

Modern Product Discovery

the next step
in e-commerce



Table of Content

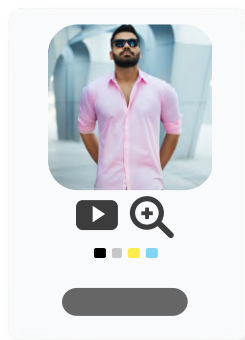
03	Introduction
05	Why should we care about modernizing Product Discovery?
08	1. Visual Discovery
09	Visual capabilities in modern Product Discovery
12	2. Conceptual Understanding
13	Know your customers' intent
15	The power of understanding
18	3. Controlled Automated Merchandising
20	The importance of a Relevant Shopping Experience
22	This is Apptus and eSales



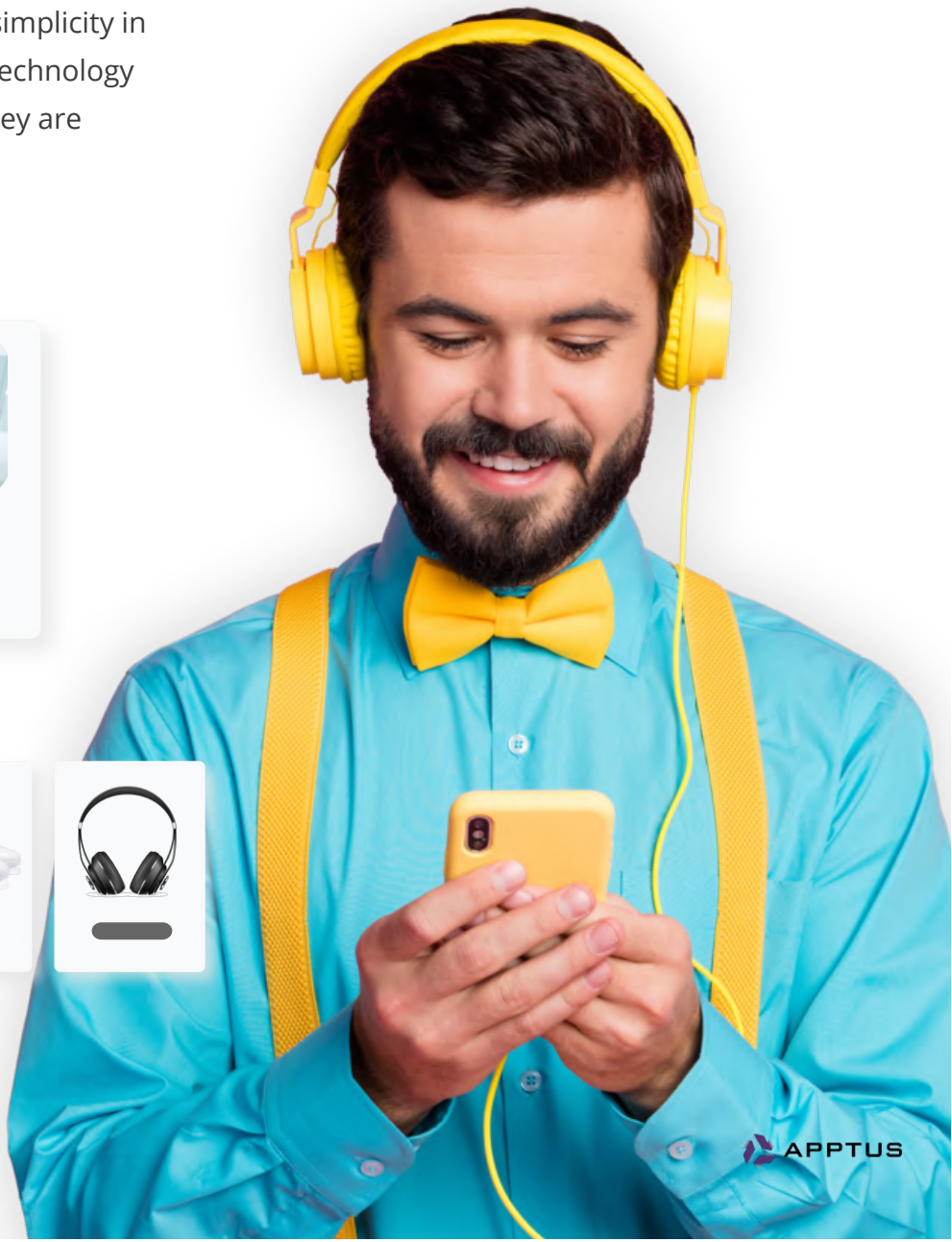
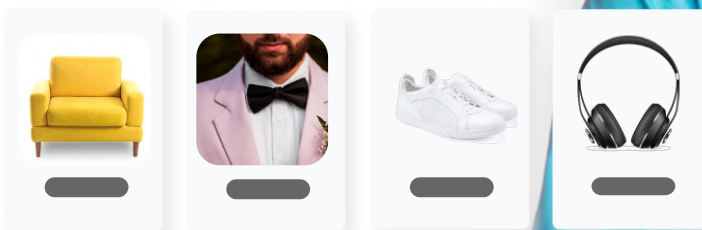
Introduction

As we lurch toward an era of increased dependency on online shopping, retailers and brands continuously look for ways to stay ahead of the competition and to win over the heart and mind of the shopper. In this new “digital-first shopping” era, where shopping predominantly happens outside of the traditional channels and where more visitors, more impressions, more clicks, ultimately means more sales, **it is essential for online retailers stay relevant to the shoppers and truly understand their intent in every moment of the customer journey.** Because shoppers expect simplicity in every step of this journey, and that technology enables them to find exactly what they are looking for.

