Internet Retailing

AI Search & Merchandising:

A joined up approach for ecommerce revenue generation

Foreword

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In the ever-evolving landscape of ecommerce, retailers are faced with an increasing set of challenges. Consumers have become savvier, their attention spans shorter, and their demands for a personalized shopping experience higher. Welcome to this Blue Paper by Internet Retailing, where we dig deep into how AI can be a transformative force in ecommerce, particularly in the domain of product discovery.

First, why Klevu? Simply put, Klevu has been at the forefront of AI-based product discovery since 2013, with a platform that extends far beyond a basic search bar. We provide personalized search capabilities, intelligent recommendations, and robust merchandising solutions, all underpinned by advanced machine learning algorithms. This has resulted in many of our clients achieving 8% site-wide and 16% search conversion rate – numbers that are directly comparable to ecommerce titans like Amazon.

The scope of Klevu's effectiveness is global, serving clients across North America, Europe, Nordic countries, and APAC. With a monthly churn rate of less than 1.5%, and 50% of our new business emerging from partners, we've earned the trust of the industry. Whether you're a B2B or a B2C operation, with a GMV ranging from $10 million to $2 billion, Klevu offers a

flexible solution tailored to your needs.

Now, let's talk about the layers that make Klevu a powerhouse. Our MACH-Certified platform is uniquely built to adapt to your technological ecosystem. Whether you're still working with a monolithic architecture or have advanced into a MACH structure, Klevu's suite of tools, allows for seamless integration and scalability.

Our AI-powered site search is no less than a mind reader. Through the use of machine learning and natural language processing, Klevu can discern the consumer's intent, thereby enhancing the quality of search results. We provide actionable insights into your customers' search behavior, allowing you to continuously refine your product offerings and improve the user experience.

And let's not forget the super-speed agility that comes with Klevu's AI-driven category merchandising tools. Creating category pages that satisfy both customers and search engines is now a hassle-free task. You can fine-tune your category listings, applying strategic rules and enjoying the flexibility to pin, reorder, or exclude facets – all through an intuitive, user-friendly interface.

But what about making shoppers fall in love with your products? Our AI product recommendations take personalization to a new level, understanding deep patterns in customer behavior and using this intelligence to recommend products they're highly likely to purchase. The result? A shopping experience that feels intuitive, engaging, and remarkably human.

▲ KLEVU

Be AI-Empowered with Klevu Search & Discovery Platform

Join thousands of other ecommerce teams using Klevu technology to improve conversion and automate workflows. Personalized search, merchandising, and product recommendations that just work.

Gartner
Recognized

★★★★☆ **4.5 stars**
on G2 and Capterra

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2023
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KLEVU.COM

AI in retail search and merchandising

Artificial intelligence is enhancing the retail experience online for customers while automating processes for marketers and complementing commerce goals. Some previously computerized tasks have been turbocharged and new capabilities have emerged. AI is not a solution in itself but what it does do is enhance the abilities of skilled teams. After all, effective selling is an iterative process, blending data with product knowledge, listening and consumer behavior with business rules and opportunity.

In this blue paper, we consider a selling platform that brings the hitherto disparate capabilities of ecommerce search, visual merchandising, product recommendations and personalization into an integrated, effective service that delivers for the customer and the retailer.

The extension of the solution to conversations, integrating the AI's learning from search and merchandising with a generative AI to enable a human-like conversation combined with retail, product and customer-specific knowledge, is pushing the boundary of ecommerce. It is also de-risking retailers' uptake of bleeding-edge AI.

KEY SIGNS OF PRODUCT DISCOVERY PROBLEMS THAT AI WILL ALLEVIATE:

- Customers are struggling to find products, given no results or seeing out of stock items.
- Merchandising teams are struggling to keep up with merchandising demands.
- Revenue growth is required and a quick way is needed to maximize traffic already coming to your ecommerce site.

AI in retail search and merchandising

ECOMMERCE SEARCH

AI helps with understanding a customer's query to return more relevant results to help shoppers find what they want. It can overcome the problem of the customer being shown a 'product not found' page, while also advising on possible search terms to use. Out-of-stock products can still be shown to customers unless search is connected to a product catalogue in real time.

VISUAL MERCHANDISING

Customers want to be inspired and shop, while merchandisers with multiple levers at their disposal are struggling to keep up with merchandising demands. AI is helping create campaigns utilizing promotions, offers and customer profiles to overcome shortcomings of a purely rules-based approach. The latter using a typical architecture of APIs and batch processing to glue merchandising data points together to be fed onto a website can result in processing overhead and time lag, as well as multiple vendor relationships clouding attribution and requiring management.

PRODUCT RECOMMENDATIONS

Trending and highly rated products can be shown alongside personalized recommendations and products related to what's being viewed, a scenario Amazon taught customers to expect. What appears to the customer as a hand-picked selection also enables retailers to deepen the connection with customers. Rules-based solutions are mixed with AI strategies, such as onsite recommendations and personalization through segments, to show shoppers exactly what they want to see, at that time, based on clickstream and/or their profile.

PRODUCT CONVERSATIONS

Conversational assistants provide customer service and support via text or voice, or both, on websites, mobile apps and social platforms. They are capable of freeing up human assistants to handle other tasks or step in to a conversation between conversational assistant and customer at a late stage if required. They are also helping customers with checkout.

The opportunity

"A computer would deserve to be called intelligent if it could deceive a human into believing that it was human." So said Alan Turing in relation to his imitation game, known as the Turing Test, whereby a person could interact with another human and with a computer and not be able to distinguish which was which.

In retail, and ecommerce in particular, shoppers have become accustomed to 'chatting' with a computer. Enter a query into the search bar on an ecommerce site and see what is returned, in terms of text, images or spoken response.

Googling has become second nature to such an extent that it is in the dictionary as a verb. While it would make for an interesting Heath Robinson cartoon, the thought that a room full of people were responding to search queries rather than a computer would be very strange indeed. In fact, in most cases, conversations within search and ecommerce are a simple ask a question, receive a response interaction. There is no conversation.

In the early days of Google, people had to search in a logical manner, 'AND' and 'NOT' entered the everyday typing vocabulary. Today, Google suggests a question as you type and is able to analyze and identify an object in an image to provide a relevant response.

There are many years of learning and development work for artificial intelligence to get to where it is today, and a computer's ability to hold a conversation with a shopper is dependent on a number of areas of artificial intelligence computing. These include machine learning and natural language processing.

Artificial intelligence has been a dream since the first programmable computers but limited computer power meant memory and processing

were restricted until the development of cloud computing. As the adage goes, you can get by in any language with the right 100 words but a fluid conversation needs a greater understanding, and in the case of machines, they need information to learn from. The internet has made vast quantities of data available and this has played a big role in the development of applications such as the generative AI language model ChatGPT.

As AI has developed, so too have retail search and merchandising capabilities: Conversion soars at five words, yet often it takes consumers three attempts to get there. Many abandon their journey when the search doesn't work. Amazon's relevant personalized product recommendations led to consumers expecting other retailers to follow suit. Today, more retailers are promoting search.

AI is enabling retailers to offer a customer experience more akin to the talking about what they want to buy with an assistant in a bricks-and-mortar store. It is not a one-way conversation but a Q&A interaction requiring an understanding of the context, the products available and knowledge about the customer that builds over time.

Online, products, business rules and customer journey are not static. They are a moment in time but are based on historical factors and current intent. The product catalogue changes, merchandising rules are updated and factors around the customer change continuously with additional knowledge of the customer gained by the retail business, the customer journey and indeed the person's shopping requirements on that day.

Therefore, for retailers, the search and find

process of effective selling is an iterative process. The analytical capabilities of AI can enhance the abilities of human merchandisers, complement commerce goals and the customer interaction, but for retail merchandising purposes artificial intelligence cannot manage this alone.

So, the question of whether a computer is capable of holding a nuanced conversation at the same level as a human sales assistant is perhaps more pertinent for retailers than Alan Turing's query about intelligence. Shoppers have shown that they are happy to interact with computers so maybe the combination of customer experience and an AI's ability to generate revenue in line with business rules, while also saving time and increasing efficiency for ecommerce teams, is a better way to measure computing intelligence – and one that will continue to improve over time.

