keywords were used in order to be connected to a search input and therefore increase the possibility of being displayed in the Featured Snippet of images in the Google SERP. A 404 page was constructed in order to improve the user experience of the site, and in the other hand, the SEO.

4 Findings

To get the result of the experiment, the position in Google search, 40 different searches was made. The search queries contained different keywords selected from the keyword list, in order to get the position of the website in the SERP of Google Search for the particular keyword.

The status of the website, right after the publishing date, the site did not appear on any of the first five pages of Google Search.

The 14 main keywords, as seen in appendix 2, of the website was tested first. This without changing the order of the words. As seen in figure 3, this resulted in the website being displayed, for different keywords, three times on the first page of Google Search. Among the keywords that resulted in the website being displayed on the first page in Google Search, two thirds of the keywords contained the name of the photographer. All keywords making the website being displayed on the first page, resulted the site being displayed several times on the same SERP.
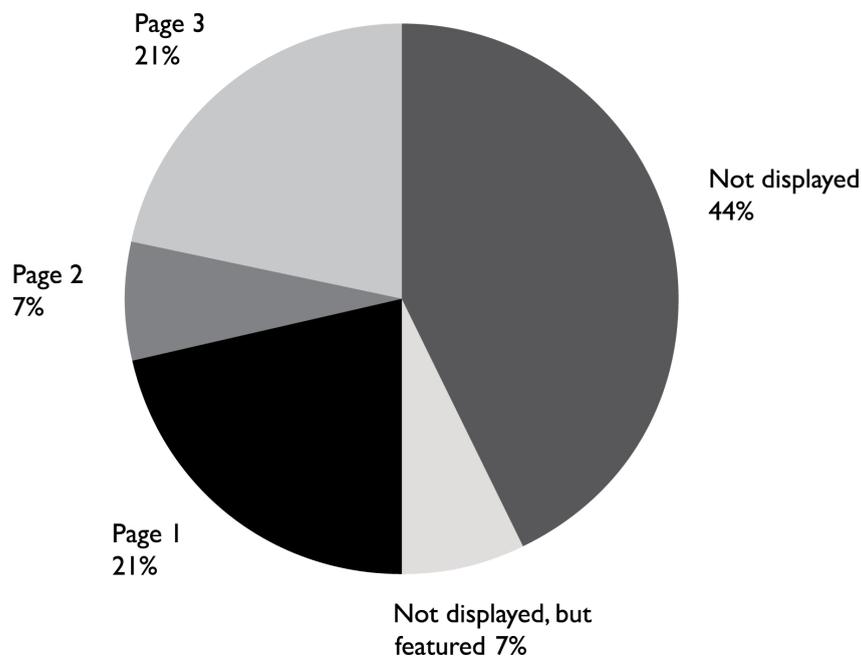

Figure 3. Results for the main keywords in Google Search.

44 percent of the keywords was not displayed on the first five pages of the organic search result, and it is not known on what page they were, since all results after the fifth page was counted a not displayed. Seven percent of the keywords did not make the website appear in the first five pages of the SERP, but

had the website featured in the Google Maps location section. This is resulting in that 51 percent of the main keywords did not result in the website being displayed on the first five pages of the SERP.

Five of the 14 queries resulted in the website being displayed in a Featured Snippet, such as images, maps or business. The image snippet was presented on top of the page, with a selection of relevant images for that specific keyword. Locations of businesses were displayed in a Google Maps snippet with the three most relevant businesses presented. There is an option to click to see more businesses in the snippet, where was the place the website of this experiment were showed for several keywords. The snippet that presented the relevant business for the search query, was placed in a column to the right of the search results list in the SERP of Google Search.

In a later stage, a wider variation of the keywords was tested, in order to see the result of all 40 relevant keywords for the website, seen in appendix 3. The outcome of this process was different than the results of the main keywords, with more positions on the first page of Google Search. As seen in figure 4, 14 of the 40 keywords resulted in the website being presented in the first page of the SERP, which is the biggest block with 35 percent of all results. These keywords are, among others, containing the name and business of the website. Keywords describing a niched type of photographer, such as "event" and "gravid", were also included among words that displayed the website on first page of Google Search. For these keywords displayed in the first page, a Featured Snippet of images and the business was also displayed and placed on top, the image snippet, or on the side of the SERP, the business snippet.
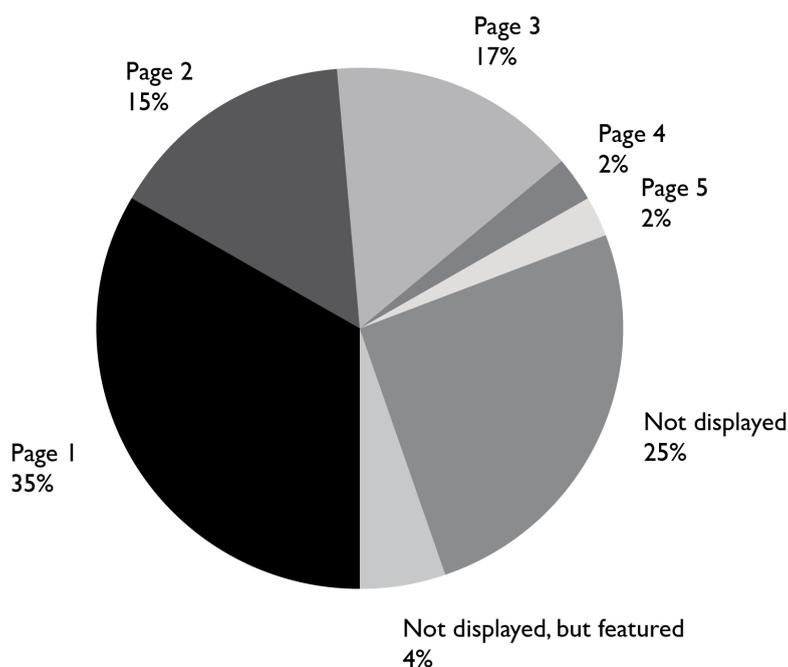

