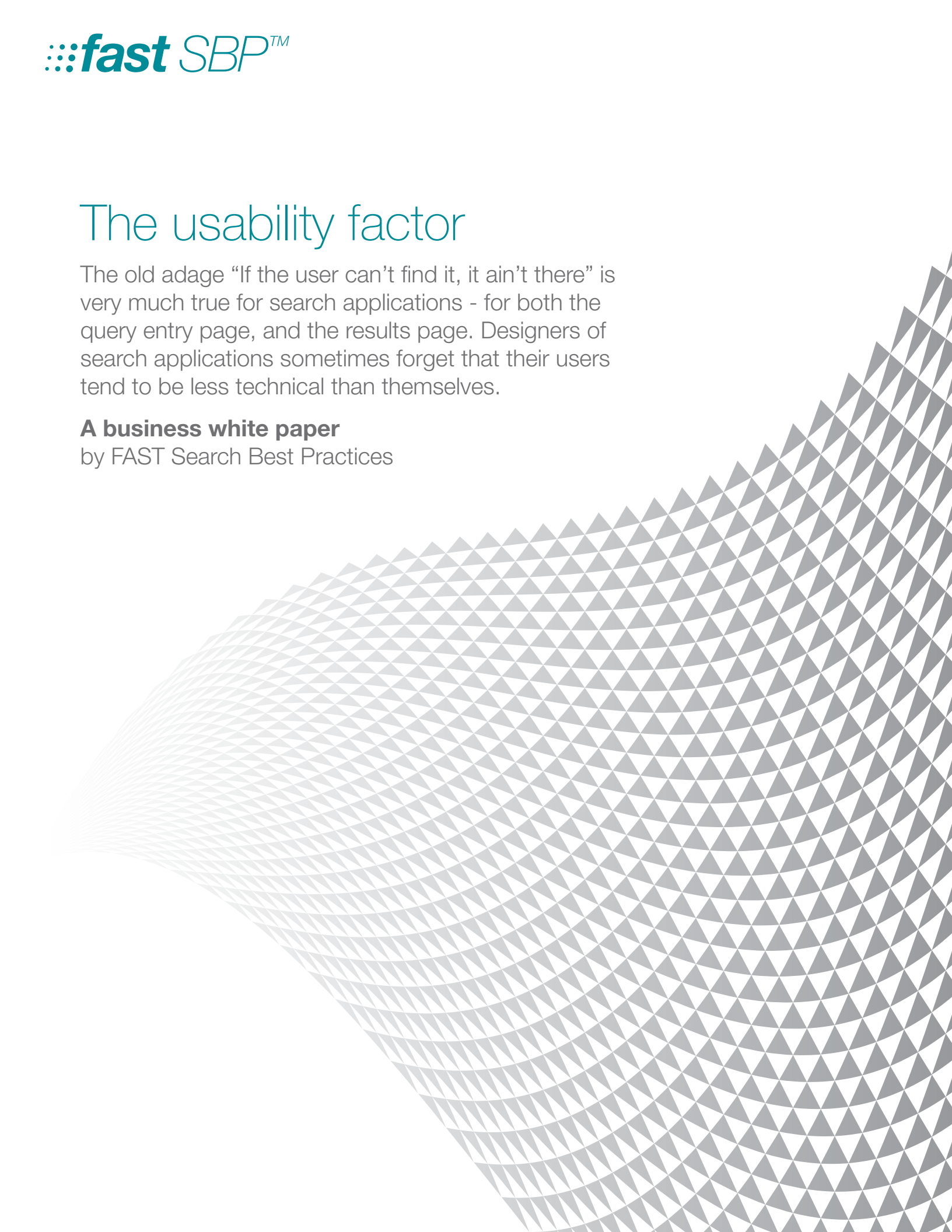
fast SBP™

# The usability factor

The old adage “If the user can’t find it, it ain’t there” is very much true for search applications - for both the query entry page, and the results page. Designers of search applications sometimes forget that their users tend to be less technical than themselves.

**A business white paper**

by FAST Search Best Practices



## 5 things you should know about search usability

1. Good usability is necessary in order to realize the full potential of your system
2. End users are the ultimate judges of your system's usability
3. When designing your system's user interaction, test it often with real end users
4. Not all users are the same; different categories of users represent different requirements for your system's user interaction
5. In user interface design, less is more

## Usability matters

New computer systems are brought online daily – either as upgraded versions of existing installations or as completely new systems – and they all bring with them the potential for increased efficiency, lower costs, and increased revenues. They are optimized for maximum performance, interoperability, flexibility, and ease of maintenance.

