



Enterprise Search from Microsoft

Empower People to Find Information & Expertise

A Microsoft White Paper

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Contents

Executive Summary.....	1
Enterprise Search Drivers and Challenges.....	2
What's Driving Enterprise Search?.....	2
The Enterprise Search Challenges You Face.....	3
The Keys to Successful Enterprise Search.....	6
What to Look for in an Enterprise Search Solution.....	6
Enterprise Search from Microsoft.....	8
A Solution That Fits.....	8
A Solution to Build On.....	10
Conclusion.....	12
Appendix: Microsoft Enterprise Search Partners.....	13

Executive Summary

In the world of business, Search isn't just about finding information. That's the starting point. To be valuable to an organization, a search has to result in the ability to do something meaningful and profitable with the information you find. It has to be an integral part of a business productivity infrastructure.

Influenced by the consumer search experience on the Internet, the people in your organization have clear and demanding expectations about the way Search will look and feel within a business environment — as well as high standards for the relevance of results served. As an IT professional, you're aware of the importance of effective enterprise-wide Search capabilities, and you know what kind of Enterprise Search experience employees are looking for. But you may find it a challenge to deliver what's required, because Enterprise Search and Internet Search are very different.

In addition, navigating the marketplace for Enterprise Search solutions is a time-consuming and confusing task, with choices seemingly polarized between low-end, inexpensive offerings with basic features, and high-end, highly customizable, expensive solutions.

This white paper, written for Technical Decision Makers, takes a look at the drivers and challenges that define Enterprise Search and examines the key elements of a successful Enterprise Search solution. It demonstrates how a winning solution gives information workers access to widespread unstructured sources as well as structured and line-of-business (LOB) system data while respecting an organization's varied security needs. It also underlines the crucial part played by people search — providing access to the expertise that resides in others. People often know more than systems do, and locating a subject matter expert can sometimes be more valuable than finding a spreadsheet.

Finally, this document also demonstrates how Microsoft is changing the Enterprise Search landscape by delivering a solid solution that fills the gap left by current offerings. With significantly improved search capabilities provided by Microsoft® Office SharePoint® Server 2007, organizations now have access to an enterprise-class solution that enables users to find the information and expertise they need to drive business results.

Enterprise Search Drivers and Challenges

Influenced by the consumer search experience, and driven by a clear need to provide information workers with timely, customized access to relevant business data, companies are looking for comprehensive search capabilities that span disparate information sources and integrate seamlessly with existing infrastructure. However, given the complexities of the enterprise environment, the challenge that many organizations are facing is how to ensure that an enterprise search matches user expectations, and how to make sense of the seemingly polarized choices available in the marketplace.

What's Driving Enterprise Search?

The Need to Make Search Real

In the world of business, Search isn't just about finding information. To be valuable to an organization, a search has to result in the ability to do something meaningful and profitable with the information you find. Enterprise Search isn't simply about investigating content; it's all about applying the knowledge you gather and using it to benefit the business you're driving. It's about real people needing the right tools to help them get their jobs done.

The Information Explosion

The foundation of today's business landscape is information — and we're all aware that the volume of information we consume, as well as the data we generate, is growing rapidly — quantified at a rate of about 40 percent per annum. The information explosion in the workplace has imposed new performance pressure on employees, who now work with an overwhelming amount of data and struggle to make sense of what they find. According to IDC, a typical information worker in North America has seen the daily volume of business-related email increase by a factor of 10 since 1997. Confirming this trend, Berkeley University estimates that digital information will increase over 20 fold from 2001 to 2008. As a result of this deluge of data, information workers spend progressively more time searching, analyzing, and sharing information. IDC estimates that information workers spend on average 48% of their time searching for and analyzing information, (9.5 and 9.6 hours per week, respectively) which costs an organization \$28,000 per worker per year.¹ They also spend an additional 8.3 hours per week managing document routing and approval across teams, costing an extra \$12,400 per year.

Empowering People to Find What They Need to Do Their Jobs

In order to achieve business objectives, workers must have access to the people and the data they need to make informed, timely, and impactful decisions. But that information must be relevant — to avoid overburdening a person with unnecessary and distracting data, or conversely under-serving them with lack of detail. It also needs to be well protected to ensure that information is transparent only to authorized users. The vice-president of customer relations will need a very different view of the same data as a customer care specialist, for example. It's all about getting the right amount of information to the right person in the right format.

