



## How to Choose a Site Search Solution

**Over the past few years, site visitors' expectations have risen dramatically.** Today, many site visitors (both businesses and consumers) judge an organization based on the quality of its Web site. Prospective customers might visit a company's Web site and then decide, from the visitor experience, whether to do business with that company or not. Whether you are selling products online, providing customer support, or marketing your company or organization, it has become imperative to provide the best possible user experience for site visitors.

While there are many factors that contribute to a quality site visitor experience, all Web sites must satisfy two very basic requirements: fresh, relevant content and easy access to that content.

Content is fresh and relevant when all content contributors are enabled to easily add, modify, and delete content within a consistent site design framework. Access to the content, once deployed on the Web site, is controlled by a site's navigation. Good site navigation is an ongoing objective that Web site managers must continually strive to achieve. Unfortunately, there is no such thing as "perfect" site navigation because site visitors have different needs, and navigation that satisfies the needs of one site visitor may be a hindrance for another site visitor. In addition, Web sites are (or should be) constantly changing with new content and this can cause site navigation to deteriorate. The key is to provide site visitors with flexibility in site navigation.

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Site search supplies every visitor with the power to easily locate appropriate content and should be viewed as a complement to good navigation rather than an alternative. Ultimately, site search plays a critical role in providing visitors with a quality user experience.

### Who Needs Site Search?

**Studies indicate that more than two-thirds of site visitors utilize site search as a primary form of navigation.**

This means many site visitors are now trained to head directly for the site search form without perusing the Web site first. Just about any Web site with more than a few dozen Web pages can significantly improve the user experience by providing users with effective site search functionality. Also, because a visitor to a home page cannot tell whether the site contains a dozen or ten thousand pages, site search is expected of even small sites. Whether site visitors are looking to purchase a product online, access post-sales product support or simply browse a company's marketing collateral, site search can help ensure that site visitors' needs are satisfied before they point their browsers to a competitor's Web site.

## How do site search solutions differ?

At first glance, most site search solutions look very similar; content is indexed periodically, site visitors enter search terms in a search form and receive search results derived from the indexed content. It is only when you dig deeper into each of these functions that you discover significant differences in site search offerings. For example, how much control does the customer have over the indexing of the Web site, metadata management, or the look and feel of the search results page? Can visitors utilize parametric searches? Site search solutions differ greatly in the features and functionality they provide. The other key differentiator is Total Cost of Ownership (TCO), which allows prospective customers to compare the true costs associated with each solution. In terms of cost there is a wide range of options from very simple low-cost site search to prohibitively expensive solutions with esoteric features that may never be deployed. So, the two key decision criteria are often functionality and cost (TCO). Enterprises should select a site search solution with features and functionality that satisfy core site search requirements, delivered for the lowest possible TCO.

Functionality and cost are both closely related to the approach of each site search solution. There are two main approaches for site search, each with unique advantages and disadvantages and a wide range of costs. This white paper examines the two main approaches — server-based site search and Internet-based site search — and their tradeoffs:

**Server-Based Site Search Solutions:** Software products you purchase, install and maintain to manage site search.

Approach		Server-Based Site Search
Purchase a server-based site search solution. Purchase a hardware server(s) to house site search system or utilize existing server capacity. Internal IT resources or external consultants implement site search.		
Costs		Server-Based Site Search
People:	<ul style="list-style-type: none"><li>• Project Manager to plan and track the deployment of site search</li><li>• HTML designer to create search form and search results</li><li>• QA Engineers to assure quality of the programs and page designs</li><li>• IT Engineers to install, monitor, maintain, upgrade and backup the search index.</li></ul>	
Purchases:	<ul style="list-style-type: none"><li>• A site search system such as Verity K2 Enterprise or Inktomi Enterprise Search</li><li>• One or more hardware servers to house site search, backup server</li><li>• Rackspace, reliable bandwidth, uninterrupted power to maintain the servers.</li></ul>	
Advantages		Disadvantages Server-Based Site Search
<ul style="list-style-type: none"><li>• Control over indexing process — can index site as often as desired</li><li>• Control over site search performance</li><li>• Can be used for Internet, extranet or intranet</li><li>• Can be tightly integrated with back-end systems so search results include content from these systems.</li></ul>		<ul style="list-style-type: none"><li>• High upfront costs due to significant engineering and IT effort</li><li>• High ongoing costs due to IT personnel and support contracts needed to maintain and update server software</li><li>• Time to deploy: 1 – 4 months or more</li><li>• Risk of “shelfware”, where site search is never fully deployed or significant functionality is not utilized</li><li>• Downtime can occur due to IT staff vacations, sickness or turnover.</li></ul>

