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10 Reasons
to Rethink Solr for SAP CX

AI-powered search, recommendations, and personalization for your multichannel tech stack

Nearly every customer journey begins with search. Yet too often search is considered a technology purchase — versus an enablement one. Customer expectations have never been higher, along with the need to deliver multiple experiences for different types of devices and contexts.

Mobile is massive

+230M

U.S. consumers own smartphones

+79%

made a purchase online **using a mobile device** in the last six months

Google gauges intent

35%

of product purchases start with Google

>5 days

between **searching and buying**

Site search is key

43%

of users on retail websites go directly to the search bar

2.4X

are **more likely** to buy when they conduct a search

"

And yet, 61% of search perform **below an acceptable** search performance.

Analyzed by **Baymard Institute**

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Just what makes search unacceptable on a site?

Here is just a small sample.

▶ Words have to be an **exact match** as product name

▶ Typos lead to **zero results**

▶ Exact part numbers provide **too many** results

▶ There is **no guided navigation** (query suggest or facets)

▶ Experience is **not responsive**

▶ **No** recommendations

▶ **No** personalization

▶ **Inability to find** correct product pricing

▶ **Inability to search** based on inventory availability

One of the reasons so many site search experiences fail is development teams have long relied on Apache Solr, an open source search engine that provides full-text search at an impressive scale. **Solr** is often the basic search solution packaged under the hood of some applications. Such is the case with SAP Commerce.

But Solr's strengths of providing Google-like links are no longer enough. Shoppers or B2B buyers want an intuitive, easy, personalized experience.

Coveo offers a robust, easy-to-implement solution that combines a search engine core with UI tools, machine learning models ready to be deployed, personalized results and recommendations, and user analytics in a fully managed offering with the service and support you need to be successful.

Let's dive into the 10 reasons that you need to rethink the basic packaged Solr search for your SAP commerce site.

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1 Easy Findability

According to Nielsen Norman, between 17-20% of users give up after one failed query. Shoppers assume that "no results" indicate either the store does not carry the item or the website is broken. Seeing irrelevant items frustrates users — data shows that you have 1-2 page views to show them relevant results before they bounce.

Ecommerce sites have the opportunity to set users up for success through not just relevant results — but how they are displayed.

While the search interface should start with a prominent but simple, unobstructed textbox — it should include type-ahead and query suggestions to lead shoppers where they need to go. Visual product previews cued off search is also a powerful way to remove friction.

'Findability' alone is not always directly associated with a visitor finding a specific product. They may in fact be looking for a category of products, help content, or something else. Typically, within SAP Commerce implementations, it's almost always just product data decorated with the category. This may fall short on connecting the visitor to what is relevant to their search intent.

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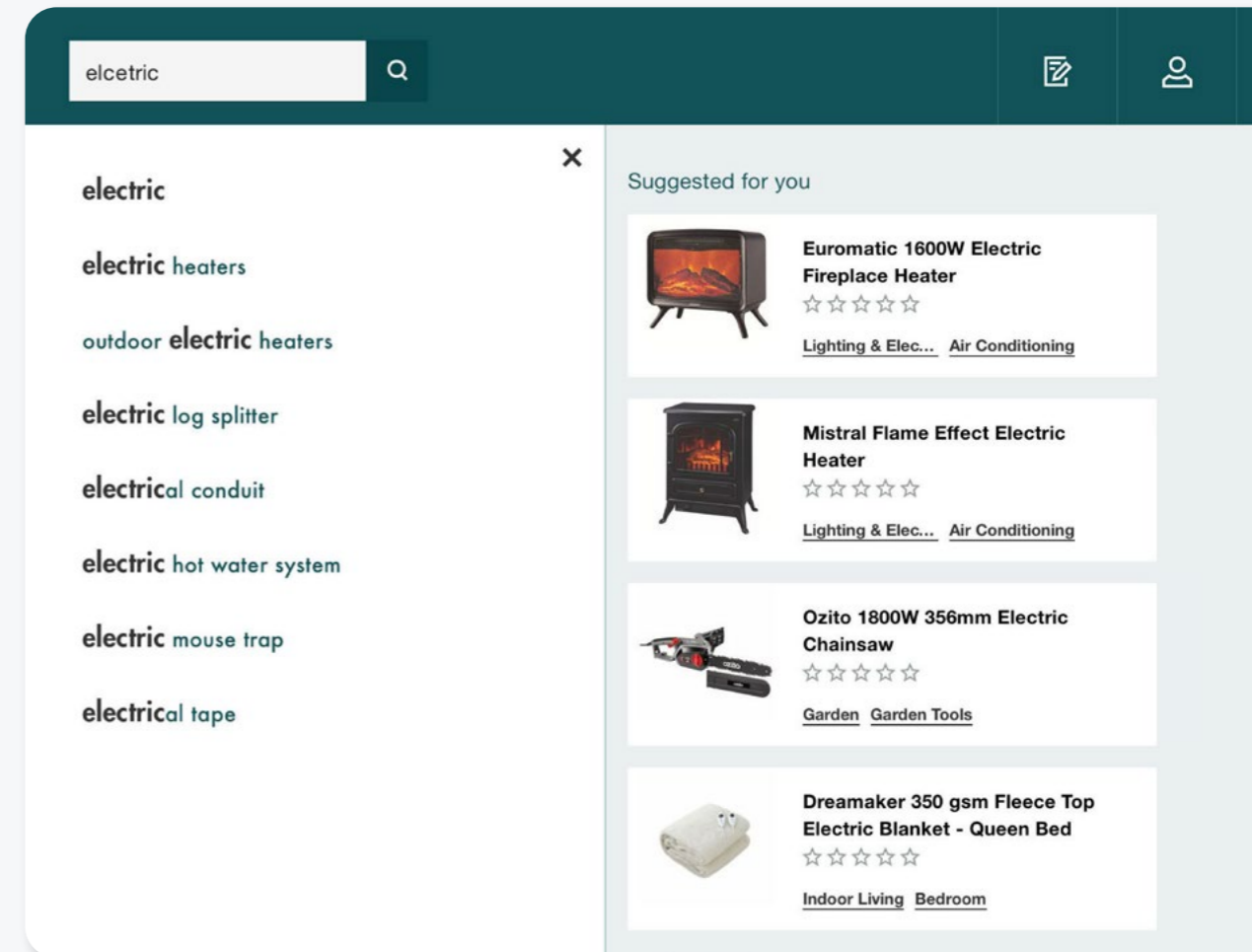
Once a shopper executes a search, advanced context-aware faceting options should be provided including filters on price, availability, and product features like size or type. Search should offer geolocation features for buy online, pick up in store (BOPIS) where appropriate.

