



PRODUCT RECOMMENDATION PLAYBOOKS

Personalized Product Discovery 101

Curious about how personalized product discovery works?
See how AI is reimagining eCommerce product discovery and what
you can do to raise your own game with HiConversion Recommend.



Personalized Product Discovery

Problem: Mass use of mobile devices and social media have dramatically reduced online shopper's attention span and highly fragmented eCommerce buying journeys. If your website visitors do not quickly discover a product of interest they are gone, often for good.

Solution: HiConversion Recommend powered by Amazon Personalize leverages over 20 years of machine learning innovation and use at Amazon.com to make it possible for your eCommerce brand to stage intelligent product discovery experiences as relevant and scalable as those at Amazon.com.

Amazon: The new standard for eCommerce product discovery.

When it comes to product discovery the difference between Amazon.com and other sites is glaringly obvious. For example, your site may have few, if any, AI powered product recommendations. Whereas, at Amazon.com almost every element of every web page contains some form of AI-powered product recommendation to ensure that visitors can easily discover products of interest.

So much more than a Technology.

By activating HiConversion Recommend – a solution based on the foundation of technology used by Amazon.com, you are taking the first step to increased visitor engagement and revenue. The next important step is to unleash your site's full potential by applying the methodology described in this book.

35%

of revenue on
Amazon.com
is attributed to
personalized product
recommendations.

Source: McKinsey & Company

About HiConversion Recommend

Chances are, you're already using some form of recommendation on your store. 'You Might Also Like', 'Similar Items', or 'Bought Together' are examples of product recommendation experiences commonly found on eCommerce sites.

So, why would you bother to consider yet another solution, even if it is based on technology used at Amazon.com?

The answer is simple: you can't afford the risk of not having the best product discovery solution on your site.

It is hard to argue about Amazon.com market and technology leadership. When it comes to product discovery it is worth noting that Amazon pioneered personalized product recommendations beginning in 1998 and has invested over two decades in machine learning research to enhance product and content recommendations across channels and devices.

Now with HiConversion Recommend, a solution that is based on the same technology used at Amazon.com, you can effortlessly enjoy the results of such long-term investment and technology innovations on your own site.

Unlike other solutions – whose algorithms are based on historical data to maximize revenue from known types of visitors (roughly 10% of your site visitors) – HiConversion Recommend, powered by Amazon Personalize algorithms, uses real time data to also maximize revenue from unknown types of visitors (roughly 90% of your site's visitors).

This is achieved by deploying 'session-based' product recommendations that detect and leverage, in real-time, buying signals from your site's visitor.

Built for Shopify

You might think that machine learning is too advanced for your needs. Most likely, your busy eCommerce team does not have the bandwidth to learn, implement, and effectively use it.

This is where HiConversion comes in – we have taken something big and complex (cutting edge personalization ML) and integrated it into an easy-to-use Shopify app:

Quick Implementation

In a few clicks you can have HiConversion Recommend installed (no coding required) and get your first product recommendation campaigns live. Behind the scenes our system analyzes your Shopify store data, trains a custom personalization engine, and monitors the impact with advance analytics.

Built-in Methodology

Turn an assortment of disconnected campaigns into a thoughtful, personalized recommendation journey that meets visitors on their own terms. To help get you started, we pre-designed dozens of UX templates reflecting the many recommendation strategies that drive engagement and conversions.

Deep Insights

See exactly how much revenue HiConversion Recommend has made for you with reporting that syncs with your sales history in Shopify. Because it's built on our patented eCommerce Intelligence™ platform, you'll also get deep insights into your visitors' shopping preferences – helping you uncover new persuadable audiences and product growth opportunities.

