

# STRATEGIES TO OPTIMIZE INTERNAL LINKING IN WEB PAGE DESIGN FOR IMPROVEMENT IN RANKING RESULTS

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## ABSTRACT

The search engine is used to search internet based documents which searches an index of documents for a particular term phrase or text specified by the user<sup>[6][7]</sup>. Search Engine Optimization (SEO) is an Internet marketing strategy and a process, widely used for improving the volume or quality of traffic to a website through search engines. There are different techniques of SEO. In this paper, we focus on optimization of web site internal link structure and explain how internal linking improves the ranking of site by applying page rank(PR) algorithm with examples . Also suggest some strategies to improve the internal link architecture of a site for better ranking position in search result list.

**Keywords:** *SEO, link, web, PR, Internal link.*

## I INTRODUCTION

SEO stands for Search Engine Optimization. SEO is the process of improving the visibility of a web site or a web page in search engine via the “natural” or “unpaid” search results. SEO is used to optimize the site by making small modifications to the parts of the website. Internal link architecture is a key on-page factor in SEO.

There are a number of basic techniques of SEO used by search engine optimizers to improve ranking of a website. Some of these techniques are<sup>[2]</sup>

1. Optimize title tags by including related keywords in it.
2. Create compelling meta descriptions which provide a description about website and content of pages
3. Utilize keyword-rich headings
4. Add ALT text tags to images

5. Create a sitemap
6. Build internal links between pages
7. Update site regularly
8. Use of inbound and outbound links
9. Use of keyword text in anchor link
10. Use of search keyword in URL and domain name
11. Quality content of website

Here we discuss about building internal links between pages and their uses.

## II INTERNAL LINKS

Internal Links are hyperlinks that point at (target) the same domain as the domain that the link exists on (source). An internal link is one that points to another page on the same website. The internal linking are used to increase search engine traffic<sup>[4]</sup>. If internal links are implemented correctly, it can be the easiest way to increase link equity across the domain.