With **Solr**, you have to cobble this together yourself and put together multiple third-party libraries to provide both the underlying support and user interface features.

Coveo offers all of these features out-of-the-box starting with the search engine and UI construction capabilities along with the expertise and experience to advise digital teams on what works best.

Coveo also applies smart indexing to the catalog onboarding process and has the ability to combine products, variants and availability constraints at the time of search — meaning minimal friction for shoppers. It also avoids burdening digital teams with implementing complex nesting and join rules. Combine all this with machine learning, and the result is easy product discovery (even for large and complex catalogs).

2 Relevant Results on Day 1

Keyword search is no longer enough. Search that just pulls data from multiple sources and matches on keywords does not lead customers to what they really want. The true difference lies in contextual understanding of both the indexed data structure as well as the intent of the user.

Capabilities such as NLP are largely missing (certainly from default implementations) with **Solr**, which means the context of indexed data is missing. That leads to Solr solutions focusing on stop words to strip out everything that's not a keyword. With that, you're quickly stripping out any intent the user may be attempting to share with you.

For example: On a DIY retailer site "how to build a wood deck" leads you to an understanding that expert authored content articles may be more important. In a traditional Solr implementation, "how" would be a stop word and get stripped. The rest would likely then result in a series of OR searches, resulting in a whole bunch of products related to wood or deck — not fulfilling the intent of the user.

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By understanding the relative importance of the type of information, the results can be significantly more powerful and relevant. Whereas, Solr is generally focused on the relative importance of the fields that are indexed, not understanding the information in them.

Solr is ultimately a full-text search engine core. Aside from text similarity features such as "MoreLikeThis" and faceting, its relevance features are limited.
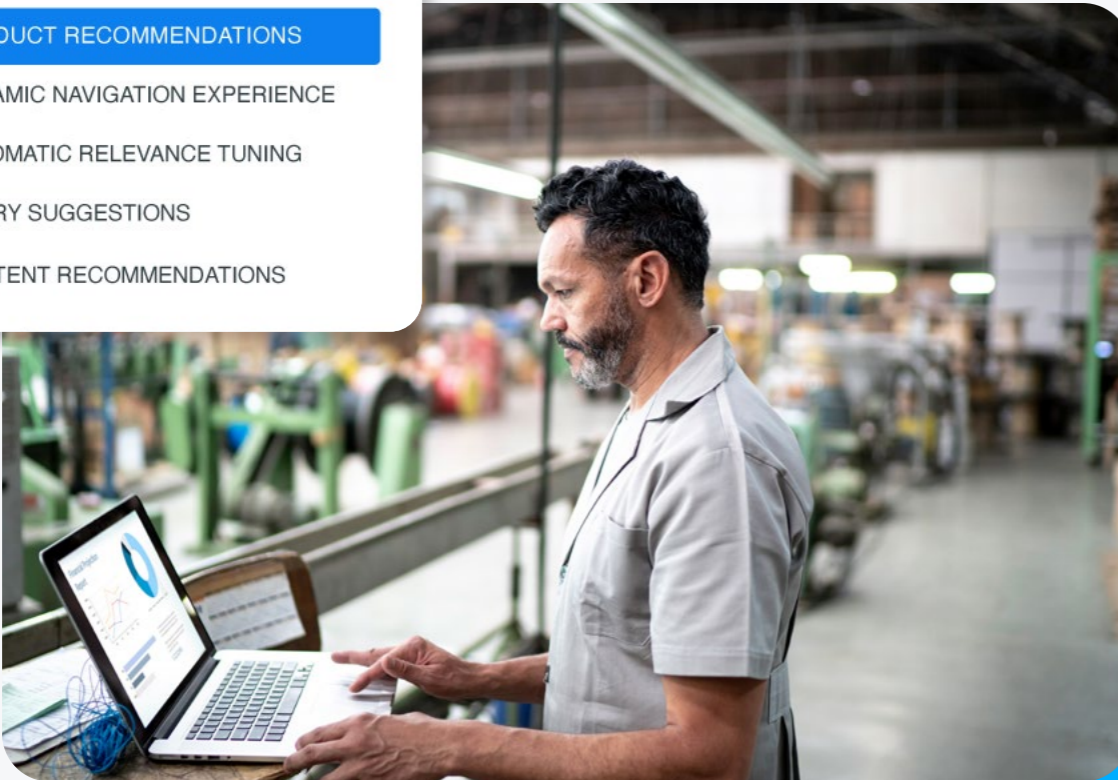
Coveo goes well beyond full-text-search with NLP features and machine learning models optimized just for ecommerce.

