



# What Makes a Great Site Search Experience

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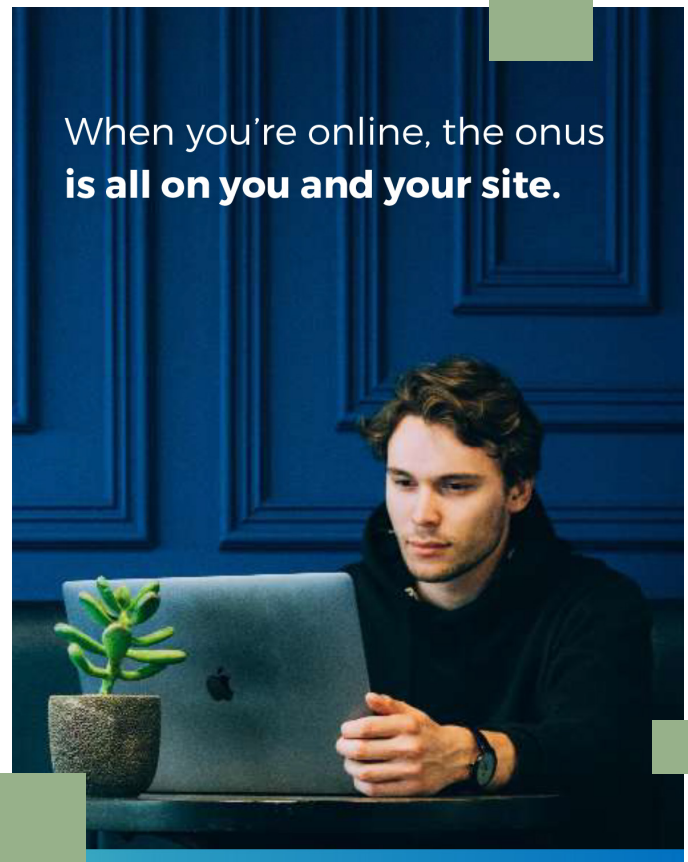
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## Do you remember the last time you went looking for something to buy, and found exactly what you were looking for?

A great shopping experience is often a combination of many little things happening at the same time. You could have been in a great mood that day, the dress you were eyeing was on discount, the store associate was super helpful, and you checked out faster than you expected to.

## Serendipity

Thousands of eCommerce companies focusing on millions of shoppers face the momentous task of creating that environment of serendipitous delight, online. But, how do you ensure a pleasant experience when you don't have the liberty of physically manipulating the thousands of little cues around a shopper that contribute to purchase?



When you're online, the onus is all on you and your site.

## Eight in ten Americans are now shopping online.\*

That's a good statistic to start with in a debate for online commerce. A significant chunk of the audience is already interested in purchasing goods and services online. What you need to do is to ensure you're the one chosen when they eventually decide to make a purchase.

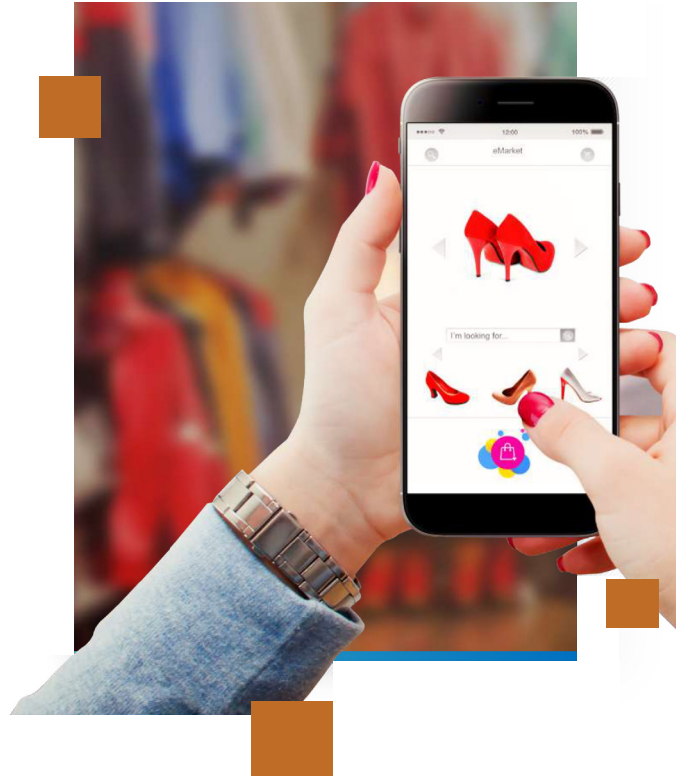
A big component of becoming the first choice for your audience — irrespective of whether you're selling a line of trendy clothes or heavy duty hardware, is to always present the most relevant products to anyone who visits your site.