Shoppers expect
**simplicity in every
step of their
journey**



WE THOUGHT YOU MIGHT LIKE THESE



The evolution of Product Discovery has gone through a series of steps over the past few years. What began as support for simple text and numbers-based searches, now have evolved into sophisticated engines. Modern Product Discovery can be described as new technologies for understanding user intent and introducing shoppers to large assortments in an enjoyable and interactive manner. The new type of Product Discovery can gather and process data from multiple sources, including images, and from SKU as well as customer data. The result is a radically better understanding of the individual users' true intent in every moment and a better shopping experience.

To obtain more clicks and sales, Product Discovery experiences need to be modernized to not just meet shopper's expectations but greet them with friendly and inspiring recommendations. It has become increasingly important to digitally guide, advise and inspire shoppers. Ultimately, modern e-commerce must serve as a "digital sales agent", like a knowledgeable salesperson who assists you in an in-store interaction.

It has become increasingly important to digitally **guide, advise and inspire shoppers.**

In this paper, we will take a closer look at three important areas driving the development and efficiency of Product Discovery and the current discourse happening around modern Product Discovery engines. This includes developments in visual discovery, driven by the latest advances in image processing, conceptual understanding with the goal of generating a better understanding of true user intent, and finally - the advancement of controlled automated merchandising where AI and Machine learning is utilized for empowering merchandisers to be more effective.



Why should we care about modernizing Product Discovery?



Cosy big sofa

We search for everything!

Searching for and researching products online has become one of the most common activities for the modern consumer. It is a global phenomenon and applies to all kinds of businesses and products. **Consumers have become “research obsessed” expecting advanced digital enhancements from the retailers/merchants to be guided, advised, and inspired – holding the consumers’ attention long enough to convert into a sell/buy.**

This has truly revolutionized the way retailing is managed, and it has forced an adaption to a world of digital shopping. Physical stores live side-by-side virtual ones, capturing and holding the visitor’s attention. The key success is to make online shopping just as interactive and enjoyable as shopping in brick-and-mortar stores.

The future of shopping is digital, a fact that has put pressure on system developers to innovate around how to make not only the search process, but the entire customer journey as intuitive, relevant, and joyful as possible. What started as simple text search, today has evolved into sophisticated Product Discovery technologies, simply making products more discoverable.

The key is to make online shopping just as interactive and enjoyable as shopping in brick-and-mortar stores.



Advances in Product Discovery

Looking at the latest advances in Product Discovery, there are three interesting areas that stands out:



1

Visual Discovery

Image processing and data capture enabling exact product understanding to achieve more relevant recommendations and matches.

2

Conceptual Understanding

Deeper understanding the actual meaning of words, terms, concepts, and contexts for a better understanding of the true user intent behind visiting the site.

3

Controlled Automated Merchandising

Utilizing advances in AI for making merchandisers more efficient in their day-to-day work, without sacrificing control.