Figure 4. Results for all keywords of the website in Google Search.

The keywords that had a harder time competing with other websites were more popular ones, such as keywords involving wedding photographer and price. In the snippet displaying the location of a business in Google Maps, when clicking on more locations, the photographer was presented for keywords that was more rare. These included photography for event, pregnant and baptism for instance. Two keyword phrases, "fotograf Borlänge" and "Borlänge fotograf", did not make the website appear in the first five pages of the SERP, but were located in the Google Maps snippet.

4.1   Google Analysing Tools

Data about the status of the website in search engine where gathered and analysed in Google Search Console. The tool stated that the website started in an average position of 57.5 in the SERP of Google Search, before implementing the experiment. After conducting the experiment, the site improved its average position to 22.5, which is a huge progress in the right direction in a SEO perspective. The website had 115 impressions during the time frame of 27 days, which is how many times the website has been visible for users on a SERP in Google Search. 10.4 percent of the people seeing the website link in the SERP, chose to enter the website, which is equal to 12 clicks. This is resulting in a CTR of 10.4 percent.

Google Analytics was used to gather data and statistics about the website's visitors and behaviours. The daily users of the website differed between zero to eight users located in Sweden per day. The users located in other countries were not tracked, since the study is limited to the Sweden market.

5   Discussion and conclusions

5.1   Discussion of method

The method for this research was to construct a field experiment, testing the credibility in a hypothesis. In that way, a realistic view of the results could be achieved, to see how the website would succeed in a real life environment. This was important for this type of study, since the natural environment of a website is in a real life setting, with limited control over the conditions. The weakness of this method was to manage the participants, since it was unknown from the start of how many participants that were going to be involved in the experiment. Overall, excluding that fact, the methods chosen for this study were successful, even though it is unknown what the results would have been by using other methods.

5.1.1   A new website within a limited time frame

Based on the results, the experiment in this study is seen as successful. Several keywords resulted in the website being displayed on the first pages of Google Search, which was the objective of the experiment. However, a discussion about factors around the methods conducted, that could have affected the result negatively, can be made. First of all, it is the time frame. The entire experiment was based on contradicting the fact Sadhana (2018, p.2) argued, that SEO is known for growing over time and can not be seen overnight, and to investigate the hypothesis made by Mauresmo (2016), of achieving high ranking within 27 days from publishing date. The reason for why the keywords that did not made the website appear on the first pages, might be due to the time restriction. The search engine could need more time than it was offered, to discover the website for the more general and competitive keywords and make it prominent among its competitors.

Another factor that could have been a struggle are the participants in a field experiment. In this case, the amount of participants were not as many as wished before conducting the study. During the period of the experiment the website generated 12 clicks from organic searches, which means 12 different participants that clicked on the site link in the SERP. The Google Analytics statistics showed that during the day with the most visitors, only eight users were visiting the site. The amount of users could therefore affect the website ranking in a negative way. The lack of visitors could be due to the fact that the website was created the days before this experiment started, as well as the photographer started the business right before. The website was not published in an earlier version, before the testing period started, and the domain did not exist. This means that the photographer lacked a customers base visiting, or people knowing about, the website during the start of the experiment. Neither did Google know about the

existence of the company, or website, since no version of the website existed before, making it harder to compete with already established sites and companies. This was resulting in the website not receiving a high amount of traffic during the testing period. Another reason for the lack of trafficking to the site could also be because of the season for people browsing websites looking for a photographer was wrong. The website was published during February, which might not be the main season when people are looking for photographers. The summer and spring months could be a more appropriate period for example. It takes time for Google to index a website and gain trafficking, and because this website was newly created for this study, it can be a factor that affects the outcome of the experiment.

Even though there are downsides of conducting a field experiment, not knowing about the participants, the advantages of a field experiment in this case are of higher weight, which was the underlying reason for choosing this method. It is important for the result of the experiment to be in a real life perspective, since measuring traffic to a website is not possible to do with a pre allocated group of participants. In this way, it would not be possible to judge the success of search engine optimisation. If there were a selected group of users, decided by the creators of the experiment, entering the site and not the natural setting of it, the result would not be as valid as necessary.

To get more visitors to the site, social marketing could have been used. This could have improved the traffic to the site and therefore making it rank higher in Google Search. However, the limitation of the experiment was to only focusing on the technical part of SEO, and not the marketing field. Therefore, advertising was not considered as part of the process, even though it might have improved the ranking of the website and the outcome of the experiment.