In its simplest form, relevance is the ability of accurately predicting what a person could be looking for when they come to your site so you are able to showcase products that are most suited to them and their needs. A seamless shopping experience necessitates that relevance must touch every aspect of the product discovery journey — across search, navigation, bespoke recommendations or a nuanced combination of them all.

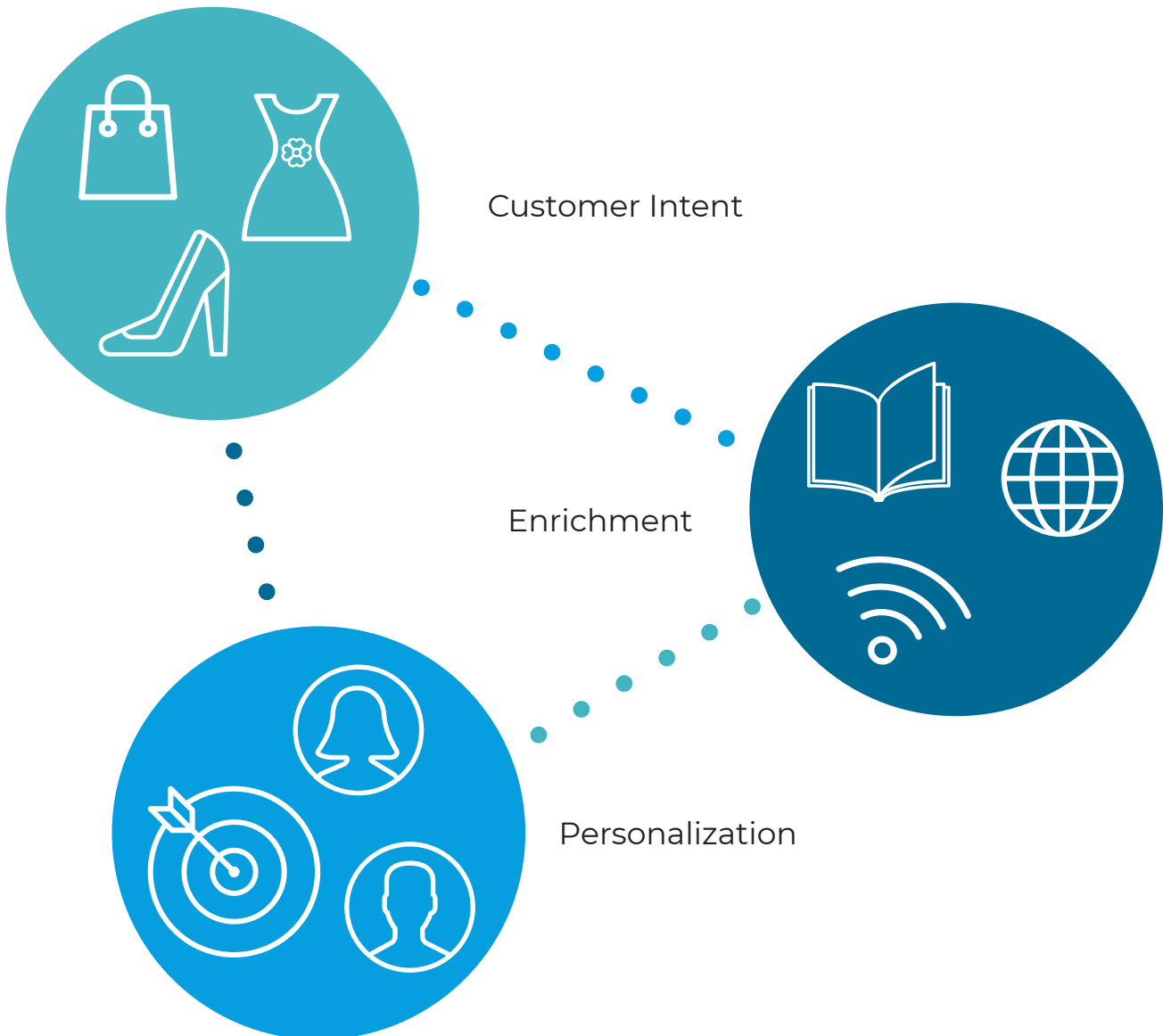
\*PEW RESEARCH

But just as a blissful offline shopping experience is a combination of many things, ensuring relevance on your site is a result of many things put together.

When a person comes to your site and leaves with a purchase, it is often many things that happen in quick succession, without a millisecond to spare between them, that ensures happiness.



## Relevance



## Understanding Intent

The first step in relevance starts with decoding the intent of the shopper by adequately understanding the question typed into your search bar. Google first and Amazon more recently have set the bar high when it comes to gauging intent. The way a shopper constructs the search query while looking for a product is entirely subjective. The efficiency of your search lies in making sense of that query, no matter how simple or complex it is.

That's your first victory.

**There are two stages to understanding the intent of the shopper. The first stage involves processing the information provided by them when they visit your site.**



**Explicit data:** These are cues that come to you directly from the shopper. For example, capturing whether the shopper started their product discovery journey through search or from a category page.

**Implicit data:** There are a number of implicit cues that help in determining the intent of the shopper. Identifying whether the shopper clicked on any filter or sort options, demographic details, knowing which location they came from, interpreting their social data or knowing their spending power helps in refining your understanding of the shopper's intent.

A combined understanding of both these types of data helps in setting the stage to figure out what exactly the shopper could be looking for.

