



ditto

eCommerce Buyer's Guide

Version 1.01

Virtual Try-On and Frame Recommendations for Online Eyewear Retailers: A Buyer's Guide

Eyewear is notoriously difficult to buy online. eCommerce conversion rates for eyewear retailers typically range between 0.5-2.0%¹ vs 13%+ for Amazon², 4.2% for apparel and footwear³ and 2.9% for jewelry and cosmetics.

Ditto has conducted extensive research to understand why buying eyewear online is so challenging. When our cofounder, Kate Doerksen, was starting the company, she interviewed over 3,000 customers buying eyewear. At Ditto, we work closely with over 125 eCommerce websites that use our technology. We have over 50 million customers who use our technology each year across a wide range of sites from luxury brands to value retailers all over the world. This puts us in a unique position to assess common friction points in eyewear eCommerce sites.

We have broken the problem down as follows:

1. Fit really matters for comfort and sight.
2. Personal preference is important since it's worn on the face and says a lot about your style.
3. The frame and lens choice is overwhelming for customers. Since most customers don't buy eyewear frequently, they aren't familiar with eyewear terminology which adds to the feeling of confusion and the sense of feeling overwhelmed.
4. Eyewear is typically expensive.
5. Prescriptions are confusing, not accessible, outdated or nonexistent.

1. Internal data we have from clients (purchases/sessions which is apples to apples with the benchmarks)
2. <https://www.growcode.com/blog/e-commerce-conversion-rate/>
3. <https://www.smartinsights.com/e-commerce/e-commerce-analytics/e-commerce-conversion-rates/>

It's a hard item to buy in stores, let alone online. Confidence needs to be really high especially at higher price points. There are a number of emerging technologies aimed at reducing the various friction points. Two that we'll focus on in this Guide are:



Virtual Try-On. This gives customers the chance to try the glasses on virtually, showing how the glasses will look and fit. This inspires the confidence to buy.



Frame Recommendations. This helps customers quickly hone in on pairs that will fit them, work for their prescription and match their style preferences. Simplifying frame discovery personalizes the customer experience, further increases conversions and reduces returns.

When choosing a virtual try-on solution and frame recommendation technology for your eyewear site, it's important to understand what you should be looking for and why.

Not all virtual try-on technologies are equal. There are differences in the technology, from the accuracy of the face measurements to the fit of the frames on the face, to the realism of the augmented glasses.

The quality and feature set of frame recommendation technologies also varies. There are key differences in the level of automation and sophistication of the recommendation algorithms.

Before you make this critical investment, you should know what to look for when choosing virtual try-on and frame recommendation technologies. Making the right decision will give your customer the best shopping experience, increase sales and reduce returns for your business.

Virtual Try-On Technology

Virtual try-on (VTO) technology is one of augmented reality's most compelling use cases. It enables eyewear to be superimposed onto a person's face so they see how they will look in a given pair of eyeglasses or sunglasses.

Customer's typically use virtual try-on technology midway through the eCommerce eyewear shopping experience when they're honing in on their favorite pair, or ready to make the purchase, and want to confirm it looks great and fits before they buy.

According to the 2018 Vision Council's Internet Influence report, the most common reason people don't purchase glasses online is because they want to physically try-on glasses. This was true for 35% of recent eyeglass buyers.

Creating a virtual alternative will increase your conversion rate from direct eCommerce purchases and home try-on purchases. It boosts customer satisfaction and certain virtual try-on technologies can also reduce returns.

When deciding between the various virtual try-on options available, we recommend you evaluate the two virtual try-on methodologies and the key criteria for each listed below.



Virtual Try-On Methodologies

The two virtual try-on methodologies for virtual try-on technology are:

1. **Video.** In this method, a customer records a short video of themselves turning their head from side to side. The glasses are augmented back onto that saved video and can be used interactively.
2. **Live.** In this method, a customer sees the glasses augmented over their live camera feed.