Glossary

Artificial Intelligence (AI):	An interdisciplinary field of computer science and engineering that aims to create intelligent machines that can learn, reason, and perceive their environment like humans. AI systems use a range of techniques, including machine learning, deep learning, natural language processing, computer vision and robotics to analyze data, make predictions and automate tasks.
Conversational assistant:	An AI-based conversational agent that uses natural language processing and machine learning algorithms to simulate human-like conversations with users. Chatbots are designed to provide customer service, answer questions and perform simple tasks.
Generative AI:	Unlike other types of AI, such as predictive or classification models, a generative AI, such as ChatGPT or Google Bard, is capable of generating new, original content or data, such as images, text, or music, that did not exist before. They work by using deep learning algorithms trained on large datasets of examples. The AI model learns to recognize patterns and relationships in the data and then generates new content that is similar to the examples it has seen, but with some degree of novelty and creativity. For example, a generative AI model that has been trained on billions of web pages, such as the Common Crawl dataset, will learn the patterns and structures of language on the internet, including grammatical structures, word usage, and semantics. Once the model has been trained, it can be used for a variety of applications, such as generating unique content for social media and other marketing channels or conversing with customers as is the case with MOI.
MACH:	MACH is an acronym that stands for Microservices-based, API-first, Cloud-native, Headless. It is a modern approach to building ecommerce systems that emphasizes modularity, flexibility and scalability. Microservices are small, independently deployable services that each handle a specific task. API-first means that all interactions between the components of the ecommerce system are carried out through APIs – application programming interfaces – enabling different services to be developed and deployed independently. Cloud-native refers to the practice of designing and deploying applications specifically for cloud computing environments, enabling greater scalability and resilience. Finally, Headless means that the front-end presentation layer is decoupled from the back-end ecommerce system, giving greater flexibility in design and development of the customer-facing interface.
Machine Learning:	A subfield of AI that focuses on the development of algorithms and models that enable computers to automatically learn and improve from experience without being explicitly programmed. Machine learning algorithms are trained on large datasets, which they use to learn patterns and relationships, and then apply this knowledge to make predictions or take actions on new data.

Multimodal Search:	Multimodal search involves searching and retrieving information from multiple types of data, such as text, images, videos or audio. The process of multimodal search aims to bridge the gap between the different data types and provide more comprehensive and accurate search results. This can be achieved by using advanced techniques that can understand and combine information from different modalities to generate relevant results.
Natural Language Processing (NLP):	A branch of AI that focuses on the interaction between computers and humans using natural language, including speech and text. NLP algorithms use techniques such as semantic analysis, part-of-speech tagging, and sentiment analysis to understand and interpret natural language. In ecommerce, NLP is used to power services including chatbots, customer service tools and search engines.
Neural Search:	Neural search refers to the application of neural network models in information retrieval and search tasks. It involves utilizing advanced deep learning techniques to improve the accuracy and relevance of search results. Traditional search engines often rely on keyword-based algorithms, whereas neural search employs neural networks to understand and interpret the context, semantics, and relationships within the search query and the indexed data. By doing so, neural search can provide more contextually relevant results and enhance the overall search experience for users.
Sentiment Analysis:	An area of NLP that involves the use of machine learning algorithms to extract subjective information from text, including opinions, attitudes, and emotions. Sentiment analysis can be used to understand customers in reviews and social media posts as well as to improve product recommendations, personalize marketing campaigns and optimize customer service.
Vector Search:	Vector search, also known as similarity search or approximate nearest neighbor search, is a technique used to retrieve data items, such as documents, images or embeddings that are most similar to a given query. In vector search, data items are represented as vectors in a high-dimensional space, where each dimension corresponds to a specific feature or attribute of the item. The goal is to efficiently find items with vectors that are close to the vector representation of the query.

AI Functionality

INTENT UNCOVERED, PRODUCTS DISCOVERED

Major players within the retail solutions industry cover the basics of search and merchandising, often within platforms developed specifically for individual functions. A general AI, no matter how clever, is not a match for a specific, trained AI working within a search and merchandising ecosystem, so as well as identifying retail-specific requirements, there are a number of key functionalities highlighted by best-in-class solutions.

- An ecommerce-specific solution: Built from the ground up with an AI that has been trained on shopping behavior within different ecommerce verticals and in multiple languages.

- A single solution: All feeds, such as promotion, offers, stock correlations, click-trail and customer profile lead into a single platform.

- Catalogue enrichment: Product data is enriched with synonyms by the same AI engine optimizing the experience and conversion.

- Data: The ability to understand structured and non-structured inputs.

- NLP: A focus on natural language, particularly NLP semantic queries allowing the AI to infer meaning with pattern matching and digital reasoning in order to understand the different attributes in the query, and return a precise match.

- Business rules: Ability to accept business rules, setup in an easy process, or work independently to learn.

- Continual training: An AI is more than an out-of-the-box solution. Ongoing learning within the context of a retailer's ecommerce site and customer search interactions enhances the relevancy of future interactions.

- Built for the future: Future proofed for voice, image, vision capabilities and developments in generative AI conversational commerce capabilities such as conversational search, neural search, vector search and multimodal search.

The Klevu AI: Architecture for success

The AI trained by Klevu as utilized by its Search & Product Discovery Platform is specifically designed for ecommerce so offers a shopper-centric solution.

Connectors: Klevu has pre-built connectors for Magento, BigCommerce, Commercetools, Salesforce Commerce Cloud and Shopify.

Other platforms: It also integrates with other ecommerce platforms.

Headless integration: Klevu's SDK library and APIs allow developers to bring Klevu AI into any JavaScript ecosystem including.

Martech integrations:

MACHINE LEARNING

Consistently learn from shopper behavior based on queries, clicks and purchases to optimize search results.

PERSONALIZATION ENGINE

Allows merchants to provide personalized experiences to new or returning shoppers by clickstream and with segmentation (with integration with third party CDP).

ADVANCED MERCHANDISING

Drag and drop products and create rules to merchandise product listing pages based on individual business practices.

ANALYTICS

Study top-notch data to view complete visibility of the customer path from search to purchase.

NLP

Give shoppers the ability to find products quickly based on the context and relevance of their search query. Klevu AI uses things like Auto Synonyms, Compounding / Decompounding, Color Normalization, Umlaut Character Support, Measurement Normalization, Stop Words and more, depending on the catalogue and industry.

MACH ARCHITECTURE

MACH-Certified and full MACH ethos, full API coverage, SDKs and suite of developer tools. Scalable, fast and secure cloud-native infrastructure.

Klevu AI

PRODUCT FEED

Red Sneakers
$22.50

SHOPPER SEARCHES

shoes red colour under 40 dollars

red shoes size 8

red sneaker under $40

red shoes 40 dollars

shoes red

NLP ENRICHMENT PIPELINE

INDEXING

QUERY PROCESSING

USER BEHAVIOUR ANALYTICS

COLLOBATIVE FILTERING AND PERSONALIZATION

MACHINE LEARNING

BUSINESS RULES

CONTENT DISPLAYED ON ECOMMERCE STORE

$22.50 $34.99 $39.45

SHOPPER CLICKS, PURCHASES, AND REVIEW BEHAVIOR

Klevu: Optimizing search and product discovery

Klevu's Search & Product Discovery Platform provides one simple-to-use selling solution that brings the disparate capabilities of search, merchandising and recommendations into an integrated, effective service that delivers for the customer and the retailer.

Machine learning, based on 10 years of use in the retail industry, enhances the role of the merchandiser, while continuing to learn within the retailer's specific ecommerce environment.

Once the retailer's product catalogue has been integrated and synced with Klevu, the AI will enrich it, setting up keywords and semantics automatically. These include plurals, accented characters, synonyms and compound words, as well as normalizing product terms for analytics and measurement purposes.

Nothing in ecommerce is static, which is where AI capabilities provide the differentiation. The Klevu AI will continue to learn from the insights gained through customer searches to optimize category merchandising, product recommendations and personalization – and increase the relevance of Klevu's MOI conversational assistant.

Site search is the first step in the Klevu implementation and the core AI engine from which the other capabilities can be added.

KLEVU: AI SEARCH & MERCHANDISING

Klevu at the forefront of discovery evolution

1st generation	Keywords/static
2nd generation	Index/structured
3rd generation	Machine learning & Natural Language Processing
4th generation	Voice, vision, touch
5th generation	Opinionated discovery

EXAMPLE USE CASES

120+ known use cases and growing, including:

- Personalization
- Merchandising
- A/B testing
- B2B
- Learning
- Guided selling
- API as a Service