Now, let's break down the query itself.

## Basic Search

Here's where it all began. What is now termed as basic search, includes all the pioneering components of eCommerce site search. In the current context, these aspects are a must-have in a list of things that capture the complex process of decoding intent. If you were to relate it to the product discovery journey in a store, this would be the part where the helpful store associate asks the shopper what exactly they were looking for.

### Synonyms

*A rose by any other name would smell just as sweet (and should bring you the same result).*

This slightly manipulated version of the famous line takes a new meaning in the context of eCommerce. The ability to incorporate different synonyms of a term while showcasing results is an important element of search. The richer the product catalog is in terms of synonyms, the higher is its capability to scour the site for products that match the query entered by the shopper.

Black Leather Sofa

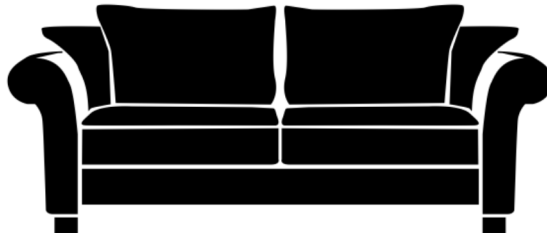
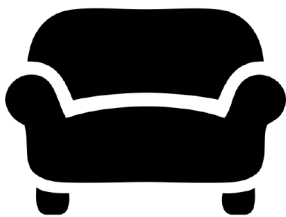


Image credit: Catia Marsh Mallow & Julia Bridge, Noun Project

<Sofa>  
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<rough>  
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A smart site search solution is one that understands a search query the way a smart shop associate would understand it while helping out a customer in-store.

The first step in your journey to providing a great site search experience is knowing when a person is looking for a jumper, they could just mean a jacket.

## Stemming

We've already established that the choice of words used by shoppers while searching is entirely subjective. Any given word could have a number of variations that denote the same thing. However, every word has a common root that it can be mapped to.

