



REPORT

How AI will supercharge the future of fit for apparel brands and retailers



BOLD METRICS

Introduction

How AI can address the complexities of sizing to create better personalization, reduce returns, optimize operations and improve sustainability while driving efficient business growth and resiliency for apparel brands and retailers.

Executive summary

This report presents a deep dive into understanding how AI impacts apparel sizing and the multi-faceted complexity of solving fit. We explore the effectiveness of current fit technology solutions, their industry applications, and how brands can leverage AI to reduce returns, drive sales, and impact marketing through actionable insights and targeted consumer engagement.

The report also looks at how *AI-powered fit solutions enable companies to optimize operations with data-driven insights and compares size recommendation solutions currently on the market*, both in accuracy and adoption. It examines the inception of industry standards in apparel sizing and measurements, along with its limitations and failures, and outlines how the industry and its customers have adapted as technology has improved.

We take a critical look at apparel returns and their far-reaching consequences, the consumer (and brand) behavior driving this, and the economic and environmental impact of returns on the industry. We explore in detail the pros and cons of size recommendation solutions currently available and convey the data-driven aspect of **how AI and Machine Learning technologies can quantifiably drive down returns** and foster positive long-term results.

Highlights

- Examines how apparel brands and retailers use **AI-powered fit and sizing tools** to go beyond size recommendations, generating data-led insights that will impact the organization from design to distribution.
- Compares the current fit technology tools available in the ecosystem and how they stack up with customer adoption and scalability.
- Explores how apparel brands like Canada Goose, Men's Wearhouse, and Blue Delta Jeans Co. have implemented AI sizing solutions and the results on return rates.

Apparel sizing standards are flawed

"Failing to solve the problem of fit isn't an option."

—Tracy E. Robey, Vox Media⁶

"Standard" sizing is a myth

The problem of size consistency has been a part of the ready-to-wear apparel industry since its inception over a century ago. The first large-scale survey of women's bodies was completed in 1940,¹ but the inaccuracies of the data set, along with inherent data bias, resulted in more problems than solutions.

After trying to fix the data for several decades, the resulting recommendations² were abandoned in the 1980s. What remains is what we still deal with today: sizing charts that vary widely from brand to brand and have continued to shift measurements from year to year.

As a result, today's size 00 is yester-year's size 8;³ a size 8 fits an entirely different body type depending on the retailer, even within the same family of brands⁴ up to 40% of clothing gets returned due to sizing issues. **Significantly, up to \$260 billion worth of apparel is returned each year globally, with approximately \$93 billion being from the US alone.**⁵

Returns are big business

A McKinsey Returns Management Survey conducted just before the COVID-19 pandemic noted a 25 percent return rate for apparel on eCommerce channels, compared to 20 percent overall. With the sector's eCommerce growing about 35 percent in 2020, and an estimated \$7.3 trillion in worldwide online sales predicted by Statista by the year 2025,⁷ the acceleration of eCommerce's, along with fit and sizing's, impact on returns cannot be understated.

Typically, the more "fit sensitive" an item is, the higher the likelihood of being returned, making fit a crucial driver behind apparel returns. According to research from Sucharita Mulpuru at Forrester, offline returns average around 10%, online purchases clock in at 20%, and "expensive" online purchases see returns of up to 50% or more.

¹ "The Bizarre History of Women's Clothing Sizes", TIME Magazine, October 23, 2014.

² "Body Measurements for the Sizing of Women's Patterns and Apparel", US Dept. of Commerce, September, 1971.

³ "Why Women's Clothing Sizes Aren't What They Used to Be", Wall Street Journal, May 24, 2019.

⁴ "Whose Size 8 Are You Wearing?", The New York Times, April 24, 2011.

⁵ "A more than \$761 billion dilemma: Retailers' returns jump as online sales grow", CNBC, January 25, 2022.

⁶ "Anyone with a body knows that clothing sizes are flawed. Could there be a fix?", Vox Media, October 17, 2019.

⁷ "Retail e-commerce sales worldwide from 2014 to 2025", Statista, September 14, 2022.

