



# What Is Search Engine Optimisation?

Search Engine Optimisation becomes second nature to experienced web businesses and developers. But where do the complete novices turn? This guide solves that problem.

*"What is Search Engine Optimisation? should definitely be the first stop  
on your journey into SEO"*

<http://www.WhatIsSearchEngineOptimisation.info>

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## Chapter 1: What is Search Engine Optimisation?

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## What is Search Engine Optimisation (SEO)?

Search Engine Optimisation, is the process of optimising your website so that it achieves the best possible results in search engines.

Your website's result is referred to as its "ranking". So SEO is a process of improving your website's ranking.

Essentially the basics are simple, but like so many things, the deeper you delve the more and more there is to learn.

If (for example) you have an SEO business then it would be beneficial for you to appear as the first result on Google for the term "SEO". The reason is clear; the #1 result generally receives the most visitors and in turn you get the opportunity to convert each visitor into a customer.

So, SEO is directly about improving your position in search engine results, but ultimately it's about increasing and improving your business.

To rank #1 for any given relevant search term is the goal.



### **What is Search Engine Optimisation?**

## Great, so how do I get started?

Well, there are certainly a number of specifics, but first you should get a good overall understand of what it is that you are trying to achieve.

When creating an online presence you must consider SEO from the start, while you can retrospectively optimise a web presence it is certainly much harder than building it into a website from the outset; in addition while mistakes are correctable it can cost you valuable time and money.

There is only really one hard and fast "rule", it may well seem entirely obvious but it's worth stating:

*"Your website (or webpage) needs to be highly relevant, and compelling in content to your target demographic."*

If you can achieve this, then you'll often find that a lot of SEO falls into place organically.



**SEO Working for your Business**

## The Basics (On Site and Off Site SEO)

In the days when search engines such as Google were less sophisticated, SEO was relatively easy:

1. Create a webpage that contained relevant keywords (On Site SEO).
2. Get other relevant websites to link to you, also using relevant keywords (Off Site SEO).

Essentially these two elements are still the main considerations, however how search engines decide what is and what is not relevant has become very complex.

For the moment we'll just look at the basics, as we progress bear in mind that these are the two areas in which SEO operates.

## What are relevant keywords?

Relevant keywords are the words that describe your business. In our SEO business example, "SEO" would be considered a relevant keyword. Using the term "SEO" on your website means that a search engine can safely assume that your website is (in some way at least) relevant to the term "SEO".

*"Choosing relevant keywords is a basic skill of SEO, and while this may seem obvious its careful use and consideration can make the difference."*

At this point we need to consider the first pitfall; bad, misleading or inappropriate use of keywords can have a negative effect on your SEO. If you overuse keywords or use keywords that are not relevant, search engines may spot this and you could incur a penalty (penalty in this context means a drop in your ranking).

WebPages that use tactics like this are described as being "Spammy", in the same way that an unwanted email is called Spam, a website may also be considered "Spam". And in exactly that same way that you don't want Spam in you inbox, search engines do not want Spam in their search results. So use variations, don't just repeat the same terms.

*"Search engines use groups of related keywords to determine relevance, not individual keywords."*

- **Good:** Using relevant keywords
- **Bad:** Overuse or spamming of keywords.

Google have a very useful keyword tool that you can use to find relevant keywords, to use that tool visit this webpage: <https://adwords.google.com/select/KeywordToolExternal>.



**Relevant keywords are key**

## How good are search engines at determining relevance?

The simple answer to this is very good. The truth is that a well designed website will automatically use many relevant keywords. This website, for example, is full of relevant keywords, because by default it needs to use them so that it can convey the ideas and information to serve its stated purpose.

*"Really what you need to do is consider your subject and write about it*

*clearly and concisely."*

Don't assume anything, state all your premises, and address your users with clear intent. If you want to address a specific subject, demographic or region state that clearly; for example, if I wanted to specifically address wedding websites I should state clearly, boldly and without ambiguity: "SEO for Wedding Websites".

Making a specific webpage about that subset or subject and/or audience may well be useful if it contains enough specific information.

- **Good:** Clear, relevant focused and concise text.
- **Bad:** Non-relevant, overly long or sidetracked text.