Klevu Search & Product Discovery Platform
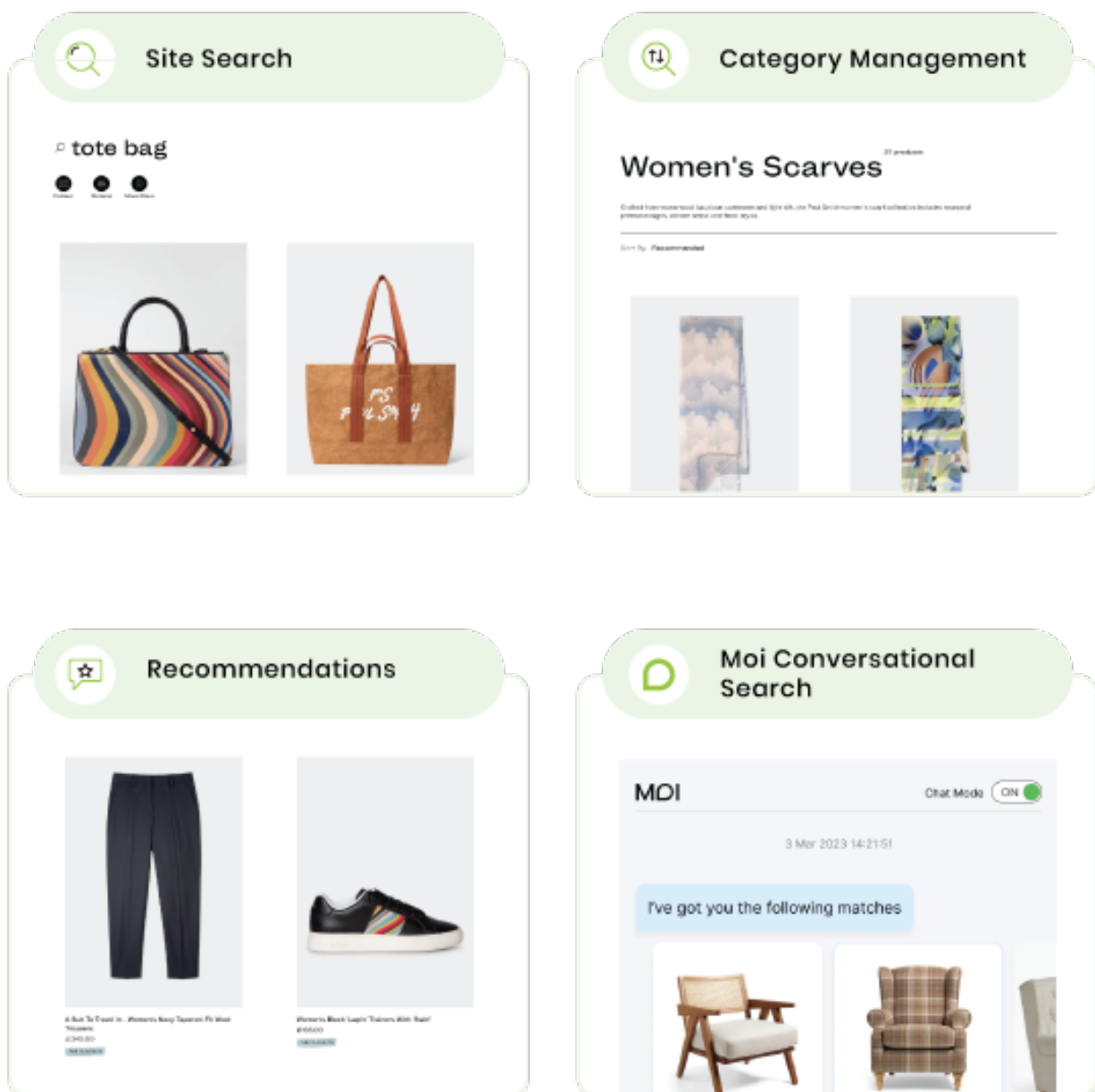
Site Search

ROBUST

Klevu AI automatically corrects the majority of misspellings, typos and grammatical errors made by shoppers, ensuring the search is robust and the merchandising team's time isn't spent adding these as synonyms manually.

RELEVANT/CONVERSATIONAL SEARCH

A more natural interaction allows shoppers to search in a conversational way using phrases such as "in size x", "with feature x", "under £x" or "for gender x", or all of them in a search such as "beige shoes size 5 under £75".

black party dress under $100

black: **colour filter**
party: **keyword/category search**
dress: **noun (the customer intent)**
under $100: **price filter**

Search Results   View All

The Amalfi Maxi Dress
$62.00

Places to Be Ruffle Dress
$46.00

Naomi Embroidered Dress
$64.00

Just Love Dress
$24.99

INTUITIVE

Relevant, content-rich search results, such as popular searches, trending items and recently viewed recommendations at category and product level are delivered as soon as the shopper clicks in the search box. A configurable search overlay can contain attributes including images, product details and price. Predictive search-as-you-type technology suggests search phrases as the shopper continues to type, returning results at category and product level as best fits the query.

The images show the Seasalt search overlay for new visitors and returning customers, showing trending products and popular searches, and providing links to other popular pages like delivery information and customer services.

Returning customers are shown recently-viewed products for easy navigation back to products the user has viewed.
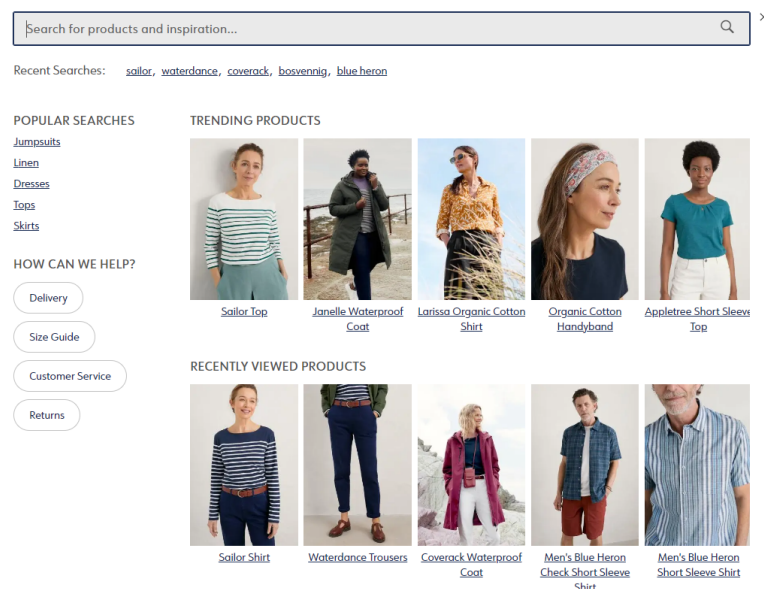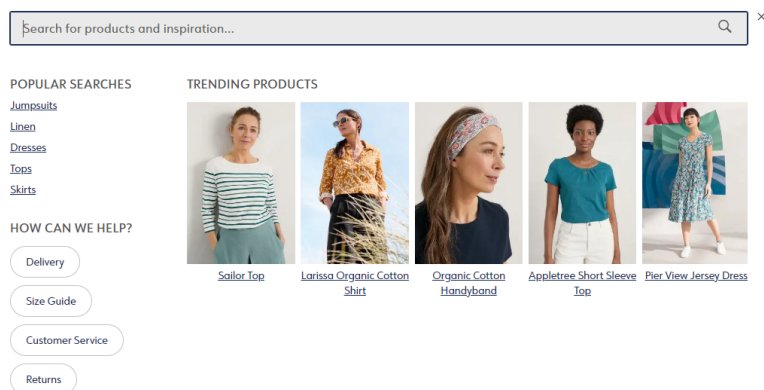
Individual patterns and behavior of customers, combined with rules set by the business and AI, deliver 37% more revenue per session for retailers.

FILTERS

Shoppers can refine search results and category pages with dynamic filtering/facets and SEO-friendly layouts. Website usability is improved by providing a consistent experience on search and category pages and across mobile and desktop.

BANNERS WITHIN SEARCH

Generic or keyword-specific promotions can be included within search-as-you-type queries and on the search results page.
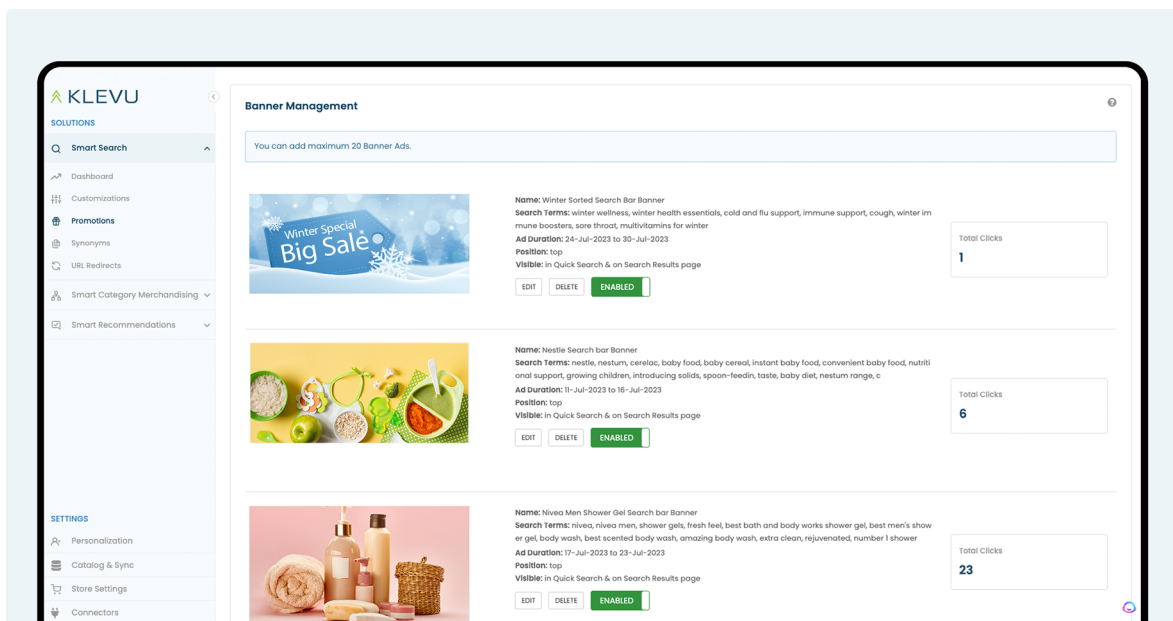
Navigation & Product Recommendations

Once Klevu Site Search has been implemented retailers can benefit from the addition of Category Management and Product Recommendations engines and/or incorporate MOI, the conversational assistant that further enhances the customer search experience.