A sales executive responding to a Request for Proposal (RFP) might need to access information from her laptop, a corporate information site, and some web pages. A finance manager reviewing a budget would be more interested in data from finance systems, document repositories, team sites, as well as

¹ The Hidden Costs of Information Work, IDC April 2006

input from subject matter experts. An executive preparing a strategy briefing might concentrate his search on SAP, or another line-of-business (LOB) system.

The Need for Business Efficiencies

According to an IDC estimate, fruitless searches can cost an organization millions of dollars annually — the expense of not finding the information needed costs an organization employing 1,000 knowledge workers about US\$5.3 million per year² as they search through vast amount of structured and unstructured data. Considering the stakes, companies simply cannot afford to sustain an inefficient Search solution.

The Consumer Search Experience

Influenced by the consumer search experience on the Internet, information workers have clear and demanding expectations about how a search solution should look, feel and perform. As an IT professional, you're aware of the importance of effective enterprise-wide Search capabilities, and you know what kind of experience employees are looking for. But you may find it challenging to deliver what's required because Enterprise Search and Internet Search are very different.

The Enterprise Search Challenges You Face

The Complexity of Meeting User Search Expectations

Search on the Internet has grown dramatically in the past few years, as a cultural phenomenon, as a business, and as an easy way to find information about any subject. Based on the success and ubiquity of Internet Search, an organization might reasonably assume that the same ranking ingredients could be applied successfully to Enterprise Search. The assumption is partially correct. Many of the broad approaches, when properly tuned, do help with relevance in Enterprise Search. However, to adequately assess an Enterprise Search solution, it is important to be aware of the differences between the Internet and the Enterprise.

The Key Differences between Internet and Enterprise Search

There are three main differences between an Internet and an Enterprise Search: Link Structure, Cross-Site Hierarchy, and Security.

Link Structure

The hyperlink model on the Internet is rich, especially among popular sites, because web page authors tend to link content in order to situate their sites in relation to others. The rising popularity of blogging has quickly enriched this aggregate link structure, with new content rapidly linked to and commented on.

By contrast, the link structure in an enterprise tends to be far less dense, because people at work do not spend a lot of time creating hyperlinks to other content. In a business context, these links do not figure strongly in the successful use of the content. What link structure does exist in the enterprise tends to be more introspective and navigational than editorial in nature. Information owners might provide a table of contents or a list of related items, but do not often spend time writing descriptive metadata, precise taxonomies, and rich, hyperlinked annotations to trigger search algorithms.

Cross-Site Hierarchy

² IDC, The Hidden Costs of Information Work, April 2006, Doc # 201334

Organizations will often set up intranets to be somewhat, if not entirely, hierarchical in nature. For example, the enterprise portal is typically regarded as the root of the entire intranet, divisional portals are second-order sites, and collaboration sites then fold underneath as third-order sites. Often this structure is highly-planned and regulated such that sites of a given type (for example, a meeting workspace) always fit into the hierarchy at a predefined level. Sometimes there are multiple roots, or authoritative sites, resulting in multiple hierarchies.

This is in sharp contrast to the Internet, where some popular portal sites could be considered roots, but certainly do not serve as top-level nodes in a strict and consistent cross-site navigational structure across the entire Internet.

Security

The vast majority of content on the Internet is accessible anonymously, so a user would not expect to find information that requires authentication. This means that Internet search engines do not have to trim out results that the user should not see. So, given the same query, every user gets the same results.

In the enterprise, security looks very different. Most content is secured by default and the expectation is that, where technically possible, items are trimmed out of search results if the user does not have the appropriate permissions. Given the typically high variance of permissions across combinations of users, repositories, and content, a search system needs to integrate well with the security model and provide results based on permissions of the person conducting the search.

Achieving Relevance When Faced With Disparate Information Sources

In the context of Search, relevance refers to the usefulness of results in relation to an initial query. Relevance is key to effective Search.

Information lives in many places both within and outside of an organization. It also exists in different forms. Around 75 percent of the information we seek exists in semi-structured or unstructured formats such as document files, share sites, subscription services, and websites. While most enterprise employees have access to these types of information, it is often inefficiently dispersed, and searchers frequently have to drill through large amounts of irrelevant information to find what they're looking for.

In contrast, users may have difficulty accessing enough information when it comes to accessing data from structured data sources and line-of-business systems. While frequent users of LOB systems can afford to spend the time familiarizing themselves with specialized interfaces, casual users can't justify the same kind of investment. Search in these areas is often difficult or impossible due to the complexity involved in accessing systems such as Siebel, SAP. Consequently workers are unable to access relevant information and are deprived of the tools they need to achieve business results.