After careful consideration, Ditto chose a video method for the following reasons:

1. **Visual Impairment.** Many eyeglass wearers have visual impairment. When they take off their glasses, they have a hard time seeing the screen. According to the Vision Council, 64% of Americans wear eyeglasses⁴. According to Statistica, 48% of Europeans wear glasses. 68% of people in the United Kingdom, 63% of people in Germany, 58% of people in France, and 51% of people in Italy. Even for groups selling plano sunglasses, this is a high percentage of customers who won't be able to see themselves in a live feed without their glasses. Wearing your glasses in a live virtual try-on for eyewear creates a visual of the virtual glasses augmented over the physical glasses and oftentimes messes up the feature detection needed for it to work at all.

4. https://www.thevisioncouncil.org/sites/default/files/research/VisionWatch_VisionCouncil_Member_Benefit_Report_September%202016_FINAL.pdf

- 2. Precision and Fit.** The video approach enables more precision on the fit, positioning, measurements and scaling of glasses on the face. More on this below.
- 3. Reusable.** Eyewear is a highly considered purchase. Customers rarely impulse buy prescription glasses and oftentimes make many repeat visits back to a site before buying. Video VTO enables the customers Try-On to be saved and used again on repeat visits avoiding the need to access the webcam again.
- 4. Marketing.** These saved Try-Ons also create powerful marketing opportunities to retarget customers and drive them back to your website. For example, you can send out a personalized email to each customer showing them how they look in a new arrival.
- 5. Accessibility and discretion.** Customers shop in bed at night, on the train to work, at their desk at work, in public on their phone, etc. It's not always an option to access your live camera to do a VTO. The video method enables you to use a saved Try-On and view it anywhere, anytime comfortably. This is particularly important for highly considered purchases like eyewear.

There are benefits to a Live method as well:

- 1. Immediacy.** After a customer allows access to their camera, they center their face in an oval on the screen and remove their existing glasses. From there, the virtual glasses appear on their face without the need to follow instructions to turn their head.
- 2. Range of motion.** Customers can see glasses on their face with a wider range of motion including the ability to move their head up and down. Most customers tend to primarily move side to side but there is more fluidity with the method.

We think both methods have merit and are well suited for different use cases. We believe the Video method is a better sales tool and leads to higher conversion rates, more overall usage and fewer returns. We also believe the Video method is a better engagement tool.

Key Evaluation Criteria

In addition to the methodology, you should evaluate virtual try-on technologies & providers using these 12 criteria:

1. Fit and Positioning: how well the glasses fit and are positioned on a customer's face
2. Measurements and Scaling: the accuracy of the measurements and scale of the glasses on the customer's face
3. Ease of Use: the ease of use and flow of the experience
4. Realism: the realism of the glasses on the face
5. Digital Glasses Quality
6. Marketing Capabilities
7. Browser, Device and Native App compatibility
8. Existing Digital Glasses library
9. New Digital Glasses creation process
10. Privacy, Security, Data and Compliance
11. Implementation and Onboarding
12. Customization, Languages and Support

Fit and Positioning

An accurate fit is critical to increasing customer confidence by showing the frames positioned accurately on the face as they move.

You can tell if a frame is positioned correctly on a customer's face by looking at whether the glasses are properly occluded around their nose. You don't want the glasses cutting into the customer's nose bridge or floating on top of the nose bridge.

Key Evaluation Criteria

You can also look at how the glasses stay on the face as the customer turns her/his head. You want to ensure the glasses stay steady on the face without wiggling and that they don't pull off the face as the customer turns their head to an extreme side angle.

Lastly, check out the placement of the temple arms relative to the customer's ears. You want to ensure the glasses are properly placed above the ear juncture and are not cutting into the head, overlaying the ears or stopping short of the ear juncture.

Here's an example of fit using Ditto's VTO versus another VTO:



Ditto's VTO



Others

Measurements and Scale

Most customers are nervous to buy eyewear online because the measurements of the glasses and lenses are so critical to wearing glasses comfortably and seeing clearly.

Traditionally, there are three key measurements for glasses: the eye size (the width of the lens, measured from the bridge, in millimeters), the bridge size (the distance between the lens, in millimeters), and the temple size (the length of the temple arm in millimeters). Customers might be able to find these measurements printed inside the temple arm of their glasses and there are several websites that offer the ability to enter your eyewear measurements to find other glasses that have similar measurements.