Incorporating this understanding into your search algorithm ensures that irrespective of the word variant entered by the shopper, the catalog traces it to its closest root and fetches relevant products mapped to the root word.

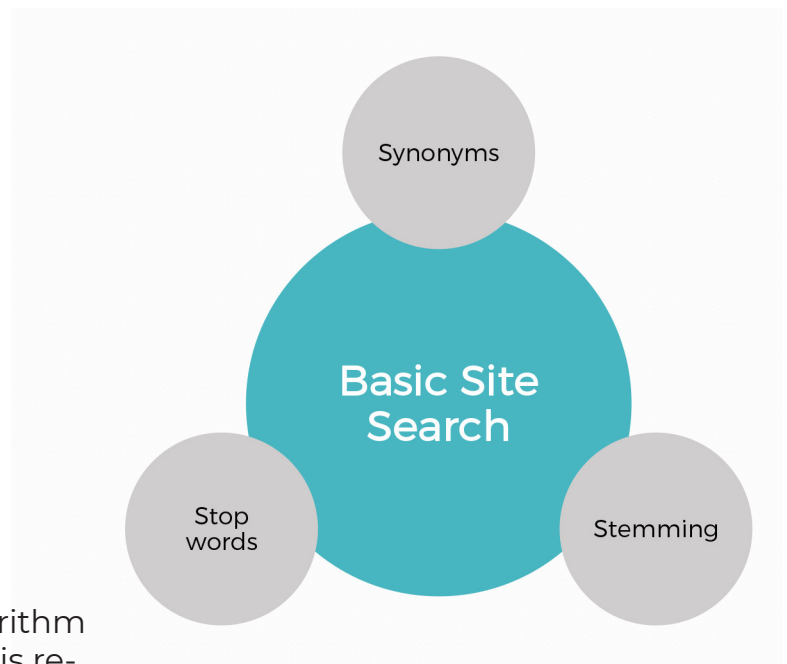
In simple terms, stemming is the capability of retrieving the same results for the words 'shape' and 'shaped' or 'dress' and 'dresses' when encountered with either version. In either of the cases, search identifies the root word and surfaces the same results irrespective of the version entered by the shopper. Shoppers looking for 'round shaped ottoman' and 'round shape ottoman' are shown the same results.

## Stop words

This refers to the removal of any unnecessary filler words from the query.

For example, while showcasing results for 'Thigh-high boots with tassels', the algorithm eliminates 'with' from the results as it is redundant to the search itself.

Thigh-high black boots with tassels



While processing this search, the algorithm eliminates '**with**' from the results as it is redundant to the search itself.

*Image courtesy: Alibaba, Thulinyc*

## Advanced Search

Synonyms, stemming, and stop words represent the basics of search. While they are great elements to have, they don't scratch the surface of what search has evolved into. These basic features would help if the person browsing your site was looking for a simple red dress or a quilling pen. As queries get more complex, this primary level of analysis is far from sufficient and there are many additional layers to decoding intent.

This is where advanced search capabilities come into play. Apart from basic search functionalities like synonyms, stop words, and stemming, advances in machine learning and AI enable a more nuanced approach to understanding queries. Incorporating these features into your understanding of search enhances relevance and ensures higher precision in search results for any simple or complex search query.

Let's start our understanding of advanced site search features with a real example

Red wireless headset with mic



Color: [Red](#)

Phrase identification: [Wireless headset](#)

Product: [Headset](#)

Feature: [Wireless](#)

Synonyms: [Bluetooth](#)

Stop Word: ['With'](#)

## Feature Extraction

“An Ogre is like an onion,” said Shrek. They have layers.

Well, so are complex queries. A complex query is made up of a number of sub-components and it is important to understand and assign weights to each component or layer of the query.

This helps while extracting results so the more important attributes are given a higher weightage over the not-so-important ones. The catalog should be able of breaking down the query and showcasing results ranked in the right order of relevance.

## Phrase Identification

The biggest challenge faced by the online search lies in its constant comparison to the smart store associate. In fact, every advancement in eCommerce search brings it closer to the human search experience. This means the catalog should be able to recognize terms in a query that necessarily need to go together while looking for accurate results.