Accessing Subject Matter Experts

People often know more than what is documented in systems or reports, and locating a subject matter expert can sometimes be more valuable than finding a spreadsheet. Within organizations, getting a job done requires working with the right people, but it is often hard to find subject matter experts.

Polarized Solutions That Don't Fit Your Needs

When choosing an Enterprise Search solution, your organization will require you to balance many factors—including cost, usability, and extensibility. However, you may be concerned about what the marketplace currently has to offer. Traditionally, the Search market has offered two types of solutions: low-end, inexpensive offerings with basic features, and high-end, costly technologies that are resource-intensive and time-intensive to implement and manage. As a result, you risk making the wrong decision and either outgrowing an entry-level solution or regretting the purchase of a costly, complex platform that under-delivers.

The Keys to Successful Enterprise Search

A good Enterprise Search solution will be as effective for the people who use it as it is for the people who are responsible for its administration and security, so it's not surprising that there is no single component that defines successful Enterprise Search.

While relevancy is key, the user experience is also important, because an unfamiliar, complex, or inconvenient user interface will be a barrier to adoption.

An effective Search solution will also provide efficient access to unstructured data and unlock information stored in line-of-business systems. It will provide easy access to people and expertise—making it a one-stop-shop for finding all the organization has to offer to solve a problem. And it will meet the needs of IT professionals by providing a secure, manageable, scalable and extensible platform.

What to Look for in an Enterprise Search Solution

Relevancy

- Relevancy should be tuned for the organization, taking into account differences between Enterprise and Internet Search, such as link structure, hierarchy across sites, security, and the level of difficulty involved in finding documentation (document findability).
- Relevancy should also take into account a rich and broad range of additional factors, such as click distance, URL text matching, metadata extraction, language detection, file type biasing, and text analysis.

User Experience

- The interface between the user and the search function should be simple, intuitive, and familiar, to encourage and enhance the experience.
- Search should be available from the interfaces of frequently used applications.

Efficient Access to Unstructured Data

- Although people generally have access to unstructured data, the process of finding it is often inefficient, with files in multiple locations (for example, multiple file shares containing duplicate copies and different versions of documents). Look for a solution that provides a clear, direct, and quick path to relevant information.

Access to Structured Data and LOB Systems

- Many organizations lock down much of their structured data, for fear of unauthorized users seeing more than they should — resulting in users being deprived of information that could be useful to them. Find a solution that helps secure and protect information where necessary, allowing appropriate access to structured data and LOB systems such as Siebel, SAP, CRM, and enterprise resource planning (ERP).
- Where users do have unobstructed access to structured data, differences in the search interface, syntax, and query methods can result in challenges both during the search for information and when interpreting results. Look for a solution that provides a common Search framework, regardless of the information source, and make sure that the interface allows casual users to have easy access to complex data sets.

People Search

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- Getting a job done involves working with the right people, so it is important to find subject matter experts based on their knowledge and contacts. When choosing an Enterprise Search Solution, make sure you can narrow your search results, for example by region or department, with minimal clicks, and also consider factors such as social distance. Opt for an integrated solution, whereby the user can easily make good use of real-time communications, to build relationships such as knowledge networks and project teams.

Security, Management and Scalability

- Look for solutions that provide custom security trimming, as well as standard features to help protect corporate information from unauthorized access. Find out how granular the administrative controls are and check for customizable interfaces, scalability, and extensibility.

Enterprise Search from Microsoft

Enterprise Search from Microsoft combines the simplicity and cost advantages of entry-level solutions with a feature set typically found only in high-end solutions. Microsoft provides a search experience that is at the same time richly innovative and comfortably familiar.

Simple but powerful query syntax yields rich results that include content summaries, hit highlighting, and Best Bets; flexible navigation and sorting helps users refine their queries with as little as one click. And, with new relevancy elements that take into account factors such as click distance, anchor text, URL depth, metadata extraction, language detection, and file-type biasing, results are attuned to the needs of information workers in the enterprise.

A Solution That Fits

Search as an Integral Part of Your Business Productivity Infrastructure

Office SharePoint Server 2007 lets users go beyond documents and across repositories to unlock information, find people, and locate expertise in the enterprise. But finding information is only the first step – which is why Microsoft delivers Enterprise Search functionality integrated with the collaboration, portals, content management, forms and business intelligence features of SharePoint Server 2007. With this integrated platform, results can be easily used and shared.