What is your new system really worth if prospective customers can't find what they are looking for, or if the system is simply too slow and they abandon your site as a result?

Usability is a key component of a system's total delivered value; it should be obvious to the end user how to navigate the system. For example, an editor should be able to manipulate text in an intuitive way, so it must be easy to publish and retrieve information from a content management system. Good usability also applies to search-powered systems and is essential for realizing a system's full potential – studies highlight that e-commerce sites lose approximately one third of prospective customers with every unnecessary click.

Search usability describes how the user is guided through his or her interaction with the system – from start to finish. Ultimately, a system's usability is judged by its users, so it is important to follow a user-oriented design process when developing or revising a search-powered system. Understanding the user, whether they are end users, business users, administrators or developers, etc. is crucial to success. Different degrees of functionality should be provided to cater to the user's search experience and information need.

To ensure a good result, it is very useful to combine user testing with other forms of usability evaluation in order to collect feedback during the design process, following these steps:

- Define the search experience
- Align system design with the definition
- Let real end users test and evaluate the system.

## Enhancing search through usability

You can focus on usability to enhance search by defining a good user experience for someone searching on your site. Consider these alternatives:

- Should your search be very simple, or powerful and flexible? Giving the user more search choices will make the user interface more complex.
- Will your users want to compare results, or will they want to find a single relevant result? Do you want to provide speed of search to keep users at your site longer?

Your answers to these questions should evolve from these major design forces:

- Know your business. What are the business reasons for having search at your site, and what is the nature of your content?
- Know your users. Who are your users and what are their goals?

### Know your business

Consider what role search plays at your site. In other words, what is the basic business case for the search you will be designing? In what way does search contribute, and how important is that contribution?

For example, in an e-commerce search environment, search has a direct impact on the browser-to-buyer conversion rate. In a knowledge worker environment, search would impact both motivation and productivity.

It is important to understand what makes your content unique, since it will influence who your users are and what tasks they will perform. Conversely, you may want to base any new content or process content on the types of users you'd like to attract.

### Know your user

A useful technique for understanding your users is to define a set of personas. Each persona represents a fictional user. Each can be named and assigned a background, along with a job description, skills, hobbies, and personality.

Depending on the complexity of your offering and the breadth of your potential user population, you should aim for three to 10 personas. Your personas should be treated as external users. However, you may also want to include one internal persona such as a "Webmaster" or "search maintenance expert."

As you work with the search design, consider each persona individually. Would this person understand and like this page? Why or why not? Working in this way also helps you to recognize that all users are not alike.

User intentions (sometimes called use case scenarios) comprise a technique that is used to decide what functionality and content to include at your search site. You can develop a list of possible thoughts that each of your personas might have when visiting or searching your site.

Set usability goals and prioritize them based on your business goals for search, your content and your users. It is suggested that you select a maximum of three to four goals and put them in order of importance. Prioritizing your goals may be difficult, but it will help stakeholders develop a consistent vision.

### Align system design with the usability goals

Now it's time to move to implementation. The general guidelines discussed later in this paper can be used as a starting point for your design. In summary, they involve starting design implementation, creating a prototype, testing, refining, and testing some more.

### Keep it simple

Using pictures, interactive design answers two user questions, "What can this do for me?" and "How do I make it work?"

A key concept is less is more:

- The less text you put in a picture, the more it is likely to be read
- The fewer fields you put in a form, the more are likely to be used correctly
- The fewer graphics you include, the more likely it is that the user will perceive the interface as easy to use.

As search becomes a more powerful tool, good interactive design is necessary to ensure that your users can take advantage of the features you choose to offer.

Q: My site is an Internet-facing movie database. What would be typical user intentions for my system?

A: It would depend on whether you target a niche audience or the broader public. For a general movie database you might have fan, agent, and actor as typical users. The user intentions may be mapped according to specific functionality in the following way:

| User | User intention | Ideas for functionality |
|---|---|---|
| **Fan** | **"Find a list of movies that Viggo Mortensen has been in"** | **Names searchable.** |
| **Agent** | **"Ensure that all the celebrities I represent are getting adequate press coverage"** | **Create links on "My Page" to the sites I visit regularly, and track when information is updated.** |
| **Actor** | **"Research all movies involving a certain producer/director"** | **Name search, contextual navigators on person entity. Extract person entities based on role: Director, producer, etc.** |

## Different industries, different solutions

Search plays different roles in different industries, so, you must define the search experience to guide implementation of the user interaction.

In an e-commerce setting, site visitors purchase products, services, or content. Search and search-enabled navigation help visitors locate what they want. The user experience can impact conversion rate, customer loyalty, and the frequency with which a customer visits the site.