Customer behavior around size uncertainty

94%

of respondents surveyed cited size/fit as the most frustrating aspect of online apparel shopping.⁸

The size is (not) right

A dominant driving factor for high apparel returns is sizing uncertainty. Sizing inconsistencies across brands translate to sizing uncertainty among shoppers, which impacts return rates. What is worse for brands is that when customers face sizing uncertainty, many hesitate to complete the purchase.

The bedroom as changing room

With free returns becoming the norm, an emerging consumer trend has co-developed: the bedroom as a changing room. Given the widespread challenge of consumer sizing uncertainty across brands, shoppers have attempted to solve their uncertainties by trying on multiple sizes at home.

Shoppers want to bring the experience to them. As Sophie Glover, head of technical services at ASOS, noted, "...some customers treat our free shipping service as part of their changing room experience, except it's at home in their bedroom."

Lee Bloor, the founder of online UK retailer Lavish Alice, told Olive Clancey from the BBC the same thing: "...these days we are noticing a trend of consumers buying multiple sizes of the same product, so they use their bedrooms as changing rooms."

This reflects the broader consumer trend towards an at-home solution to the sizing problem. With size charts being equally confusing (after all, the average person doesn't know their hip circumference), trying a couple sizing and returning the ill-fitting ones has become the consumer-driven solution to the problem.

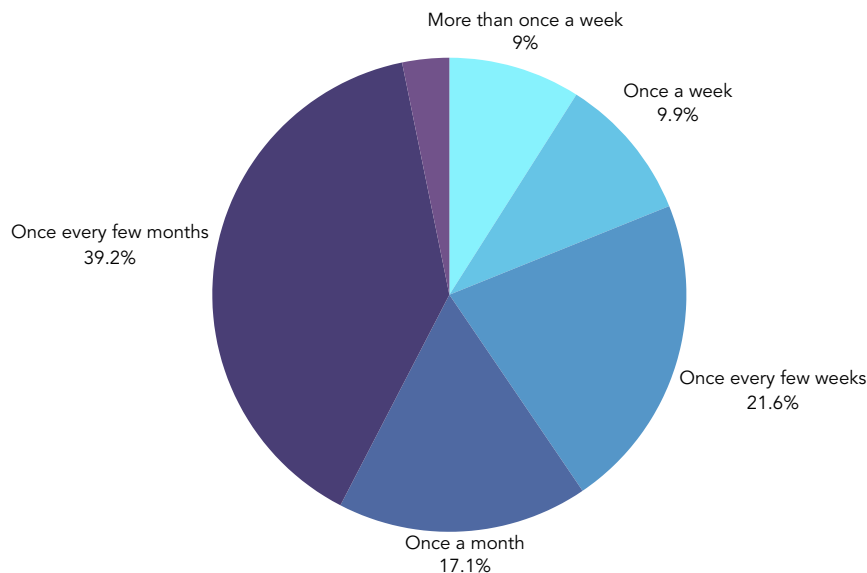
⁸ "Online Purchase Study" survey with 221 respondents conducted by Bold Metrics, September, 2022.

Leveraging customer reviews

One way to ensure that customers are getting what they paid for is by utilizing customer reviews, which can help to bridge the gap between online and offline shopping. Information is power, and a well-informed customer is more likely to want to keep an item—they know with a higher level of accuracy what they are getting.

A 2018 study by NRC Health found that 92.4% of consumers use online reviews to guide most of their ordinary purchasing decisions.⁹ And customer reviews' impact on purchasing decisions revealed that **nearly 60% of consumers browsed online product reviews at least once a week**. Of that, 93% believe that these online reviews help them to affect their shopping options, improve the accuracy of purchase decisions and reduce the risk of loss.

A look at how often consumers purchase clothing online ¹¹



Puzzling over the size chart

One of the main ways that retailers attempt to help shoppers navigate the fractured sizing landscape is through size charts. However, the problem with size charts is that they rarely help a shopper select the best size. They usually include a description of body measurements, such as "hips," that often require a measuring tape to get right, a task that online shoppers are unlikely to do. After all, the average person does not know their hip circumference or own a measuring tape.

Size charts also do not consider fit preferences or that different body shapes have different fits. *Even clothing of the same style from the same brand can fit differently, depending on the cut and type of material used to manufacture it.* A recent viral post about pairs of size 12 jeans that were all different sizes¹⁰ was a clear reminder that sizing is often at the discretion of brands, much to the customer's disadvantage.