For instance, the **Automatic Relevance Tuning** model learns what search users seek and delivers it. In more detail, Coveo captures user behavioral signals in the form of events from each website interaction. This includes what a person types (or retypes) in a query term, what they eventually click or don't click, what leads to a conversion, and data such as the location they log in from and the time of day/year.

**With Coveo's machine learning, you can leverage user signals to feed the ML models. This guides the shopper's buying journey and personalizes experiences through suggestions, relevance-ranked results, and product recommendations.**

Add a Machine Learning Model

- ◉ PRODUCT RECOMMENDATIONS
- ○ DYNAMIC NAVIGATION EXPERIENCE
- ○ AUTOMATIC RELEVANCE TUNING
- ○ QUERY SUGGESTIONS
- ○ CONTENT RECOMMENDATIONS

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3 Unified Product and Content Search
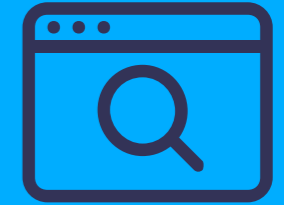
Search must provide unified results of products/services and supporting content. Why? Shoppers sometimes need information to make purchase decisions beyond a product description — think expert articles or educational blogs.

Supporting content is a must for B2B buyers as 60-70% are doing research on a manufacturer site before they purchase — so easy access to warranty documentation, spec sheets, or instructional videos are essential.

Ingesting data can be more than half of the development effort in a search project. **Solr** not only struggles with the ingestion of this data, but also with combining the results. Often, you end up with independent indexes and separate searches, simply displayed together (perhaps in tabs) to the user. This is often referred to as **Federated Search** — which in fact falls short of the mark.
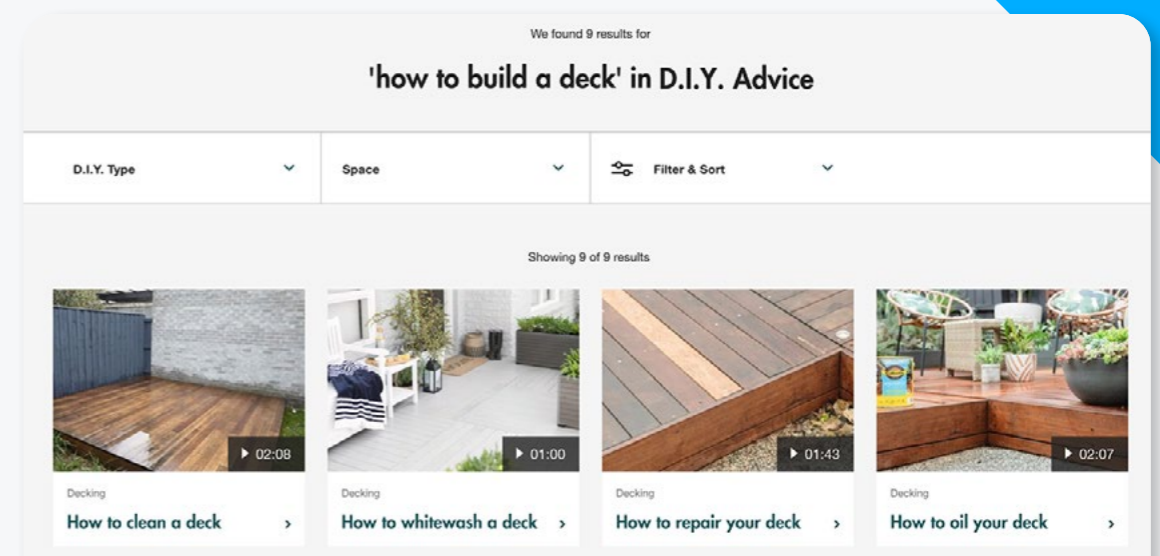

Bunnings Warehouse, a large household hardware chain, understands the importance of positioning their DIY advice with their product results to ensure shoppers can easily access educational materials prior to purchasing.

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It is nearly impossible to truly join on that data with Solr. There are rudimentary join capabilities, but not to the point that you can do really powerful capabilities. Such as showing the amount of content available for a single product, unless they have been cross indexed.

Solr can connect to some JDBC types and parse many different content types via the Tika library. However, Solr's Data Input Handler is complicated to configure and debug. Teams still have to write their own code to schedule and manage data ingestion and connect to most other sources.

Coveo simplifies this effort. It supports and maintains connectors to over 55 sources and can parse over 100 different content types with only point-and-click configuration. Coveo provides a REST API with easy-to-use transformation and pipeline tools for the rare situations when you need to connect to new types of content.

Importantly, this is supported by a **Unified Index**. A single search will return results from both structured and unstructured data sources. For example, a search for 'mountain bike upgrades' could return relevant products as well as manuals, or even related videos, in a single relevant results list.