Looking at a knowledge discovery situation, the users are employees, students, or clients of the site owner. The site owner has a vested interest in helping these visitors be more effective in their work or daily tasks. Search enables workers to quickly and easily locate job-related content, and it may help with basic information analysis. User experience can impact both motivation and productivity.

OEMs integrating search technology should align the search experience with the behavior of the rest of the system to offer consistent user interaction.

## Understanding the impact of usability

When considering the usability of Web sites, every visitor should be able to easily understand the page or site. Search input, results, and result navigation must also be effortless for users. When evaluating a page, you have to consider whether visitors without special knowledge will be able to understand it.

### Discussing visual design: CROCodile

CROCodile is a simple acronym checklist technique you can use when talking about screen pictures. It can help you to focus on how the pictures communicate:

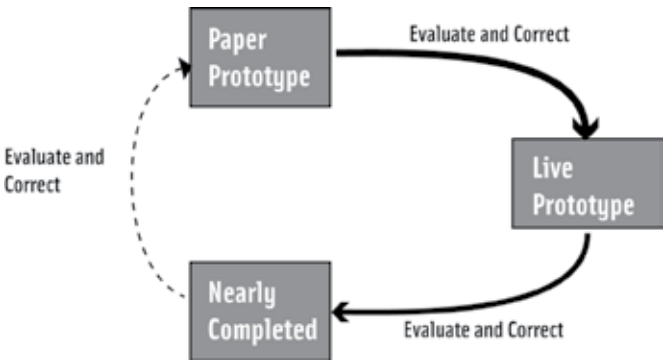
- Contrast: What stands out?
- Readability: Do you want to read it? Is it easy to read?
- Organization: Is it easy to see parts, groups and order?
- Clickability: Is it easy to see what is clickable and what is not?

Contrast: Squint at the page or screen. What jumps out at you? These are the elements with highest visual contrast, and the items that the user will usually notice first. If these high-contrast items are also the most important items, then all is well. If not, then a visual redesign may be necessary. For a usable search, it is essential that users can easily spot the search function.


Readability: Readability issues are especially important for results pages. Ask to see typical results pages with real data in order to judge readability. When you glance at a page, ask yourself, "Do I want to read this?" If your answer is no, there may be too much unbroken text on the page. Shorter line lengths, short paragraphs, subtitles, and call-outs can make the same text appear more inviting.

Organization: Is the picture divided into easily perceived parts or groups? Organizing a lot of information into a few chunks makes the picture easier to understand. Users prefer well-organized pictures, and understand them more quickly, too. Ideally, groups of information are arranged from top left to lower right.

### Iterative steps in design prototyping



Groups do not have to be separated with lines and boxes. The less you put on the page, the easier it looks to work with.

Clickability: It should be immediately clear to your users what is clickable. Usability tests repeatedly demonstrate the following points:

- Many users don't realize that a logo in the upper left corner is usually a clickable link to the home page
- Users do not think it is fun to wave the mouse around to see what is clickable
- Clickable text links are easier for users to notice than clickable pictures or graphics without text
- How clickable a link looks depends on what's around it. (Again, contrast is important!)

In general, underlined text and buttons are assumed to be clickable.

## Guidelines and recommendations

The best way to ensure a good search user experience is to incorporate user-centered evaluation activities into your development process from the start, applying a process of controlled iteration:

- Do a first draft design on paper. Evaluate and correct the design before proceeding
- Do a second draft of the screen pictures. Evaluate and correct the design before continuing
- Begin the actual implementation. During the quality testing and de-bugging phase, run live usability testing to identify remaining problems. Make corrections in the final days or weeks of development.
- As part of the design, consider how you will measure usability once the system is in production: through logging, online surveys, feedback mechanisms, or continuous usability testing. Once the system is in production, you need to track usability and attempt to identify required changes for the next version.

### Test early and often

Clearly, the earlier a problem is detected, the less it costs to fix. Consider involving designers, developers, and any hands-on stakeholders in evaluation activities such as focus groups or user tests, rather than outsourcing the work entirely. As first-hand observers, they will more easily reach consensus about which problems remain, and also about the relative importance of various problems, and focus their efforts accordingly.

### Internal walkthroughs

Internal usability reviews are inexpensive and fast, and should be done before usability testing. You can have a team member assume a persona and walk through the tasks that are appropriate for that persona. Internal walkthroughs work best when you are familiar with your users and their tasks.

### Expert reviews

Usability experts perform usability tests and can predict potential user problems. In an expert review, you simply have the expert look through your system and list potential problems. But there are some disadvantages to expert reviews: some potential problems may not be identified, for example. Also, experts typically identify problems that won't affect users.