5.1.2   The softwares chosen

Among websites using a CMS, approximately 60 percent are created in WordPress (Guta, 2018), making it the most used CMS. Based on this fact, the website was created using WordPress. This for exploring the possibilities of what could be done for SEO by optimising code and by using plugins. An already made theme, created for a photographer portfolio, was used. The creators of the theme claimed that it was developed with a SEO approach, which was reviewed during the on-page optimisation phase of the website. The structure of the site, and hierarchy of pages, which is included in the SEO approach, was also made by the theme creators. It is not known if the structure of the website, due to the theme, was positive or negative for the ranking of the website, but according to Rehman and Khan (2018, p.106) it can affect the SEO of a site. Even though every element in the theme seemed correctectly developed, it cannot be guaranteed that it was fully SEO optimised. Therefore, it can be necessary to discuss the fact if

using a WordPress theme, or using a CMS in general, affects the SEO of a site. As said, the theme used in this study have the possibility to include errors or code snippets that could disturb the performance of the theme. This, in the other hand, can make impact on the SEO quality of the website. The purpose of using a CMS was to narrow down the outcome knowledge of the study, but if it was good in a SEO perspective are only speculations. Using a CMS ease the work for editors (Barker, 2016, p.9-14) and the implementation of SEO. How it affects a website in the ranking on Google Search is difficult to estimate.

To implement keywords to the website, meta tags was used with the purpose to connect keywords to different pages and posts of the site. In this study, a plugin was used in order to manage the meta tags and link it to the right page or post. The plugin made it possible to write title and description of each content piece, in order to make the search engine understand the content and make it available for matching it to search inputs. The plugin was easy to use, and the functionality was self explanatory. The benefit with this plugin was that together with every input field in the meta tag, an indication of how many words that should be filled in for both title and description was available. In that way, it was easy to understand how many words that were suitable to put in each meta tag to make it SEO profitable. Another plugin was used to control the title and description of the entire website and the homepage. It was a user friendly plugin, but required more knowledge about SEO. This in order to understand what settings was necessary to adjust, and which not to.

To summarise this, WordPress provides plugins to make it easier for the editor to make the content optimised for search engines. This is a step towards the company's mission, to provide a secure and user friendly platform accessible for everyone (WordPress, no date). Though, different plugins might generate different results. All of the plugins might not be effective, and some could even hurt the ranking of the website. The plugins chosen could therefore affect the results of the experiment in either a positive or negative way. It is not known how the chosen plugins for this study affected the results of the experiment, and neither what the results would have been by using other plugins.

Google Search was used as the search engine in focus during this experiment and the results was not compared in any other search engine. Statista (2018) is stating that Google Search had over 90% of the world market in 2018. Since the majority of all web searches is done through Google Search, it was the self-evident choice for search engine used during the study. The results might have turned out differently for another search engine. However, that is not included in this study, since it is only focusing on the market leading companies, such as Google Search and WordPress.

It is not known what exact factors that are affecting the PageRank algorithm (David, 2015, p.14). This is making it difficult to know exactly what part of the SEO implementation that are making a keyword succeed or fail. In this way, it is also hard to estimate the success of each technique of SEO made in this experiment, the result is evaluated as a whole. During the process of discussing the findings and its reason, the arguments are based on this fact. Speculations of what approaches and keywords that have influenced the result of the experiment are therefore assumptions made based on previous research. Since it is established that it is impossible to exactly know how the PageRank algorithm works, the discussions about the findings cannot be entirely accurate.

5.1.3 Previous research and sources

The deliberation whether the sources used in this study are valid or not, is a discussion that could go on forever. Since SEO is always changing, due to the always updating algorithm (*Google Algorithm Change History,* Moz, 2018), the sources operated in the study needed to be updated with the latest knowledge about the subject. Therefore, articles released 2018 and later had a purpose to complement the more scientific research. The scientific research, including books and previous research, was the base of sources. This could be included among the factors that affects the outcome of the study. With the older, scientific research as base, the more contemporary sources has been determined to be valid, but could, due the academic status, be seen as a margin of error.

The guide made by Mauresmo (2016) stated details about techniques to use when implementing SEO, which was appropriate during the implementation phase of the study. By reinforcing the guide with the *Search Engine Optimization (SEO) Starter Guide* (2019) released by Google, the sources used for the SEO implementation is seen as valid. In addition, since the experiment resulted in a higher ranking, these sources can be seen as being useful and essential for the study.

5.2   Discussion of findings

The aim for this study was to cover the existing research gap, and conduct an empirical study on a newly created website within a limited time frame. The study investigates available SEO methods, together with exploring tools in WordPress, in a perspective where the resources are limited. With that in mind, the research questions were constructed in order to estimate the SEO practices available for a WordPress site with a purpose to increase the ranking position of the website on Google Search.

The outcome of the experiment is seen as successful. This is based on the fact that the majority of all variations of keywords tested, 35 percent, accomplished to get a position on the first page of Google Search. This means that this study demonstrates that SEO is important for a website and its trafficking. In previous research, Sadhana (2018) and Andersson (2018) for instance, the importance of SEO is stated based on the outcome of the research conducted. This study, with an experiment proving that SEO can affect the position of a website in the SERP, reinforces this fact and adds to all research that indicates the value of SEO.