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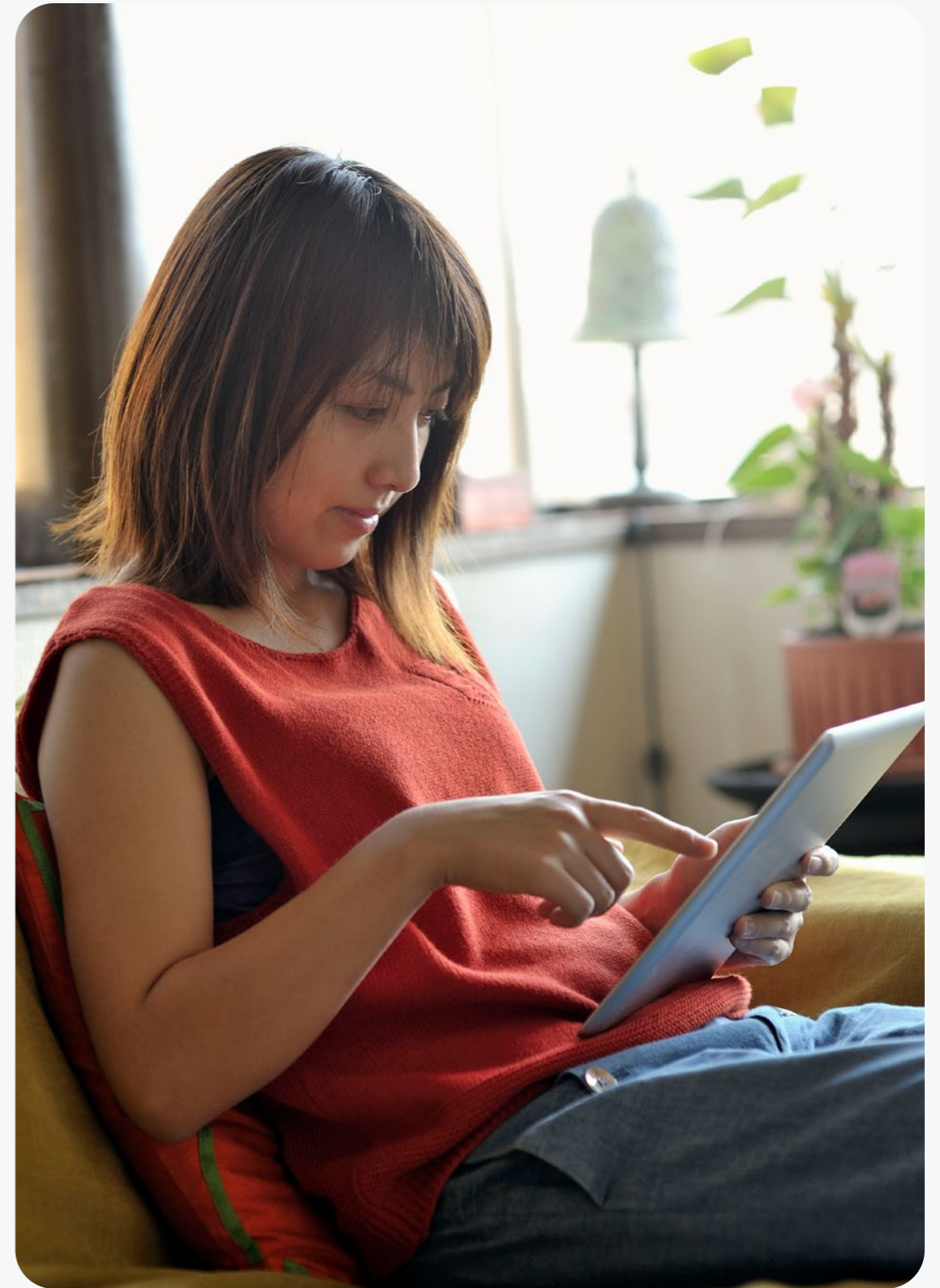
4 Easy Scalability

Modern online retailers must operate at scale: unifying multiple brands, service multiple touchpoints, multiple channels, multiple marketplaces, and multiple devices. Global retailers must do this in a complex geographic, technical, and geopolitical world.

Solr requires complex deployment. While it scales well, the difficulty of configuring it to scale and managing it after the fact is the stuff of legends. It requires a complex setup of multiple nodes on different servers combined with Zookeeper, and a separate application requiring its own set of nodes to manage it all. It's powerful, but highly complex to do correctly and maintain over time.

Coveo's multi-tenant model is built around the premise of instant update and self-serve value. It provides virtually unlimited demand scale for a single customer by planning for capacity at the group level to serve demand peaks. Coveo offers its cloud-based search platform in regions around the world (data residency) so that response time speed is not a factor that impacts customer experience.

The index supports over 57 languages and can accommodate millions of items and thousands of related attributes accommodating large and complex catalogs. Overall Coveo frees developers and operations teams from tedious server and instance management.