**Working Towards Optimal Search Results**

## Technical Relevance: Title and Meta Tag Descriptions

There are a couple of things from a technical perspective that can help a search engine determine your relevance, those things are your page title and meta description.

The page title is a specific page element that places a title at the top of your page. If you look at the top of your [browser](#) now you will see the title of this page which is "What is Search Engine Optimisation? SEO for beginners". (Whoever created your webpage for you can set this if you didn't do it yourself).

The title is vitally important in two ways:

1. When a page from your website appears in search engine results it will be listed by its title. This means that the person doing the search will scan through the results looking at the page titles looking for the most relevant title. That is; the title that looks as though it is the most likely to provide them with the information that they are searching for. You want to be that website, so you must have that relevant title.
2. In addition the title will provide some strong clues to a search engine as to the keyword relevance of that page.

So, you need to balance two very important roles for your page title. Firstly it must attract the searcher to click on it, and secondly it must inform the search engine of that subject matter of that page.

There are a couple of basic rules here:

- Put the user first; make it readable and helpful. Without this it's useless.
- Put the search engine a close second; consider how to use your keywords in the title while also following the first rule above.
- Don't use unnecessary words; don't turn it into a description (you'll see why next).
- Make sure that every page on your website has its own unique and highly relevant, readable title.
- Don't use terms like "Home", or "Page 1", these are not helpful to either the user or the search engine.
- Consider the Google only displays the first 60 characters of your title. Any more will be lost.

In addition each of your pages should have its own unique Meta Tag Description. Meta Tags are additional elements on a webpage that contain information about that page without being displayed to the user. (Again whoever created your website can easily set these for you).

Meta Tag Descriptions are often displayed under your page title in search engine results, this means that they provide a prime opportunity for you to expand on your title and focus your relevance.

Some of the rules for page titles also apply to the Meta Descriptions:

- Put the user first; make it readable and helpful. Without this it's useless.
- Put the search engine second; consider how to use your keywords in the description while also following the first rule above.
- Make sure that the description compliments the title, don't just repeat the title.
- Make sure that it adds some value, expanding and explaining where necessary.
- While space is also limited, don't worry too much about a description running out of space, as a cut off can draw a user into the page.



**Meta Tag Descriptions**

## On Page SEO Part 1: Layout and Copy

We have discussed "on page" keyword relevance above, but there are some rules to consider in terms of your copy and layout as well.

Visitors are important and valuable, so it's key that your layout, navigation and on page SEO is effective:

- Each page needs to closely reflect the page title. If a user clicks on a link from Google that says "SEO for Beginners" then an on-page title confirming that they have arrived in the right place will reassure them persuade them to stay. A header at the top of the page that says "SEO for Beginners" will reassure the user and promote keyword relevance.
- Repeating the title at the top of the page is a good idea, as it says to the user "This is the page that you're looking for".
- Now that we have the user and they are reassured that they are on the correct website we need to provide the information and guide them around the website quickly and easily, while always keeping our sales goal in mind.
- Navigation needs to be clear and consistent. Keep the navigation menu in the same place on every page. Make the options clear and choose the most relevant words for each menu item.
- Your copy needs to fulfil both roles of being concise and readable while also contain your keywords to aid relevance.
- Remember that repeating the same keywords or phrases will appear "spammy", so keep it natural and use variations on your key terms.
- Internal (page to page) links are important because you can help a user move around your site, but they also indicate to the search engines what the relationships are between your pages, so make sure that you link relevant and related pages.

## Links

Other than fulfilling your user's requirement in terms of content, and on page keyword relevance, links are the most important part of SEO.

Links can be divided into two types:

1. Internal (page to page) links.
2. External (site to site) links.

These two types of links are entirely analogous to "on site" and "off site" SEO.

"On site" links are internal links from one of your web pages to another of your web pages, "off site" links are external links from a third party website to your website.

We need to take a moment here to explain exactly what links are and how they work.

A link is what you click to move from one webpage to another, every link must contain at least two components:

1. A URL or web address: This is the destination of the link, this is the webpage that you will be taken to if you click on the link.
2. Anchor text: The text that you see (and click).