5.2.1   Optimise keywords, the core of SEO

Keywords have been found to be the core element for SEO. To be successful, the keywords need to be generated, researched and analysed to benefit the website in focus. Since the website for this study was new, and would not be able to compete with well established companies, more unusual and niched keywords were chosen. This with the intent to meet the input made by the user of Google Search, and to appear on the SERP.

In order to use and optimise the keywords to search engines, there are several techniques available for a WordPress site. The keywords can be inserted into the content of the website, which was a process that required consideration. This because the website also needed to be relevant for its cause. The keywords could not be inserted randomly to favor the SEO, which Charlesworth (2014, p.190-194) explained could result in a punishment by Google, harming the ranking of the website in Google Search. The overall content of the website should make sense. The keywords for this website was implemented in the content, in the best ability of keeping the content relevant for the photographer, and the user. Body text was used as a complement to the core of the website, images taken by the photographer. This process might have been negative for the results of the SEO, due to the struggle to include keywords into the content where images were the base element. Another method of implementing keywords to a website is to use meta tags and connect the keywords to the different pages and posts of the site. In this study, a WordPress plugin manages the meta tags and links it to the right content, which, as said in a previous discussion, could be evaluated in a SEO perspective.

The implementation of keywords to the meta tags, included to manually write the keywords in the tags connected to each page and post. The process of manually inputting the meta tags could be a case of the human factor, where it is possible to do misspellings or writing the words in the wrong order. As Mauresmo (2016, ch.4) explained, the most important keywords should be written first in the tag, or in the content of the website overall. This means that the order of the keywords in the meta tags can affect

the quality of SEO of that page or post. Which, in another hand, could have affected the results of the experiment in either a positive or negative way. This fact is difficult to estimate, since it is not known what effects this process had on the overall SEO.

The process of choosing the relevant keywords for this website and the overall experiment, was based on keyword research and analysis. The keyword research considered the previous research collected, in order to know what methods to implement for generating keywords. The keywords chosen were evaluated through the keyword analysis, resulting in a list of 14 main keywords. This analysis was made manually, which can be affected by the human factor. Even though the analysis was based on factors established from sources, the interpretation and evaluation of the factors can be different from human to human, and has therefore a margin of error.

5.2.2   Keywords that affected the ranking

The experiment was successful for some of the keywords chosen. Among the main keywords, 21 percent of the keywords inputted in Google Search resulted in the website being displayed on the first page. Two thirds of these keywords contained the name of the photographer. This is making the potential visitors for the site limited, since the majority of first-page words required the name of the photographer. People that are looking for a photographer might not know the name of the person they are searching for. In addition, if it was the case, the user might enter the site directly and not use Google Search. As stated before, the majority of people who use search engines do not move to any other page than the first on the SERP (Gudivada and Rao, 2015, p.44). Therefore, it is of huge importance that the keywords results in the website being displayed on the first page. This means that the SEO made was fortunate with keyword including the photographer's name, but would require more time and effort in a perspective of using more general keywords.

When changing the order of the words and getting different variations of the main keywords, a different result was achieved. 35 percent of the keywords resulted in the website being displayed on the first page of the SERP. This is making the variations of keywords more successful than the main. This result could be affected by how the keywords were implemented on the website, through content and meta tags. The keywords are appearing several times in the text content, and in different order, depending on relevance. This order could have matched the variations of the keywords better than the ones in the main list. Since the amount of keywords were significantly higher in the list of keyword variations, the chances that it matches a keyword variation is therefore higher. In conclusion, the order of the words in the search input affects the search results, depending on which website that includes the most relevant variation of

keyword phrases. This means that it can be notable to consider the order of keywords used when conducting SEO, and include a variety of variations of keywords in the on-page optimisation.

The success for a certain keyword could also depend on the competition for that input. As stated by Mauresmo (2016, ch.2), if only big established companies are visible on the first page of a SERP, the chances that a small website can compete and be presented decreases. The competition for "fotograf Borlänge" is tougher than the name of the photographer, resulting in the website not being displayed for the competitive keywords. The keywords that had harder time to compete in the SERP were generally constructed, and not that specific. This is making the competition harder, and is a natural reason for the website not appearing in the first five pages of the SERP. Consequently, these keywords might need a longer time frame than 27 days to compete and establish a mark in the index of websites.

Meyers (2016) discussed the advantages of having a website in the Featured Snippet in the SERP of Google Search. It puts the website in the first result among the organic results, which gives the website an advantage against the competitors by being placed in the position zero. When looking at the results of the experiment, some keywords accomplished to make the website appear in a Featured Snippet.

The main purpose of the Featured Snippet is to provide real time information and excerpts answering the search query. This part of Featured Snippet was not relevant for this study, since the keywords selected was not constructed as questions or required real time results. Stapert (2018) mentioned that it is essential that the content meant to answer a search query is developed and adapted to its situation. For a recipe for example, it is useful if the content of the website is constructed in a list that makes it easier for the user to understand its content in a wished Featured Snippet. Because of the fact that this website was not relevant for the main purpose of the Featured Snippet, the website content was not developed and adapted to be able to be placed in the position zero. The actions made was to focus on the relevant types of Featured Snippet, such as the image, business and location snippet.