⁹ "Patients trust online reviews as much as doctor recommendations—and other shocking facts about transparency in healthcare", NRC Health, November 26, 2018.

¹⁰ "This Woman's Tweet About Clothing Sizes Started A Conversation About How Messed Up Things Really Are", BuzzFeed, March 15, 2019.

¹¹ "Online Purchase Study" survey with 221 respondents conducted by Bold Metrics, September, 2022.

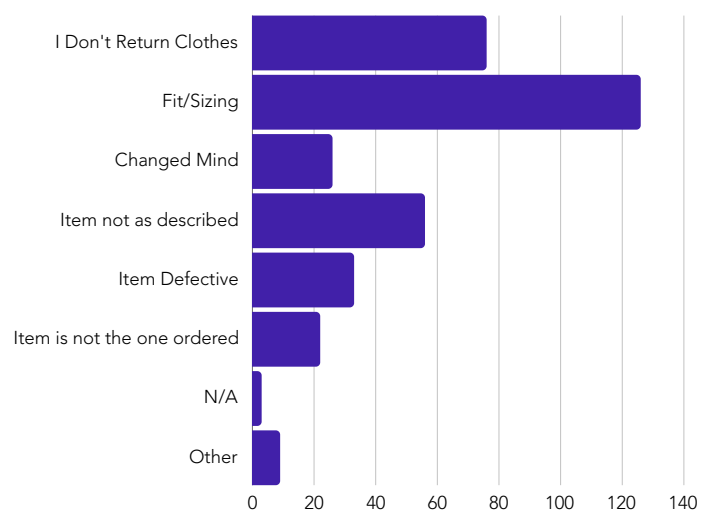
Customer behavior around size uncertainty

Hedging your (fit) bets

The process of buying multiple sizes of the same item to return those that don't fit, known as bracketing, is carried out by almost half of all shoppers, according to research from post-purchase solutions firm Narvar.

On average, 40% of shoppers bracket purchases at least occasionally, with 45% of those under 30 and 48% with incomes over \$100,000 indulging in the practice.¹² Fortunately, with the increased confidence that comes from having a data-backed solution for finding clothes that fit better, customers won't need to do this.

Primary reason for online apparel returns¹³



"We can go beyond recommending a size and provide in-depth information about how a garment will fit across a shopper's body, so they can pick the best size based on their unique fit preference."

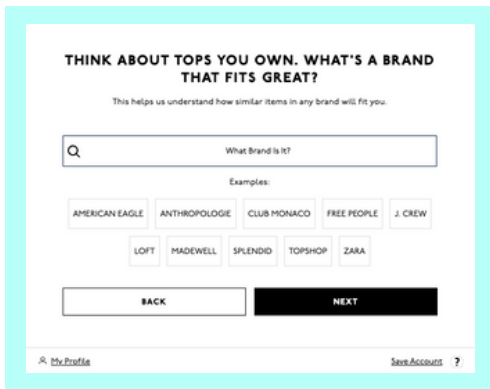
Morgan Linton,
Co-founder & VP of Engineering at Bold Metrics

¹² "27% of apparel sales are now online", Retail Dive, July 2, 2018.

¹³ "Online Purchase Study" survey with 221 respondents conducted by Bold Metrics, September, 2022.

Understanding the Fit Technology Landscape

Fit technology is the technology retailers, and brands use to improve their customer experience around fit and sizing. From AR to 3D-body imaging, virtual mannequins, site-specific size recommenders, AI, and micro-measurement technology— what they all share in common is that they all leverage data to help solve fit-related issues faced by apparel brands and their customers.



1

Brand translators

Brand translators compare an item's size with another brand's fit and sizing. Usually, the brand comparisons are with well-known brands (Zara, Levi's, etc.), which assumes that customers are familiar with their apparel fits and can translate the fit into something that works for them without needing self-measurement.