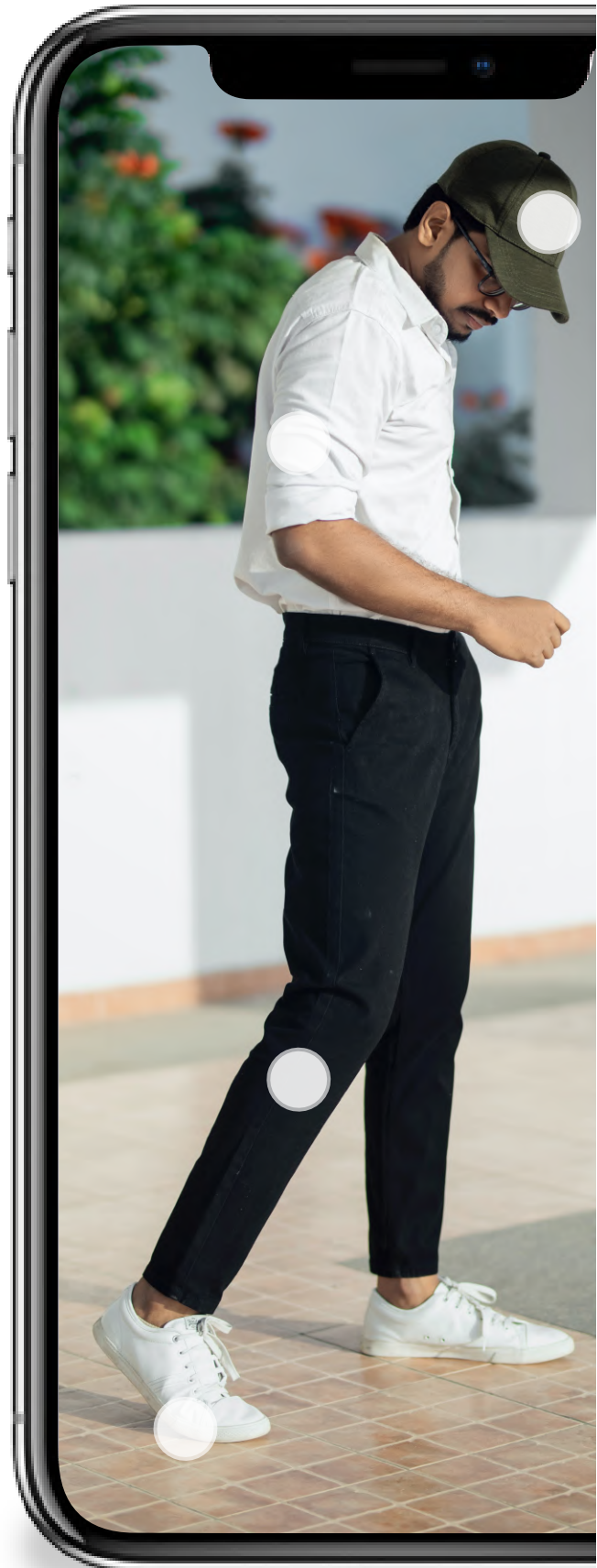


Visual Discovery

Visual capabilities in Modern Product Discovery

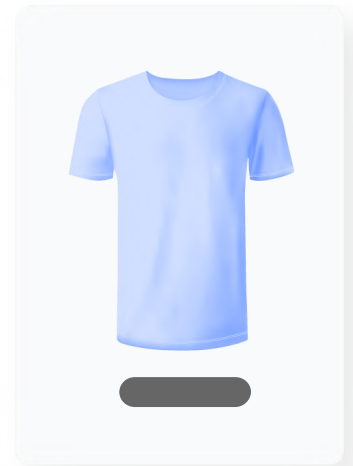
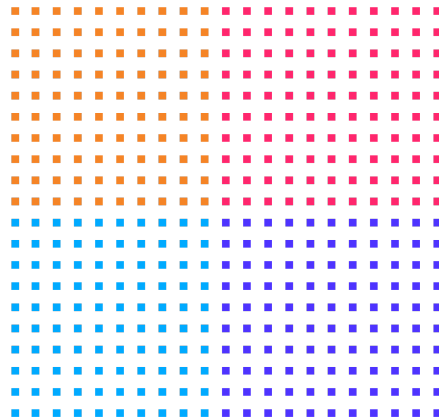
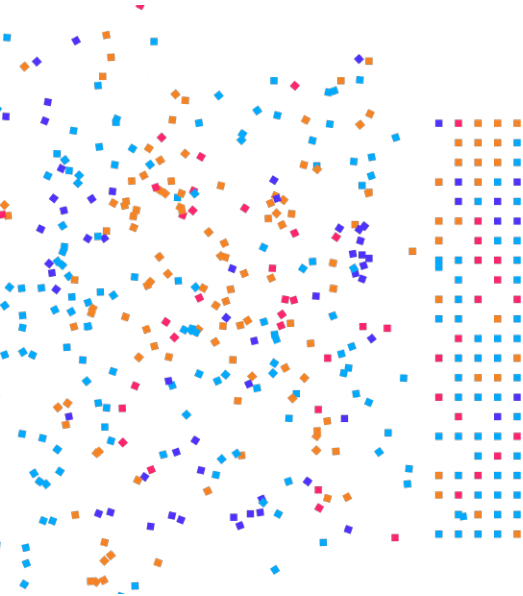
One of the key intentions in modern Product Discovery is to create a digital environment on par with the interactions that occur in store. While conceptual understanding, which we address in the next section of this paper, takes us one step closer to mimicking what a store employee might recommend as a substitute or addition, there are many facets which are still being left out of the experience. **For example, if you were to show a salesperson an image of an outfit you wanted to purchase**, that person would likely be able to understand, extract the details out of the photo, (what kind of shoes, trousers, shirt, hat, belt, etc.) and suggest something similar for the shopper.

Now, if we turn this interaction digital, we are asking for the supporting technology to have total visual comprehension.



Information describing products is not limited to structured data i.e., just text and numbers.

Modern Product Discovery engines can delve into structured data, unstructured data, and images to obtain as much information about a product as possible.



Visual understanding

This visual understanding requires the Product Discovery engine to extract as much information as possible about an image, with defining differences from understanding what a shirt looks like as opposed to a jacket to understanding the sleeve length. So, by utilizing this technology, the engine should understand that t-shirts are by default, short-sleeved, and not fail to present products because a user asked for “short-sleeved t-shirts” and the word short-sleeved is not in the product description. At the same time, the engine should also understand that there are long-sleeved t-shirts and not present them to users specifically asking for short sleeves.