It was challenging to know how to be displayed in the Featured Snippet of images, since many factors behind the Google Search algorithm are unknown, as Charlesworth (2014, p.194) explained. Therefore, it was determined to conduct the general SEO approaches for images and investigate its quality when it comes to the snippet. Those approaches included connecting keywords to the images through inserting keywords into the file name, alt text and description of the image. Based on the result, some keywords made images from the website appear in the snippet. Therefore, this method was partly successful, but it is difficult to estimate if other measures could have been made. An interesting aspect of this is looking at what type of keywords that was successful. For the image snippet, it was keywords including the name of

the photographer together with the word photographer (fotograf), and search inputs including "fotograf" and "porträtt". With that said, it can be discussed what type of keywords that have the ability to display images in the image snippet, and what images that are presented in the snippet. When searching for keywords including the name of the photographer, the images presented were placed on the homepage of the website. This means that in order to connect the title of the website, the name of the photographer, to the image snippet, the focus should be to adapt the images of the homepage. The reason for why the keyword including "porträtt" were displayed in the snippet, but not for other words, can be due to the amount of images published for each keyword. The website is constructed with a gallery that is divided into categories, where the keywords portrait, event, wedding and children/pregnant are the titles. The portrait category contains of 13 images, while the other ones has eight or less. This could be a reason for why the Featured Snippet of images is presented for keywords including portrait.

In order to be placed in the Featured Snippet of Google Maps, the business needed to be added to the index of locations Google Maps manages. It was an easy process and required to input information about the business, such as opening hours, address and type of business. It was challenging to find a connection for which keywords that made the website appear in the snippet of Maps, since the result was not consistent. The keyword "fotograf Borlänge", was successful for the Maps snippet, but not all keywords including a location, such as city or region, was. All successful keywords did include a location, but the proportion of keywords tested involving a location was too high in comparison to the ones that accomplished in presenting the snippet. It can be discussed that the other keywords needed more time to compete with other businesses in the index and therefore were not able to be shown.

The Featured Snippet of businesses has the same set up as the Maps snippet, where the owner of the business needs to add the business to the index manually. By mentioning information about the business, contact and location, the business account in Google was easy to construct. A clear relationship between the search query and the business snippet can be drawn. The snippet was only displayed when the complete name of the business, "fotograf Emma Broberg", was the search input. It did not matter in which order the words of the name were inputted, or when the search input additionally included a city or region. The Featured Snippet was displayed every time the entire business name was inputted.

5.2.3   SEO approaches divided into two

Keyword implementation is part of on-page optimisation, which together with off-page optimisation establish the two main approaches of SEO (Sadhana, 2018, p.2). The purpose of on-page optimisation is to use relevant keywords and insert them into the content, meta tags and the homepage. This in order to

make the search engine sort out and understand the content of a website. The overall user experience have also been found, during this research, of being necessary for the SEO (*Search Engine Optimization (SEO) Starter Guide*, 2019). A satisfying structure, information architecture and design of a website do not only increase the user experience of the site, but also improves the status of the site among search engines. Therefore, the design of the website in focus was recognised as modern and clean, with a purpose to give focus to the images. The navigation and hierarchy of pages was crucial, in order to make the search engine understand the structure and content of the website and provide the best result for the search query. All these techniques are included in the approach of on-page optimisation.

The second part of SEO, off-page optimisation, was implemented in a restricted extent in this study. Gunjan er al. (2012, p.207) explained that off-page optimisation are methods made beyond the development of the website and its content, including creating backlinks and marketing on social media as the main parts.

Since it was important to keep the website realistic and suitable for its purpose, backlinks were only implemented on the social media channels of the photographer. This is where the most error margin might exist. By keeping it realistic and avoiding giving the photographer bad reputation, no backlinking from comments were made. In order to increase the tracking to the website, the link to it could have been commented on other sites, such as blogs and forums, as Mauresmo (2016, ch.8) pointed out. This practice takes time and effort, that this study did not allow, and could therefore be a reason for the lack of traffic and visitors to the website during this experiment. With that in mind, if this study was going to be conducted again, it may be beneficial to make an effort in constructing backlinks and in that way market the website. Consequently, off-page optimisation could be effective when it comes to SEO, but it requires time and effort and needs to be carefully considered in order to increase traffic without avoid harming the site with bad backlinks.

5.2.4 Other factors affecting the ranking

There could be many reasons why the website did not reach the first page for some keywords, besides that it was a newly created and published website. Mauresmo (2016, ch.5) is mentioning that a website should have more than 2000 words on the homepage, because search engines prefer websites with a significant amount of content. This was not considered during the development of the site, since it was not confirmed by the *Search Engine Optimization (SEO) Starter Guide* (2019). Having 2000 words on the homepage was not suitable for the website, because it was created to fit its purpose to promote the pictures taken by the photographer. Also, the type of website could have affected the results. The site

created was made for promoting a photographer through images and complementary text. Other websites suitable for longer text, or including news and blog feeds, might have generated better results. However, the competitors are in the same situation, trying to promote their sites through images. Mauresmo (2016, ch.8) also mentioned that sharing articles and blog posts, could affect the SEO positively, since the amount of content is a factor search engines are looking for. This was an action that were not possible for this website that had a content of images, not articles and posts. The success of SEO could depend on what kind of website that is being optimised, which could also have influenced the page rank of the website in a negative way.