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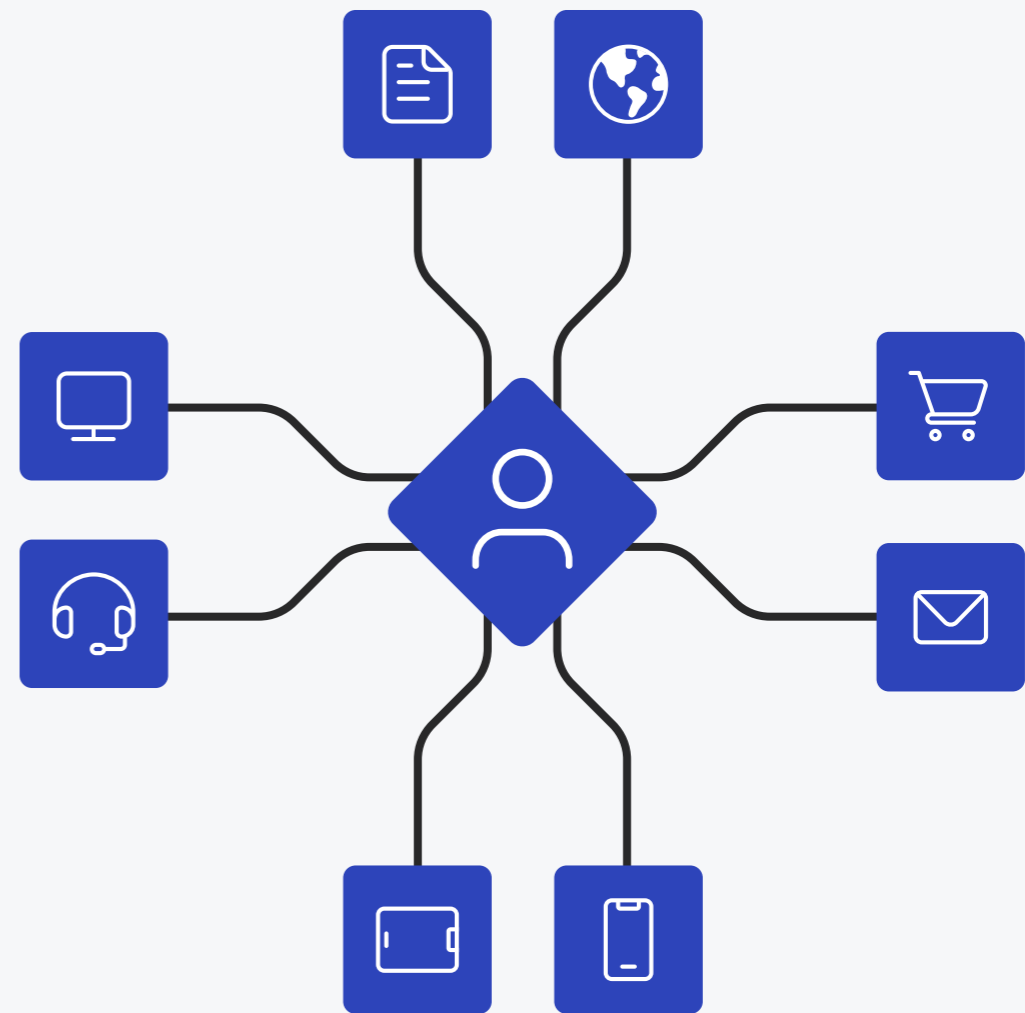
5 Personalized Results and Recommendations

Knowing what a customer wants means knowing what they have searched on, clicked on, added to cart, and when they did not find what they needed. Knowing this requires hooks in the UI to send this data to the search engine. It requires machine learning and AI tools to learn from all user behavior to make recommendations meaningful and automatically improve the search results.

Solr only offers the basic Learning To Rank algorithm. And, it also requires code to extract a training set, and wire it into what the user actually sees.

Coveo not only provides the algorithms but the prebuilt UI components, analytics event tracking, and libraries to make this all "just work." Digital teams can further tune and optimize where it makes sense, but Coveo provides personalization, relevance, and recommendations with low to no code required. There is also the option to leverage headless controllers for search and recommendations if you want full control of the UI.

Customers Also Viewed 13 Items

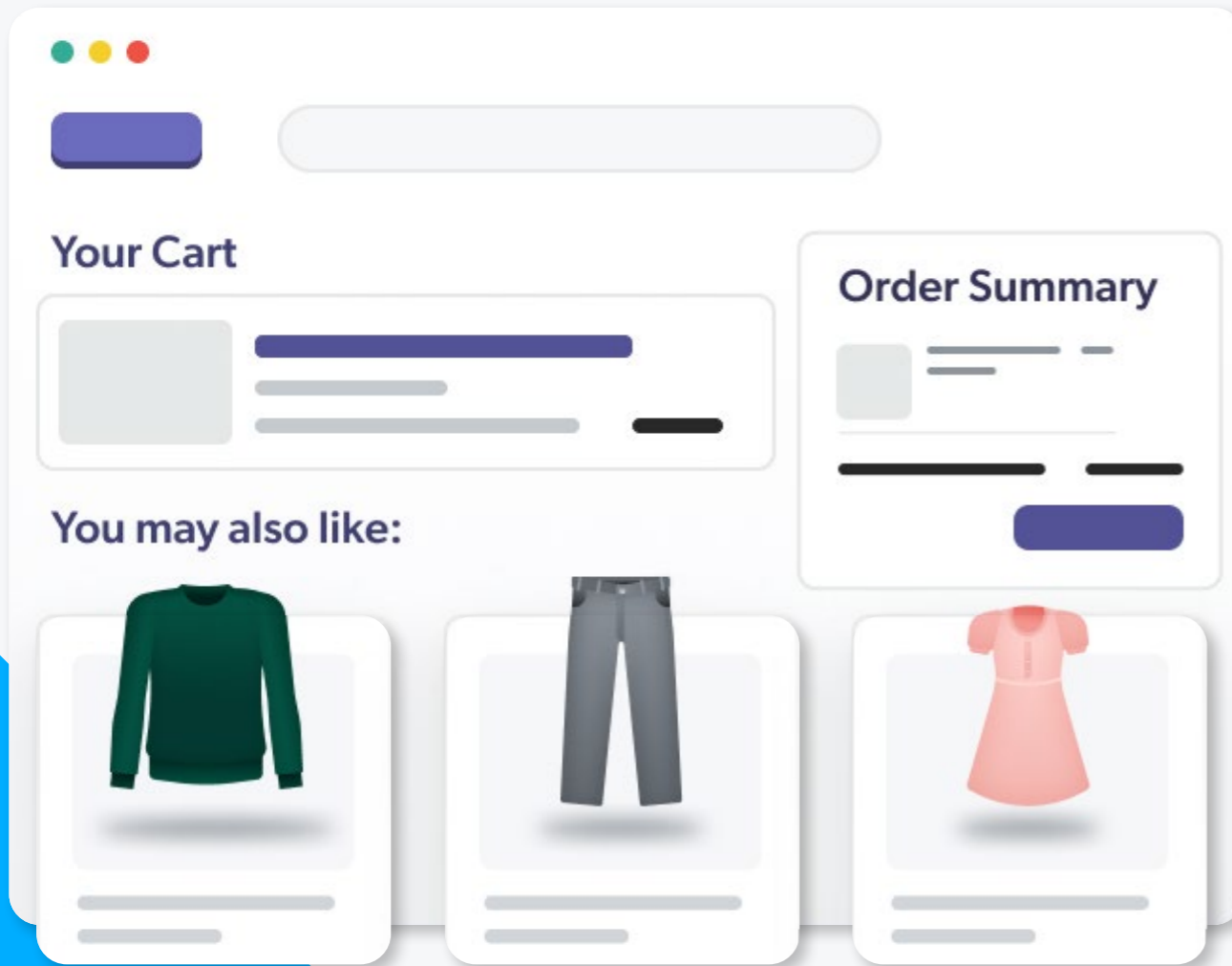| Haldex Air Compressor	Bendix Air Compressor	Bendix Air Compressor	Bendix Air Compressor	TRW Steering Gear
HALDEX | 5004188X	BENDIX | 5004187X	BENDIX | 5004613X	BENDIX | 5002983X	TRW | RGT65210R