Unfortunately, this equates a brand as one unified/consistent fit, therefore recommending the same size in every style and does not consider or specify fit on a per-style or per-category basis. It also does not give the shopper any information on how a given garment will fit across their body, so the consumer can't use their fit preference in their purchase decision. **For brands, such recommendations do not provide access to customer data or additional insights to help inform better business decisions.**



2

Body scanners

3D body scanners use optical devices to scan a person's body to achieve highly accurate measurements. Body scanners vary depending on the type of scanner, but some can obtain highly accurate results with detailed customer body data. The tools can create personalized individual customer profiles around body shape and size to match customers to better-fitting clothes.

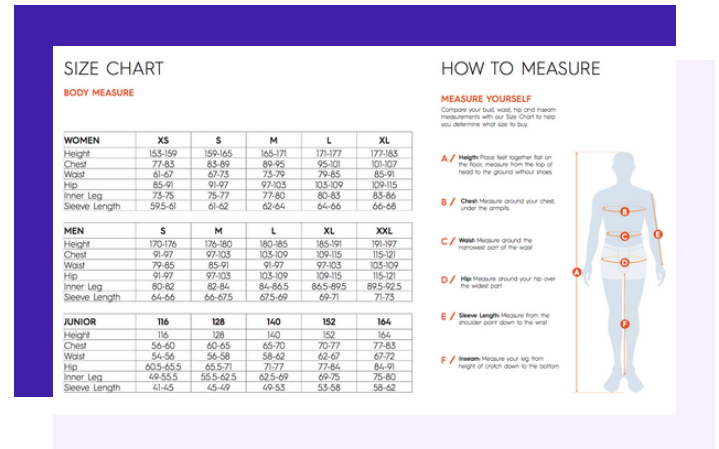
The drawbacks are that adoption is usually focused in-store only, given the size of the scanners. *Customers must remove their clothes or wear skin-tight clothing or underwear to obtain accurate results, leading to privacy concerns around data ownership and usage.* High-fidelity scanners can be prohibitively expensive, limiting scalability. The full potential of customer body data (i.e. to generate actionable insights for manufacturing and inventory, improve conversions and sustainability, etc.) is also not leveraged for the brand.

3

Mobile scanning devices/apps

These typically work as apps that are downloaded into a customer's smartphone and leverage the smartphone's camera to take selfies or a recording of the shopper to generate digital measurements.

While they are readily accessible given high mobile phone adoption rates, the technology is also high friction as it usually requires customers to change into tight-fitting clothing or a bodysuit for the greatest accuracy. **Studies have shown a low conversion rate – typically less than 0.25% for mobile scanning apps due to the low accuracy and human error involved when scanning oneself.** Another issue is privacy concerns over how a customer's data is used.



4

Size charts

An apparel size chart is a table showing how different body measurements correspond to different sizes.

Their low cost is easy to implement online and in-store, and provides sizing that may be helpful to those who already know their body measurements. Unfortunately, most customers do not know their sizes, and using a tape measure is subject to human error and is a high-friction process.

When faced with a size chart, most people guess their size or purchase multiple items of the same style in different sizes to ensure they land one that fits, leading to higher return rates and lower conversions in the long run. Standard size charts also do not consider personal fit preference or show a particular garment's unique fit characteristics depending on its material construction, cut, and style.

4



AI and Machine Learning-based technologies

Machine Learning-based technology uses AI in the algorithmic prediction of customer body measurements. After Machine Learning models train with enough data, they can take a small number of inputs and make predictions at a high level of accuracy.

AI sizing solutions are easy to implement online and in-store and see greater accuracy in results over time because the algorithms learn via a feedback loop. Brands see an increase in conversion rates and reduced returns from the higher accuracy of predictions. They also achieve an in-depth understanding of how their apparel fits the customer.

Upstream garment sizing insights can be leveraged to manufacture better-fitting clothing to demand and boost sustainable production methods, with data-driven insights helping create a personalized online customer retail experience.

"We've achieved a scalable sizing solution that is easy for our clients and their customers to adopt and use while simultaneously unlocking data-led insights to provide new tracks of retail intelligence throughout the organization."

—Daina Burnes, Co-founder & CEO at Bold Metrics

How is AI and Machine Learning supercharging fit and sizing for the future?