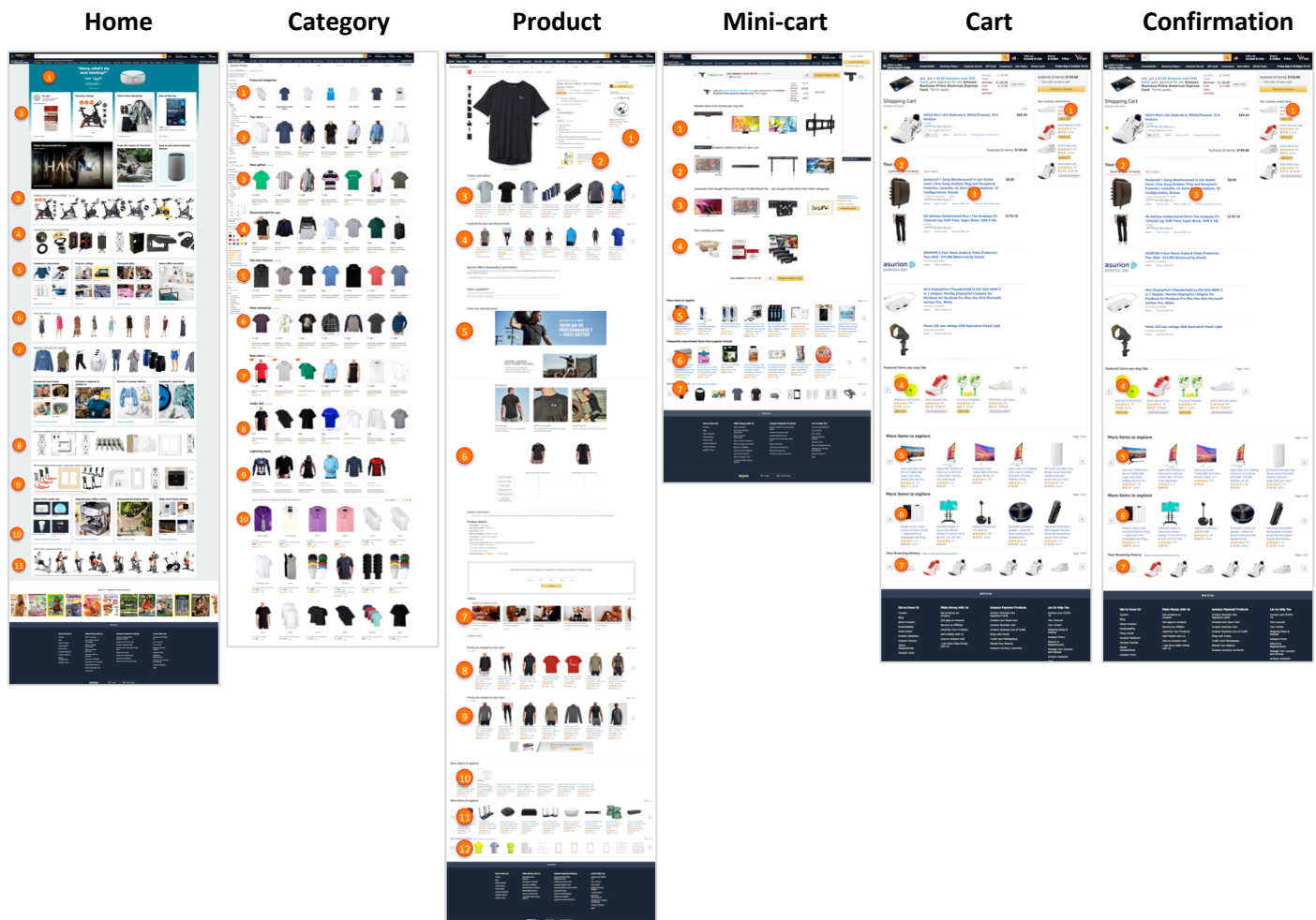
Shopify Plus Certified

HiConversion Recommend went through the strict process of Shopify Plus certification to ensure your data is private – guaranteeing the application adheres to high-performance, security, and legal compliance standards.

The Amazon Way

Each time you shop on Amazon.com we suggest you pay careful attention to every detail of your buying experience. You will quickly become aware of the highly dynamic nature of their site, where almost every element of every page is dynamic.

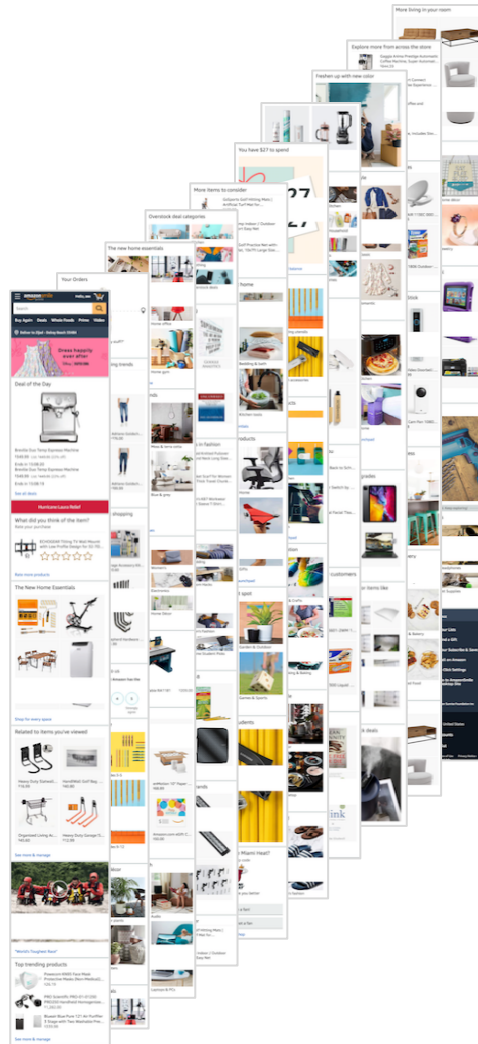
The picture below, marked with orange flags, shows the continually changing product recommendation sections on Amazon's desktop web pages:



As you can see every page contains a long list of product recommendations. In essence the entire site looks like a giant product recommendation site.

Furthermore, if you pay a close attention during after refreshing the same page, you will also notice that the types of recommendations and the order of their showing changes.

If you switch to a mobile device, you will see that this dynamic behavior is even more pronounced for the mobile version of the site:



Your ability to endlessly swipe the screen is akin to using your favorite social app; its infinite page scroll introduced to keep you glued for your device.

This exercise will also help you realize that Amazon is not applying a responsive design for the mobile version of their site.

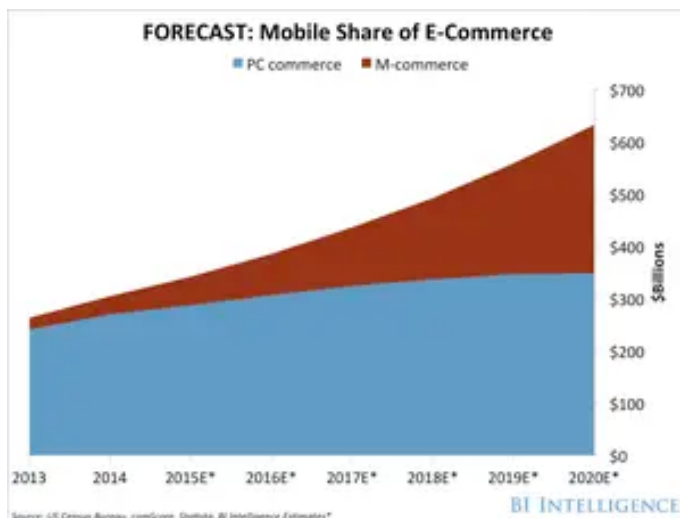
The order of recommendations and the difference of content presentation widgets is almost entirely different. Instead of mapping the desktop version of the content to a smaller screen size, like it is the case with a responsive site design, Amazon is actually creating mobile shopper specific version of the highly personalized content.

Is The Amazon Way Appropriate For Your Brand?