**Internet-Based Site Search Solutions:** Software products you purchase by subscription to manage site search.

Approach		Internet-Based Site Search
Buy an Internet-based site search solution by subscription, typically yearly. HTML designers customize the search results page to match the look and feel of the Web site.		
Costs		Internet-Based Site Search
People:	<ul style="list-style-type: none"> <li>• Project Manager to plan and track the deployment of site search</li> <li>• HTML designer to install search form and customize search results page.</li> </ul>	
Purchases:	<ul style="list-style-type: none"> <li>• A site search system such as Atomz Search, purchased by subscription. Note that all hardware, software, personnel costs and bandwidth for the site search system are typically managed by the vendor and included in the subscription price.</li> </ul>	
Advantages	Disadvantages	Internet-Based Site Search
<ul style="list-style-type: none"> <li>• Time to deploy is minimal, as little as one day.</li> <li>• Costs are predictable, with a subscription model that spreads out the costs and has lower upfront costs.</li> <li>• Low IT and programming costs. IT staff can focus on managing other functionality on site beyond site search.</li> <li>• Robust application and network infrastructure is often more substantial than the infrastructure of many corporations. This leads to greater reliability and uptime than alternative solutions.</li> </ul>	<ul style="list-style-type: none"> <li>• Best suited for external Web sites, but can be used for internal Web sites as well.</li> <li>• Custom programming required to index corporate applications that are not accessible via HTTP (Web services are being developed that help tie Internet-based services to internal applications).</li> </ul>	

## Features and Functionality

There is a broad range of features available today with many site search solutions. Enterprises should focus on the features and functionality that they actually need and will ultimately deploy. Organizations may find that many high-end solutions offer features that are interesting and look great in product demonstrations but provide limited value when deployed, assuming, of course, they are deployed. There is no sense in paying a significant premium for features that do not satisfy core requirements. On the other hand, many low-end solutions do not provide important features and functionality that ultimately make site search effective. Even a “free” site search solution is a bad investment if site visitors are presented with irrelevant search results and abandon the site for a competitor. Ideally, companies should identify the features and functionality that are required to provide a quality user experience for site visitors and then examine the TCO of the solutions providing such features and functionality.

While Web sites with similar objectives may share some core site search requirements, they may have specific requirements as well. For example, companies with foreign subsidiaries may require support for specific languages. Any organization that discovers site visitors are frequently misspelling search terms may need some type of sound-alike matching. Organizations need to identify specific site search requirements and then determine which requirements are “must have” and which requirements are “nice to have”.

## Indexing

**Even a Web site with constantly updated content may have dissatisfied site visitors if the latest content is not indexed promptly and thus made available through site search.** Site managers should have complete control over every aspect of site indexing, including frequency and scope. In other words, site managers should be able to control how often and when a site is indexed as well as how much of the site is indexed. Ideally, the site search solution enables incremental indexing where only a portion (the area with updated content) of the site is indexed. Customers should have the ability to configure incremental indexing to activate periodically (e.g., every two hours) or through remote control (i.e., a script invokes an incremental index when new content is added).

## Metadata

**Metadata is a key component of site search because it enables better search results.** Metadata, when employed correctly, can help enforce relevancy, so site visitors only see relevant search results. In addition, metadata allows the search results to be presented within intuitive, user-friendly categories. For example, a visitor to an outdoor apparel e-retailer's site may search for "gloves" and be presented with results that include thumbnails of gloves divided into categories such as "Backpacking", "Hunting", "Fishing" etc. The categories are based on metadata. Ultimately, these targeted search results help convert browsers to buyers. Web site managers should look for site search solutions that allow them to easily manage both pre-defined and user-defined metadata fields. In addition, there should be an intuitive interface through which metadata can be associated with content, including content like Adobe PDF documents where the source code is not available.