Unfortunately, there's no consistency across frame manufacturers of how they measure eye size and bridge size. Additionally, it's important where the temple bends above the ear and not just the total length of the temple arm. This makes it very challenging and problematic to trust the measurements on one pair of glasses to purchase another pair with the same eye size, bridge size and/or temple size.

As such, it's critical that you find a virtual try-on tool that is capable of automatically and accurately analyzing the size of the customer's face, and scaling the glasses to the customer's face so they can see for themselves if the frames are too large, too small, or otherwise ill-fitting.

Ease of Use

Using virtual try-on should be a seamless experience and fun for customers. Consider all of the pros and cons of a video or live solution to match your needs which are described above. Ditto offers the ability to save your Try-On so it's accessible on return visits without the need to even access the webcam.

You'll want to enable customers to use the Virtual Try-on to help them hone in on the pair they want to buy. As such, it's critical they can try on multiple pairs quickly one right after the next. Therefore, you want to ensure you have a high number of frames digitized for use with the Virtual Try-on given it can be frustrating for customers if they are limited to only trying on a few select styles.

Additionally, your virtual try-on technology partner should perform a deep integration with your e-commerce platform of choice, whether it be Shopify, WooCommerce, or otherwise. This creates a smooth, comfortable experience for your customers. Some virtual try-on technologies only work in a modal pop-up window, typically on the product display page. This method makes it challenging to see multiple pairs quickly and the user experience especially on mobile devices.

Realism

When choosing a virtual try-on solution you should consider both you and your customer's expectations for quality and realism. The goal should be to create as realistic of a visualization as possible to increase conversion and reduce returns.

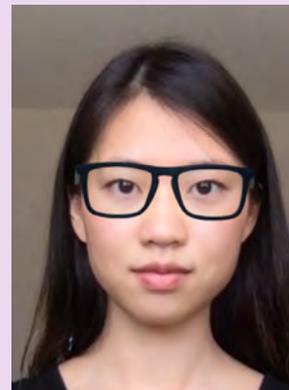
There are several dimensions of realism to consider:

1. **Adaptive lighting.** The technology should detect the lighting in the customer's environment and then automatically adapt the lighting in the virtual pair of glasses. Bright glasses on a darker lit face tend to make them look cartoonish.
2. **Realistic Shadows.** The technology should detect the light and the customer's face structure to cast shadows realistically. This is a major driver of realism.
3. **Attention to Detail.** You want to ensure the embellishments, logo design, end pieces, etc are representative of the physical frame.
4. **Resolution.** Another consideration for realism is the resolution of the rendered glasses on the face. Low-quality resolution can make the glasses look pixelated. HD quality is preferred for realistic imagery which provides the best customer experience.

Here's an example of Ditto's VTO versus another VTO:



Ditto's VTO



Others



Digital Glasses Quality

Digital glasses are 3D reconstructions of the physical products. They should be high quality, and the shape and color of the digital glasses should match the physical products with a high level of detail. The proportions of the frame need to be very accurate to show an accurate fit and positioning on the customer's face.

A superior customer experience requires visually stunning digital glasses. For the customer, this is the most visible part of the technology when going through the virtual try-on process. This means that the quality of the digital glasses has a significant impact on how effective the virtual try-on platform is on improving sales and returns.

Marketing Capabilities

The ability to save the customer's Try-On and data to their account will enable you to garner insights to maintain meaningful connection with those customers between site visits. The ability to save their Try-On also drives up the amount of customers who want to create an account and enables you to build a large customer database.

As such, you will want to ensure your VTO has the ability to save the customer's face and data and has an API that enables you to access that information. Ditto's Marketing API enables you to create visuals of any frames on any face in a picture, video or gif to use in various marketing activities.

One common use case from Ditto's customers is sending out an email to customers of them wearing a recommended frame or New Arrival. These emails with the customer wearing a frame perform 10x better than their AB tested counterpart- just the product image- without an uptick in unsubscribes.

Another common use case is the ability to enable social sharing so customers can ask their friends and family for trusted style advice. Ditto's Marketing API enables you to create all sorts of social sharing functionality including but not limited to:



1. Enabling customers to share favorites on Facebook for advice from friends



2. Sending SMS or iMessages to your customers so they can easily create Instagram Polls between two favorites



3. Allowing customers to email their Try-On to friends or family.

This social proof helps increase conversions, engagement and drives traffic back to your site. These capabilities are crucial to nurturing the customer relationship, and given the relatively low frequency of eyewear purchases, these tools can help you shorten your purchase cycle.