If a shopper is looking for a high-neck aquamarine silk skater dress, it is necessary that the catalog understands the terms ‘high-neck’ need to be present together or that the shopper is specifically looking for a skater dress — not a maxi dress or an A-line dress.

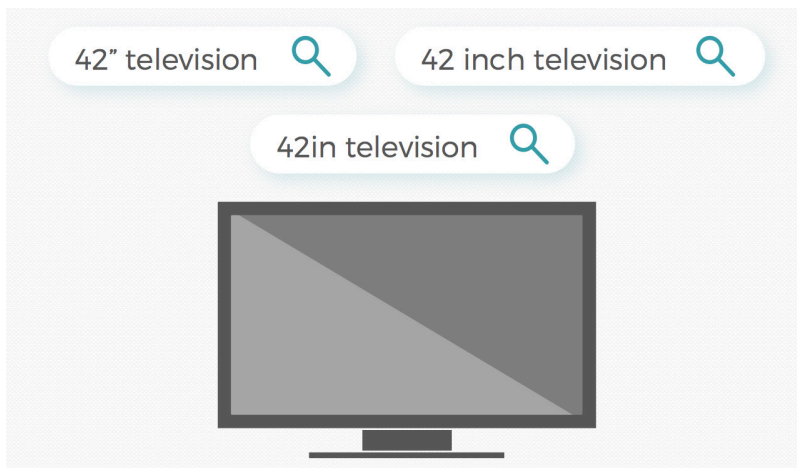
A smart site search is capable of understanding the intent behind a what the shopper is looking for when they enter a query and offer relevant suggestions to the shopper. It is similar to the satisfying experience of being handed the right product or a relevant variant when you ask for



## Interpreting Dimensions

Some people type out dimensions, others use symbols, and a third kind might use just an abbreviation. Suffice to say different people have different ways of expressing the same thing.

The ability of your catalog to understand dimensions present in a search query and provide the same results, irrespective of the way it is represented in the query is termed as dimension handling.



If your catalog pulls up a 42-inch television in either one of those queries, you've got yourself a winner.

## Specification Handling

The worst thing that can ever happen is to search for a specific product and find results that are totally unrelated to what you've been searching for. That's the kind of annoying search experience you don't want to be known for.

mobile phone covers for iPhone 7s



For example, when a shopper searches for "mobile phone covers for iPhone 7s", it is important that the search is capable of understanding that "7s" is a specification of a particular brand and fetch the relevant accessory from the many varieties available in the product catalog.

Specification handling is especially important when your inventory has a number of products, each with its own set of product accessories. The specific product variant requested by the shopper is ranked higher in the search results making it more relevant.