Q: How do I measure usability?

A: The metrics should be aligned with how you define the user experience of your system. Often, the metrics are related to users' performance on a set of test tasks:

- Success rate (can the user complete the task at all?)
- Time needed to complete a task
- Error rate
- Users' subjective satisfaction

### Focus groups

Focus groups are good for testing site names, content ideas and presentation, general layout, and visual design. They can elicit user intentions ("Why would I go to this site?") as well as user opinions about competing sites. Because they take place in a group setting, focus group results may be invalid if one or two opinionated people have been permitted to dominate a group, or if the facilitator asks leading questions or otherwise indicates which answers are most welcome. So it's essential to use an experienced and objective facilitator.

### User tests or usability tests

User tests are conducted with a test user and a facilitator. Any number of observers may also be present. In more formal usability testing, observers are concealed behind one-way glass or observe via closed-circuit television. Prior to the test, a script must be written, logistics worked out, and observers chosen. After the last user has competed testing, problems must be compiled categorized, prioritized, and possible solutions discussed.

By including designers, developers and stakeholders as observers, you can use usability testing to ensure a shared understanding of which problems should be tackled and what the potential solutions might be.

Usability tests can be performed on prototypes or early versions of the site. It can also be very helpful to make comparative tests of competitors' sites. It's important to schedule usability tests early so that time and resources are available to make the necessary changes. A test scheduled when you aren't motivated to make changes is called a user acceptance test. This is usually a good test of the development organization's sales ability, but it's not a test of usability.

### Analysis of Web statistics or logs

This form of evaluation is useful for a site that's already up and running. Put in place a logging and reporting system that, at a minimum, regularly monitors:

- What visitors are typing into your search field, and the desired results
- Which queries yield no results.

Your log will not capture the user's intentions – just what he or she does. It's best to use logs and statistics together with other techniques – such as analyzing click through trends, page impressions, points of abandonment, etc. for maximum benefit.

### Online surveys and online feedback

Online surveys, or departure surveys, are triggered by a user after completing a process or action. Their biggest advantage is that you can capture user intentions and user satisfaction. The drawback is that respondents are self-selecting; users who are articulate, technology-oriented, and dissatisfied often answer.

However, if the surveys are relevant and well-designed, they will help you to quickly identify problem areas. Repeating survey questions over time will allow you to compare user response to other key performance indicators (such as conversion rate or number of results viewed). By correlating online survey data with changes made to the site and changes in key performance indicators, you will eventually be able to form a clear, factual picture of what is important and what is not.

Mini case study

## Better usability drives revenue growth for mobile phone operator

**Who**

One of the world's largest mobile phone operators

**Challenge**

To tailor the user experience for multiple user groups and multiple search clients (i.e. mobile devices with varying screen resolution).

**Solution**

The user interface conforms automatically to the target device's screen resolution, color depth, and navigation capabilities. Advanced content and query processing is used for extreme precision of search results. The solution cut the number of "clicks to target" from four to two; content browsing was reduced by 50% while content search increased by 100%. This drove a 20% increase in ring-tone revenue – within four weeks of launch.

# Eight steps to improve search and usability

The discussion below highlights topics to keep in mind as you design your users' search experience. The ultimate goal is enhancing the search experience through improved usability. It is recommended to follow accepted UI standards – while new and novel UIs may seem better for particular tasks, if it is vastly different than the prevailing standard it will most likely be poorly received.

### 1. Minimize waiting

Slow system response almost always frustrates users. But, what is "slow?" The answer is relative. If you provide meaningful visual feedback such as a progress bar, it tends to raise the thresholds; users wait a bit longer before getting irritated or thinking about something else.

| Users patience limit | |
|---|---|
| 1/10 second | A response within 1/10 of a second is perceived by the user as instantaneous. |
| 1 second | From 1/10 second up to one second, a lag is noticeable but not problematic. After one second, users will begin to be irritated. The degree of irritation will vary with the individual's temperament - and grow as the lag lengthens. |
| 10 seconds | Loss of attention. The user will stop waiting and start thinking about something else. |

### 2. Make search easy to find

When search is a supporting function on your site rather than the main reason that people visit, you need to ensure that users can locate the search function:

- Use an input field and a search button
- Put search near the top of the page – usually at the top right or at the top of a left-hand menu area
- Make sure the search tool has good visual contrast to its surroundings
- Keep search in the same place throughout the site.

If search is the main reason for your site, you should of course always make the search tool a very prominent element on the home page.