short-sleeved t-shirt |



Light blue T-shirt




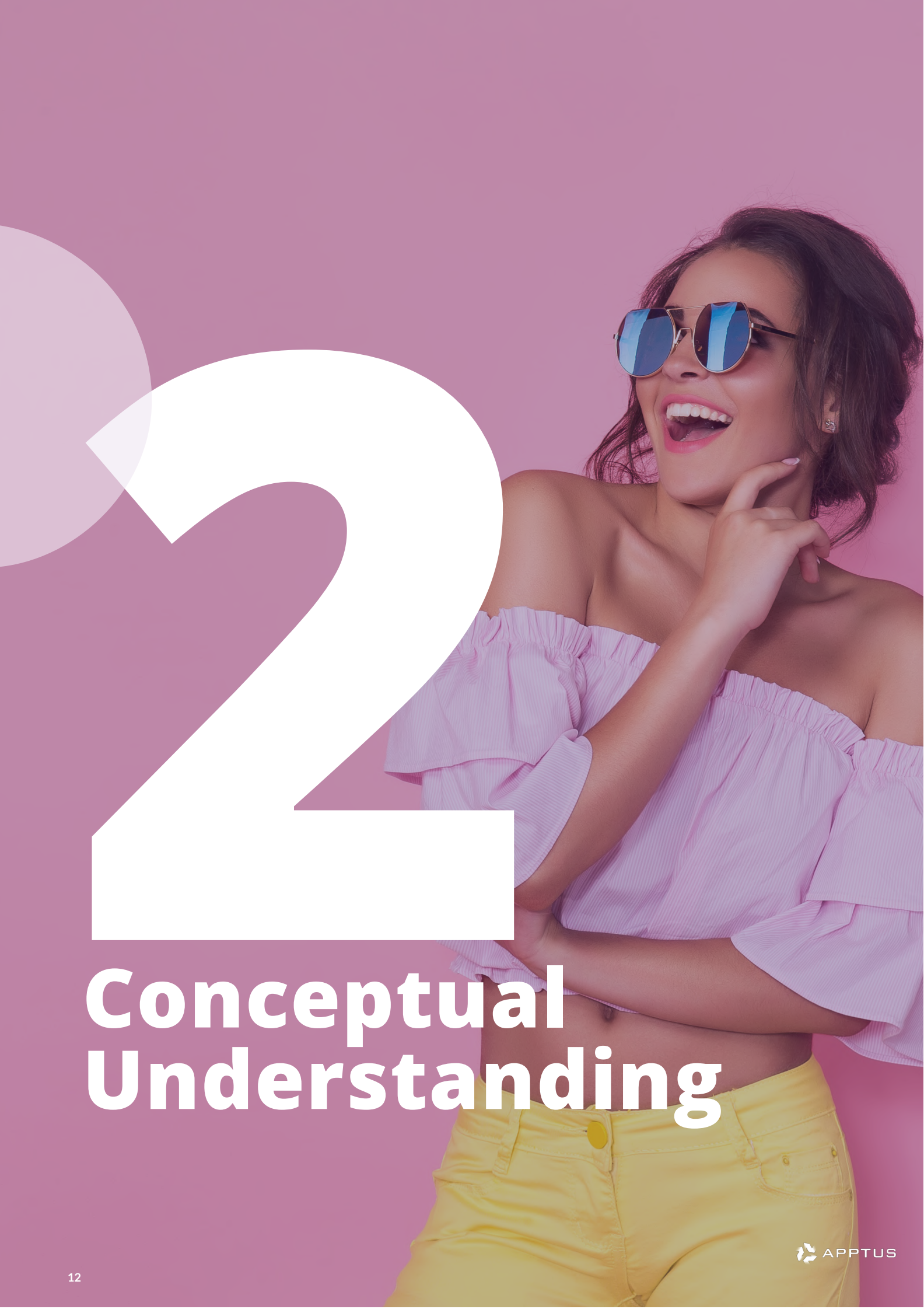
Nowadays, there are a few modern Product Discovery engines that do this very well. They do so by utilizing AI and Machine Learning for image processing extracting, interpreting, and understanding information from a multitude of images associated with any online business. This means it is possible to have machines determine and extract data about colour, structure, pattern, model, shapes, etc. And it can be completed on a massive scale (which is helpful as the number of products tends to grow at an increasingly faster pace). In most cases, all it takes is just a short time spent on understanding initial training sets to gain a fully functional understanding of the live assortment. And as new products are introduced, the systems only tend to get better by the day.



As new products are introduced, the systems only tend to get better by the day.

Tips

- 
- ✓ Start by understanding what additional product data you could add to the product descriptions by including image processing.
 - ✓ Challenge system providers on image processing as it can generate higher quality product data.



Conceptual Understanding

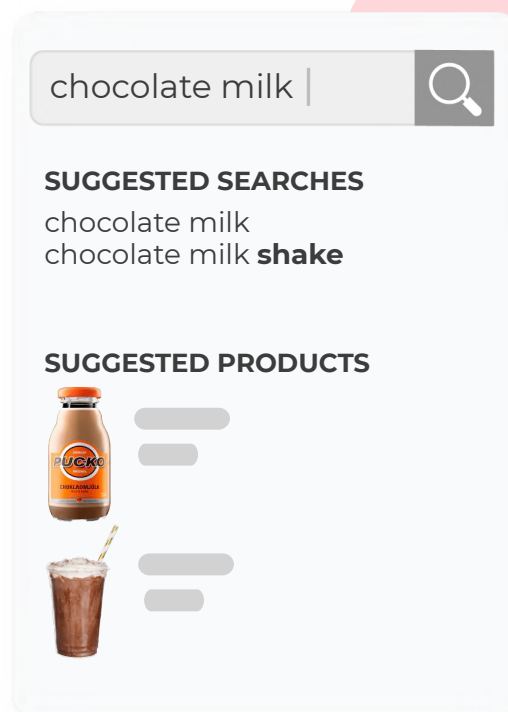
Know your customers' intent

Ever since Google started developing and using knowledge graphs some years ago, there has been a general acceptance that better understanding of words, expressions and concepts can radically improve relevance in online shopping. Using these techniques enables better understanding of how concepts describing an assortment are interlinked, hence enabling better understanding of the vocabulary used within the business. Today, modern Product Discovery engines not just index words, they understand concepts, hence understanding user intents.