## Relational Queries

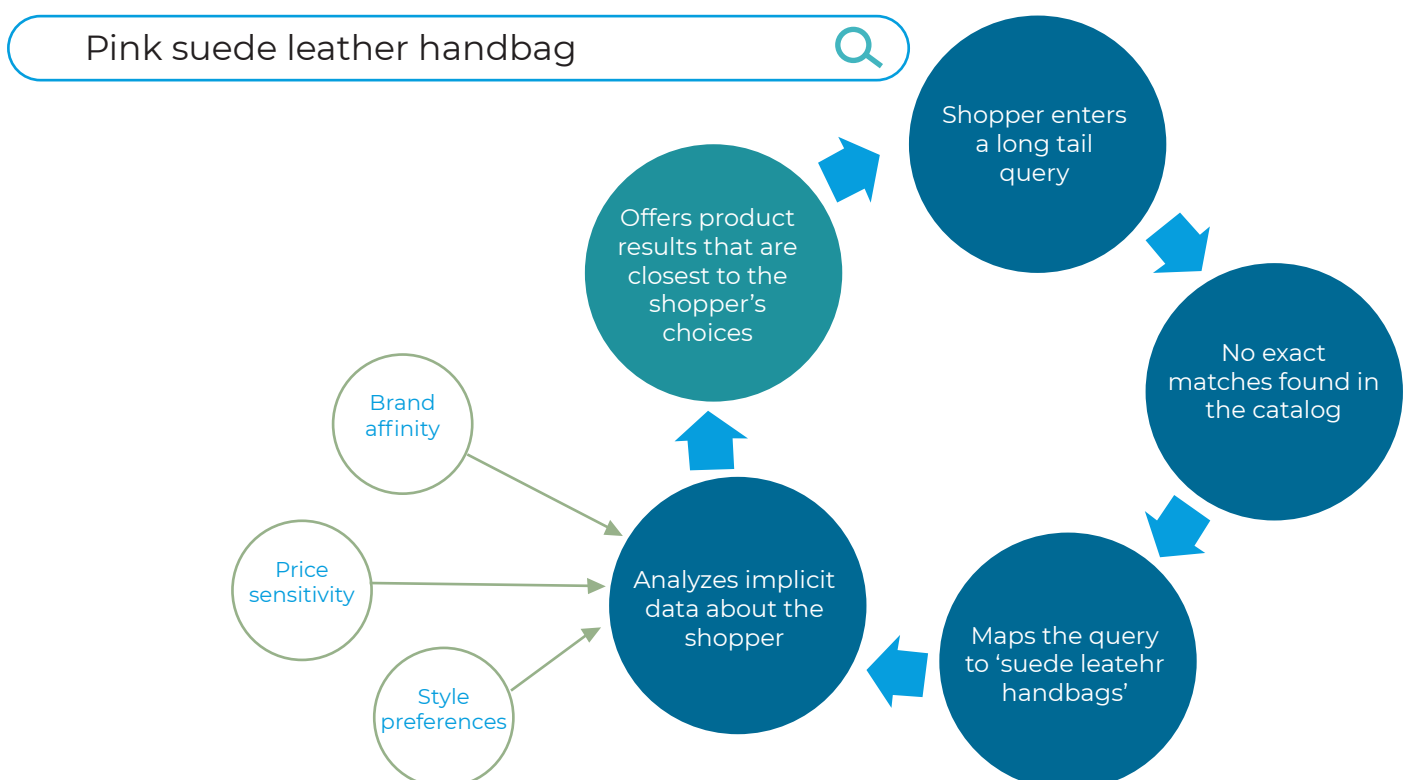
Not all parts of a query are about the product that the shopper could be looking for. Often parts of a query can be relational in nature where one part denotes the product and the rest is a grammatical construct explaining a characteristic of the product.

For example, understanding that red dress for Valentine's Day or table lamps for bedroom are theme based searches where the second part is a additional qualifier existing in relation to the first part, help in showcasing more relevant results for any search query.

## Long-tail Queries

The longer the query, the lesser are the chances of finding the exact matching product or products the shopper could be looking for. In such situations, mapping long-tail queries to their closest and most relevant popular queries ensures that the products shown to shoppers are a lot closer to what they were originally looking for. In such situations, long-tail queries with lesser product results are mapped to the closest relevant, more popular queries.

For example, if a shopper is looking for 'Pink suede leather handbag', and the catalog does not have too many products that match those specifications, the search intelligently maps the same query to 'suede leather handbags' or 'leather handbags' based on the volume of products available for either search. Implicit data about the shopper can also help in such situations. For example, if a shopper is more likely to opt for a particular brand, results from that brand can appear higher in search. Let's assume the shopper from the previous example has purchased Coach handbags in the past. In such a scenario, suede leather bags by Coach surface higher in the search results.