We know the talk about Amazon.com and that the AI technology behind Amazon Personalize sounds complex and difficult to implement. You might think that because your site is not in the same league as Amazon.com that you should not bother with the product discovery methodology they use.

We built HiConversion Recommend to convince you otherwise.

The nature of eCommerce is rapidly changing. Today, most of your customers are shopping using mobile while heavily influenced by social media. This mix of results in shoppers with short attention spans and no brand loyalty. It's all about instant gratification.



Furthermore, the recent numbers across all of our eCommerce clients show that fewer than 4% of all shoppers and approximately 3% of mobile shoppers are using a site's search feature.

All of this reveals that you can no longer rely on your site's navigation, search capabilities, or even conventional product recommendations to effectively help your shoppers discover products of specific interest.

The only alternative is to accept the new reality and merchandize like Amazon.

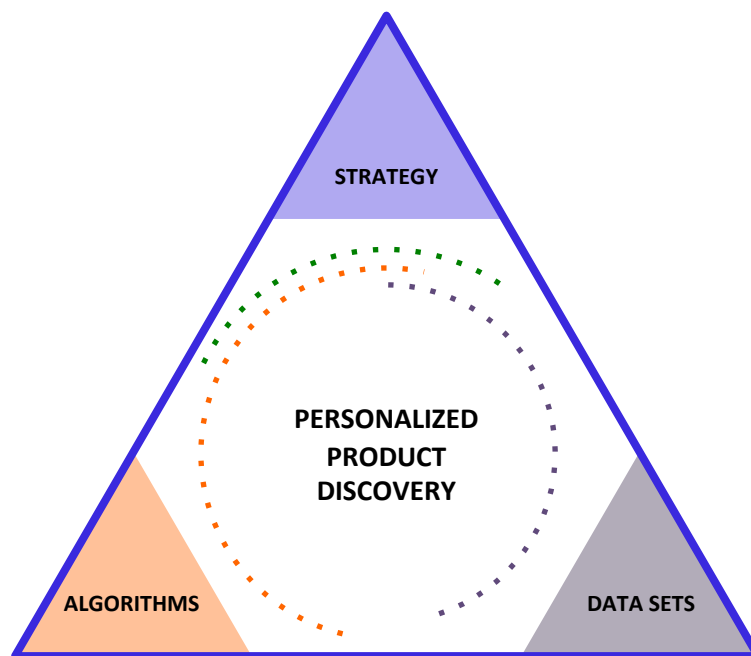
Then, How Is It Being Done?

HiConversion Recommend is simple. Its designed to give you access to Amazon's machine learning technology and the benefits of the personalized product discovery methodology, without the complexity associated with that class of solution.

Now your brand can also explore a broad spectrum of recommendation strategies for different audiences, different stages in the buying lifecycle, different areas of your site, as well as different contexts and buying behavior.

This highly-integrated system seamlessly works with your Shopify store while automatically configuring the algorithms, data sets, and ready-to-go recommendation templates introduced to enable dozens of recommendation strategies.

The diagram below illustrates what's inside our HiConversion Recommend:



We will further expand on the key building blocks of HiConversion Recommend app and its Personalized Product Discovery methodology in the chapters that follow.

Ease of Use

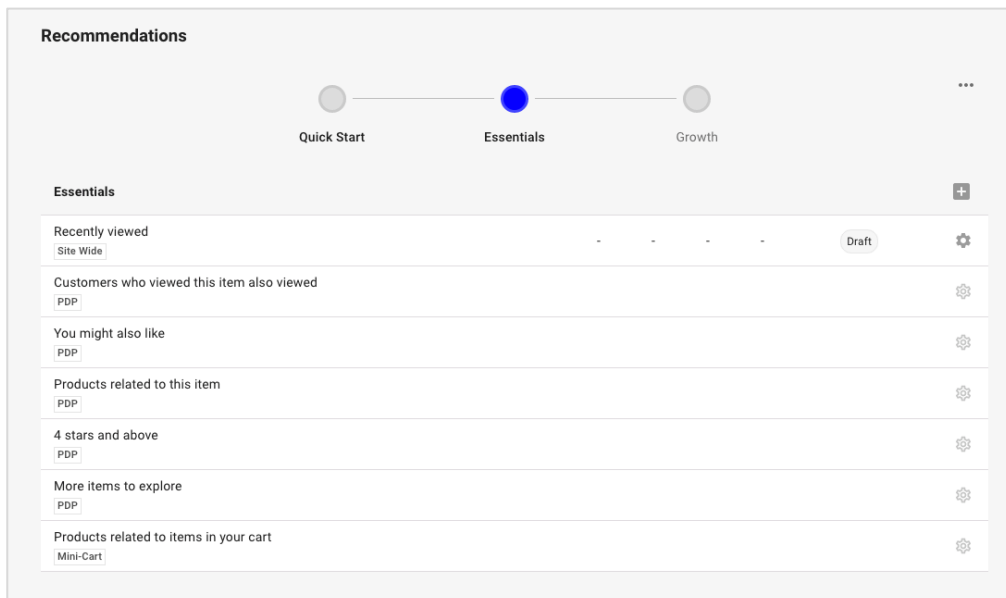
Done right, personalized product discovery generates high returns while boosting your brand's image.

The flipside? These new possibilities can be perceived as a burden for already stretched-thin eCommerce teams.

That's why HiConversion Recommend provides many built-in product features enabling non-technical and non-expert users to gain maximum benefits from this solution.