AI-led merchandising resulted in Seasalt increasing average order value by 22%

CATEGORY MANAGEMENT

The AI merchandising engine automates category pages using recent product clicks, conversions, review and stock status as well as incorporating rules set by the merchandising team. It saves merchandisers time, while helping the business to capitalize on trends and seasonality to deliver a customer-centric experience.

The business remains in control with simple-to-use boosting tools to alter the ranking order of products in line with business objectives. Campaigns can be scheduled ahead of time ensuring the right products are promoted at the right time to synchronize with other marketing activity. A/B tests can be run to test merchandising strategies against KPIs such as conversion and click-through rate.

The images on the following page show the merchandiser's dashboard and the corresponding customer view.

- ✔ **AI automatically populates category page**
- ✔ **Rules-based merchandising keeps the business in control**
- ✔ **Schedule campaigns**
- ✔ **Run A/B tests**

THE MERCHANDISER'S VIEW

This shows the product grid with pinned products at the top of the merchandiser's dashboard. On the left, the default boosting rules applied to the category can be seen with the latest drop being boosted and older products deboosted. Rules can be easily switched off by moving the toggle.

THE CUSTOMER'S VIEW

The products pinned at the top of the page by the merchandiser are reflected in the same order on the live site. Products which are not pinned, but are being boosted because they belong to the latest drop, are ranked by the Klevu algorithm, which also takes product views and product purchases into account.

PRODUCT RECOMMENDATIONS

Klevu's AI helps merchandisers cross- and up-sell to drive higher revenue and reduce customer clicks-to-purchase. It also saves time, while enabling them to capitalize on trends and seasonality by using machine learning to automate product recommendations across the site.

The AI engine is continually learning so the more a customer interacts with the ecommerce site, the better the recommendations served and the higher converting the product recommendations.

The AI analyses views, search, clicks and checkouts so can inspire shoppers with products that are powered by the individual shopper intent – whether they are items viewed previously by the shopper, chosen because they are similar to those, or based on their order history. New products, trending and highly-rated items can be included too.

These recommendations can be displayed in multiple locations at key stages of the customer journey, including home, product pages, basket and checkout.

- AI automatically recommends hyper-relevant and high-converting products
- Self-learning with each click, search, query and purchase
- Reduces clicks-to-purchase
- Helps customers find their perfect product
- Increases average order value
- AI-led recommendations led to Dartington Crystal increasing revenue by 8%

OUR MOST LOVED PRODUCTS FOR YOU...

Coronation Flute Champagne, Set of 2 **£30.00**	Tony Laithwaites Signature Series Stemless Tumbler, Set of 4 **£18.00**	Coronation Tumbler, Set of 2 **£25.00**	Select Red Wine Glass, Set of 6 **£26.00**	Cheers! Red Wine Glass, Set of 4 **£24.00**	Six Champagne Flute, Set of 6 **£30.00**
VIEW NOW	VIEW NOW	VIEW NOW	VIEW NOW	VIEW NOW	VIEW NOW

MOI: Turning on-site search into a conversation

AI continues to challenge what is possible within ecommerce. MOI, which means 'hi' in Finnish, is the working name for Klevu's AI-powered conversational assistant that launched in 2023.

MOI enables shoppers to switch between searching for products in the traditional way via a search box on a mobile commerce site and chatting with the Klevu AI to find the right product for their needs.

Linking at launch with OpenAI's generative AI ChatGPT, MOI combines the product knowledge and recommendations capabilities of Klevu AI with the wider generalized understanding of ChatGPT.

GUIDED SEARCH

To use MOI, the shopper taps a toggle link below the search box to switch between traditional site search and chat mode.

This gives them a new screen with text blocks to tap to start the conversation, in the same way that someone would go into a department store, choose the floor, product area, and shelf and then pick out an actual product.

At each selection, products are shown in a block containing product image, name, short description and price. The customer can choose to tap for a quick view of an item, tap to go through to the product page or refine the search further.

The block suggestions change depending on the category being searched.
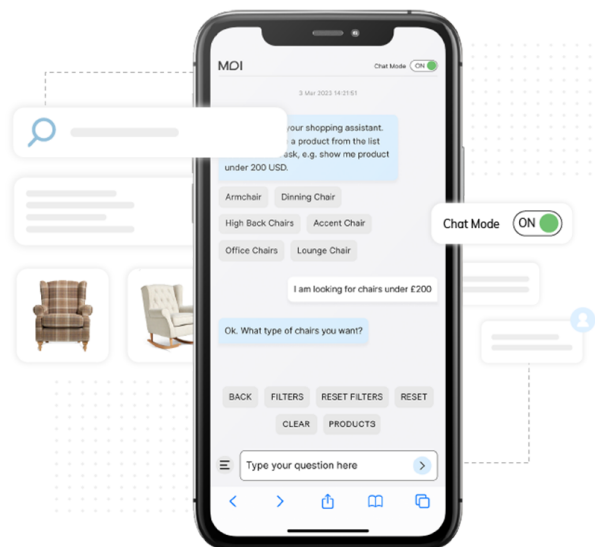
OPEN SEARCH

Alternatively, open search allows the shopper to type – or speak – their query using every day, natural language such as "I'm looking for a summer dress for an 8 year old". This requires MOI to identify and understand the different parts of search, translating them into results around children's clothes, dresses and summer.

Some terms will be in the retailer's product catalogue but because natural language processing allows shoppers to use every-day language rather than retail content management attributes, the generative AI provides further context.

MOI can then use these in the search around 'summer' such as 'material: cotton' or 'sleeve length: short', 'color: white'. It therefore works better with product catalogs that are stored in a granular fashion.

Again, search results in the form of an image, description and price block are shown and MOI suggests a question for the shopper to ask in order to move the search results closer to a final product to purchase. The shopper can also ask to see 'more like this,' which links back to the recommendations part of Klevu Search.
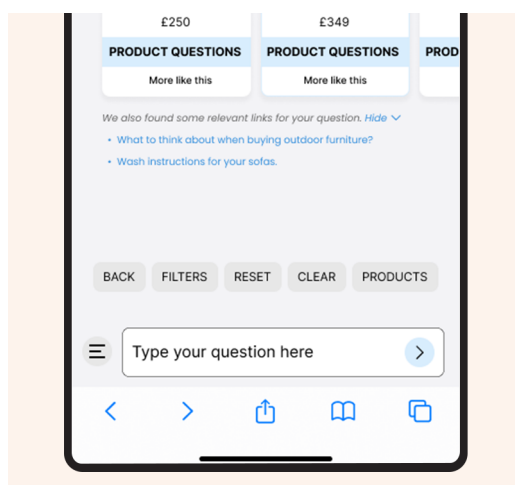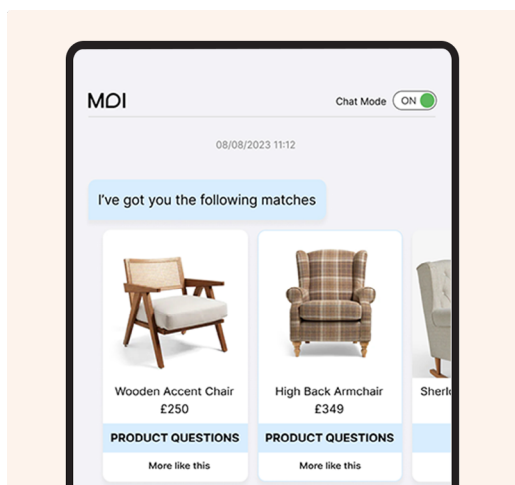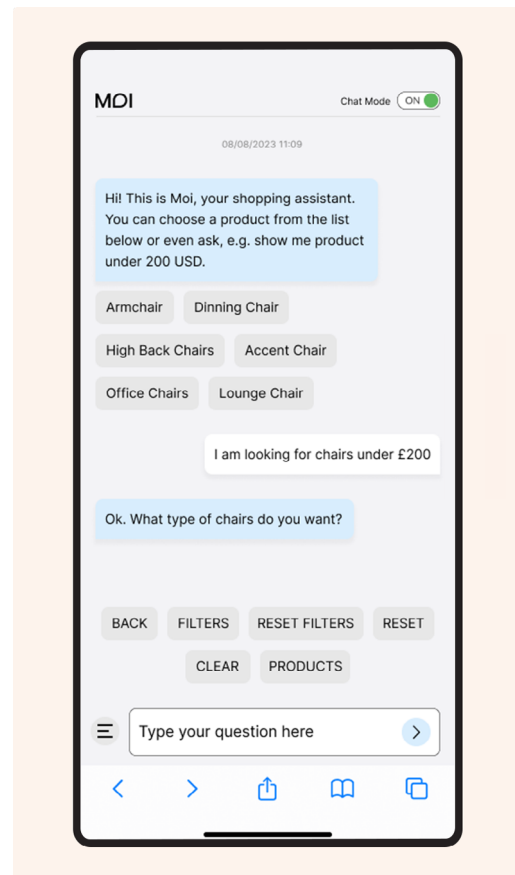
SMART

Search results are relevant and meaningful and everything that is returned by MOI is done within the context of merchandising rules set by the retailer and the learnings of the Klevu AI in the Product Discovery Platform.