The list below outlines a number of considerations and benefits for deploying search as part of your business productivity infrastructure. It also provides an overview of the features and functions provided by Office SharePoint Server 2007 as part of an Enterprise Search solution from Microsoft.

- **Deploy Search as an Integrated Service**
 - **Integrate Search into Important Business Applications**

Users can look for content in searchable document management, Web content management, and records management repositories, as well as collaborative workspaces and portal sites.
 - **Integrate with Desktop Search**

Desktop search from Microsoft—delivered as an integrated service in Windows Vista™ and as Windows Desktop Search for Windows XP®--helps people find documents, programs, instant messages, email and other information stored on their local machine. Integration of desktop search with SharePoint Server 2007 and other 3rd party Enterprise Search engines allows users to easily issue an intranet search query right from the desktop search interface.
 - **Integrate into Tools and Applications with Rich, Actionable Interfaces**

With Enterprise Search from Microsoft organizations can integrate search into critical business applications. The solution also includes an Object Model and Query Web Service for programmatic access. Optional integration with the Microsoft Office client applications (e.g. Word, Excel, PowerPoint) provide users with the option to find information when and where they need it; regardless of where they happen to be working.
- **Deploy a Secure and Managed Solution**
 - **Control Access to Information With Permissions**

Enterprise Search from Microsoft respects security permissions and does not display results for content that cannot be accessed by the user. This functionality, commonly referred to as ‘security trimming’, helps ensure privacy, compliance, and protection of intellectual property.

- **Manage Your Search Solutions**

Granular administrative controls, including an administrative API, deliver the flexibility that is essential to IT professionals. Using comprehensive monitoring and analytics, administrators can collect information to fine-tune Search based on user activity. You have the ability to enhance relevancy by defining authoritative sites that are considered core to your intranet, for example, IT, Legal, and Sales and Marketing and then modify them to change and grow with your business over time. Using Best Bets, administrators can configure the system to return certain results for given keywords, which is especially helpful when users search for content that is not indexed. It is also possible to assign different weights to properties (for example, “title”) so that important ones have a bigger influence on ranking.

- **Scale Your Deployment**

SharePoint Server is built on a scalable architecture with support for Web services and interoperability standards including XML and Simple Object Access Protocol (SOAP). It has rich, open application programming interfaces (APIs) to enable integration with other systems. Capacity for 50 million documents per index delivers enterprise-grade scalability.³

Both query and results interfaces can be customized, and Protocol Handlers, iFilters, and the Business Data Catalog take care of crawling and indexing content sources to extend the search experience.

- **Unlock Unstructured and Structured Information**

- **Find Information in Unstructured Repositories**

Although most people have easy access to unstructured repositories of data, it can be hard for them to find what they’re searching for. Enterprise Search from Microsoft provides out-of-the-box support for file shares, Web sites, SharePoint sites, Microsoft Exchange Server Public Folders and Lotus Notes databases. And, with algorithms tuned for the enterprise, results are highly relevant.

In addition, this enterprise solution extends to additional file types and document repositories with technology that is consistent across Windows Desktop Search, Office SharePoint Server 2007, and Microsoft SQL Server™ search technologies — using iFilters for file types and Protocol Handlers for repositories.

- **Use Search as an Interface for Line-Of-Business Systems**

Information in line-of-business systems is often hard to access. Office SharePoint Server 2007 brings this complex data to both casual and habitual users through a Business Data Catalog (BDC), which creates a ‘pipeline’ between a backend system, such as SAP, and SharePoint Server 2007, giving the associated data first-class status and exposing it in many ways through dynamic lists, queries, and so forth. It is possible to add a content source for BDC to bring structured data from any ADO.NET or Web Service source into the search experience. Enterprise Search from Microsoft provides out-of-the-box integration with SAP and Siebel and you can achieve custom integration with other LOB systems and databases by specifying parameters in an XML file. Most importantly, users can make results actionable with Business Data Actions.

³ There is no technically-enforced document limit. However, the recommended maximum is 50 million documents in a single index, dependent on hardware. Larger deployments can be tailored to meet business needs.

- **Refine Results and Save Important Queries**

Office SharePoint Server 2007 enables you to refine results using the keyword query syntax, filter and sort result lists using relevant attributes, save important queries, and subscribe to RSS feeds or email alerts.