Another factor that could have affected the ranking is the sitemap, that *Search Engine Optimization (SEO) Starter Guide* (2019) is stating could be an advantage for making the published website be discovered and indexed by Google. The sitemap of the website was generated through an online tool, solely with the purpose to create sitemaps for websites. This could have been generating a sitemap in the wrong way, not discovering all pages of the website. However, the final sitemap was checked before uploading it to the server and, therefore, it was determined as valid for the website.

In Google Search, the websites displayed on the SERP are depending on previous searches made by the user and the last visited websites (*Personalized Search,* 2009, 00:00:45). Search results can therefore be different for each user, if the user is not searching through private browsing (Gritzalis et al. 2017 p.181). It is an aspect that is hard to control, since it is impossible to know if the user, and the participants in this case, uses private browsing or not. This makes it a factor that could have affect the SEO and the overall result of the study, without any possibility to manage it.

As stated, the domain did not exist before the start of the experiment. According to *Search Engine Optimization (SEO) Starter Guide* (2019) the choice of domain name and URL snippets need to be carefully considered and evaluated. The domain name should include one of the keywords, or pertinent words for the website (Mauresmo, 2016, ch.3 ; Sadhana 2018, p.7). With that in mind, the domain was created with "fotograf", "emma" and "broberg" in the name. These were the words decided as the main keywords for this website. However, it is not known if any other words would have been more successful to include in the URL of the website, since the results within parts of SEO is not possible to measure.

As more businesses are based online, the requirement of security has increased (Chou, 2002). Mauresmo (2016, ch.3) mentioned that it could be crucial for the SEO of the website to have a SSL certificate and to be presented as secure. The website created is informative, where the visitor is not providing any sensitive data. Even though, a SSL certificate was generated for the website, making it presenting as a secured

website. It is not known if this did any difference for the ranking of the website, but as stated by Mauresmo, it could be make an impact.

Another reason that can be discussed is the difficulty to manage the balance of white hat and black hat SEO, which is a fact Charlesworth (2014, p.190-194) mentioned. The website required to be realistic, and contain relevant content for a photographer, which make it a challenge to optimise the site and in the same time keep its relevance. The texts within the site where constructed from the best ability in order to both insert keywords and to make the content make sense. This is where the black hat and white hat balance comes in. It is a challenge to know when the website has lost its relevance and are over optimised, ending up using illegal, black hat, SEO measures. Where the line for being illegal or not exists is an evaluation the developer needs to perform and are therefore affected by the human factor. The result of the website ranking of the SERP, the outcome of the experiment, could be influenced by this aspect.

When speculating about the human factor, it is an aspect that could have been affecting the entire outcome of the study. Because of that the study, and the implementation of the website SEO, was made by humans, it could be a margin of error to consider. When interpreting the instructions about how to use the various SEO techniques, it can appear errors and misunderstanding that in the later run affects the SEO practice of the entire website.

5.2.5 Answers to the research questions

The study contributed with a wide range of findings significant for answering the research questions presented earlier. Conducting an experiment was relevant and resulted in receiving enough research and data to answer these questions, summarised as followed:

What position on Google Search can a newly created website receive within 27 days of publishing?

The position a website will receive is highly depending on the user input in the search engine. If a user enters keywords that are implemented on the website, the chances that it will appear in the SERP is significantly higher. The position of a website is, consequently, changing depending on the user input. Therefore, there is no static number of where the website will be displayed. However, it is concluded with this experiment that it is possible for a newly created website to receive a position between one and ten on Google Search. This applies primarily for specific typed keywords, avoiding competing with big established companies.

What SEO practices are available for a WordPress site, to be displayed on the first page of Google Search?

The main practice for implementing SEO to a website is through keywords. These are implemented through meta tags as well as the content of the site, all included in on-page optimisation. In WordPress, there are plugins that could ease the implementation process of SEO, if editing the source code of the website is to be avoided. It is not possible to see what method that is the most effective and relevant, since the SEO results are only showed as a whole, and not for each technique.

It is also possible to affect the SEO of a website though off-page optimisation, providing backlinks and social shares. As stated before, this is not covered in this study, since it is focusing on the technical part of SEO, and not marketing.

Compared to previous research, this study is proving that SEO does not require more than 27 days to see results of. Sadhana (2018, p.2) stated that SEO is known for growing over time before seeing any results of. This is established through this study to be correct, though this research is also proving contrarily, that it can be seen within 27 days of publishing a website, depending on the keywords chosen.

Most of the research conducted within the subject are using already published websites, improving the existing SEO. This research established the fact that SEO can be implemented and affect the position of a newly created website in a short period of time. This aspect is estimated as a reason for some keywords not resulting in a good position in the SERP, but since the experiment was successful for some keywords this is a fact that is proven to be possible.

Together with previous research made, the finding of not being able to know exactly what techniques that are effective in a SEO perspective is confirmed. This study is, among previous studies, an example of presenting SEO methods and theories, without the exact knowledge of its efficiency. The purpose of these studies are to contribute with SEO approaches in order to affect the ranking of a website in the SERP and leave it to the developer to test what approaches are most relevant for that particular site.