This is because MOI combines the knowledge and constraints of the Klevu AI with the freedom of OpenAI's ChatGPT, enabling MOI to call on ChatGPT – or other similar libraries in the future – to augment specific customer queries.

MOI also gives each product shown a unique number that can be used in the search, rather than the shopper having to enter the full product name to ask further questions about it.

MOI also suggests a further question that the customer could ask, for example 'compare p0 and p1'. General questions such as these are handled by ChatGPT, which utilizes the substantive information such as product attributes and description from Klevu together with general concepts to understand the context. If the customer wants products comparing, the response is based on the product catalogue but is written by ChatGPT.

MOI is also capable of directing customers to answers for service questions about delivery and payment but that's not its main aim; that is to enable search without a search box.
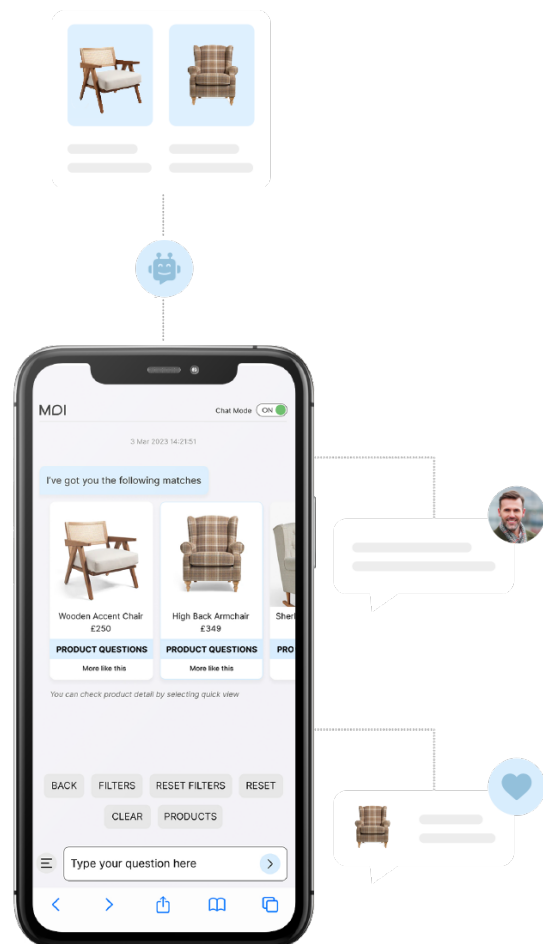
RESPECT

MOI respects the rules set by the retail business as well as the learnings of the Klevu AI.

MEASURE

MOI offers two ways to measure its performance: the number of conversations that result in a click through to a product page and the number of conversations that result in a purchase.

FALLBACK

MOI ring-fences ChatGPT since the OpenAI system is happy to talk and, at the time of launch, hadn't fully learned to say 'no' to a request for information. Its responses have to be constrained within the context of retailing and within the confines of a retailer's product catalogue and business rules.

At any time, the shopper can return to the standard search box.
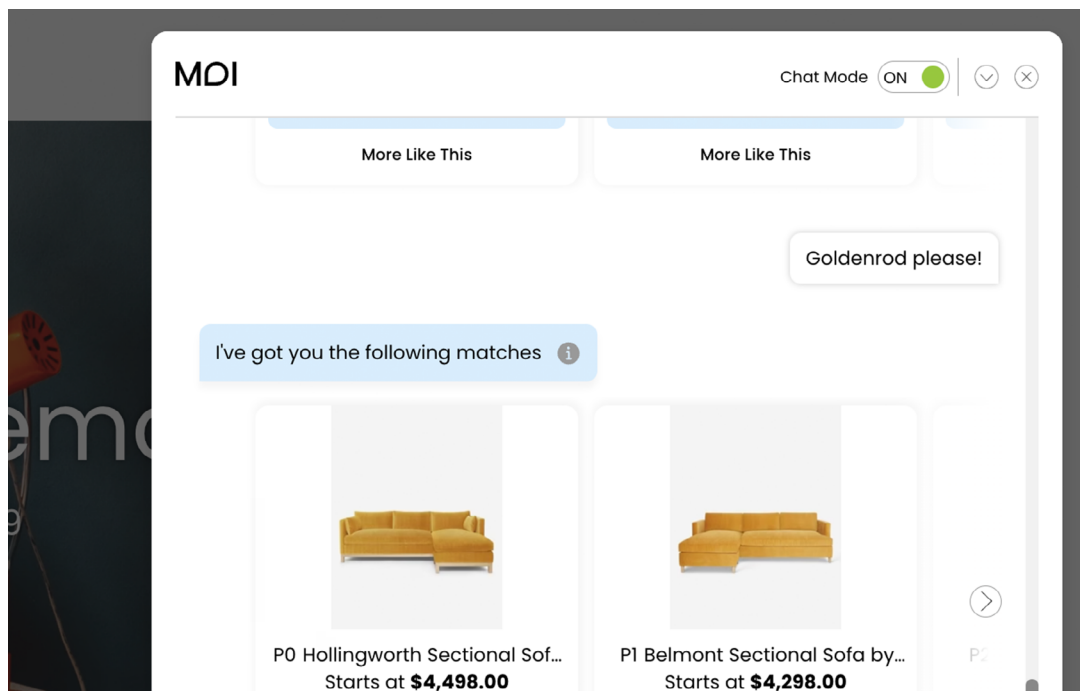
Paul Smith

Hannah Bennett

Head of Digital, Paul Smith

Paul Smith, a luxury fashion brand with iconic shops across the globe, needed the digital commerce experience to truly represent the brand. Many people don't realize that Paul Smith is a real person, he still comes to work everyday at the London Head Office – and his office has to be seen to be believed. The Paul Smith brand isn't just fashion. It's art. It's lively. It's fun.

But that's not what the digital experience delivered.

The business case
"As a fashion brand with fantastic shops, each very unique and well designed, I was frustrated at our fixed/limited monolith front end – the website you visited didn't represent our infamous Pink Wall shop in LA, or our flagship in Ginza or Paul's local Albemarle in Mayfair. I wanted the website to be a Digital Flagship that was fast, designed for us and our product and customers, so we could always be best in practice, not hindered by technology," explains Hannah Bennett, Head of Digital, Paul Smith

The digital team set out to create a Digital Flagship that sold products, yes. But also delivered joy, discovery, and creativity to all who used it. To build something that suited the needs of the business exactly, and could grow and change with it too. To do this, they knew they needed a composable ecommerce architecture.

The decision and integration
There is a common misconception about MACH architecture, that it's all or nothing. But that's not true. "Ecommerce brands that are thinking about this kind of architecture are further into the journey than they may think," according to Bennett.

She decided that the best way to 'go composable' was to start from the frontend services and work the way down to the finer areas of the backend. She did this starting with search, installing Klevu on the existing monolithic frontend, before the larger replatforming project even started. This allowed Paul Smith to lean on Klevu AI to maximize conversion and revenue during the transformation.

Paul Smith replaced Attraqt with Klevu. Then, spent time architecting the best user experience for the new frontend and replatforming with their agency, Limesharp.

Paul Smith then added Storyblok for CMS and Cloudinary for DAM. And replaced Nosto with Klevu for Category Merchandising and Recommendations. What's next? MSI and stock orchestration and headless checkout.

When Paul Smith decided to rebuild the ecommerce platform, they knew they had to find the right partner. The brand has an in-house development team, but brought on an agency to fill the headless frontend and backend knowledge gaps the team had. "Limesharp was the perfect choice – they had experience with

Headless (VueJS), GraphQL, and Magento sites and other ecommerce platforms, and were also a great design agency. We're in a kind of sweet spot now where we lean on them, mainly for the frontend resource, but they can support other areas too," says Bennett.

Ed Bull, Owner and director at Limesharp, said of the process: "Through our discovery process with Paul Smith we found the brand content that was tucked away in the blog contained incredible product information. Klevu allowed us to visually show relevant stories relating to products for the curious customer. The headless technology approach meant we could create a very unique design leaning on Klevu's API's to fetch the data we needed."