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When it comes to recommendations, Coveo offers an extensive set of strategies all powered by machine learning models that are fueled by visitor interactions. So any combination of context-based (e.g. best sellers, trending), profile-based (e.g. buy-again, recently viewed), or product-based (e.g. frequently bought together, similar products) recommendations can be deployed across the site to inspire purchases.

Additionally, with a cookie-less future fast approaching (compounded by the fact that 70% of site traffic is new), providing any level of personalization may appear difficult if not impossible. Coveo has invested heavily in new AI innovation around **cold-start shoppers** so that personalization within the context of the current session is possible.

In reality, the ability to understand the user's current intent based on what they just searched on, or a category they just viewed, allows significantly more insight into their intent than a purchase they might have made three months ago. To accomplish this, Coveo's Machine Learning algorithms are based on product vector mappings combined with site behavior so that after a few clicks on a site, elements such as query suggestions, product result rankings and recommendations become personalized in real-time for the user — even for new or anonymous

6 Simplified Merchandising

There will always be the need to tailor the search experience to achieve desired business outcomes.

Merchandisers or business users should be empowered to quickly and easily feature products, pin products, or boost and bury products so that they can make adjustments for cases such as over stock liquidation, special brand promotions or any other factors that make sense for the business.

Solr natively has no merchandizing controls, but some commerce solutions like SAP have built on top to provide these capabilities to the merchandiser specifically around boost/bury, hero products, category-level facet controls, etc. The difference here is that they are 100% outside of the search engine and purely manipulate the search to add artificial weights to specific keywords (e.g. add 10 relevancy to products with stock level of "instock").

Coveo goes beyond this basic word boosting functionality with a dedicated Merchandising Hub. Using a flexible point-and-click interface that is easy to use and controls that are easy to set up, merchandisers can apply conditions for product listing pages, create audience groups or launch time-based campaigns.

They can plan and manage the activation and deactivation of rules, including URL redirects. They can easily configure and see results of A/B tests for new promotions with a sample audience before a full-on launch.