Browser, Device, and Native App Compatibility

Glasses are a highly considered purchase, requiring several sessions, each taking 5 - 15 minutes on average to complete a purchase. Therefore, being able to use any device — whether that be a computer, tablet or mobile phone — and have your data saved to use across any device at any time, is extremely important.

Most eCommerce sites sell glasses using a mobile-friendly website. If you are one of these groups, you'll want to ensure you have broad browser compatibility and that the technology will work on a wide array of mobile devices.

If you also have an iOS and Android native application (an app distributed through various App Stores), you will want to ensure your VTO technologies have iOS and Android native support.

Ditto's technologies work across the two most recent major releases of all major browsers and on native apps. We also support a wide array of devices. We use feature detection to optimize each experience with the browser and device used. Many VTO tools are only compatible with HTML5-enabled web browsers and don't work across a wide range of browsers.

Check your analytics to assess your traffic across browsers and devices to

understand your needs. Good coverage will be critical to creating a great user experience and ensuring that usage of the technology is high. Usage is a key ingredient to seeing a large ROI from the investment in VTO.

Existing Digital Eyewear Library

To create the simplest onboarding process and implement as quickly as possible, your virtual try-on should have an expansive database of digital glasses. They should also have relationships with all the major manufacturers so they can keep their database up to date as new collections launch several times a year.

Ditto has over 60,000 frames in our Digital Eyewear library and creates thousands of frames monthly. This has been years in the making. We have direct relationships with key frame manufacturers globally and are working towards having the world's glasses in our database in the next two years.

New Digital Glasses Creation Process

For frames that are not already in the Digital Eyewear Library, you will want to ensure there is a streamlined process to get new styles digitized. This is relevant for all groups who sell private label collections or brands.

Some virtual try on technologies require you to ship physical frames. Coordinating sample frame shipment of new arrivals and then waiting for them to be photographed and digitized can cause headaches and delay implementation. For faster implementation time, choose a virtual try-on technology that can use existing product imagery and a single measurement to create your digital frames.

Privacy, Security, Data and Compliance

It is critical that your virtual try on technology has an infrastructure built on enterprise-grade security that is HIPAA compliant (for those in the United States) and GDPR compliant (for those in Europe). You will also want a technology partner that can be flexible around your own data needs.

Make sure you're working with an experienced client success team, data security team, and infrastructure team capable of providing IT support and a strict service level agreement (SLA). This is critical to the success and safety of your customer data.

Ditto takes privacy and security very seriously. With Ditto, you will always own your customer data- we never share data with other clients. Our role is to host your solution and ensure your customer data is secure, and we can even recommend best practices for collecting customer consent.

The advantage of saving the customer's data with their consent is so that the customer can reuse the Try-on across devices and visits and you can personalize the experience and marketing communications with the saved information. That said, we have a variety of configurations that enable you to save as much or as little data as aligns with your goals, you also have the option to not save any data.

Implementation and Onboarding

To make the most of your investment, you will want to ensure that the virtual try-on technology is integrated well within your existing eCommerce experience so customers can use the technology seamlessly as they shop. It's important to work with a virtual try-on provider with the expertise to best implement the technology considering your unique needs.

It's also important to work with a virtual try-on provider that can give your developers great documentation, access to a testing environment, and be responsive to any technical questions. This helps speed up the total engineering time spent on integration. Time to implement can vary depending on the needs of your company and the complexity of the integration, but typically a 90 day expectation is reasonable.

Customization, Languages and Support

You will want to ensure that the experience looks seamless on your website and that the interface is customized to match your brand and style guidelines. You will also want to ensure your virtual try-on technology partner can offer the languages needed.

Ditto enables you to customize elements like your font and color specifications in order to ensure the aesthetic is consistent with your style guide. We currently support 22 languages and have the ability to add more as needed.

Make sure you're working with an experienced client success team who can guide you through implementation seamlessly and ensure the technology is successful once integrated. You want a responsive partner who will be data-driven and can provide insights that will help you maximize your ROI and create a great customer experience.