The results
"Looking at our composable stack, all those that are MACH-Certified – Klevu, Cloudinary, Storyblok I don't have to worry about – they work. They are easy to use and with good support systems behind them. That operational success is huge for me so we can concentrate on growth or other areas," says Bennett.

The Paul Smith ecommerce team loves Klevu for many reasons, but the most compelling might be the way it leverages AI technology to its fullest potential. Now, the team can serve up more accurate results to shoppers faster than ever before. Paul Smith uses Klevu search, and category merchandising software from the Product Discovery Platform. As a brand, Paul Smith has learned to trust the AI to deliver the right product and content results to shoppers, manually merchandising as lightly as possible.

"A lot of other companies we have either used or considered for merchandising were too singing and dancing. We were given all these options, and the reality is we're a brand. We need to be telling customers what's hot right now, and what they should be looking at. So we wanted something that we could plug in and just leave to tick over, like Klevu. Now, we will pin key products that we feel need to be highlighted, or easily switch product ordering to favor high

stock items when we are in sale mode. Other than that we let Klevu AI run in the background and it works."
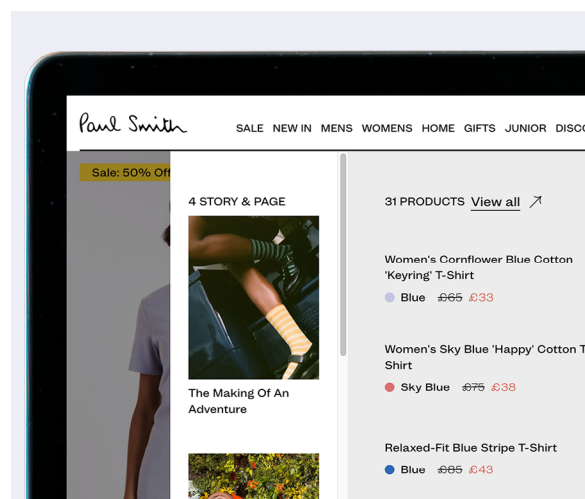
The result has been nothing short of remarkable. Looking at the 8-weeks prior to installing Klevu search, compared to the 8-weeks after, Paul Smith's revenue from search went up by 74%, ecommerce conversion rate went up by 31%, and per session value went up by 26%.

Similarly, after installing Klevu category merchandising, and comparing year-on-year over peak trading, conversion rate from the men's category pages went up by 33.75%, with per session value went up by 19.94%. For women's category, conversion rate up by 49.04% and per session value went up by 14.96%.

The pandemic boosted online sales for Paul Smith, and ever since, the brand is continuing to see good growth online. Even during economic times of struggle the Digital Flagship Hannah and her team developed has created a flexible foundation for future growth and creativity.

Seasalt

Jana Lindner

Senior Digital Trading Manager, Seasalt

Seasalt has been designing and selling clothing from Cornwall, UK, since 1981. It now operates via 70 bricks-and-mortar stores in the UK and three ecommerce sites serving the UK, Ireland and international customers.

The business case
Seasalt's ecommerce sites were not giving shoppers an optimal search experience since the search engine was unable to understand shopper intent, requiring them to enter actual product names in order to find what they were looking for.

Also a lot of intervention was required in the background to make the site work. The order of products on category pages was set up manually, requiring the digital trading team to spend additional time viewing and analyzing sales reports. This was made harder for the team since the solution was not easy to use.

The decision
In 2020, Seasalt replatformed to Magento 2 and this move gave the business the opportunity to implement new solutions for search and merchandising. Following an investigation into the market, Klevu Smart Search and Category Management were chosen for these functions.

Three key factors were the core deciders in Seasalt's decision:
- Overall costs
- NLP and Klevu including more functionality that matched Seasalt's requirements than other solutions
- Ease of integration with Magento – the agency that Seasalt used already had a good working relationship with Klevu

The integration of Klevu ran in stages to coincide with the phased roll-out of Seasalt's new ecommerce platform. The international site launched first, followed by the ecommerce site for Ireland and finally the main UK site six months later.

Seasalt decided to adapt the front-end search overlay to bring it in line with the look and feel of its UK ecommerce site and branding, rather than using the default. This required additional time, so while the overall integration didn't take too long, this adaptation for the UK site "took a few months," according to Jana Lindner, the Senior Digital Trading Manager at Seasalt.

Results
The trading team tries to balance dependence on the Klevu AI with a coherent look and feel for the site which ties in with the team's understanding of Seasalt's color collections and campaigns.

To this end, the team uses Klevu on a daily basis, mixing manual curation with reliance on the AI. Relevant and best-performing products, or those highlighted in campaigns, are pinned to the first few rows of category pages while the remainder of product positioning is left in control of the AI.

©Seasalt
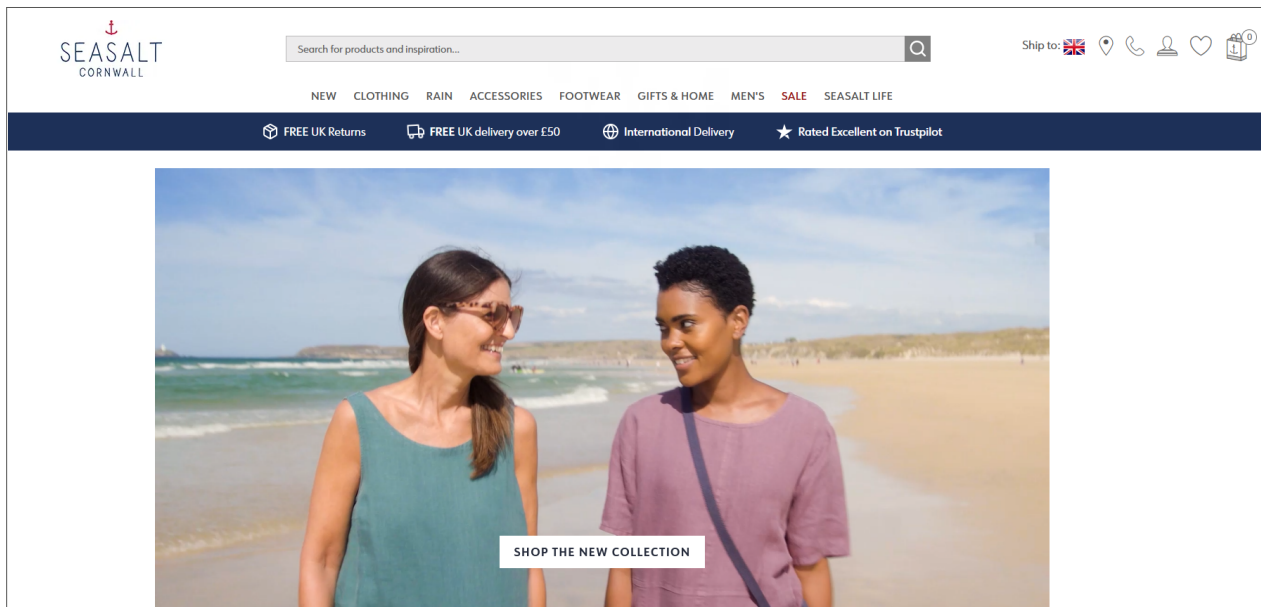
"We know we have all these merchandising rules we can apply so whenever we want to highlight newer products, we can add in those rules and they are reflected on the site 15 minutes later," says Lindner.

Any changes that are applied in Klevu to the UK site can be imported easily to the other sites saving the trading team time and enabling them to concentrate on other areas of localization to optimize each market effectively. Its ease of use is especially helpful when onboarding new members of staff.

Seasalt can see how the AI has improved with time and the tangible results being achieved. Data from before and after the Klevu integration shows that more shoppers are now using search and that these customers convert at a higher rate than other shoppers. "Also, conversion rates from customers using search is trending up and the click rate from category pages is continuing to improve," says Lindner. "Over time, you can see that the AI understands what users are searching for and what they mean when they search for certain things, such as dresses with pockets."

Overall, sessions using site search have increased – up from 2% to 7% in the last year – along with a triple-digit increase in revenue from search. Seasalt's conversion rates have increased by 14%.

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The Cambridge Satchel Co

Sarah Shakery

Head of International Ecommerce, The Cambridge Satchel Co

The Cambridge Satchel Co has been making hand-crafted leather satchels and bags since 1991. Its premium products are sold online on ecommerce sites for the UK, US and EU markets, as well as through bricks-and-mortar stores in Cambridge, Edinburgh and London.

The business case
The Cambridge Satchel Co receives a high proportion of new customers online every week and wanted to make a distinction between how new and returning shoppers saw its site and how they are led through to purchase.

The brand also wanted to understand which customers are making a purchase for themselves and which are looking for a gift.

The decision and integration
Following a review and investigation into a number of solutions, it was decided to implement Klevu Search and Merchandising as an upgrade and substitute for the native functionality of the Shopify Plus platform.