- **Find People and Expertise**

- **Build Rich Personal Profiles**

You can customize personal profile attributes, manually update profile information, and automatically populate profiles using Active Directory and LDAP directories, or LOB systems. As information is updated in your directories and LOB systems, profiles are dynamically updated and changes are indexed by the search engine. This ensures that users looking for people and experts in the organization have the most recent information available to them.

- **Publish Personal Profiles Using SharePoint My Sites**

You can also take advantage of My Site functionality in Office SharePoint Server 2007 to enhance people search capabilities within your organization. My Site is a personal space to manage and store documents, as well as provide information about qualifications, skills, and interests that may be useful to others. The more information that people share about their projects, responsibilities, and areas of expertise, the more relevant and focused a people search becomes.

So, with the help of My Site information, you might find yourself searching for a collaborator using keywords that describe skills, experience, concepts, or perhaps geographical location. Alternatively, you could look for a fluent language speaker by naming the language. And you could equally search for someone based on his or her role or product expertise — or maybe by using the name of an existing project team or cost center.

- **Identify People Who Can Help**

The ability to search for people and their skills has been significantly enhanced in Office SharePoint Server 2007. Users can refine results with just one click through various properties. For example, users can easily narrow results to a specific department or job title by using the “Refine Your Search” menu. They can also sort results by relevance or by social distance. Integration with real-time communications (Microsoft Office Live Communications Server 2005 and Office Communicator 2005) makes it easy to turn search results into business action using instant messaging, email, voice mail, and meeting planners.

A Solution to Build On

In many ways, Search is emerging as the new interface to information. And Microsoft is committed to delivering an Enterprise Search platform that meets the needs of both the people who use it and the people who are responsible for its administration and security. Our search solutions are compelling today. But we’re just getting started.

Our vision for the future of Enterprise Search is people-centric. It builds on the strengths of key technologies like Microsoft Windows and Microsoft Office SharePoint Server to provide a platform that not only helps people find what they need, but also helps them do something meaningful with what they’ve found. We’re committed to continue to deliver innovations that empower people and help them get more done.



Conclusion

Microsoft is changing the competitive landscape of Enterprise Search in two ways. First, it offers a unique combination of functionality and simplicity that fills a gap in the market between low-end, basic offerings and high-end, specialized solutions. And second, it introduces a new dimension into the Search discussion by integrating Search into a broader productivity infrastructure, both on the desktop and through the integrated suite of Office SharePoint Server applications. Taken together, these two innovations make Enterprise Search from Microsoft an attractive alternative to traditional Search solutions.

The Microsoft platform meets the needs of both end users and the IT professionals who support them, delivering a comprehensive solution that empowers everyone in the organization.

After all, Enterprise Search isn't simply about finding information. It's about real people and real problems, and the tools that help them get their jobs done. It's about solutions that deliver the experience your users expect through a platform designed to tackle the challenges of an enterprise environment. Done right, Enterprise Search is all about the most valuable assets in your organization—the people that make things happen every day.

Appendix: Microsoft Enterprise Search Partners

Microsoft has created, and continues to develop, an Enterprise Search Partner ecosystem, designed to give customers access to products and services that add value to the Microsoft Enterprise Search experience. Enterprise Search Partners can help you get more value out of your existing Intranet or Portal solutions, with the goal of achieving more effective search and document indexing. Partner Search enhancements can also be incorporated into broader information management projects, spanning collaborative business applications, portals, enterprise content management, business intelligence, and even public-facing Internet and e-commerce sites.

Microsoft Enterprise partners can provide help in the following four main areas:

- Business and Technology Consulting
- Deployment, Configuration, and Customization
- Search Analytics and Behavior Tracking
- Development and Integration

Through the extensive network of Microsoft Enterprise Search Partners, organizations can seek help from Business and Technology Consultants to plan and design their search and information management initiatives, including governance, policy, information architecture, and metadata design, for example.

Our Enterprise Search Partners also represent a rich body of knowledge associated with the Deployment, Configuration, and Customization of search solutions.

Once a solution is deployed, our partners can provide help with Analytics and Behavior Tracking, as well as Business Intelligence and reporting challenges.

And finally, Development and Integration Partners add value to Microsoft Enterprise Search with additional Search applications for e.g. Call Center automation, Market Research, or Knowledge Management.

As the Microsoft Enterprise Search Partner community is constantly evolving, please access <http://www.microsoft.com/enterprisesearch/partnersolutions/default.aspx> for the latest information.