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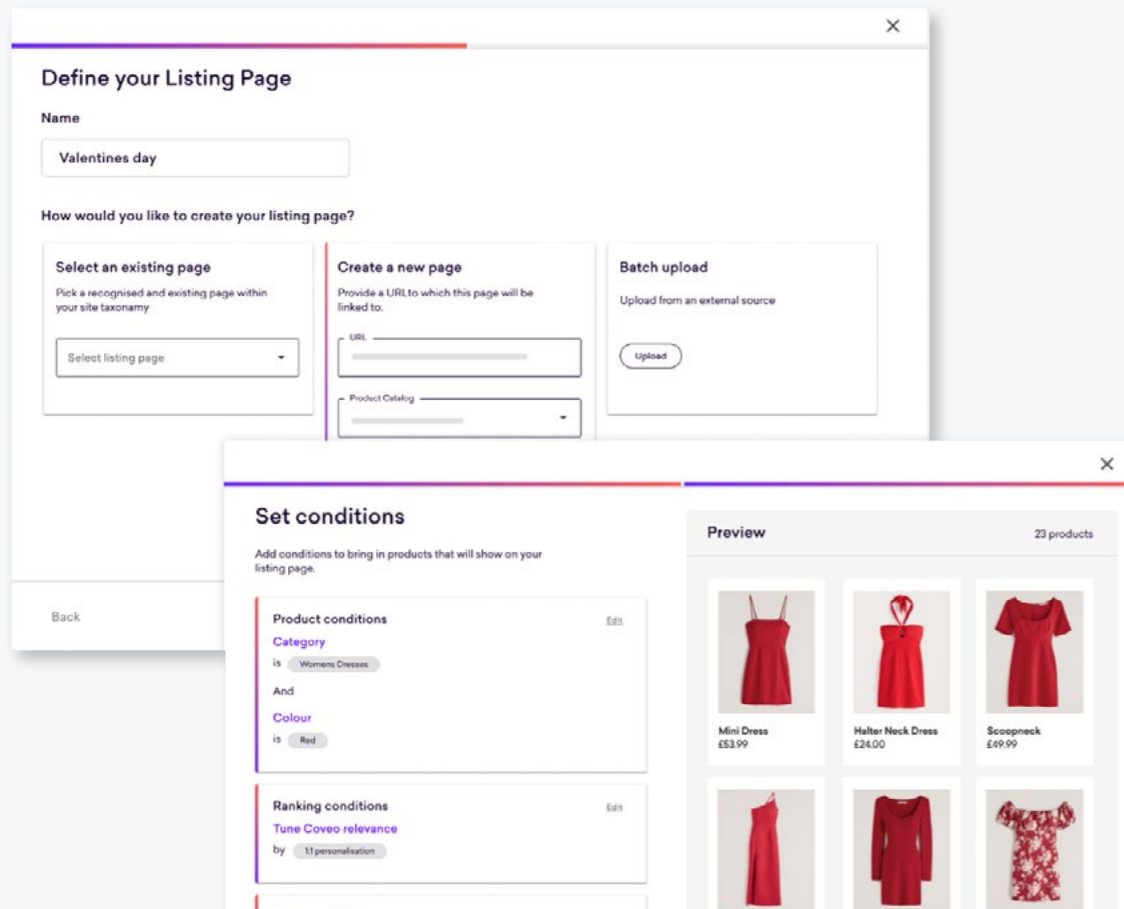
7 Entitlements and Pricing for B2B Buyers

A big challenge in B2B commerce is the need to support product restrictions and dynamic pricing. Dynamic pricing occurs in commerce catalogs with multiple dimensions, where availability will determine who has access to an item, and at what price. Products and variants can be present in multiple availability items (stores or buyer groups).

This of course also needs to extend to the search bar — who has the right to search and see related results according to their 'customer entitlement'.

Solr's ability to facilitate these capabilities is much more complex. It will often force custom development for solutions during indexing and searching.

Coveo has an indexing capability that automatically respects product restrictions or entitlements, price lists, and currency for each account group setup in CRM or ERP applications. This means customers search and see only the products, bundles, or kits and related pricing available to them.

This feature simplifies the management of complex catalogs without the need to program complex logic or create long response lags at query time.

Products with variants and availabilities

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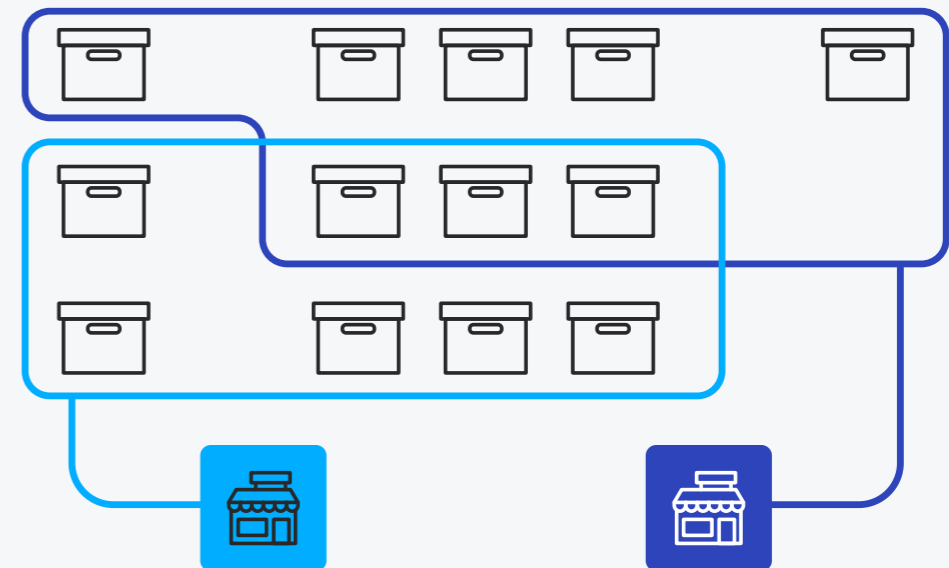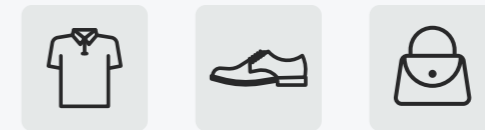
# 8 Analytics: Complete Visibility Into Customer Behavior

Modern retail is about customer intimacy in an environment of rapidly changing preferences. In a B2B context, understanding your customer is paramount to creating loyalty and satisfaction. Customer behavior tells all. If customers search for something but do not find it, then understanding those gaps as deficiencies in product descriptions or unmet demand is important.

Solr includes no user analytics and does not by default capture search telemetry data. Any attempt to capture this information will require a full custom coding effort.

Coveo stitches together anonymous and identified users to create a full picture analytics dashboard while complying with GDPR. It offers a full set of pre-configured dashboards in addition to tailored commerce attribution dashboards. This allows quick insight on top-performing products, revenue attribution from search and product listing pages, as well as the ability to identify top selling queries, categories and recommended products.