The Cambridge Satchel Co's agency worked with the brand on the implementation with the solution going live a week before Black Friday in November 2021.

Overall, integration was "quick and easy," according to the company's head of international ecommerce, Sarah Shakery.

Klevu Recommendations soon followed, with recommendation blocks incorporated on product pages, in the cart and at checkout.

"The mini cart is the main one that has been adding more value recently, although based on the analysis, product pages are also performing well," says Shakery.

From the outset, the look of these recommendations blocks was important to the brand so the designs were altered by the development agency to fit closely with the rest of the site. The ability to put recommendation blocks anywhere on the site and to use granular rules enables The Cambridge Satchel Co to use more segmentation in terms of where recommendation blocks appear and what shoppers are shown. For example, new shoppers are guided with best sellers and items that other customers like, while returning customers see products they have viewed on previous visits.

"Generally we find that customers visit between four and six times before they convert because we sell a premium product, so having that more familiar view of products they've already looked at when last on the site is going to improve our conversion rate for returning customers significantly," explains Shakery.

The brand has found that its biggest use case for recommendations is around the segments that can be created for understanding whether

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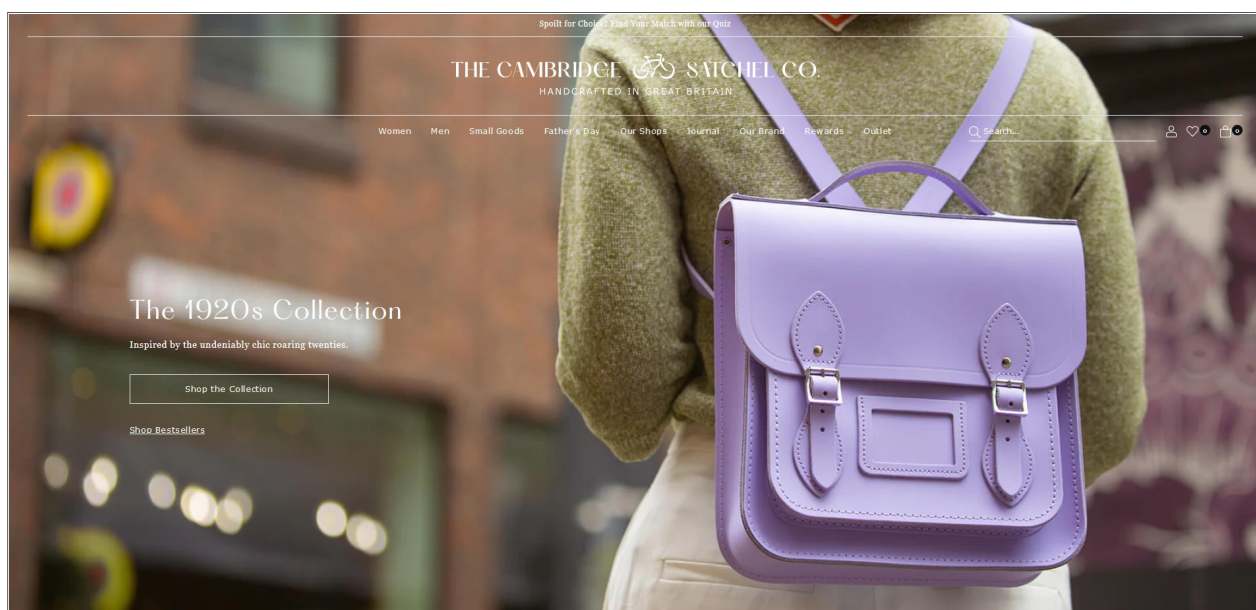
a customer is searching for a gift or buying something for themselves. "We can start to build out a bit of a profile as we get closer to those seasonal moments when gifting becomes really important," says Shakery.

Ongoing support
Klevu's ongoing support has made a big difference to how the brand uses the solution, with the company helping it achieve "some really great results." The focus now is on ongoing optimization. The Cambridge Satchel Co is working with its development agency to ensure that it is implementing all of the best practices within Klevu, including working with Klaviyo to incorporate search abandonment into the Shopify Flow.

The brand is also working with Klevu on A/B testing to really understand whether the AI or its own manual interventions are driving better conversion. "We've seen a lift overall but it's difficult to know what's driven that," adds Shakery.

The results
The Cambridge Satchel Co has a small trading team so a lot of the merchandising work is left

to the AI unless there's a particular reason to intervene. The brand manually adjusts Klevu to start ranking up products to the top spots when there isn't any historical data around a new product or in cases when the algorithm doesn't know to drive demand, such as in line with a PR campaign. "It is very easy to use," says Shakery.

The brand has seen results from the localization work on its UK, US and EU sites. Click-through rates on all three sites has increased as navigation have become more personalized. It has also raised conversion rates, especially in the EU which was "at the low end."

The percentage of site visits where customers have used search has increased by 34% from 3.4% of sessions to 4.1% year-on-year. The search box has been altered to become more prominent on the desktop site recently and the mobile site is due to be rebuilt so changes will be incorporated as part of that process.

"We also see a 3x conversion rate for shoppers that are using search across the UK, US and EU," says Shakery.

Monrovia

Kristopher Lichthart

Director of Digital Marketing, Monrovia

Monrovia has been a plant wholesaler for almost one hundred years, having launched in California, USA, in 1926. Today, the business supplies more than 5,000 garden centers and major retail chains, including Lowe's, across the US and southern Canada, as well as selling direct-to-consumers.

Its D2C site launched in 2014 enabling consumers to buy plants online and have their order delivered for collection from a network of 2,000 independent garden centers.

The business case
Monrovia has a large amount of searchable information about plants and their suitability for different regions, growing locations, color variations and botanical names and wants to help customers find the right plants among the 4,000 varieties it grows.

Consumers, who became increasingly interested in gardening during the pandemic, may not know what type of plant they are looking for, or only know that they want one for a certain situation or of a particular color. It is this audience that Monrovia wants to understand, engage with and lead along a path to purchase.

It also aims to drive custom for the independent stores.

The decision
In 2020, after upgrading from Magento 1 to Magento 2, Monrovia wanted to implement a search tool that was more contextual and returned results based on the specifics of what the shopper searched for. Its previous search tool did not account for spelling mistakes, plant color differences, or sunlight needs.

Monrovia chose Klevu Smart Search, Category Merchandising and Smart Recommendations after evaluating four different search solutions for their flexibility and how well the APIs would integrate with its data, as well as cost.

Monrovia found the Klevu integration more straightforward than it has been with some other solutions, particularly since its ecommerce site has a lot of customization stylistically and a vast amount of information about each product. The integration took "90 days at most," director of digital marketing Kristopher Lichthart says.

The results
On the consumer side, Klevu is helping customers find the right products through search and navigation. The number of facets and the layout mean consumers can filter results without being overwhelmed with product matches. Site searches have increased 50% and the number of searches returning no results has dropped significantly.

Klevu is also helping Monrovia's wholesale customers since the business is sharing reports from the platform showing the most common

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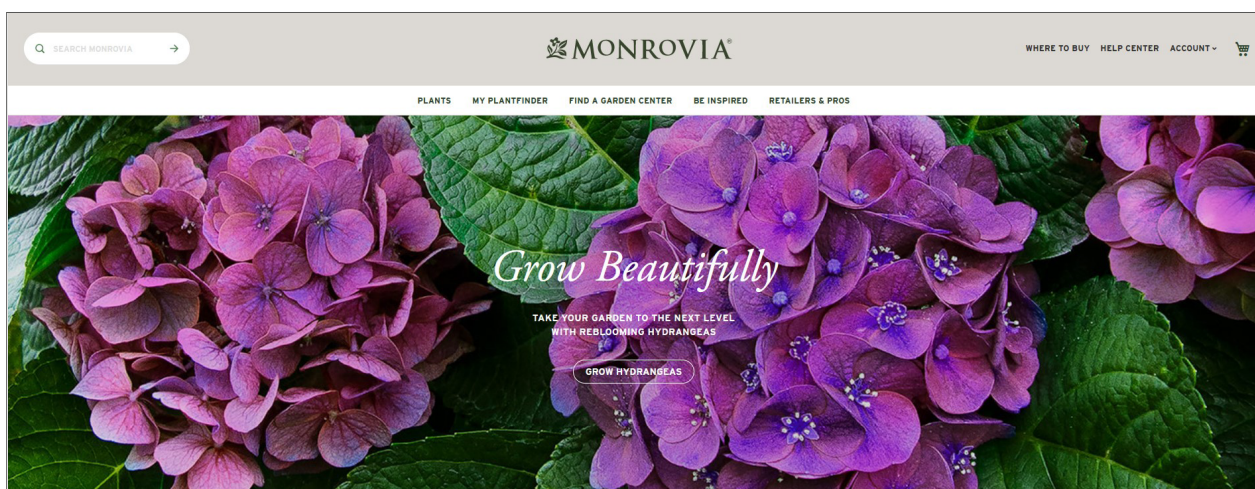
terms that consumers are searching on in each geographic area.