The webpage code (HTML) for a typical link looks something like this:

```
<a href="http://www.google.com">Search Engine</a>
```

In this example "http://www.google.com" is the URL and "Search Engine" is the anchor text. If, in this example, you clicked on the text "Search Engine" your browser would take you to <http://www.google.com>.

On a web page this would appear like this: [Search Engine](#), quite often the link is underlined and looks like this: [Search Engine](#).

Now, the important thing to remember is that the anchor text is passing keyword relevance to the destination URL.

Essentially, what the search engines do is note that the anchor text contains the term "Search Engine" and makes the assumption that "Search Engine" is a relevant term for (in this example) Google.

You can look at the anchor text as a "vote" for the term "Search Engine" for Google. So the anchor text in links to your website pages help with keyword relevance for that page.

If you have a recruitment website, then it would be beneficial for links to your website to contain terms such as "employment", "recruitment", "jobs" and "appointments". These links may look something like this:

```
<a href="http://www.heresalink.com">Recruitment and Jobs</a>
```

In this example the website <http://www.heresalink.com> is receiving a vote for the terms "Recruitment and Jobs"

## On Page SEO Part 2: Internal Links

Building on the information in the last section we can see that an internal link structure is important.

Careful consideration of your internal links can help your user navigate your site and at the same time help you build keyword relevance for your pages.

- A menu is generally built using a group of organised links, so think carefully about your menu, and the anchor text that they contain.
- Try to match anchor text to the destination page's title to the on-page title and to the page copy. Together these techniques can subtly but convincingly build your keyword relevance.
- Remember that you never want to appear "spammy", so use subtle variations of your terms, search engines build relevance around groups of related terms not on individual terms themselves.
- Link from within your text, if you reference a particular term in a section of text, link it to a relevant page.

## External Links

Okay, so we've come a long way; you essentially have your website, and it has good relevant copy, all the pages have good relevant titles and descriptions. The internal linking structure is good, usable and relevant.

Now comes the hard part.

While the techniques explained above will enable Google (or any other search engine) to gain a good idea about your website, what it's about and in what section of the market it sits, the search engines still need to determine how good your website is when compared to others that sit in the same section of the market.

How do they do that? Well the answer to that is primarily that they use external links to your website to rank its popularity.

*So, for example; if my SEO website has 10 external links pointing to it that use the anchor text "SEO", and your SEO website has 20 external links pointing to it that use the anchor text "SEO", (with all other things being equal) Google will make the assumption that your website is the "better", most relevant one for the term "SEO" and therefore rank your website higher in the results for a search for "SEO" than my website.*

The results may look something like this:

- #1) Your SEO website: 20 inbound links
  
- #2) My SEO Website: 10 inbound links
  
- #3) Another SEO website: 5 inbound links
  
- #4) Yet Another SEO website: 2 inbound links

Keep in mind that this is a very basic example, but the essentials of how it works are encompassed in this example.

So you need to build links, you need to encourage other website owners to link to your website, and as you may imagine that's not always easy.

*"Simple really! However, as usual the devil is in the detail."*

## Link Building

Link building is difficult and generally time consuming; however there tends to be a strong correlation between effort and reward, so the more effort that you put in the better the reward and the higher the return.

It is important to note that in terms of external links, there are links, there are good links and there are great links. Not all links are equal, not by a long way, so being able to evaluate a link in terms of its "worth" is an important skill to acquire. This is often where the experience of a paid SEO consultant comes in very useful (if you can afford it) because while it's a skill that can be learnt, experience is what is really needed.

Telling them apart is initially difficult, but as a general rule of thumb the harder they are to acquire the more valuable they tend to be.

If you can buy a link for \$20 then (while it is of course a link) it certainly isn't that same, as say a large news organisation writing an article about your brilliant new website and linking to you.

*Creating demand or interest by being unique, or filling a niche for which there is an untapped demand is your best strategy.*

Some people may not put it that bluntly, but essentially this is going to be the strategy that most naturally brings you links.

If you set up a website to sell books, you need to compete with Amazon, Barnes and Noble, etc., and you will forever fight a losing battle, if you set up a website to sell speciality books in say Feng Shui, then bloggers, and interested parties may well pick up on that and link to you.