This technology has proven crucial for succeeding in the constant strive for creating better user experiences.

Traditionally, search engines are designed to find and understand variations of words typed into the search box using indexing. However, this approach lacks in efficiency when prioritizing the most relevant products based on the phrasing (and the actual understanding of the concept) of the search.

For example, if a user were to be searching for chocolate milk, most search engines would pull up a variant of this, but also may pull up "milk chocolate" as the engine will decipher the word or multiple words and find variations of the phrase or sentence.

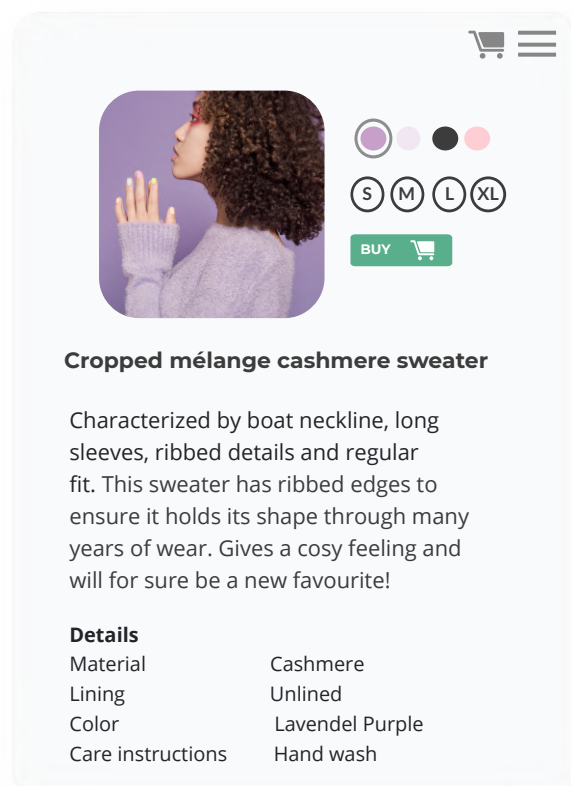


Conceptual Understanding in product discovery means the engine can understand concepts and phrases in context rather than just individual words. Take for example a woman shopping for “white mid-calf Chelsea boots”. A Product Discovery engine will comprehend and consider the exact meaning of the phrase and deliver the most relevant recommendations based on this search entry. This move from indexing words to understanding the true user intent is monumental for e-commerce.

Conceptual understanding leads to precision in search results, reducing the amount of time a user spends searching for a particular product. This of course makes the user’s shopping experience more precise and enjoyable, as well as enhancing the reputation of the retailer.

Automated data enrichment, where machines constantly index, analyse and organize product data retrieved from various sources, is an effective way to enhance a product’s findability and relevance to aid the conceptual understanding in your system. In theory, the more descriptive elements you have when searching for a product, the better chance you will find it. So, for online retailers, generating vivid and detailed product descriptions helps improving the degree of relevance with every search.

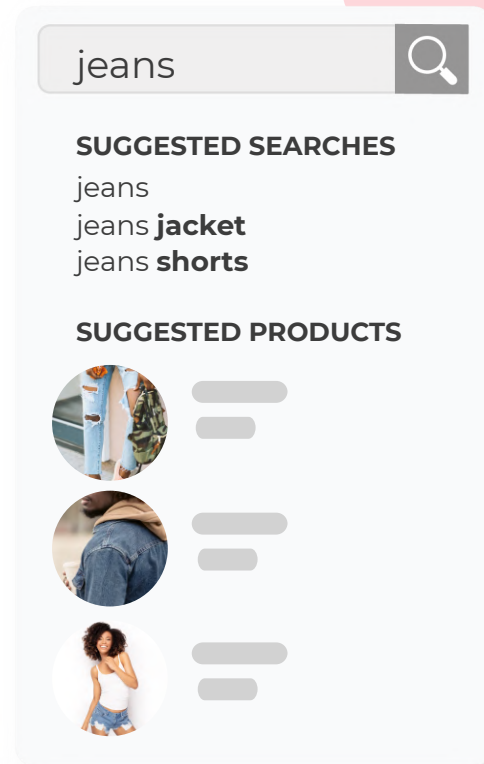
For online retailers, generating vivid and detailed product descriptions helps improving the degree of relevance with every search.



The power of understanding

Although conceptual understanding is beginning to change the process of Product Discovery, there are only a few vendors who can truly claim to understand the true user intent behind visiting the site, with a precision and accuracy that is high enough to stand a scientific review. However, this is slowly changing. New technologies enable true intent analysis and identification. This understanding adds transparency as to why the search engine is presenting the results it is, suggesting beyond what has been possible before.

An example of this is the instance of a user searching for “jeans”. Most likely she is looking for denim trousers, but in theory, traditional search engines will pull up all the variants of jeans. This may also bring in jeans jackets, jeans shorts and skirts, or other variants of jeans into the mix. **While this is not wrong, it is just not efficient** for the shopper when trying to find exactly what she is looking for.