Guided Onboarding

With HiConversion Recommend you can take a broad range of actions to improve product discovery on your site. To help you quickly get going we group different recommendation options into three classes:

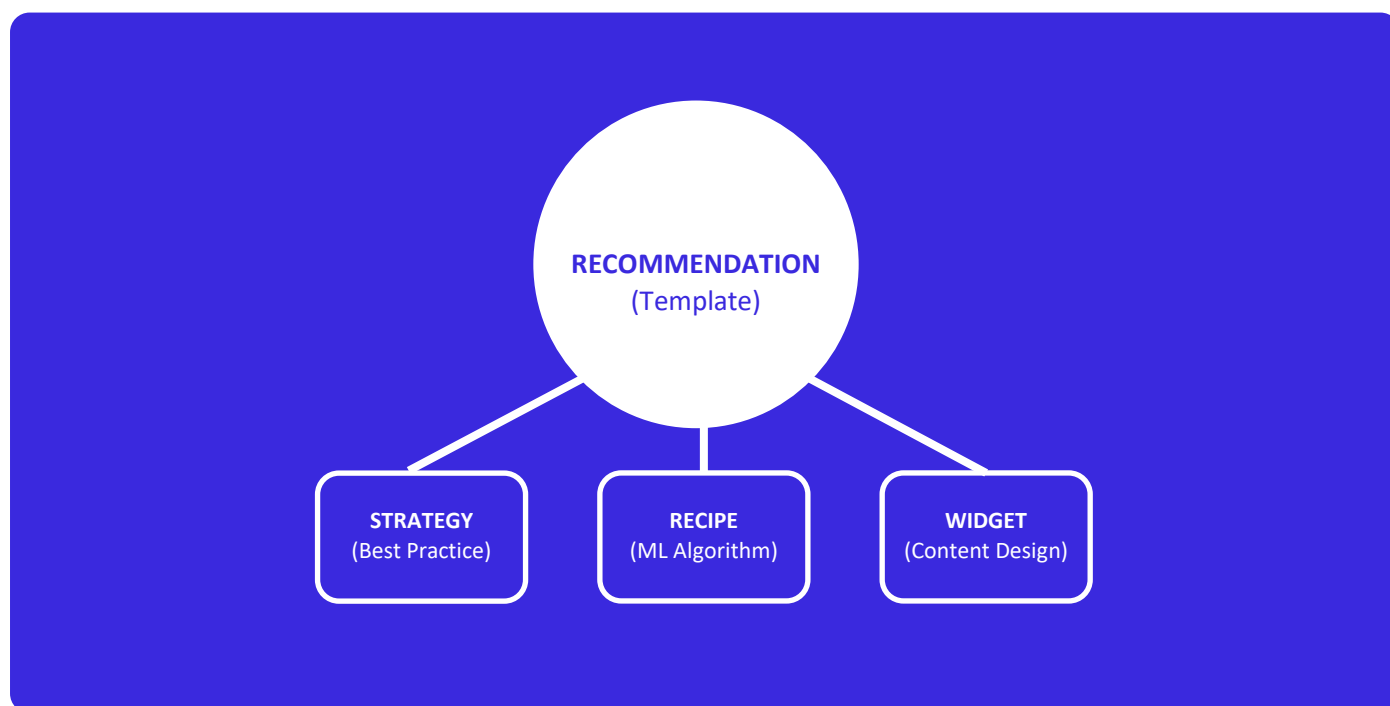


- **Quick Start:** a few recommendations that will enable you to quickly go live so you can validate that all systems are working and that you can use this app on your own;
- **Essentials:** a set of commonly used recommendations that will ensure a site wide use of the application;
- **Growth:** more advanced recommendations that will enable you to reach full benefits of the advanced session-based personalized product discovery;

Recommendation templates

The application is architected with many machine-learning systems ready to go so you can easily use as many different product recommendations as you wish.

To further simplify the use process, we also provide recommendation templates based on best practices for the use HiConversion Recommend. This way you do not need to be a data scientist or a recommendation strategist to effectively use the app.



Strategy: Your game plan, designed to maximize a specific business objective. For example, to show new visitors' products that match interests of cohorts grouped by channels, devices, and time of the day – the app provides a long list of strategies – just choose an appropriate strategy based on your business objective.

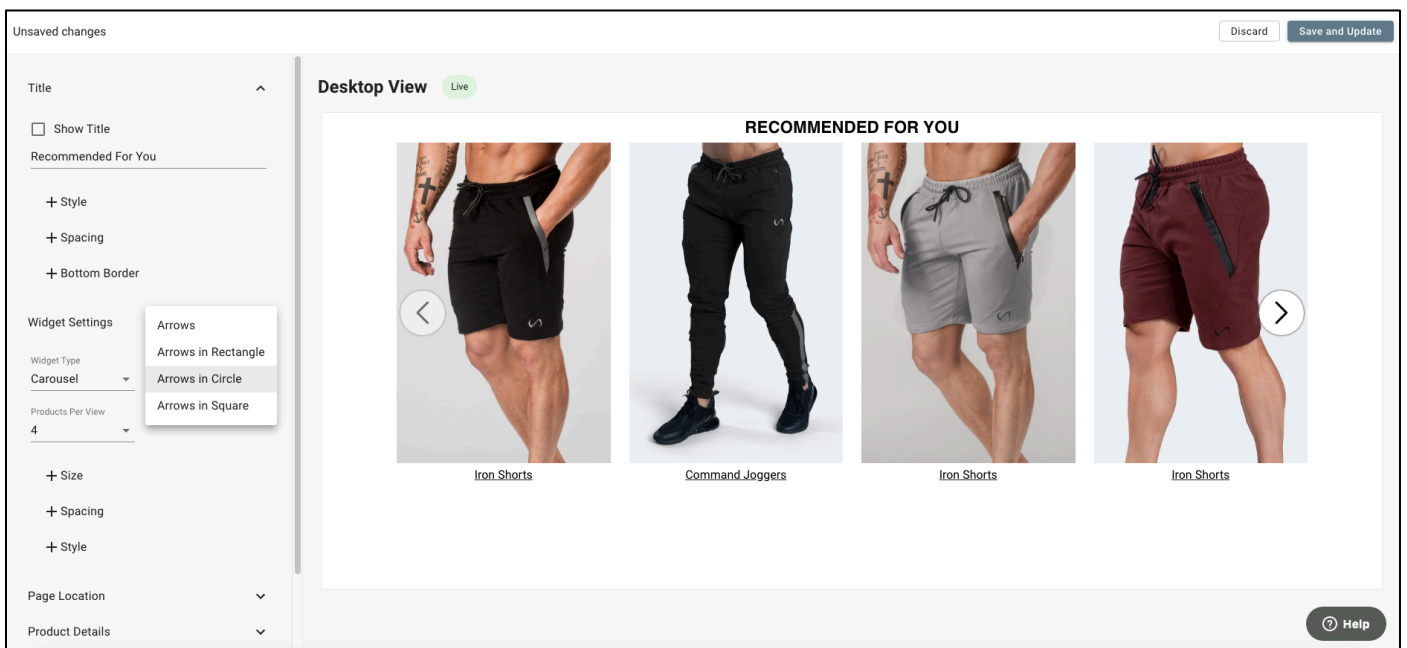
Recipe: Combines different deep machine learning algorithms trained on your store and website session-based data – all fully automated. The recipe information is purely informational to help you better understand of how your goal is achieved.