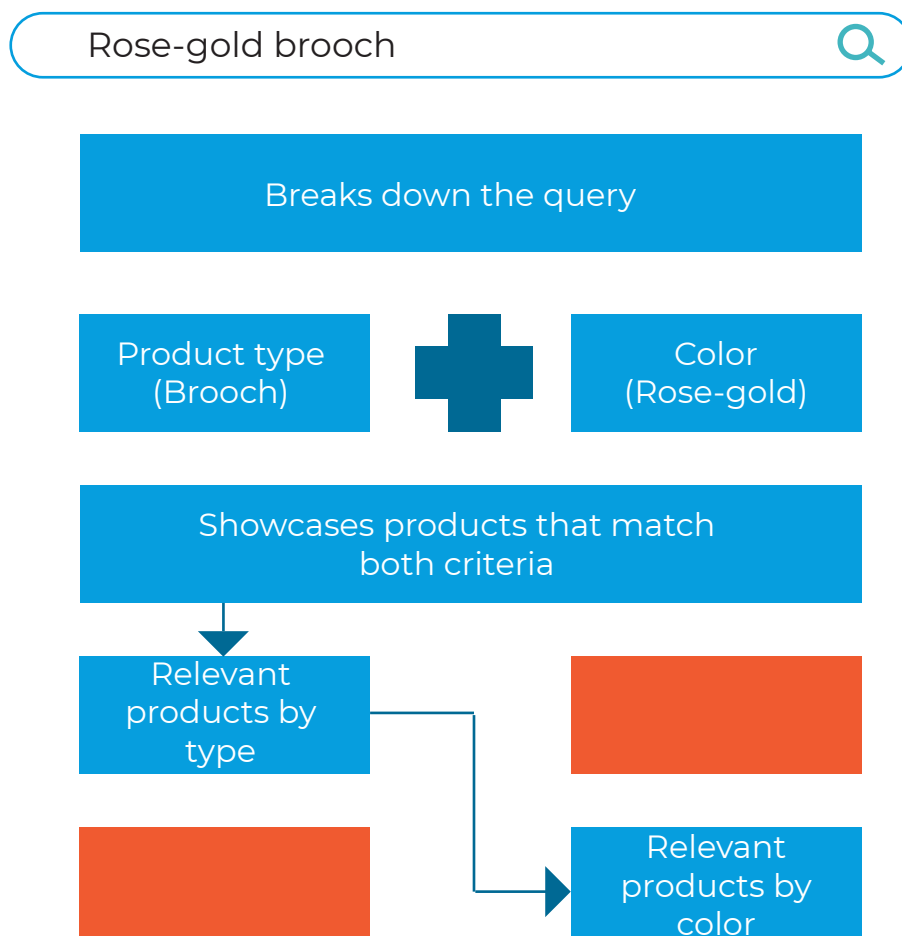
## Minimum Match

Efficiency of the site search often depends on the clarity of the search query. However, subjective differences in the way people search has made it impossible to define or determine how exactly people search.

How can online commerce rise up to the challenge? By building smarter algorithms, of course.

Minimum match helps in situations where exact results are hard to find for any given search query. In such situations, minimum match decides the order in which results are showcased for situations where no exact match can be found for a specific query.

For example, if a shopper looks for rose-gold brooch, minimum match breaks down the query by color (rose-gold) and product type (brooch). Subsequently, it searches the catalog for products that match both the criteria — color and product type. The search results are arranged in such a way that products that match both these criteria appear right on top, followed by those that match either one of the criterion. It continues to lower the matching criteria till the point where the results are still relevant to the shopper. As a result, Rose-gold brooches in the catalog, if available, are shown much higher in the results, followed by brooches in any other colour, and finally by jewellery that is rose-gold in color.



## Enrichment

There are features contained by the query itself that help enhance our understanding of the shopper's intent. However, often queries are incomplete and need to be supported with additional information that make the query richer.

### Internal enrichment

A lot of the enrichment happens by analysing and interpreting information stored within the search engine that reveal more about each shopper's individual interests and preferences. In fact, these are subtle cues left behind by shoppers and often enough, sufficiently interpreting and utilising this information is the difference between a good online shopping experience and a great one. This information — termed as query logs — sift through the browsing patterns of shoppers, identify user preferences, and add corresponding terms to the query ensuring more relevant results are shown to the shopper.

For example, if a repeat shopper visits a site and searches for a 'brown sofa', and previous searches by the same shopper indicate that they have a tendency to opt for leather sofas, the search query is automatically enhanced to 'brown leather sofas' so those products appear higher in the results.

### External enrichment

External data sources such as Wikipedia, ConceptNet and WordNet contain vast amount of information that can enhance the interpretation of any search query. Ensuring that algorithms crawl these web-based lexical corpuses, structuring the data and identifying semantic relevance boost search performance.