Conceptual understanding allows for a smaller margin of error in understanding the user intent but how can conceptual understanding apply to personal behavior data and product recommendations?

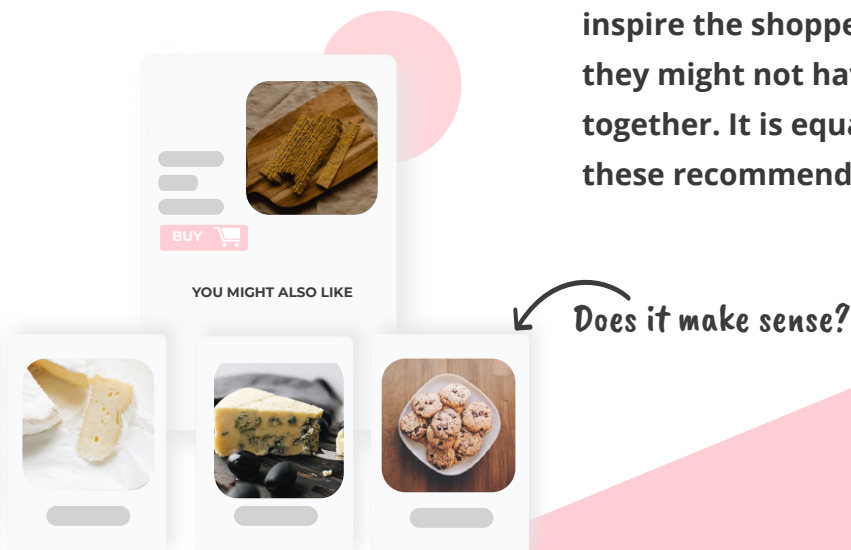
As it stands, **product recommendations** are generally formulated based on a shopper's favorited items, items previously clicked on, and items abandoned in the cart, i.e., their personal behavioral data.



Adding domain knowledge into the mix

However, the result can be additionally reinforced by applying a solution that supports native domain knowledge. In such a system, domain knowledge will be reflected in many system features, i.e., data model optimization, data classification support, the use of AI for processing and analysing images, etc. There is a mix of features boosting data handling performance as well as making merchandisers more effective.

Nowadays, online retailers typically look for systems supporting everything from expanding and maintaining structured information, such as color and product type taxonomies, to analysing how sale periods and newness should affect ranking within their specific domain. When bringing native domain knowledge into the mix, it will lead to delivering more relevant search results and recommendations. For example, shoppers may have previously purchased a salad and a cake, but this does not mean that cakes should be recommended to shoppers that purchase a salad. There are of course many examples. **However, the important thing is to inspire the shopper with ideas and products they might not have thought to pair together. It is equally as important that these recommendations make sense.**



Achieve shopping inspiration thru these two facets

- ① **By offering substitute products like the original product being searched** (if the online grocer is sold out of orange juice, maybe the recommendations suggest pineapple juice).
- ② **By offering suggestions for products that could serve as a complimentary recommendation** (an aged cheese to be bought with a box of artisan crackers makes more sense than cookies with artisan crackers).

Make sense and understanding why

For this to be achieved, the underlying technology would need to have a map or outline to follow structured data patterns to understand how products are related to one another and understanding the context around each individual product.

Artificial Intelligence software is highly sophisticated and complex as it is, let alone programming the AI to have conceptual understanding of products. AI software can grow and function in ways that produce confusing results that the people behind the machines do not understand. Therefore, transparency is one of the key values in the development of conceptual understanding; to make the understanding and reasoning

behind the user intent clearly understandable to the human administrators.

The technology must possess the capability of explaining reasoning and decision making back to humans. When the owners and business administrators can understand how and why the AI came to a certain conclusion for suggesting oat milk as a substitute for orange juice, then the human technicians can adjust the learning model which will allow for the technology to evolve and learn with accuracy. Ultimately, the combination of man-machine leads towards the most fine-tuned optimized results and recommendations.

Tips

- ✓ Investigate how your site can suggest alternatives and complementary products.
- ✓ Learn if there are alternatives to manual input to improve your sites ability to provide synonyms in order for users to find more relevant products.



A background image showing a person's hands typing on a laptop keyboard. The person is wearing a light blue shirt and a yellow wristband. A large, white, stylized number '3' is overlaid on the left side of the image.

3

Controlled Automated Merchandising

You need to keep up

Every product in the assortment goes through a lifecycle, from being newly added to being included in different campaigns and promotions, switching between different states of stock availability, affected up and down by different micro-trends, all the way up towards its sales peak and then all the way down to elimination from the assortment. These are ongoing events that need to be attended constantly, every hour of the day, every day of the year. To manage this manually is a daunting task as assortments and the number of products and variants grow.