Widget: The visual output of the strategy with all details of placement, content elements, and styling for listing recommended products – here you can use the visual editor to customize the details, so your recommendations seamlessly blend into your site theme.

Visual editor

Since the perception is a reality, meaning, how you present recommended products is equally important as the smarts used to create a recommended list.

To give you a full control over the appearance of recommendations on your site we provide a visual editor that any non-technical user can use to customize the placement and look and feel of the recommended products.



You will be able to customize...

Page location: Where on the page you will inject your recommendation – you can pick a location from a drop-down list of common locations or make a custom choice by identifying a page element that our system will use as a marker for a custom injection point.

Widget settings: The content presentation section where you will select a type of widget and its layout properties. You will be able to control if and how widget will look like on a different device form factors.

Product details: This is where you will control the content of the individual product recommendation – product name, price, review rating, etc.

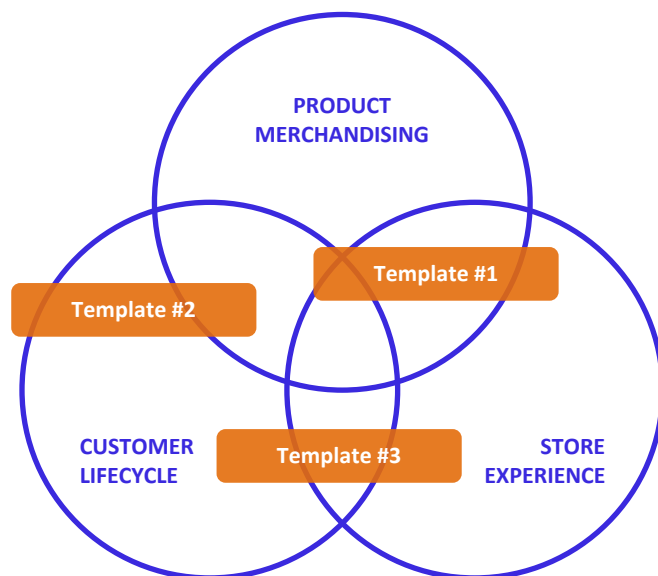
Choosing and Managing Product Recommendations

Picking the right product recommendation template among dozens of available options can be overwhelming – especially if you are new to personalized product discovery. You might also be concerned about risk of choosing the *wrong* recommendation strategy.

To meet these challenges, HiConversion Recommend is grouping product recommendations based on different types of strategies so you can easily select the right recommendation – plus, each live recommendation automatically reports its metrics so you can make a change as you go along.

The individual strategies and templates are not mutually exclusive. Many recommendation templates belong to multiple strategy types.

Types Of Recommendation Strategies



Product Merchandising

Product centric, comparable to how you might merchandise in a conventional brick and mortar store.

Site Experience

Content centric, approaching product recommendations as web content that supports brand image and general buying experience.

Customer Lifecycle

Visitor centric, leveraging the power of 'session-based' ML algorithms – adapting to visitor preferences in real-time along different phases of the customer lifecycle.

Management panel as content management system

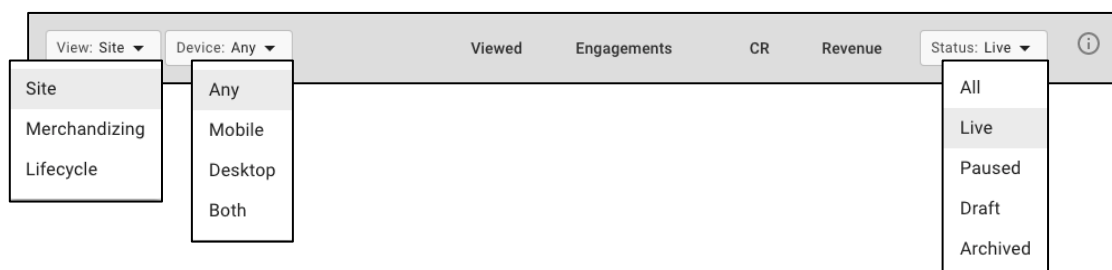
Once you fully embrace the Amazon way our expectation is that you will also gradually add dozens of live recommendations powered by smart algorithms creating personalized product discovery experiences.

To help you more effectively manage that additional content we are providing a management panel that acts as a super simple content management system:

Recommendations						
Results through personalization Last 2 Weeks						
Revenue per visit \$15.48 ↑245.4%	Conversion rate 23.29% ↑174.9%	Cart rate 69.58% ↑107.9%	Average order value \$61.34 ↑22.8%			
View: Site ▾	Device: Any ▾	Viewed	Engagements	CR	Revenue	Status: Live ▾ ⓘ
Home						
You might also like <small>Explore</small>		218,019	23,756	27.45%	\$457,385	Live ⚙
Category						
PDP						
Customers who viewed this item also viewed <small>Engage</small>		200,573	39,373	23.48%	\$618,214	Live ⚙
Mini-Cart						
Products related to items in your cart <small>Engage</small>		287,998	34,858	34.11%	\$791,553	Live ⚙
Cart						
Confirmation						
Site Wide						
Recently viewed <small>Engage</small>		118,963	30,019	23.86%	\$496,550	Live ⚙
Content						

All recommendation content management functionality is just a click away.