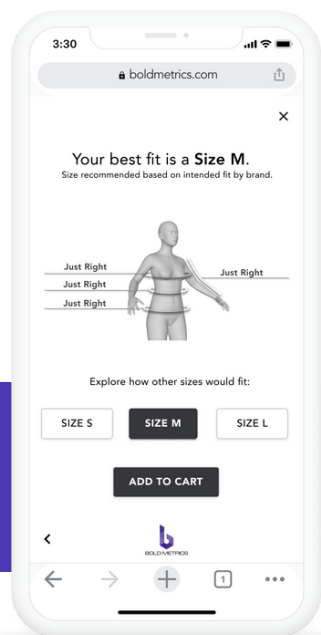
Smart Sizing

Intelligent businesses are assisting shoppers in determining their size through technology: by asking shoppers simple questions and then applying in-depth data science to offer intelligent recommendations. By thoughtfully leveraging current technologies, such as machine learning algorithms, brands can help shoppers find the answers to their fit questions more easily. *Any technology implementations must be easy to use.* Our research and experience have shown that taking webcam images or selfies to determine size has proven unpopular with consumers, requiring too much effort or eliciting discomfort in taking a picture wearing tight-fitting clothing.

Technology that acts as a brand translator (comparing product sizing to a favorite shirt in a shopper's closet, for instance) has the ease-of-use factor, which can appeal to shoppers. But, we've seen how difficult it is to maintain accuracy over time since brand sizing changes, often seasonally. Additionally, many brands can have multiple fits, even within a garment category.

Technology can be the best move for retailers, but it has to be selected and implemented intelligently—one that works for shoppers and stands the test of time.

For brands looking to integrate a proven solution to help customers find clothes that fit while also driving down returns rates, Bold Metrics provides a range of easily-integrated, customizable solutions that harness industry-leading machine learning and AI to generate accurate size recommendations based on both a shopper's body shape and preferred fit.



Beyond size recommendations

57%

of respondents surveyed cited size/fit as the primary reason that they return clothes.

94%

of respondents would consider using a size/fit technology in the future.

77%

of respondents have used a size/fit technology in the past.

24%

projected increase in adoption rate of size/fit technology in the future.



Data-backed impact on design, inventory and operations.

By matching customers to their best fit in that particular brand's sizing, customers have the **confidence to purchase** knowing that they will be connected to apparel that best fits their body shape and personal fit preference.

A recent article by Retail-Insider stated that 74% of shoppers see a poor checkout process as a significant challenge in the overall retail experience. On the customer's end, a frictionless process that improves their shopping experience by making the purchasing process seamless and more personalized helps boost positive brand perception and brand loyalty.

The Bold Metrics approach

Poor fit is the number one reason for returning online apparel purchases, resulting in up to 80% of the total returns for some brands. According to an article in Consumer Affairs, **up to 72% of consumers use fit predictors and size charts to determine their size before purchase**,¹⁴ and almost 30% of shoppers still purchase multiple sizes of the same item to be sure that they will get their best fit.

Size charts still require customers to know their sizes or to measure themselves, which can result in human error or people hazarding a guess at their sizes.

Bold Metrics addresses this problem with its **Virtual Sizer** and **Smart Size Chart**, which considers a customer's best fit and makes size recommendations based on individual shopper preferences for a highly personalized retail experience.

Using our technology to connect customers to better-fitting clothing in their preferred fit, brands have proven to reduce average return rates by 32%.

There are also savings from reduced labor costs due to inspection, re-stocking, and processing returns.

"The real-time inventory feature increases the capabilities of our Smart Size Chart, creating a powerful solution for apparel brands as they go into the holidays and face uncertain supply chain issues."

—Jeff Mergy,
VP of Product at Bold Metrics



¹⁴ "Study: Half of online clothing purchases get returned", Consumer Affairs, December 6, 2018.

Driving meaningful conversion with AI-powered sizing solutions

For the online fashion industry especially, fit technology is invaluable. Disappointed customers tend to hurt the bottom line. It takes just one negative experience for 51% of customers to never do business with that company again, *which makes it essential for brands to communicate best-fit options digitally to their customers* to boost conversion and sales, and meet customer expectations.

Because customers have different body shapes that change over time as they grow, lose, or gain weight, actual size is neither static nor standard. **Bold Metrics solutions accurately capture individual consumer body measurements using simple inputs from customers.** This is combined with returns data and clothing specifications to generate actionable insights like the ability to design to demand or reduce excessive production.