## Search Form

**The search form is the interface through which site visitors input search terms.** Many site visitors will utilize the basic search form, but they also need the option of using a more advanced search form. Advanced search forms permit site visitors to target their search based on variables such as area of interest on the Web site (product info, support, company info etc.), issue dates of documents, author name, or any other parameter that might be relevant. Site solutions should provide site visitors with the ability to do targeted parametric searches. Parametric searching is based on metadata and requires diligent metadata management to be effective.

## Search Results

**Given the fact that as many as two-thirds of site visitors utilize site search as their primary form of navigation,** the search results page may be the most important Web page on a site. Web site managers must have a great deal of flexibility to easily customize the search results page as needed. Not only should the search results page match the look and feel of the rest of the Web site but the search results also need to be optimally organized for consumption by site visitors. Search results might be presented within a directory structure or within intuitive, user-friendly categories (contingent on good metadata management). Depending on the nature of the Web site, it may be beneficial to provide search results with a personalized look and feel to different site visitors (contingent on multiple search results templates).

## Reliability and Performance

**Every possible feature is useless if the site search solution is unreliable or exhibits poor performance.** Enterprises considering different site search solutions should demand some proof of reliability from each prospective vendor. Reference customers are a good place to start, but some type of availability guarantee or warranty is more desirable. Performance is also an important consideration. While some Web sites experience a relatively constant level of traffic, others may contend with dramatic peaks in traffic. Site search solutions should be able to handle these site traffic peaks without experiencing significant performance degradation. Vendors should be able to furnish evidence that their solutions can maintain acceptable performance levels even when experiencing peaks in traffic. Internet-based search vendors often have an advantage here because they may have more robust and scalable application infrastructures supporting their site search applications than can be found at individual enterprises. These vendors can afford impressive application infrastructures because they spread the cost across many customers. The robust and scalable application infrastructure of an Internet-based search vendor enables the vendor to offer availability warranties and to easily scale to handle peaks in traffic. Clearly, this is much more difficult with server-based search solutions because the enterprise itself is responsible for the application infrastructure.

## Maintenance

**One of the biggest differences between server-based and Internet-based site search solutions is software maintenance.** With server-based solutions customers are responsible for maintaining the software, which includes installing patches and upgrades in addition to the task of keeping the application up and running. Internet-based site search vendors assume all responsibility for maintenance of the application, which reduces the customer's IT expenses and allows them to focus their IT resources on other initiatives.

## Unforeseen Needs

**Web site objectives change, as do the needs of site visitors.** It is often difficult for enterprises to foresee the features and functionality they will need in the future. For this reason, organizations may want to consider a site search solution that permits relatively quick incorporation of new features and functionality. Server-based solutions are at a significant disadvantage here because of the nature of their development cycle and the need for customers to install patches and upgrades. Internet-based solutions can rapidly incorporate new features or functionality for their customers assuming there is broad demand for the features or functionality.

## Evaluate Total Cost of Ownership (TCO)

When evaluating different approaches and vendors, it is important to calculate the Total Cost of Ownership or TCO. The cost of site search licenses is only one small part of the total cost of a site search solution. Other considerations include personnel to maintain the system, hardware systems, IT processes such as backup, and much more.

One quick way to cross-check your calculations is to note that a server-based site search solution typically has a TCO that is two to three times the cost of the actual software. An Internet-based site search solution typically costs much less.

The table below outlines the different costs for the two main approaches to site search. A TCO spreadsheet is also included in the Site Search Buyer's Kit.

Cost Factor	Server-Based site search (Verity, Inktomi,etc.)	Internet-Based site search (Atomz)
Site search application license cost	\$\$\$	0
Yearly subscription cost	0	\$\$ – \$\$\$
Yearly support fees	\$	\$
Site search hardware costs	\$ – \$\$\$	0
IT rackspace, bandwidth, power, backup, monitoring costs	\$\$	0
Installation costs	\$	0
Development personnel costs	\$ – \$\$	\$
IT personnel maintenance costs	\$	0
Application upgrade costs	\$	0

## Evaluate Return On Investment (ROI)

Investors and shareholders of any company expect there to be a clear return on any investment the company makes. One standard measure of a business investment is Return On Investment (ROI). Simply stated, the ROI of a business initiative measures the annual return on that business investment. Mathematically, ROI is represented as:

$$\text{ROI} = \frac{\text{Present Value of Benefits}}{\text{Present Value of Costs}}$$

Since benefits and costs are usually incurred over many years, the “Present Value” of these costs and benefits represent these values in today's dollars.