For example, by using a drop-down options you can easily filter the lists or recommendations based on the type of strategy, device form factor, or status:



Finding and adding more recommendations is simple. Just click on the '+' icon to see the library of recommendation templates:

View: Site ▾ Device: Any ▾		Viewed	Engagements	CR	Revenue	Status: Live ▾	ⓘ
Home	Add a product recommendation template						×
Title	Strategy					Location	
You might also like	Personalize product discovery for returning visitors					⚙ Home	
Most Popular	Promote to new visitors the products that are most often placed in the cart.					⚙ Home	
Related to items you've viewed	Show similar items to the most recently viewed items					+ Home	
Trending	Feature to new visitors the products which demand is increasing over time.					+ Home	
Top Reviews	Feature to new visitors the products that are getting best reviews					+ Home	




Management panel as an analytics dashboard

Key Performance Indicators are incorporated into your management panel. You'll see the value you are getting from HiConversion Recommend and make data driven decisions.

The aggregate results are calculated based on comparison of between results of visitors who engaged with recommendations relative to those who did not:

Results through personalization		Last 2 Weeks	
Revenue per visit	Conversion rate	Cart rate	Average order value
\$15.48 ↑245.4%	23.29% ↑174.9%	69.58% ↑107.9%	\$61.34 ↑22.8%

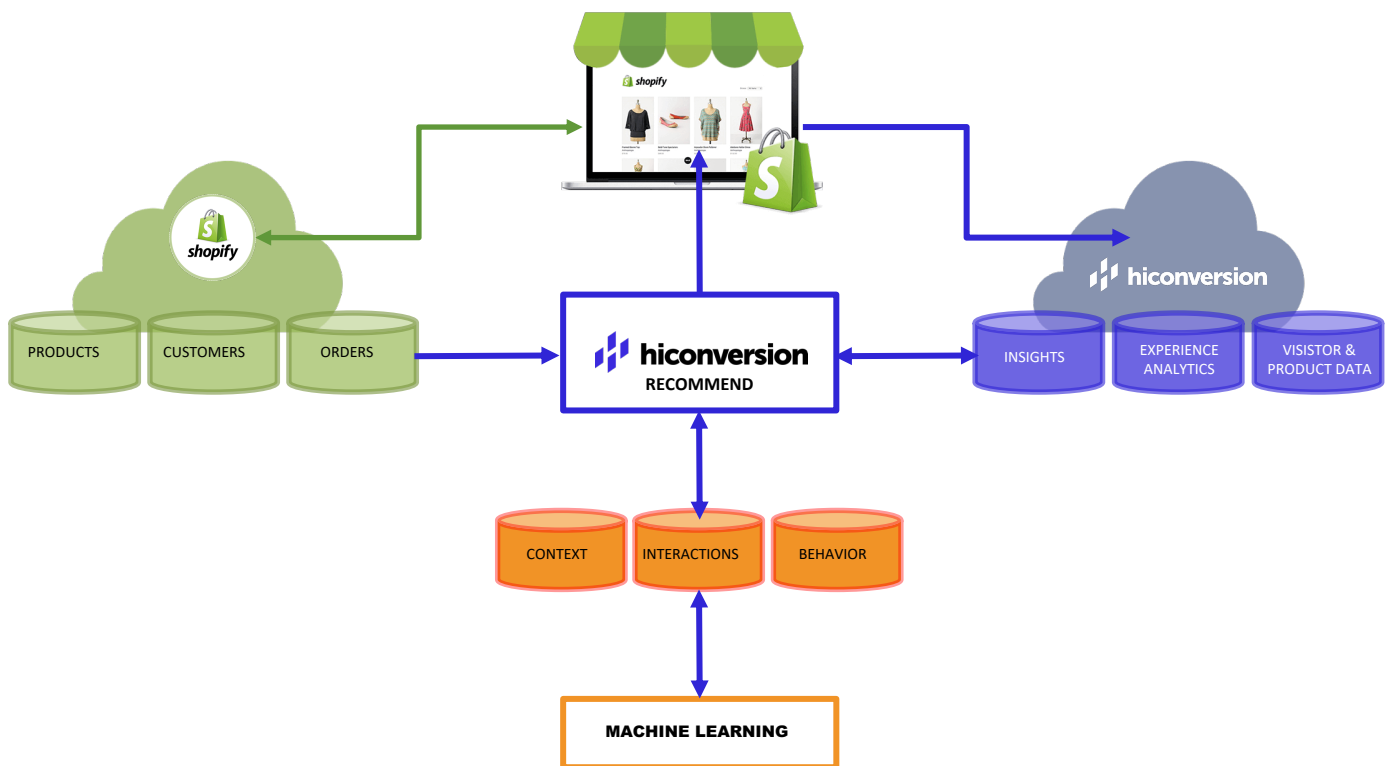
See how many times a recommendation was viewed, how many visitors engaged with it, how many converted from it, and how much of revenue can be attributed to each one:

View: Site ▾ Device: Any ▾		Viewed	Engagements	CR	Revenue	Status: Live ▾	
Home							
You might also like		218,019	23,756	27.45%	\$457,385	Live	
Explore							

Powered by Rich Data

This section explains how personalized product discovery works and why its operation requires a tight integration with your Shopify store together with operational orchestration and a fully automated HiConversion workflow.

We're showing you the moving parts to give you a piece of mind. You'll see the solution complies with the highest security, privacy, fault tolerance, and performance standards.