5.3 Conclusions

SEO is about being discovered by search engines and to appear on the SERP of a user input. It is about optimising websites and helping the search engine to place the site in its index, understand its content and making it available to match to search queries. The SEO practices available for a WordPress site includes on-page optimisation and off-page optimisation. On-page optimisation involves optimising the website content with keywords, user experience and structure of the website in favor for the search engine. The keywords are the core of SEO and should be considered during the whole process of optimisation. A finding discovered during this research, was the fact that the order of the words in long tailed keywords has an impact on the search results and the ranking in the SERP, which is a fact to consider while constructing the list of keywords to optimise against. Off-page optimisation on the other hand includes marketing, such as backlinking and social media, and separates from technical, code developed, SEO.

In WordPress, SEO can be implemented in several ways, where coding experience is not required for all. SEO can be achieved through code, plugins, content or link building. The use of plugins could be beneficial for people not having knowledge about coding and SEO in general. WordPress SEO plugins are making it easier to implement SEO without the need to edit the source code of the theme and therefore without require coding experience.

It is not completely known what approaches that make SEO successful, since the PageRank algorithm is updated frequently. It is only possible to guess what exact factors that affects the website positively in the terms of the SEO quality of the site, and the status among the competitors in the SERP. However, from this research some factors that could possibly affect the ranking of a website have been found.

The search history for the user, the type of content and structure of the site and the balance between black hat and white hat SEO are part of those factors, with the primary aspect in the use of keywords. It is also effective to receive social shares and link building, to increase the trafficking to the site. However, this is marketing and not part of the technical part of SEO and was therefore not covered in this study.

To evaluate the hypothesis of the experiment, it is established that it is possible to reach the first page of Google Search within 27 days, but it is not guaranteed. It is an advantage if the keywords for the website are specific, making the site more prominent among the competitors. The experiment resulted in success for the more rare and niched keywords, where the website did appear on the first page of Google Search. For other, more general and competitive keywords, the SEO process would have taken more time to see

a result of and achieve a high ranking in the SERP. With those types of keywords, a more developed off-page optimisation could have been necessary to conduct as well.

5.4 Further research

For further research, a similar experiment could be constructed, but with an existing, non search engine optimised, website as the base. By comparing the position in the SERP before and after the SEO implementation, it could be interesting to see the development in ranking during a limited time frame. This research would, with an existing website, have a better starting position, since the website would have a client base and regularly visitors, which the website in focus for this study lacked.

This study opens for an opportunity to further research about SEO in using different CMS. Implementing SEO in various CMS and comparing its result, could be an idea for further studies. As well it would be interesting to compare SEO approaches on a website optimised for different search engines.

Further research could be established in a study where two websites are tested and compared when SEO is implemented to only one of them. Researching the effects SEO has on one website compared to the other, could be essential in a SEO perspective and provide interesting conclusions.

A wider and more developed off-page optimisation could be implemented to a website, to discover the results after gathering backlinks and social shares for a website. This is an opportunity to further research, since this study only implemented technical SEO, resulting in a small extent of off-page optimisation.

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8   Appendices

Appendix 1 - Definitions

CMS - Content management system

A software framework that manages and controls content of a website, with a purpose to make it secure and accessible for people with no or little coding knowledge.

CTR - Click-through rate

The ratio of clicks on a specific link.

Organic search results

The section in the search results that is free and not advertised.

Search engine index

Where a search engine stores all the websites available for the search results.

SEM - Search engine marketing

The overall definition of marketing optimised for search engines, including both SEO and marketing through ads and campaigns.

SEO - Search engine optimisation

The approaches made to optimise a website for search engines and to make the site compete in the ranking of the SERP.

SERP - Search engine result page

The result list of indexed websites displayed for a search query.

SSL - Secure sockets layers

A secure version of the standard http protocol used for websites, making data encrypted.

WCM - Web content management

A certain variation of CMS that has a purpose to deliver content through a website.

Appendix 2 - Main keywords

Appendix 2 includes the results of the position in Google Search for the website when tested against the main keywords. The parenthesis contains the position on the selected result page for the website and the Featured Snippet title states if the keyword in focus made the website appear in a Featured Snippet in the SERP. The percentages displayed together with the page titles is the share of keywords presented on the specific page.

Main keywords

Page 1 (21%)

Fotograf Emma Broberg (3-5) - Featured Snippet of image

Emma Broberg Fotograf (2-3) - Featured Snippet of image and business

Fotograf gravid Borlänge (5-6) - Featured Snippet of Maps position in "more locations"

Page 2 (7%)

Fotograf porträtt Borlänge (5) - Featured Snippet of image

Page 3 (21%)

Fotograf bröllop Borlänge (1)

Fotograf gravid Dalarna (9)

Fotograf porträtt Dalarna (4)

Page 4

No keywords

Page 5

No keywords

Not shown (44%)

Fotograf bröllop Dalarna

Fotograf Dalarna

Fotograf event Borlänge

Fotograf Borlänge pris

Fotograf Dalarna pris

Fotograf event Dalarna

Not shown, but featured in a snippet (7%)

Fotograf Borlänge - Featured Snippet of Maps position in "more locations"

Main keywords translated

Page 1 (21%)