Merchandisers or product category managers can quickly identify which improvements will have the most impact. To top it off, Coveo has a team of customer success managers dedicated to helping you achieve success with the platform and maximizing your technology investment. Part of their mandate is to help align, configure and execute health reviews and provide recommendations based on your site analytics.
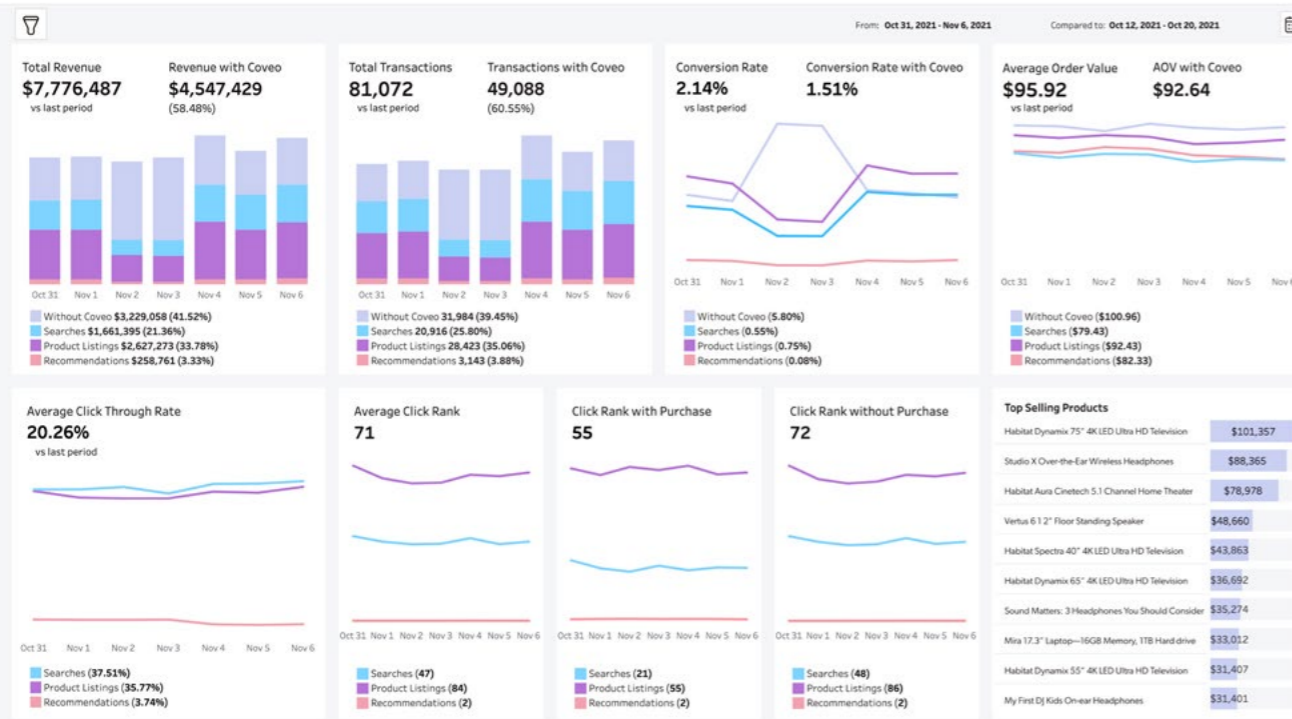
9 Fully Managed, Secure Software-as-a-Service

A hugely important foundation element of search success is security.

Solr requires laying out your own infrastructure, diligent planning, and careful configuration. It means picking instances or buying hardware, manipulating Kubernetes configuration, and sending XML snippets over a command-line interface. Installing, deploying, and configuring Solr requires expertise.

Solr has no certifications. CVEs are handled on a voluntary basis and users are responsible for picking up and applying the patches.

Coveo has enterprise-grade **security** for all aspects of its platform including data ownership, data encryption, access management and data residency.

Additionally, Coveo requires no deployment. It is a fully-managed cloud offering with a tailored commerce solution that you can **try right now**.

No software is flawless. Every software will have CVE reports. With Coveo, there is a team dedicated to handling them and responding by updating the infrastructure.

At Coveo, security by design means governance inspired by ISO 27001, maturity models based on CoBIT, security processes defined by the ISM3, and measures taken from the NIST special publications. Coveo completes the industry-standard AICPA SOC 2 Type II examination annually. Not only is our data center compliant, but so are our internal protocols.

10 Help When You Need It

Solr offers only volunteer community support. Whether it is planning your search project, help with the implementation or 24/7 support, you have a partner in the business. **Coveo** has done this before and is ready to help.

> The customer success team enables us to maximize the value of the technology.

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Learn more about Smith

Smith is a performance commerce agency that designs and develops digital solutions, enabling over 500,000 transactions around the globe each day. With over 20 years of commerce expertise and an industry-leading blend of creative, analytical, and technical skills, we create innovative solutions that enhance customer experience, accelerate digital sales and optimize operations. A relentless focus on outcomes guides us as we partner with clients to create commerce experiences that help them thrive in the global economy, driving over $38 billion in revenue each year.

Contact us →

![Coveo — The Relevance Company]

Learn more about Coveo

Coveo is a world leading cloud-based relevance platform. The Coveo Relevance Cloud™ uses applied AI to deliver relevant experiences in all digital interactions, from search to recommendations to personalization.

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