The process generates over 50 individual body measurements, and the technology is used by trusted brands such as Canada Goose, Men's Wearhouse, UpWest, and LT Apparel, among others.

81%

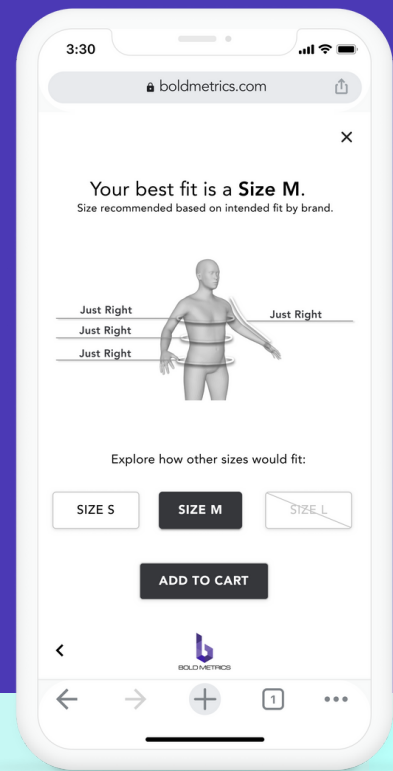
Percentage of Men's Wearhouse RTW customers who engage with the Smart Size Chart and complete the full experience

50+

Individual body measurements predicted by Bold Metrics solutions

<500ms

Time taken to make a customer size recommendation via Bold Metrics online survey



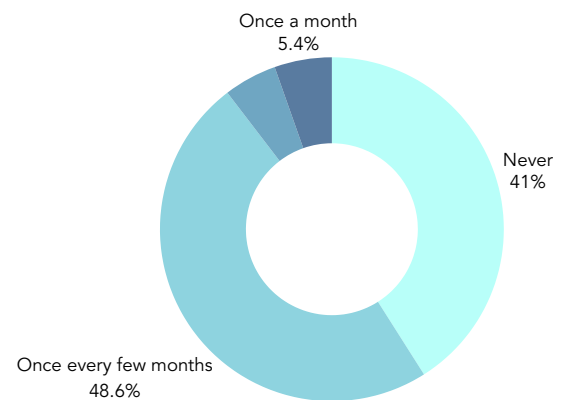
From Reducing Returns to Meeting Inventory Challenges, AI can help.

Returns equate to frustrated customers, loss in revenue, extra work to process them, and a negative environmental impact when they end up in landfill or as a result of the increased carbon emissions from transporting them back and forth. [Bold Metrics' powerful and proven sizing solutions work and are simple to on-ramp for both apparel brands and their customers.](#)

Bold Metrics' next-gen Smart Size Chart includes a **Smart Inventory™** feature that helps brands leverage real-time data to generate actionable insights to better manage inventory.

With this added capability, brands are better-positioned to address dynamic supply chain issues that are part of today's challenging apparel retail environment.

Frequency of online apparel returns¹⁶



Make clothes that customers want to wear.

Instead of making clothing based on fit models and inaccurate grading, which can lead to even more surplus stock,¹⁵ brands can utilize Bold Metrics' AI-powered customer fit preference feedback data and actual shopper body measurement data to design products accordingly.

In the mid-term, this means better-fitting products, in-depth designer insights that inform data-led technical design decisions, and clothing that fits the way your customers prefer.

In the long term, this equates to brand loyalty, increased conversion, and less waste as brands have better insights into how many units of product their customers might purchase on a style-by-style basis.

¹⁵ "Old Navy tried to be more size-inclusive, but just left customers frustrated", Morning Brew, May 20, 2022.

¹⁶ "Online Purchase Study" survey with 221 respondents conducted by Bold Metrics, September, 2022.

Case study 1

CANADA GOOSE

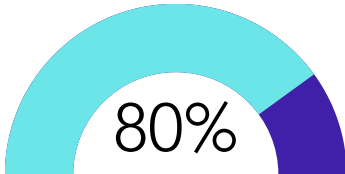
Founded in a small warehouse in Toronto almost sixty years ago, Canada Goose has grown into one of the world's leading makers of luxury apparel with a particular focus on high-performance outerwear.