Additionally, building a rich automated Thesaurus that uses machine learning to automatically identify and match similar words in a document based on the number of occurrences and frequency helps in improving the quality of search. Once learnt, the algorithm actively adds the countless variations of any given term to the search results while showcasing products irrespective of the term entered by the shopper.

## Handling new entrants to the catalog

A number of changes affect the online inventory on a daily basis. Just as products go out of stock, new products are added every day. Such new products are not supported with sufficient historical data in the initial stages.

In such situations, an efficient site search function is able to pull up relevant recent additions to the product catalog, ones that do not have sufficient historical data, as and when they are relevant to a search query.



Breaks down the query to understand what the shopper is looking for



Enrichment

Query Logs

External Sources

Browsing patterns

Individual preferences

Other unique cues

Wikipedia

ConceptNet

WordNet

Automated Thesaurus



Product A

Product B

Product C

Product D

Product E

Product F

## User Behaviour and Personalization

We've covered the aspects of the query that help in improving our understanding of what a shopper could be looking for when they land up on a site.

But what about aspects of the shoppers themselves?

Interestingly, personalization is a major driver influencing shoppers to shift their loyalties online.

**62% of consumers feel that online shopping is more personal than in-store and 35% believe online personalization is the most important reason for buying**

Each shopper is unique and has certain likes and preferences. If we were to extend the smart store associate's example to an online scenario, incorporating user level data into search results is a lot like knowing those preferences even before the shopper asks for them. Analysing user behaviour patterns help in serving better suited products to each shopper.

Brand affinity is one of the marked differentiators between shoppers while analysing user behaviour patterns. If a shopper has a tendency to opt for a particular brand within a product category, it makes sense to boost products from that particular brand higher in the results. For example, if a shopper is more likely to opt for t-shirts made by the brand 'Mango', it makes sense to surface Mango t-shirts higher in the results for a generic search query like 'women's t-shirts'.

How about knowing brand preferences between shoppers and serving different options to different people?

That's 1:1 personalization. A smart site search solution is capable of understanding these differences and offering different results for the same query, depending on the preferences of each individual shopper.

Women's t-shirts



Customer A has a higher affinity towards 'Mango' and sees t-shirts from the brand higher in her search results.



Customer B has a higher affinity towards 'Zara' and sees t-shirts from the brand higher in her search results.

There is a wealth of information that shoppers leave behind when they browse a site. This information, in turn, helps in showcasing more relevant results to the shopper when they return to the site. Aspects of user behavior such as affinity to a particular brand, sensitivity to price, price and purchase data, need to be taken into account while showcasing the order of products shown to different shoppers using the same search query.

This ensures the products are not just relevant to the search query, but are also tailored to suit the unique needs of each individual shopper.

## The Key to Better Search

As traditional brick-and-mortar stores find newer ways to engage their audience, the challenge for eCommerce companies is to bring the physical store online. A large part of this endeavour to humanize search involves adding relevance to the mix.

A smart search is not just driven by intelligence, but is also capable of subliminally mimicking the experience of finding exactly what you were looking for, similar to when you go shopping in a brick-and-mortar store,

Relevance is at the core of our solution at Unbxd. Our product discovery solution focuses on intelligently deciphering shopper intent irrespective of the stage they are at.

## About UNBXD

Unbxid is the smartest Product Discovery Platform that understands shoppers' intent and connects them to products they are most likely to buy — across site search, navigation, and recommendation purchase journeys. The platform combines AI-based automation, powerful merchandising controls and extensive user experience capabilities, to enhance on-site shopper experience and increase revenue for online retailers.

Unbxid enables 36 billion annual interactions and \$4.5 billion in online GMV, for leading retailers like Ashley HomeStore, Express, HSN, and Rue21, across the globe.

Founded in 2011, the company is headquartered in Mountain View, California. To learn more, visit [www.unbxid.com](http://www.unbxid.com) or follow us on Twitter @unbxid.

### Some of our customers:



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THE CHILDREN'S PLACE