Determining the denominator of this formula is straightforward if you have done a TCO analysis, and have taken the present value of the costs over the desired time period (e.g., three years).

Determining the numerator is more of a challenge. While costs can often be accurately estimated, the benefits are often difficult to directly attribute to the Web site. For example, here are some potential benefits realized through effective site search:

- **Sales increase** because prospects can more easily find information about products and how to purchase products. Site search can help convert browsers to buyers.
- **Sales increase** because effective site search on Web site leaves a better impression, improving brand equity. Web sites are often the leading marketing materials seen by prospects.
- **Customer satisfaction increases** because instructional and support materials (or anything else) can be more easily located.
- **Employee productivity improves** because employees are less focused on lost site visitors leaving the Web site because they cannot locate desired content, and can focus on other initiatives. In addition, employees often search their own companies' Web sites for corporate marketing materials and other information, and more accurate site search makes them more productive.

If you can quantify some of these benefits, then an ROI analysis can help you justify the investment in a site search solution. If you cannot easily quantify the benefits, then you can still use the TCO as a basis for comparing various solutions, but you should probably place greater emphasis on minimizing cost.

## Site Search and Content Management

**Because site search indexes content and helps site visitors locate relevant content on a Web site, it is closely related to content management.** There are a number of benefits to selecting a site search solution that is tightly integrated with your Content Management System (CMS). Ideally, both products come from the same vendor. A close integration will cause the CMS to invoke an incremental index of the site once content is added, modified, or deleted. This ensures that site visitors utilizing site search always see the most updated content. In addition, metadata can be potentially added and managed through the CMS and then leveraged by site search to furnish relevant search results.

As discussed earlier, the site search results page is potentially the single most important page on a Web site since so many people rely on site search to locate content. A tight integration between site search and the CMS may allow an organization to utilize the search results page as a channel to reach captive site visitors. For example, a consumer visits the Web site of an electronics manufacturer with tightly integrated site search and content management. The consumer searches the site for “television” and is presented with a promotion for a specific television the manufacturer wants to sell in addition to the standard search results. The integration between site search and content management is very helpful to the manufacturer because it allows the company to promote specific products to site visitors who have already expressed interest in that type of product.

## Site Search: Care and Feeding

Unfortunately, you cannot simply select a site search solution, plug it in and forget about it. Every solution needs care and feeding to be effective. Metadata should be associated with all content and actively managed so that search results are always relevant and useful. Most site search vendors provide search reporting. Search reports are a very powerful tool because they indicate exactly what site visitors are looking for in their own words. These reports should be continually analyzed and appropriate steps taken to improve site visitor experiences. For example, search reports may indicate that new content needs to be added to address a topic for which many visitors are searching. Or maybe site visitors are not finding the content they want because they are using terminology that is not recognized by the search engine. In this case, the Web site manager may want to utilize the synonym functionality in the site search solution so that the search engine recognizes and provides relevant results for the visitors' terminology.

## Conclusion

While site search is often taken for granted, it is one of the most important applications on a Web site because of its ability to directly satisfy site visitors' needs. There are currently a wide variety of features and functionalities, costs and vendors from which to choose. Organizations need to determine site search requirements and select a solution that satisfies core requirements for a reasonable TCO and a rapid ROI. Implementing effective site search on a Web site enables enterprises to provide quality user experiences to site visitors, and quality user experiences help the organization achieve strategic business objectives.

**About Atomz:** Atomz provides enterprise Web site management software delivered as an online service. Its suite of Web-native applications provides customers significant advantages over traditional, server-based software in reliability, support, ease-of-use, scalability, rapid product innovation and predictable cost structures. The company's unparalleled technical excellence and dedication to customer satisfaction have led products from Atomz to be adopted by thousands of leading Web sites. Select customers include: AOL Time-Warner, CBS, Palm, Gannett Corporation, Macromedia, Olympus, Varian Medical Systems, Maxtor, New Line Cinema and Sharp Electronics. Products from Atomz have won numerous industry awards, including Internet World's "Best of Show" and New Architect Magazine's Editors' Choice Award. For more information about Atomz' products visit the company's Web site at <http://www.atomz.com>.

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