However if you invent a device called say, a "[Gglobbazz](#)" that prevents you from stubbing your toe on your night stand in the dark, you're going to find yourself very popular very soon, and certainly at the top of the rankings for "[Gglobbazz](#)" (that is if I hadn't just got there first!)

Assuming however that you're in a non-niche market there are other strategies to try (in no particular order):

1. Link baiting: Create some unique content, maybe attach a Blog to your website and write interesting and thoughtful posts. People will naturally link to your posts.
2. Buy links: Buying links is not to be used as a primary strategy, but buying relevant links from topical sites can be useful, relatively cheap and easy.

3. Give something away for free: Other people will be interested in highlighting to their own users that there is something to gain from your website and link to you.
4. Contact related directories: If for example you're in recruitment then there are plenty of sites that hold lists of recruitment agents, in the name of completeness they'll certainly want to list you.
5. Run a promotion: In the same vein of giving something away for free, creating some buzz or undercutting a competitor will attract attention and therefore links.
6. Press Releases: A press release through a well known press agency may will generate some buzz, and therefore links, especially if you combine it with a good promotion.
7. Write a list: Top 10 lists always attract attention, think of a relevant top 10 to your market and create a webpage or blog post about that, remember to link the relevant keywords into your site.
8. Write about how topical events reflect on your section of the market: In times of financial difficulty write about the effect on your industry and perhaps use that to promote thing that you are doing to counter the difficulties that benefit your customers.
9. Social bookmarking: Submit your unique content to [Reddit](#), or [Digg](#) or [Delicious](#)
10. Engage in Social Media: Post updates on [Facebook](#) and [Twitter](#)



## Reliability

Okay, so we're just about done on the basics. There is more to explore and some greater details if you follow the links in the menu on the website, including information about usability, content, more on links, a section dedicated to Google and a glossary.

However, just one more thing to bear in mind...

Search engines operate by use of a small program called a "spider". Their spiders visit your website every so often to determine what pages you have and what content your website contains.

The spider will follow all your links as well as taking a copy of your website and sending it back to the search engine from which it came. It is this copy that they search, not your website directly (this is how they achieve such fast search speeds), however leads us to two important implications:

1. The Spider must be able to access your website.
2. All your links must work.

So...:

1. Make sure that you have reliable web hosting, so that your website is always available.
2. Check your links regularly. There is a good free automated link checker at <http://www.404checker.com/link-checker>, you can also download the link report for free.



## Chapter 2: Usability

- Rule 1: Make Your Site Usable (Put your Customer First)
- 15 Usability Points
- Remove Barriers to Entry
- Static URL's are your Friend
- Get You Internal Linking Structure Right

## Rule 1: Make Your Site Usable (Put your Customer First)

Any website should be built from the ground up with two main goals in mind.

Firstly you need to think about your users and their experience when they use your website; they must be your priority. Your website must be nice to look at, and nice to use.

Don't ever think that you can go to far in helping them navigate around your site. Having users that get lost or confused is a huge mistake because they will leave in a flash.

Try to think of every conceivable way that someone could have reached a page, and cater for them. Every error should contain a solution. Never, ever, write an error message that says "An unknown error has occurred", think about why that error has occurred and provide possible solutions.

Ensure that your website is well hosted, reliable and fast. There is much research that shows because there are so many options available users will leave and go somewhere else if they are made to wait more than a few seconds for any web page.

## 15 Usability Points

1. Don't make your user have to "work out" where to go next, guide them.
2. Make it easy to read.
3. Make it very clear what a page is about.
4. Use appropriate calls to action.
5. Check regularly for broken links.
6. Make the navigation user friendly, obvious and easy to use.
7. Use lists to aid clarity and focus.
8. Use colour to relate ideas and/ or sections.
9. Use photos, images, illustrations and diagrams to help convey your message.
10. Have a professional look and feel to your website.
11. Use clearly defined headers and sections.
12. Work hard at removing any complexity or ambiguity, simplicity is the key to a wide audience.
13. Focus on your goals, drive conversions.
14. Link your logo to the home page.
15. Make sure that your contact info clearly available on every page.



## Remove Barriers to Entry

Your second primary goal has to be optimizing for search engines - this after all is where the vast majority of your free targeted traffic will come from.