### 3. Provide different ways to search

Keep in mind that your site should support the user's search activity in many different ways. If you provide more than one way to search the same data, many users will move seamlessly from one form to the other to reach their goals.

You can offer access to search in these ways:

- Provide an input field and a search button. Consider setting the focus so the user's cursor is automatically placed in the search box when the page is loaded
- Search by browsing and clicking text links. Make sure links look clickable to your users and that the text is concrete and descriptive
- Text links to search and advanced search.

### 4. Match advanced search to users' needs and abilities

If you need to have an advanced search function, put a text link to advanced search near the search button. Even though it's called advanced search, you should not expose the Boolean operators "And" and "Or" in your advanced search interface unless your target user group are experts in search. Also avoid the term "string", as in "search string" or "exact string." Instead, use terms such as "Any", "All", and "Exact".

The concept of "progressive disclosure" should also be adopted as the search application matures. This is the unveiling of progressively more complex functionality and capabilities to meet the needs of users as they advance from beginners to expert searchers. The aim is to avoid penalizing users no matter their experience.

### 5. Optimize results lists for scanning or shopping

Consider your users' tasks and the nature of your content. At a site with a shopping search, for example, items in result lists should be easy to compare, and illustrations are extremely useful. It makes sense to use a tabular format where each result is the same height, with similar information consistently positioned.

At a pay-to-search site or a site that enables knowledge workers, result lists should be easy to scan. The user will be looking for information that characterizes the document. In these situations, it is helpful to:

- Highlight document titles and, if necessary, source the site – but not the whole URL
- Highlight searched terms
- Present sufficient content in the teaser to characterize the document
- Show cues for the smart searcher, such as when the item was last updated.

### 6. Preserve result credibility

Users expect results in order of relevance. To maintain credibility, you should separate and clearly identify sponsored or featured results – even if you present them first. And ensure that the starting point for "natural" results will be normally visible "above the fold" – that is, without the user needing to scroll down to find this point.

### 7. Supply a few good result navigators

Navigators help the user maneuver and refine the result set of the search, and need to be present in the individual documents in your searchable index. That means that

you must decide which types of navigators to offer before you feed the content into the index.

There are many different ways to allow your users to navigate once they are working within a result set. One thing that's guaranteed: if you show too many navigation and refinement options, you "hide" your functionality from the users. So you'll need to consider carefully which types of navigators are best for your users and your content.

Q: Does the size of the search input field matter?

A: Yes, in this case size matters. Make the input field long enough to encourage users to type at least two or three words. Longer queries are more likely to produce the results the user wants.

### 8. Suggest solutions instead of pointing out errors

Give users what they asked for, even if they misspelled their search terms. If you can catch the misspelling, you can offer them a link to the results for the correct spelling. If there are "0 results" for what users asked for, but a spelling correction or synonym gives results, discreetly tell them what happened while giving them the results. If you changed the user's query completely for some business reason of your own, politely say what you did and give the results you want. For example, "We're sorry, we don't have Nike, but you might be interested in these Adidas products." If there is no way to tell what users want, it's helpful to repeat the query to make it easy for them to re-evaluate or edit. You can say what happened without blaming the user, and give them some links to browse with.

The most frequent source of "0 results" is a search that's too sophisticated. Many users submit too many criteria, and some find it difficult to understand that they need to be less specific – not more detailed.

## Frequently asked questions

Q: What's a taxonomy?

A: A categorization or classification of entities based on a predetermined system, with the resulting catalog used to provide a conceptual framework for discussion or analysis. For example, a car manufacturer may have a taxonomy based on the type of car (e.g. convertible, SUV, wagon, etc.).

Q: What's a navigator?

A: A navigator is a construct that enables filtering and grouping of search results. For an international site, you may have a navigator that enables you to display only results with content in a given language (e.g., "Display English results only").

Q: What's the difference between useful and usable?

A: A useful system can solve all relevant user tasks, although the solution procedure may not be easy to use. A usable system is easy to use, although it might not solve all relevant user tasks.

Q: How many representative users should I schedule for a usability test?

A: This is a trade-off between the costs of adding "one more user" versus the benefits of identifying additional pain points with the tested system. Scheduling three to eight users is appropriate in most situations as you will most likely identify more than enough pain points to address.

## About FAST SBP™ (Search Best Practices)

SBP consulting is a highly focused transfer of search knowledge and experience from FAST to its prospects and customers. SBP workshops aim to help enterprises realize the full potential of search, by creating optimal strategic, functional and technical roadmaps, delivered in the form of business model, solution and architecture designs.

For any feedback or questions related to this paper, please contact us at sbp@fastsearch.com.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