THE CHALLENGE

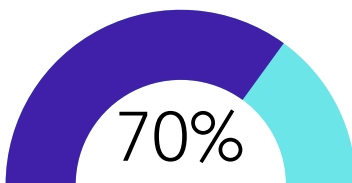
The high cost of luxury returns

The high value and cost of the apparel that Canada Goose sold meant that return rates significantly impacted the bottom line, as luxury items tended to see higher return rates.

Customers were also unwilling to purchase if they were unsure of their size or how an item would fit without physically trying on the pieces themselves. Conversion rates were lower than they could have been without an effective digital sizing tool.



Adoption rate for customers based in North America

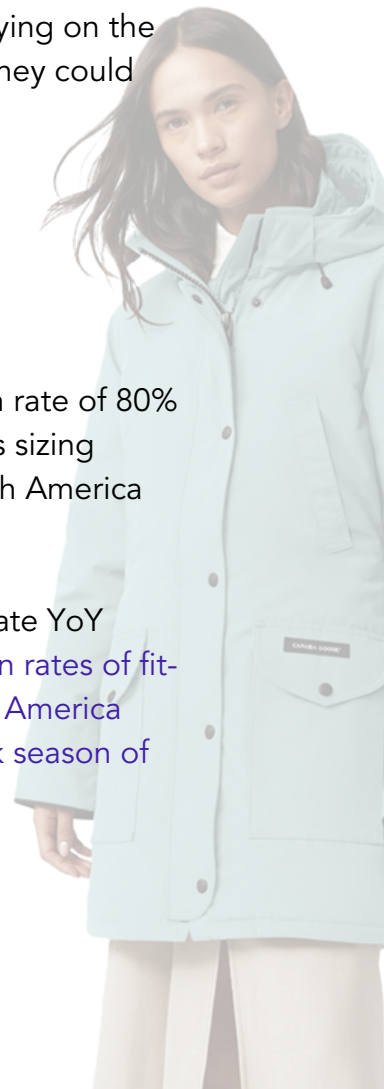


Adoption rate for customers based in Europe.

IMPACT

After implementation, Canada Goose saw an adoption rate of 80% (North America) and 70% (Europe) for the Bold Metrics sizing solution. The average conversion rate was 6% for North America and 5.4% for Europe.

In addition, Bold Metrics also improved its reduction rate YoY against its initial results with Canada Goose, with [return rates of fit-related returns seeing a decrease of 6% YoY for North America and 4.4% YoY for Europe across Canada Goose's peak season of Nov - Feb.](#)



Case study 2

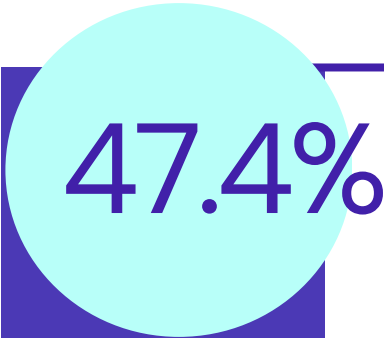
MEN'S WEARHOUSE

Headquartered in Fremont, CA, Men's Wearhouse has spent the past 45 years helping men look their confident best for the moments that matter. From a versatile work-to-weekend look or a custom suit to a special-occasion tuxedo, the company stands behind its promise to deliver excellent customer service and fit every time.

THE CHALLENGE

Getting a measure on fit

Worn to celebrate special milestones, renting a tuxedo online is usually made more difficult by having to measure yourself correctly to find the right size. The high margin of human error from customers measuring themselves meant a solution was needed to make the process easier, faster, and more accurate.