Only keep specialist data or information behind a login. Search engines can't index pages that sit behind a login so they won't drive you traffic.

Steer clear of session ID's, session ID's are used to track users, keep them in your cookies or in a session variable - never in the URL. Search engines will NOT cache a page with a session ID in the URL.

## Static URL's Are Your Friend

Static URL's are preferable to dynamic URL's, URL's such as <http://www.heresalink.com/directory/heres-an-article/> are generally better than URL's such as <http://www.heresalink.com/page.html?article=104>.

*The more complex the URL the less chance of it being indexed.*

It's easier for the search engines to follow and cache pages with static. Hyphens are generally considered better than underscores because search engines will separate your URL using the hyphens; you then have as set of readymade keywords for your page.

Your web development team can solve these issues for you.

## Get You Internal Linking Structure Right

Try to build in a linking structure that allows easy access to every page, users need to be able to reach most pages in as few clicks as possible. This is sometimes called the "3 click rule", as this is often quoted as the maximum number of clicks that should be necessary to reach any given page.

Search engines such as Google assign a rank - PageRank - to every page of your website, generally the further it is from your homepage the lower the PageRank will be. So as long as you maintain usability, try to link as many pages as you can from your homepage.

If your site is large, don't get carried away, rule 1 still applies as the most important, and also remember that deep linking - that is linking to pages other than your homepage - will help bring visitors directly into your site. Possibly meaning that they are just 3 clicks away, as they have bypassed your homepage.



## Chapter 3: Content is King

- Content is King

## Content Is King

You must have unique, interesting and "fresh" content. Search engines run sophisticated duplicate content filters, so copied or non-unique content will simple not drive results.

All your content should be to some extent optimised for SEO; this is called "On page" optimisation.

Each of your pages needs to be clearly and concisely written about a specific subject, the subject should be clearly defined.

Every page needs a purpose and a goal, and the search engines need to be able to make a "best guess" at understanding this purpose.

The way to help the search engines do this is by careful use of keywords and key terms.

Make a clear list of your targeted keywords and key terms, and then use them in the ways listed below:

### **1) Give every page a unique and targeted title**

Use a short descriptive title for each page - this is very important - each page should be titled using the <title> tag that includes keywords for that page.

Title tags are a strict requirement of valid HTML, every page must have a title tag so use it well. Make each page with a unique title. If you have a page about holidays in Venice, make sure that your title tag says: "Holidays in Venice" or something similar. A cardinal sin of website design is to use the same title for every page! It doesn't help one bit with your SEO efforts.

### **2) Don't neglect your Meta Tags**

Meta Tags are a component of webpage design that allows you to add information about a web page without it being shown to the user. For example a Meta Tag could contain a copyright message, or the designers name or contact details as well as a brief description or set of keywords.

You can regard them as "additional data" tags that are used to convey information about your web pages to other web services such as search engines.

Meta tags are depreciated these days - they are not used as much in terms of relevance but this doesn't mean that you shouldn't make good use of them.

Google for example often uses the description tag in its search results under the page title.

Each page should have at least a description and a keywords tag, this will help direct the search engines to "discovering" the purpose of your page. It will also be useful in the management of your pages and neatly "complete" each page.

Meta tags may also be used for other web services that analyse your pages and help with directory submissions.

### **3) Keep pages on subject**

Your on page text and links must be relevant to that page. Don't wander off onto different subjects on the same page or cover loosely associated subjects.

HTML is designed for linking relevant pieces of information together, so if you want to move onto a different subject create a new page and then link to it from your current page.

Of course try to use and make your keywords stand out; for example on a page about holidays in Venice, you want to use the words "Holiday", "Holidays" and "Venice" on a regular basis. Use them in section headers and section titles; use them as alt tags in your images. But don't go overboard, your page needs to read well and look good - just keep in mind that it needs to be very obvious what the subject is!

Use variations on your keywords. Search engines will make assumptions about your pages based on groups of keywords not individual keywords.

### **4) The more pages the better**

This is very simple, and that is; all things being equal a larger site is better than a smaller one. So don't be afraid to separate things out and create as many pages as you have good content for.