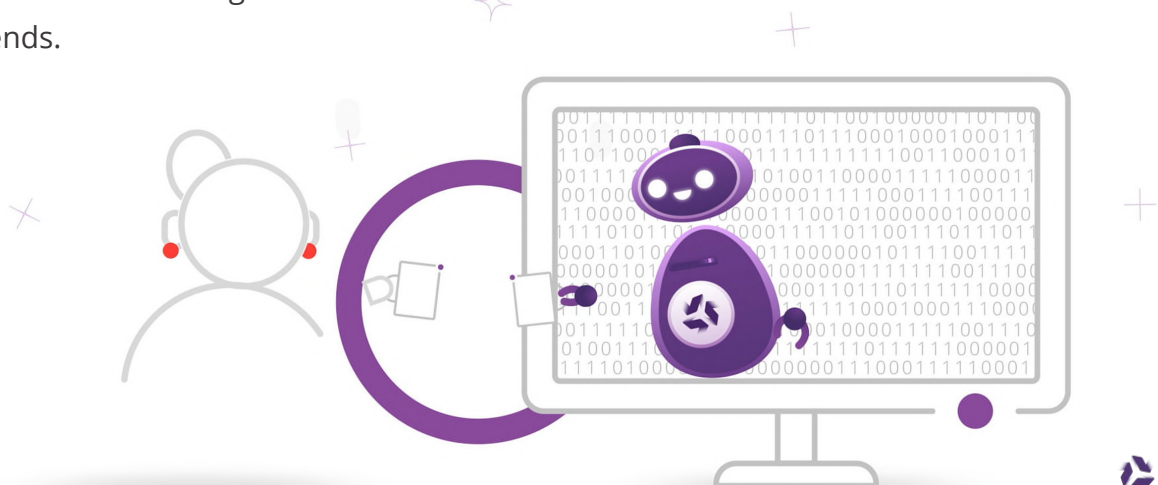
There are several benefits from applying AI and automation in online merchandising, complementary to human input of course. So, let's explore how to apply automation to merchandising and why it is essential for modern Product Discovery.

There is a constant need for changes to stay relevant to the shopper. Managing lots of products, means lots of changes to assortments and data because of shifting user behavior and shifting trends.

With automated merchandising, your merchandisers and product managers can gain a better understanding by using a system that automatically tracks, understands, and reacts to the phases in a product's lifecycle.

Let the AI be your brilliant co-worker

Different events will affect the product's ranking in search results, recommendations, and exposure levels. Automated merchandising systems allow for a streamlined workflow and product lifecycle, but also allow you to have complete control if you manually want to move items depending on marketing campaigns, promotions, sales, or when items go out of stock. By utilizing controlled automated merchandising and letting AI do the heavy lifting, the workload of the individual merchandiser will be lower, resulting in time freed up for doing more strategic and creative work.



The importance of a Relevant Shopping Experience

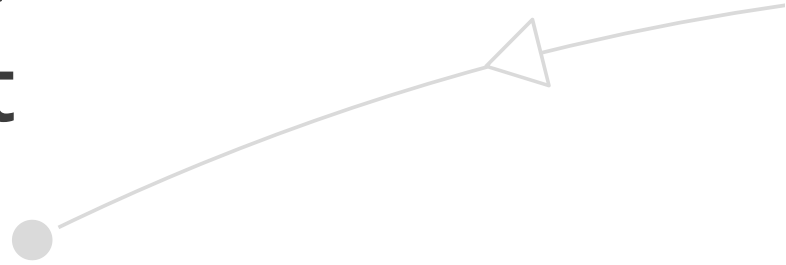
In eCommerce, online retailers are often dealing with huge, rapidly changing data sets representing thousands of products. It can be just as hard for the merchandisers to find a specific product in their systems as it is for the shoppers. When there is a high level of dependency on online shopping, eCommerce retailers cannot afford to have a search engine that does not prioritize relevance while understanding conceptual phrases and sentences.

eCommerce retailers cannot afford to have a search engine that does not prioritize relevance while understanding conceptual phrases and sentences.

Online merchandising solutions are continuously developing and evolving, and retailers will follow suit in progressing with the technological advancements to keep their website and brand relevant and accessible. In the future, we are looking towards state-of-the-art enhancements such as refined visual comprehension capabilities allowing for true user intent to become increasingly clearer.

By acquiring or upgrading to a modern Product Discovery system, you can streamline the customer experience and simplify merchandiser involvement. Ultimately, making time for other productive tasks to be prioritized amongst the merchandising team.

Finally, here are some important things to consider



If you are at a place:

- ✓ where you must manually create synonyms for people to find the right things.
- ✓ where your human merchandisers can easily suggest better alternative and complementary products than your customers can see on your digital channels.
- ✓ where you have no idea why the things that are shown are being shown and the effort to reach an answer is too high for you to pull through.
- ✓ where you manually merchandise new products and try to reach sales velocity through different efforts performed by manual labour.

then you have some modernization to do.

That modernization is definitely worth looking into as it will **boost your sales, reduce your costs, delight your customers** and **elevate the scalability of your business** to whole new levels.



This is Apptus



Apptus brings more than 20 years of delivering cutting edge eCommerce solutions. We simply help retailers and brands around the world to better guide, advise, and inspire shoppers along the customer journey. We strongly believe in the power of automation - utilizing AI and Machine Learning, to reach both operational efficiency for merchandising teams, as well as delivering more relevant online shopping experiences to their customers.

Through our flagship product, eSales, we deliver a single, unified solution covering site Search, Navigation, Recommendations, Content/Ads and Email Recommendations.