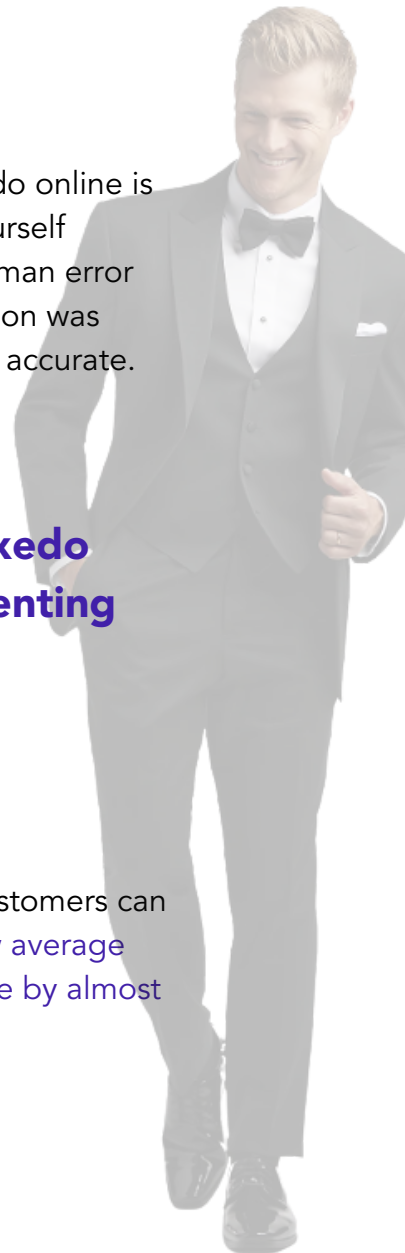


47.4%

Average return rate decrease for tuxedo coats, pants and shirts after implementing Bold Metrics solutions.

IMPACT

Thanks to Bold Metrics, Men's Wearhouse tuxedo customers can get fitted with just a few simple clicks. The brand saw average return rates for key items in their tuxedo line decrease by almost 50% due to Bold Metrics fit solutions.



Case study 3

BLUE DELTA JEAN'S CO.

Mississippi-based Blue Delta Jeans Co. has been crafting bespoke denim jeans for discerning customers since 2011. This year, Blue Delta Jeans Co. and AI Body Modeling company, Bold Metrics launched a virtual fitting experience to help fit customers anywhere in the world with just a few simple customer inputs.



THE CHALLENGE

The deep dive on sizing

Traditionally, Blue Delta Jeans required 16 body measurements from every client to make a pair of bespoke jeans, and these measurements were taken in person using a measuring tape, creating a high-friction, time-consuming process that limited scalability.

IMPACT

Bold Metrics' Virtual Tailor solution produces 50 unique customer body measurements via its AI Body Scanning technology, with accuracy comparable to a Master Tailor, creating a fast, accurate, and frictionless online fitting process for new customers.

As a result, Blue Delta Jeans Co. can now create custom denim jeans for customers anywhere, without the need for in-person measuring or a time-consuming fit process. [After introducing a virtual sizing solution](#), Blue Delta Jeans Co. has seen return rates drop to just 7%.

The Bold Metrics Virtual Tailor solution creates a fast, accurate and frictionless online fitting process for new customers.

>50

Individual customer body measurements

Summary

While the fit and size of ready-to-wear apparel have been challenging garment makers for over a hundred years, applying new technologies can finally solve the dilemma. AI and machine learning technologies get increasingly more accurate over time as they are trained on the data, meaning that retailers no longer have to be trapped by high return rates.

Nor do consumers need to continue to wade through confusing size charts or a bedroom full of things to be returned. Beyond connecting customers to their preferred size, Bold Metrics helps brands unlock the power of body data to generate actionable insights that improve technical product design from concept to execution while improving sustainability efforts through reducing returns.

Trusted by:

SIMMS.



MEN'S WEARHOUSE®



Bold Metrics

Providing brands and retailers with powerful solutions for all their fit challenges. With a range of powerful products that cater to the needs of apparel businesses from custom clothiers to SMEs, multi-brand retailers, and enterprise-level companies, Bold Metrics unlocks the power of body data to help brands reduce returns, boost conversion and generate valuable data-backed insights to help optimize operations from design to distribution.

Find out more at www.boldmetrics.com

Additional reading

- [Consumer Returns in the Retail Industry 2021](#) by Appriss Retail and National Retail Federation
- [Returns Benchmarks Report 2021](#) by Narvar
- [Consumer View Winter 2020 Report](#) by National Retail Federation
- [The State of the Ecommerce Fashion Industry: Statistics, Trends & Strategies to Use in 2022](#) by Shopify
- [Returning to order: Improving returns management for apparel companies](#), May 2021 article by McKinsey & Company



BOLD METRICS

Unlock the Power of Body Data

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