### **5) Make sure that you have something to say**

When it comes down to it, there are many, many websites and the chances are that there will be many, many websites that are very similar to yours. You must create or buy or magic up good unique content, "Content Is King" is a bit of a Cliché these days, but it still makes a very good point.

## Chapter 4: Links are Like Gold

- Content is King
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## Links Are Like Gold

You need to spend time on links

Good inbound links are worth their weight in Gold, it's as simple as that. There are plenty around but they can be hard to get hold of and also expensive. You ideally need to get other associated websites to link to yours. This ranges from very easy to very hard to do depending on the subject area of your site.

A good place to start is with directories. There are plenty around so use lists like those he mentioned to fine the better ones, make sure that you choose directories with some decent homepage PR (5 or more). Don't pay more than \$50, and don't pay annually recurring fees - its just not necessary, there are plenty of one-time payment directories.

Submit your site with a different title and a different description to each directory, take time to get it right - that's the key, choose wisely and then make the most of each directory.

## Exchange Links

Swap links, you can email site owners and ask them to "exchange links" with you, in this case you link to them and they link back to you, this is called reciprocal linking.

Its a good way to start, but don't use this technique too much, reciprocal links are often time consuming to arrange and are easy for search engines to spot - more effective reciprocal links are three-way reciprocals. In this example someone links to you and you link to a third website, this third website then complete the chain by linking to the first site (the one that links to you). Don't kill yourself trying to make these arrangements, if it's not easy then its not worth it. And whatever you do - don't send SPAM saying "Please swap links with me!"

## Speculate To Accumulate - Buy Links

Buy links; there are many link buying sites around, one of the better ones is Text-Link-Ads. Set a monthly budget and make sure that you have some effective way to track the results of your link buying, at the very least count how many referrals you get from the links, and better still count how many conversions into sales you get!

Buy wisely, don't just buy what's available, wait until you find exactly what you need, don't buy many links in one go, make a plan, and budget well. Watching carefully how your income varies with each link that you buy, and don't get impatient. It can often take months for results to start to come through, so plan long term, and budget long term.

- Don't buy anything that you can't sustain long term.
- Don't buy from non-related websites.
- Don't buy in large quantities.
- Don't buy for the sake of a link, buy contextual links that will also drive traffic.
- Don't buy just because it's cheap.

## Investigate Alternative Ways To Get Links

Buy reviews and other links. You can now pay for people to review and talk about your site in their blogs, check out Review Me. This has the advantage of being a one off rather than a monthly payment, but be prepared for criticism as well as praise for your new website.

## Natural Linking Structures

Vary your anchor text, and the link destination. Make sure that each and every link that you buy varies in some way. Think about what someone other than yourself may say if they were setting up the link, use this as the text part of your link and don't always link to your homepage, deep-link into your website.

This is important because search engines generally try to filter out "unnatural" links, they like to focus on "natural" linking. Specifically this means links that are not "arranged", they like to rely on people who link because they like the content of what they are linking to, and not because someone (you) wants to promote it.

## And Back To Great Content

And finally; "Link Bait".

Link bait is very good unique content, if your website contains something very good, very important or very interesting you will find that interested people will automatically link to it.

Try to create this sort of content and people will link to it. Link baiting is perhaps the hardest work but its definitely the most effective (and cheapest!).

## Chapter 6: Search Engine History

- Why should I read about search engine history?
- What was the very first Search Engine and how did it develop?
- How did search engine history develop?
- The Next Step - Automated Indexing
- The Rise and Rise of Google
- How does Search Engine Optimization (SEO) now fit in?

## Why should I read about search engine history?

Understanding where current search engines have come from, why and how they have developed through their history into the most popular tools on the internet helps you gain an overall understanding of what search engines are and what they are trying to achieve.

Understanding this will help you to focus your website to the specifics of these search engines - understanding their requirements and why they have them is one of the fundamentals to Search Engine Optimization. To be able to optimize your site to a particular Search Engine you must understand that Search Engine, what it wants and why - this is fundamental, and there is no better place to start than the beginning - well, actually the past!



## What was the very first Search Engine and how did it develop?

Search engines are one of the unforeseen results of the distributed computing network that is now called the World Wide Web (WWW or web).