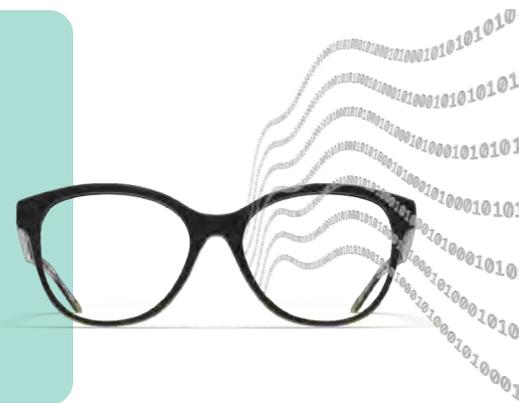
Frame Recommendations

While some of your site visitors will come knowing exactly what frame they want to buy, the majority of visitors search through your collection to find a frame they like. One way to increase your conversion rates is to provide tools to help customers find frames. Common ways to address this include frame recommendations, style quizzes, and face shape guides. The most robust of these is frame recommendations which we'll focus on in this guide.

Customer's typically use frame discovery tools first (or very early) in the eCommerce eyewear shopping experience. Frame recommendations make suggestions to customers about which frames they might want to purchase. The ability to recommend frames simplifies and expedites frame discovery and improves the overall customer experience, resulting in higher sales. With some technologies, it can also reduce returns.

The quality and feature set of frame recommendation technologies varies. When deciding between the various frame recommendation technologies available, we recommend you evaluate the following criteria:

1. Ease of Use and Level of Automation
2. Amount of Customer Data Ingested and Used
3. Frame Data Used
4. Nuance and Sophistication of the Algorithms
5. Dynamic Updates



Ease of Use and Level of Automation

You want the recommendations to be robust while keeping the experience easy for customers. The best way to accomplish this is to automate the detection of the data needed from the customer and not require the customer to manually click through a questionnaire or enter too much information.

This can occur through an implementation where the frame recommendation provider can access and use the data from your CRM automatically. It can also occur if the technology can detect things about the customer automatically. This can range from the location they're in, demographic information collected from cookies, or from features that are detected about the customer's use of computer vision.

Ditto's technology analyzes the customer's face and can determine the face shape and key measurements needed to drive a powerful recommendation automatically without the need for customers to enter information.

Amount of Customer Data Ingested and Used

There is a common phrase used when describing a lot of recommendation systems: "Garbage in, garbage out". This refers to the importance of getting good data as the starting point so you can produce quality recommendations.

It's important that any data ingested is accurate. You also want to ensure you have enough data being used to make a really good recommendation so customers like the frames being recommended and trust frames presented to them.

Frame Data Used

It's equally important to have robust, accurate data about the frames that is consistent across the entire collection. This is particularly challenging if you sell multiple brands from different frame manufacturers because the data and methods vary drastically by frame manufacturer. We have found large discrepancies in how different frame manufacturers do frame measurements.

Ditto has a proprietary process where we extract additional data about each frame during our digital glasses creation process. Examples include the thickness of the eyewire at various points around the frame, various proportions of the frame, embellishment details, etc. We also take time to scrub all of the data and make it consistent across brands. This gives us confidence that we are able to provide great recommendations.

Nuance and Sophistication

You want a recommendation system that is nuanced and sophisticated to produce credible results so that the frames recommended are trusted by the customer. Some tools marketed as recommendation engines are nothing more than a series of customer-entered filters. Other recommendation engines have an overly simplified mapping from a manually entered face shape to a frame shape. You should consider a more robust option that includes a rules-based engine and/or machine learning functionality depending on the amount of data available.

Ditto takes into account dozens of customer data points and frame data points to create nuanced frame recommendations. We use machine learning to train the algorithms and provide credible results to customers.

Dynamic Updating

Customers want to buy glasses that both fit them and match their personal style. When a customer uses filters on a site or indicates style preferences, you want to ensure that input is dynamically updated in the frame recommendations. Consider a system, like Ditto's, that dynamically updates as new preferences are added by the customer.

Summary

You can learn sign up for a demo at www.ditto.com/contact.