Klevu has also been a time saver for the team. As Lichthart explains: "Because we are a tight team, we needed a tool that would learn and make recommendations for us. Klevu has saved a lot of time and, from the onset, it needed to – we were not going to bring in a search tool that was going to overextend our bandwidth."

After letting Klevu run with recommendations and reviewing the results over the first quarter, Monrovia trusts the system to "do a lot of the hard work". It supplements this with quarterly business reviews to add phrases to reduce searches returning no results.

The Klevu AI is also left to control the majority of the merchandising and categorization. "There are some promotional plants and those that we consider stand-out products in different categories. Those will be pinned for an entire season before we change them but for the most part, if it doesn't fall into the category of something we are pushing hard, we'll let the system do it."

In praise of Klevu, Lichthart says: "The learning aspect of Klevu Search has been a real benefit to us as it's learned really quickly and the system is

doing what we wanted it to do from the outset. It has definitely helped in terms of adding more sales."

Monrovia is now also considering the introduction of MOI and how the conversational AI will help with integrating information from its blog, help center and knowledge base into the search results to better help consumers looking for plant care information or suggestions for a particular zone or soil type.

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Market trends

Search and merchandising have become staples in ecommerce deployments and some techniques are so ingrained with online shoppers that they expect retailers to include certain functionality on their site.

RetailX, which continually analyses the performance of the UK's leading retailers, includes search and merchandising capabilities within the metrics used for its rankings. The following charts show how a number of techniques, including product recommendations, suggestions on search and enabling customers to filter results, have grown in use among the RetailX UK Top500.

Some areas enable retailers to stand out and help their customers in different ways while other deployments are commonplace across the industry.

For example, retailers using a best seller ribbon to highlight leading products are in the minority. Just 7% of the UK Top500 utilize this technique, although the number is increasing slowly. Only 11% allow shoppers to filter search results by product rating.

Conversely, 80% of the UK Top500 recommends products to shoppers and 87% make search suggestions as the shopper types.

Share of UK Top500 retailers which show drop down suggestions when typing in search box, 2020-2023

84% — Feb 2020
86% — Aug 2020
88% — Feb 2021
87% — Aug 2021
87% — Feb 2022
87% — Aug 2022
87% — Feb 2023
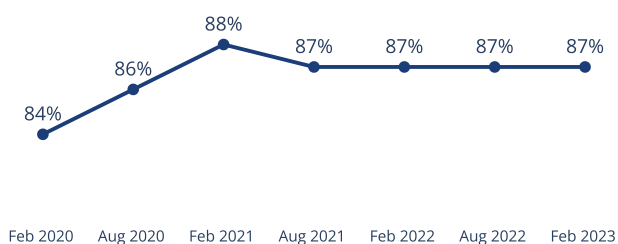
Source: RetailX

RetailX 2023
IRS203BP-2-v8

Share of UK Top500 retailers which recommend similar products during purchase, 2020-2023

80% — Feb 2020
80% — Aug 2020
76% — Feb 2021
76% — Aug 2021
73% — Feb 2022
73% — Aug 2022
80% — Feb 2023
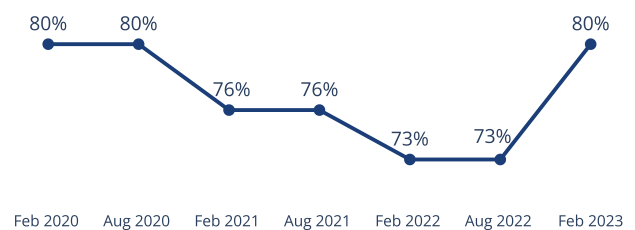
Source: RetailX

RetailX 2023
IRS203BP-1-v15

Share of UK Top500 retailers which have a filter to search by brand, 2020-2023
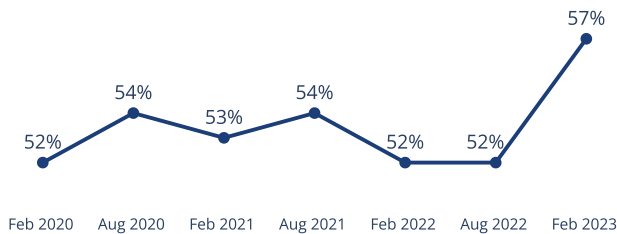
Source: RetailX
RetailX 2023
IRS203BP-3-v5

Share of UK Top500 retailers which have a filter to search by price, 2020-2023
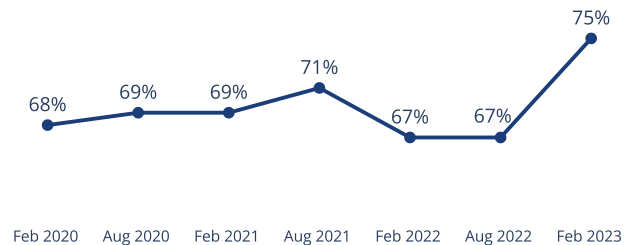
Source: RetailX
RetailX 2023
IRS203BP-4-v5

Share of UK Top500 retailers which have a filter to search by product type, 2020-2023
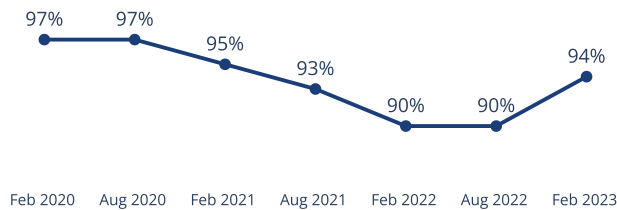
Source: RetailX
RetailX 2023
IRS203BP-5-v6

UK Top500 retailers recommending complementary products during purchase, 2020-2023
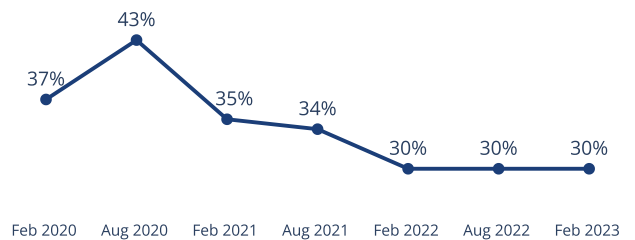
Source: RetailX
RetailX 2023
IRS203BP-6-v14

Share of UK Top500 retailers which up-sell during purchase, 2020-2023
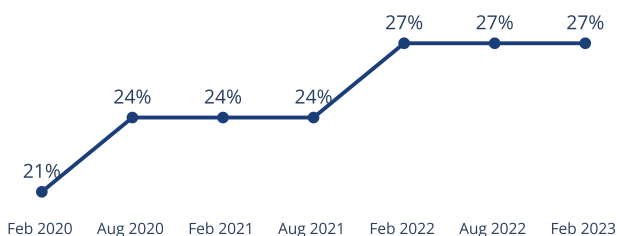
Source: RetailX
RetailX 2023
IRS203BP-7-v13

Share of UK Top500 retailers whose website search led to no results, 2020-2023
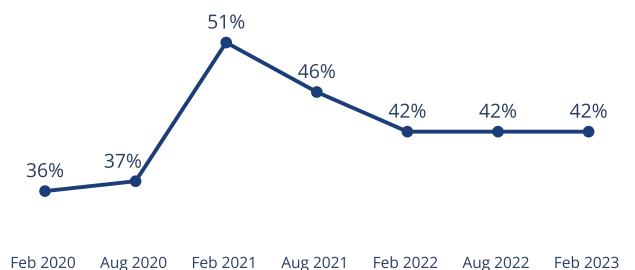
A website is catalogued as showing no results when the results page appears blank

Source: RetailX
RetailX 2023
IRS203BP-8-v14

Conclusion

AI has brought about a paradigm shift in ecommerce and the journey isn't over yet. Klevu, and its plans to take search outside of the search box, will continue to push development and industry expectations about what is feasible within ecommerce search and merchandising.

This, in turn, will further improve the product discovery journey for consumers – something that's already proven to increase customer satisfaction as well as conversion rates and retail revenue.

Today, Klevu Search & Product Discovery Platform provides:

- Leading search, merchandising, recommendations and conversational search

- An easy-to-use drag and drop environment for setting business rules

- An AI trained on 10 years of shopper intent

- An AI that enriches the product catalogue and is able to use its learnings of a retailer's site and customers, alongside business rules and personalization settings

- A natural language environment for shoppers

- Klevu Search & Product Discovery Platform increases revenue from web visits by 37%

NEXT STEPS

To learn more about Klevu AI and the company's Search & Product Discovery Platform, visit:
www.klevu.com

A video explaining Klevu AI can be found at:
www.youtube.com/@KlevuSearch

For more details on integration, visit:
www.klevu.com/integrations

For further customer experiences, visit:
www.klevu.com/case-studies

To get a complementary search and discovery consultation of your website:

www.klevu.com/audit