The Web is in fact just a single component of the Internet as a whole, but mostly when people refer to the "Internet" they actually mean the World Wide Web.

In the early history of the World Wide Web the only way to pass information from one computer to another on the Internet was via File Transfer Protocol or FTP, this required that one computer knew the address of another. An FTP client could then contact an FTP server (or Daemon) using this exact address and a user could then browse and download the available contents of this distributed machine. This browsing was not as we know it today however; these files were available only as a simple list of files, no graphical browsing or links. The user would then have to disconnect and reconnect their FTP client to another machine to browse the contents there (and of course could only connect to FTP servers for which the address was known), it was a difficult, long winded and laborious task by today's standards.

The only real way for someone to find a file, especially a new file, was by someone alerting them to it via email or perhaps a notice on a discussion board.

The very first search engine, the granddaddy of them all, was created at McGill University in Montreal by Alan Entage in the early 1990's.

It was to be a list of available FTP files and their addresses - an archive - Alan planned to call this list "Archives", but plumped for Archie, as the fad at the time amongst Unix users was to use shortened and sometimes cryptic program and file names.

Archie would scour anonymous FTP sites (anonymous FTP sites are those that allow whole world access, those that do not use a username and/ or password to restrict access to the enclosed files) and create an index in a database of all available files. A user searching for a file could then use a simple interface and some regular expression pattern matching to find the location of the required file. This eliminated the requirement to browse around many sites in search of a file you wanted and was the first real leap into the world of indexing internet resources for the purpose of searching.

## How did search engine history develop?

As the web developed, DNS (Domain Name Server) was introduced - this is a system whereby a text address or URL (Universal Resource Locator) can be converted into a numeric location identifier or IP (Internet Protocol) address for a specific computer.

Basically it works like this; each computer or component on the Internet is allocated an IP address, this is a numerical identifier which is unique to that component. For example: 46.137.110.212, this is not an easy thing to remember however, and so a way was needed to make Internet addresses easy to remember.

DNS achieves this by converting domain names into IP addresses and vice versa; when you type the address of a website into your browser a request is sent to a local DNS server which converts it into an IP number, the computer then uses this IP to locate the correct website.

This introduced the possibility for linking within text; click a link, DNS looks up the associated IP address and directs you straight there - web pages as we know them now were born.

And so from humble beginnings the massive entangled web of documents that we now call the World Wide Web was born.

## The Next Step - Automated Indexing

Matthew Gray's World Wide Web Wanderer was the first autonomous agent on the web, it was designed to track the growth of the internet, initially it counted only web servers but later it started to capture URL's as well.

The World Wide Web Wanderer was creating the first web database and Matthew called it Wandex, Wandex exploited the linked nature of the web, following one link to the next - exactly the same process that is used by modern Web Robots today (A robot or spider is a program that automatically traverses the Web's hypertext structure by retrieving a document, and recursively retrieving all documents that are referenced in that document). There was a fairly significant problem at first though; Wandex was very heavy on resources, it would often find the same website many times a day and created significant extra load on the web servers.

In response to this Martijn Koster created ALIWEB, ALIWEB is the worlds first real search engine (as we now know them). Martijn was addressing some of the issues that Wandex created; Wandex had difficulty knowing what a webpage was about - on what search terms should the page be searchable? and which text provides an adequate summary for someone needing a summary? Martijn proposed that the creators of websites should be the ones to help users to track and find their work. Automatic programs like Wandex cannot understand natural language and so ALIWEB requires webmasters to enter a description of their site and submit it. ALIWEB then regularly retrieves all these files from around the world, and combines them into a searchable database. This helps eliminate the problems of increased load that Wandex created and also means that each website has an accurate, natural language description.

ALIWEB: "Because the database can be updated regularly the data is very up-to-date. Since ALIWEB does all the work of retrieving and combining these files, people only need to worry about descriptions of their own services; so the information is likely to be correct and informative. And as only these small description files need to be gathered there is little overhead."