Photographer Emma Broberg (3-5) - Featured Snippet of image

Emma Broberg Photographer (2-3) - Featured Snippet of image and business

Photographer pregnant Borlänge (5-6) - Featured Snippet of Maps position in "more locations"

Page 2 (7%)

Photographer portrait Borlänge (5) - Featured Snippet of image

Page 3 (21%)

Photographer wedding Borlänge (1)

Photographer pregnant Dalarna (9)

Photographer portrait Dalarna (4)

Page 4

No keywords

Page 5

No keywords

Not shown (44%)

Photographer wedding Dalarna

Photographer Dalarna

Photographer event Borlänge

Photographer Borlänge price

Photographer Dalarna price

Photographer event Dalarna

Not shown, but featured (7%)

Photographer Borlänge - Featured Snippet of Maps position in "more locations"

Appendix 3 - All keyword variations

Keyword variations

Fotograf Emma Broberg (3-5) - Featured Snippet of image

Fotograf Emma Broberg Borlänge (1-7) - Featured Snippet of image and business

Fotograf Emma Broberg Dalarna (1-4) - Featured Snippet of image and business

Emma Broberg Fotograf (2-3) - Featured Snippet of image and business

Fotograf Borlänge bröllop (9)

Fotograf Dalarna event (3)

Fotograf Borlänge event (3)

Eventfotograf Borlänge (4)

Eventfotograf Dalarna (4)

Borlänge fotograf event (3) - Featured Snippet of Maps position in "more locations" and image

Fotograf Borlänge gravid (6-7)

Fotograf gravid Borlänge (5-6) - Featured Snippet of Maps position in "more locations"

Gravid fotograf Borlänge (4)

Borlänge fotograf gravid (3)

Fotograf dop Borlänge (6-7) - Featured Snippet of Maps position in "more locations"

Porträtt Borlänge fotograf (7) - Featured Snippet of image

Fotograf Borlänge porträtt (1) - Featured Snippet of image

Fotograf porträtt Borlänge (5) - Featured Snippet of image

Bröllop Borlänge fotograf (4)

Borlänge fotograf porträtt (4) - Featured Snippet of image

Fotograf dop Dalarna (5)

Fotograf bröllop Borlänge (2)

Fotograf Broberg (8) - Featured Snippet of image

Fotograf gravid Dalarna (9)

Fotograf porträtt Dalarna (4)

Fotograf dalarna gravid (4)

Borlänge fotograf bröllop (8)

Emma Broberg (1)

Fotograf pris Borlänge (10)

Not shown (25%)

Fotograf bröllop Dalarna

Bröllopsfotograf Borlänge

Bröllopsfotograf Dalarna

Fotograf Dalarna

Fotograf event Borlänge

Fotograf event Dalarna

Porträttfotograf Dalarna

Porträttfotograf Borlänge

Fotograf Borlänge pris

Fotograf Dalarna pris

Not shown, but featured (4%)

Borlänge fotograf - Featured Snippet of Maps position in "more locations"

Fotograf Borlänge - Featured Snippet of Maps position in "more locations"

All variations of keywords translated

Photographer Emma Broberg (3-5) - Featured Snippet of image

Photographer Emma Broberg Borlänge (1-7) - Featured Snippet of image and business

Photographer Emma Broberg Dalarna (1-4) - Featured Snippet of image and business

Emma Broberg photographer (2-3) - Featured Snippet of image and business

Photographer Borlänge wedding (9)

Photographer Dalarna event (3)

Photographer Borlänge event (3)

Event photographer Borlänge (4)

Event photographer Dalarna (4)

Borlänge photographer event (3) - Featured Snippet of Maps position in "more locations" and image

Photographer Borlänge pregnant (6-7)

Photographer pregnant Borlänge (5-6) - Featured Snippet of Maps position in "more locations"

Pregnant photographer Borlänge (4)

Borlänge photographer pregnant (3)

Page 2 (15%)

Photographer baptism Borlänge (6-7) - Featured Snippet of Maps position in "more locations"

Portrait Borlänge photographer (7) - Featured Snippet of image

Photographer Borlänge portrait (1) - Featured Snippet of image

Photographer portrait Borlänge (5) - Featured Snippet of image

Wedding Borlänge photographer (4)

Borlänge photographer portrait (4) - Featured Snippet of image

Page 3 (17%)

Photographer baptism Dalarna (5)

Photographer bröllop Borlänge (2)

Photographer Broberg (8) Featured snippet of image

Photographer gravid Dalarna (9)

Photographer portrait Dalarna (4)

Photographer Dalarna pregnant (4)

Borlänge photographer wedding (8)

Page 4 (2%)

Emma Broberg (1)

Page 5 (2%)

Photographer price Borlänge (10)

Not shown (25%)

Photographer wedding Dalarna

Wedding photographer Borlänge

Wedding photographer Dalarna

Photographer Dalarna

Photographer event Borlänge

Photographer event Dalarna

Portrait photographer Dalarna

Portrait photographer Borlänge

Photographer Borlänge price

Photographer Dalarna price

Not shown, but featured (4%)

Borlänge photographer - Featured Snippet of Maps position in "more locations"

Photographer Borlänge - Featured Snippet of Maps position in "more locations"