For example

```
<a href="http://www.same-domain.com/" title="Keyword Text">Keyword Text</a>
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Internal links are links that go from one page on a domain to a different page on the same domain. They are commonly used in main navigation which allows users to navigate a website efficiently. They help establish an information hierarchy for the given website. They help to improve ranking power around web sites.

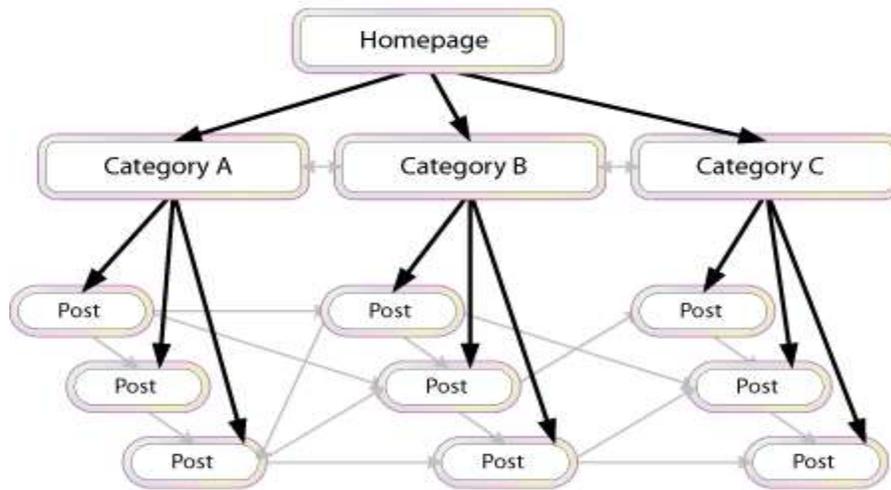
This structure has the minimum amount of links possible between the home page and any given page. This is helpful because it allows link ranking power to flow throughout the entire site, thus increasing the ranking potential for each page.

This structure is common in many high-performing websites. Internal links are links that point internally to other pages or sections of your website.

There are three important reasons behind use of internal linking in SEO that are as follows<sup>[5]</sup>

1. Usability- Linking relevant content internally allows people to get more information, particularly to linked words and concepts that are better explained at greater length on other pages.
2. Passing Page “Authority“ – Google sees pages that are older, more established, and more linked to as having more equity, and therefore, as worthy of ranking higher for certain keywords. You can pass that “authority” from one page in your site to another by linking to it.

- Anchor Linking Keywords for Equity - In Google's eyes, the specific keywords that are linked, and the page they link to, will also play a large role in how well those pages rank for those keyword phrases.



**Fig.1. Internal Linking Structure**

### III IMPORTANCE OF INTERNAL LINKS IN SEO

Internal links are like voting for yourself and also letting the search engine know about your vote. Internal links are valuable not just because they are a direct signal that your content is important, but also because those links themselves pass on their own link authority.



**Fig.2. Internal link structure is important because**

- Links are one of the most important factors that search engines such as Google use to rank and order websites.
- Internal links help to improve your link flow or "Page Rank" to individual pages on our site, helping them to rank better.
- The anchor helps Google to understand the context of a web page and to rank better.
- Internal links help Google Bots crawl and access different parts of the site

5. Internal links also improve the user experience.

### **3.1 Some guidelines to improve internal links used in the website**

Page should not be too away means more than 3 clicks from the home page. This might include navigational links in the menu, footer, homepage or body of articles.

Use of relevant, useful anchor text for internal linking. Use of relevant keywords to link to inner pages help the page to rank better in search result list.

Use of link for specific keywords, phrase and URLs, as well as make sure it only adds one link per page.

A home page is the heart of the website. If it is meaningful and well structured then only user can stay longer to site. If home page gets higher page rank or link authority by adding links from home page to the most important pages on the website. This helps channel some of that link flow or Page Rank to your inner pages in order to help them rank better.

Add Breadcrumb Navigation to site. Breadcrumbs are a navigational feature that reveals the user's location on a website. In addition to helping the user keep track of their location on a site, they also massively improve the internal link structure of your site.

Add navigational links to main menu, footer and sidebar of website.

Use the related posts or popular posts plug in to improve user satisfaction. Installing plugins that link to related posts on site benefit articles which help to improve user experience, page views and visitor engagement

User Dynamic Sidebars and the Widget Context Plugin to Link to Relevant Internal Pages. The Widget Context plugin allows user to display different widgets or links in sidebar depending on what user is reading. For example, if someone is reading an article about SEO then you show him or her custom links for SEO training.

Links towards the top of the page are treated more importantly by Google. Links towards the top of the page are treated more importantly, by Google because users are more likely to click on them.

### **3.2 Computation of ranking of page using internal link**

To find pages ranking concept of page rank algorithm is used<sup>[8]</sup>. This algorithm shows popularity of page over internet. This algorithm calculates the number of clicks to perlink so that a number is assign with each link. It shows number of click of that link and this is used to calculate page raking over internet about particular link or popularity of particular page over the internet.

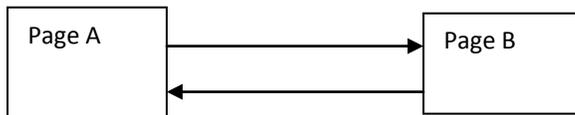
The basic form of PR algorithm is as follows, which calculate the number of links per page<sup>[1]</sup>. Suppose page A, B, C, D.. are the pages which have internal links from page A then the page rank of Page A should be calculated as follows

$$PR(A)=(1-d)+d ( PR(B)/L(B) + PR(C)/L(C) + PR(D)/L(D) + \dots ) \quad (1)$$

d-is damping factor which is always assumed around 0.85.<sup>[5]</sup>

Example:

Consider we are having 2 pages Page A and PageB both are link to each other by following ways,



**Fig.3.Internal linking of page A to B and B to A**

d=0.85

$$PR(A)=(1-d) + d(PR(A))/1$$

$$PR(B)=(1-d) + d(PR(B))/1$$

According to formula and damping factor mention above we can calculate Page Rank of each page as follows,

i.e.

$$PR(A) = (1-0.85)+0.85 * 1/1$$

$$= 0.15 + 0.85 * 1$$

$$= 1$$

$$PR(B) = (1-0.85)+0.85 * 1/1$$

$$= 0.15 + 0.85 * 1$$

$$= 1$$

The above example shows that the page rank algorithm have settled down, the “normalized probability distribution”.

## VI.CONCLUSION

This paper focus on main technique of SEO, internal linking and it's structure. Internal linking's are used to determine page ranking over internet of webpage as well as popularity of page. This paper also describes the structure of internal linking and importance of internal linking in web pages. This paper also represents implementation of PR algorithm using simple example to calculate page ranking using internal linking. Purpose of this paper is to spread awareness and use of this study for further research.

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