There was clearly potential in these ideas, and as the web continued to grow, there was more and more need for accurate and relevant indexing for the purpose of searching the web. Robots (or spiders) started to pop up more and more, some caused controversy by being badly written can causing havoc with bandwidth. Three spider based search engines soon made appearances; JumpStation that crawled the web collecting title and header information, The World Wide Web Worm, which collected just the titles and the slightly more sophisticated Repository Based Software Engineering Project Spider (RBSE). The RBSE was different because it was the first to place a value on relevance to keywords based on a search.

The final problem that needed to be addressed was also a fairly simple one: These early spider based search engines lacked any sort of intelligence, and as such your searches have to be very accurate to get relevant results. If you didn't know exactly what it was you were looking for then you were very unlikely to find it, what was needed was a method of categorising sites so that users could browse through the index to find resources in the appropriate "area" of their search.

EINet Galaxy, (nowadays just Galaxy) was the original browsable by category directory, this meant that it accepted only URL's that were submitted to a specific category, (in this sense is a true directory). The outcome of this approach is that Galaxy's search results are more accurate and because each site is categorised it is possible to find sites even if your not sure exactly what it is your searching for, this is because human editors can make subjective decisions about a websites location in the directory. The downside is of course that humans are very slow compared to robots and so the resulting directory is much smaller than it's spider based equivalent.

Hang in there, were getting up to date now with a few names that you may recognise..!

In April 1994 two "Yahoos" David Filo and Jerry yang, PhD students at Stanford University, found that their personal website that contained lists of their favourite and most visited websites, were receiving many hits each day.

*People liked their simple method of categorisation and summary, and so with the addition of a simple search engine Yahoo! was born.*

## The Rise and Rise of Google

In more recent times Yahoo! has been overtaken in terms of popular usage by Google; now the ultimate crawler based search engine. Google's phenomenal technology has made it possible to index literally billions of web pages, combined with their sophisticated PageRank™ system which places a value of "importance" on each page, and very, very quick searching has made Google the undisputed king of search engines.

This combination of traditional crawler based search engines such as Google and traditional human based directories such as Yahoo! seems to be the way forward; combining the benefits of both. The mass indexing and huge database sizes of search engines with the human accuracy and categorisation of directories.

Google's main innovation was the PageRank™ algorithm. PageRank is a numerical designation that Google assigns to every page, PageRank (or PR for short) is an indication of how popular that page is based on a complex mathematical formula based on inbound links. Web pages with higher PageRank generally rank higher on result pages than those with a lower PageRank.

In a short decade search engines have come a long way...

## How does Search Engine Optimization (SEO) now fit in?

The revolution in communications that is the Internet has spawned many sub-industries, one of which is Search Engine Optimisation (SEO) and Search Engine Marketing (SEM).

In a nutshell SEO is the business of optimising websites so that they return the best results possible from search engines and directories while conforming to the individual rules and regulations of those search engines and directories. In reality this means pushing and bending those rules and regulations as far as possible.

SEO often appears at first to be somewhat of a "black art", with people whispering about secret methods and tactics that they use to get the best possible positioning for their pages. You'll find many companies and individuals offering services at often highly inflated rates - but they insist that their "art" remains secret.

We hope to blow this apart somewhat, there are no impenetrable "secrets" – we can guarantee you that.

Let's see how we arrived at this situation...

Search engines rank their results in many ways; ideally of course you would like your site to be returned in place #1 on the search engine results page (SERP or ranking) for the search terms for which you would like your site to be found.

The search engine wants the best/ most relevant page in place #1, so simply all you have to do is make your site the best/ most relevant site and hey presto! Slot #1 is yours. So it really comes down to knowing how a search engine defines "best" - this is the key piece of information that you need.

SEO is full of contradiction; by changing your website to suit a search engine does this mean that you are trying to trick the Search engine into thinking that your site is the best? Why am I optimising my site for a search engine? Should I not be optimising for my visitors? Well, of course but if people cant find you then there is no point optimising for them!

Search engines have historically kept their algorithms for defining "best" a closely guarded secret, and this has been a major factor in creating the "cloak and dagger" world of SEO, everyone wants to get an advantage on another. Unfortunately part of this means that some people like to let others think that they know more than they actually do.

The role and primary target for the search engine community is to ensure that how they define "best" is also how their users define "best" - and so to some degree the two go hand in hand,