Shopify integration: By installing HiConversion Recommend, you initialize the process of integration with your Shopify store and the transfer of non-personal data sets from Shopify data store. This begins the training of machine learning algorithm. HiConversion Recommend is a Shopify Plus certified application that complies with Shopify's strict legal, insurance, privacy, security, and performance standards.

Store theme integration: During installation, HiConversion Recommend injects a small JavaScript tag into your store's theme. This is used to display your product recommendations into the web pages and then track visitor engagement. The content is delivered asynchronously via Akamai's CDN network which ensures the tag is fault tolerant and that product recommendation delivery has a minimum impact on the page load time.

Rich session data: Session-based recommendations depend on access and effective use of rich visitor session data. HiConversion Recommend uses the tag embedded into your store theme to track visitor interactions – together with contextual and behavioral meta data – to feed the machine learning systems. This allows them to make real-time session-based recommendations.

Machine training data sets: Different recommendation strategies use different recommendation recipes and associated training and ongoing use of data sets. HiConversion Recommend integrates fragmented data between your Shopify store and its own rich session data into a seamless data system and then maps it into data schemas required by different recipes.

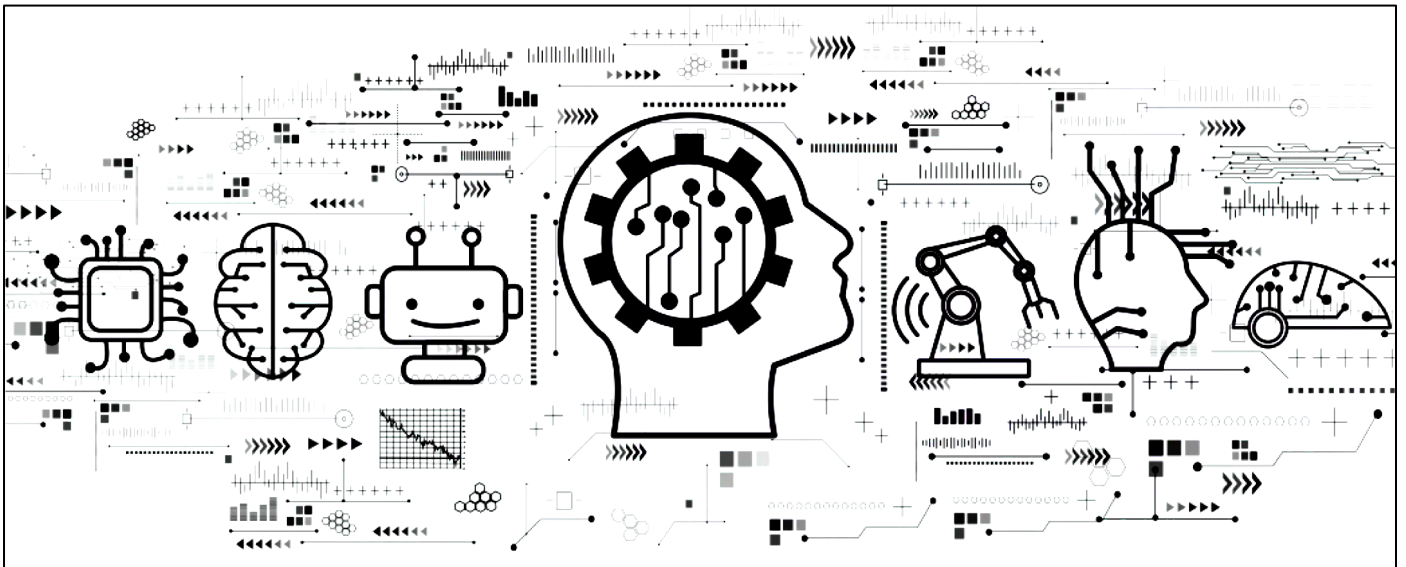
Machine training: As soon as you activate HiConversion Recommend all systems are put in high gear to fetch and integrate the available data and then to use machine learning systems to train all recipes and make them ready to go whenever you want to go live. After you go live the data is enriched by live session data enabling machine learning to continually learn and produce better and better recommendations.

Automated workflow: The continuous process of personalized product discovery requires a complex orchestration among different systems. HiConversion Recommend uses automated workflows that ensures uninterrupted flow of data, ongoing training of machine learning systems, and a smooth delivery of ultra-relevant product recommendations.

Recipes

A recipe is an Amazon Personalize term specifying an appropriate algorithm to train machine learning system for a given personalized product discovery use case. HiConversion Recommend has many ready-to-go recommendation templates that use many different recipes, so you can create better product discovery experiences in your store without prior machine learning experience.

What is machine learning, anyway?



Machine learning is an application of artificial intelligence (AI) that provides the ability to automatically learn and improve from experience without being told by a software programmer what to do. Machine learning focuses on the development of computer programs that can access data and use it to learn for themselves.

We are all experiencing the impact of machine learning capabilities in our day-to-day lives. It powers many of the services we use today—content streaming platforms like Netflix, YouTube, and Spotify; search engines like Google and Baidu; social-media feeds like Facebook and Twitter; voice assistants like Siri and Alexa. The list goes on.

In each instance the data about what genres you like watching, what links you are clicking, which statuses you are reacting is processed by machine learning system to make a highly educated guess about what you might want next.

The algorithms are the engines of machine learning, meaning it is the algorithms that find those patterns in massive amounts of data about metrics, attributes, words, images, clicks, what have you.

The most advanced algorithms are the deep learning (DL) algorithms that represent machine learning on steroids: it uses a technique that mimics how human brain works to give machines an enhanced ability to find—and amplify—even the smallest patterns. This technique is scientifically called a deep neural network—deep because it has many, many layers of simple computational nodes that work together to munch through data and deliver a final result in the form of the prediction.

Not all ML or DL algorithms are equally powerful – **The *type* of algorithm powering your product recommendation solution matters.**

Conventional Recommendation Methodology



They are designed to use the transaction data from the past store visits to train their algorithms to generate product recommendations for future visitors to your store. They assume that learning from historic data will produce recommendations that will improve the product discovery experiences and conversion rates for all future visitors.