With a rapidly growing client base across the globe, Apptus is headquartered in Lund, Sweden with sales offices in London and Munich. At Apptus, we find our passion by being curious and by solving real-life customer challenges through constant innovation.

Find us here



LUND

Headquarter



LONDON

Sales office



MUNICH

Sales office

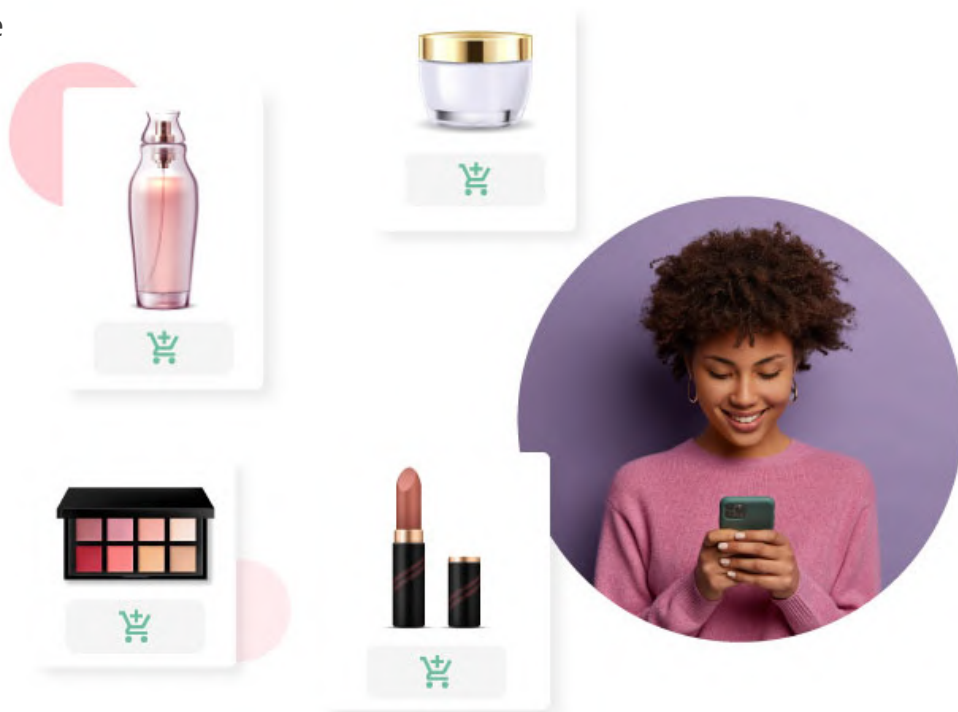
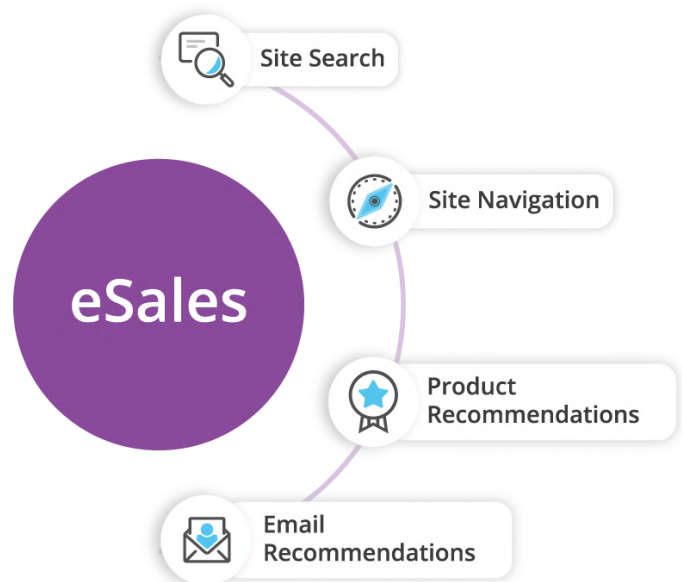
Apptus eSales

At Apptus we have continuously developed and enhanced a unified solution, based on AI technology, that not only compliments an eCommerce site of hundreds of thousands of products but also optimizes the shopper's experience.

Our solution is eSales - a next generation online merchandising solution for converting shoppers into buyers.

As trailblazers in the online merchandising community, we are always keeping on top of trends, new developments in technology, and expanding our own technological capabilities. We are motivated to be at the helm of advances in the eCommerce industry and develop never-before-seen automated technology.

The development and understanding of AI in eCommerce merchandising is rapidly shifting which is why we believe in having modern product discovery technology incorporated into your eCommerce site.



Make it enjoyable and relevant

The vision of Apptus is to turn Product Discovery into an enjoyable and relevant experience for shoppers online. In our vision, we see that the future of product discovery lies in providing an automatic, conceptual understanding of the visual elements of eCommerce.

We think that it includes the ability for Product Discovery engines to utilize AI and Machine Learning for automatic object detection and recognition. These technology advances would allow shoppers to have a visual approach to product search. It is our belief that the future shopper will not only ask for but require user-friendly concepts like visual search and visual browsing to help them find what is most relevant.

As of today, eSales is brilliant in the way it utilizes AI and machine learning to understand product concepts and interpret the richness of colors and patterns.

We strongly believe that we are only in the beginning of our journey.





We know your intention
is to learn more about the
future of e-commerce.

So let's talk
hello@apptus.com