This sounds very logical and very promising, but this approach has a few major flaws:

Flaw #1: Visitors who converted aren't the same as visitors who didn't

The algorithms are trained to recognize preferences of 2% to 10% of all visitors on your site who either bought something or meaningfully engaged with your site in the past. This leaves out 90% or more of non-shopping visitors. Their preferences are not known to the algorithm and will be least likely to be influenced by conventional recommendations. If non-shoppers had the same preferences as shoppers, they would be shoppers already.

Flaw #2: Visitor needs, and preferences are always changing

Presenting recommendations only based on historic data is like driving the car while watching in the rear-view mirror. The very same shopper might have a completely different needs during the next visit. Plus, there are seasonal changes, holidays, current affairs, and other unpredictable events that may significantly impact behavior of visitors on your site.

Flaw #3: Visitors don't always know what they want

Conventional recommendations will limit innovation and growth potential of your site. Their algorithms are trained with historic data and only serve customer that behave in the same way as your existing customers. This prevents you from influencing new segments of visitors who otherwise wouldn't become your customers.

New, Amazon's session-based methodology

Amazon, with its Amazon Personalize deep machine learning technology, is changing the product recommendation and product discovery paradigm:



The session-based recommendation methodology is not ignoring the historic data. It is using it to initialize the recommendation process and to get ready to go live until it starts receiving a live session data.

After the first engagements with live visitors the new recommendations are generated in the real time based on visitor's behavior and context during the buying session.

This approach is overcoming the major flaws of the conventional solutions while creating significant advantages:

Advantage #1: unlocking the revenue potential of 90% of non-shoppers

HiConversion Recommend that is powered by Amazon Personalize session-based machine learning algorithms is no longer treating non-customers in the same way as customers – it instead constantly learns and adapts to visitor preferences in real-time.

Advantage #2: ability to adapt to changing preferences

Unlike conventional recommendation solutions where recommendations for known cohorts are locked, recommendations generated by HiConversion Recommend are fluid. Ongoing buying signals are continually steering the machine algorithms in the direction of more relevant recommendations in real-time.

Advantage #3: enabling business innovation

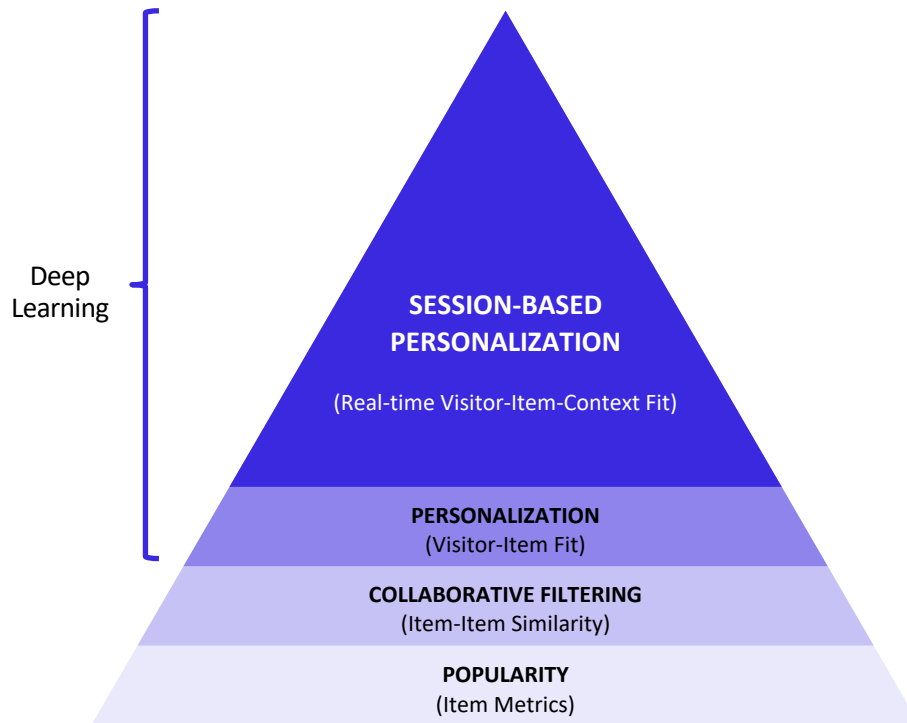
The fluidity of session-based recommendations in combination with rich data analytics is enabling discoveries of new types of customers or creating an unknown demand for certain types of products.

Types of recommendation algorithms

Under the umbrella of the recommendation methodology there are many types of recommendation algorithms developed to serve a wide variety of product discovery scenarios.

Which kind of algorithm works best depends on the kind of problem you're solving, the computing resources available, and the nature of the data.

The following illustration is a simplified classification of the algorithms used for personalized product discovery:



Popularity: the simplest algorithms that use item metrics to rank products on the basis of their sales, trends, popularity, etc. More advanced versions may have the intelligent scoring mechanism that account for merchants' objectives like to recommend products that also maximize the profit.

Collaborative Filtering: algorithms that are making contextual recommendations based on detecting lookalike items or shoppers.

Personalization: algorithms that are making personalized recommendations by leveraging descriptions of item and visitor profile to detect preferred choices.

Session-based Personalization: these are the most advanced algorithms that are using live session data to generate the most relevant product recommendations in real time.

These algorithms can be mixed and matched by different recipes in support of a broad range of recommendations strategies.

READ NEXT

[Product Merchandising Strategies](#)



About HiConversion

HiConversion is the eCommerce Intelligence™ platform helping merchants personalize and optimize shopping experiences to maximize revenue from every visitor session.

From our HQ in Boca Raton, FL, we serve eCommerce innovators all over the world including: P&G, Timex, Pat McGrath, Kiehl's, Tula, and many more.

Learn more at www.hiconversion.com