



# **FASHION'S PHYGITAL FUTURE**

## **AI and Digital Tools for Fashion's Next Evolution**

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**3D TECH FEST**  
*THE PHYSICAL-DIGITAL EVOLUTION*



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AI and Digital Tools for  
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# Foreword

It is year five of 3D Tech Fest; THANK YOU for your continued support. 3D Tech Fest started as Alvanon's way to create a community learning opportunity for all the users of various digital software platforms and to showcase interesting case studies during the pandemic. Over the past five years, it has taken on a life of its own. Since our first festival in 2020, this event has evolved from purely 3D to talking about all the digital dimensions shaping our fashion industry and how emerging technologies enhance the physical product we make.

Our curiosity, sweat and joy is embedded in the curation of these three days. With over 5,800 registrants in 2024, 3D Tech Fest has become our biggest event of the year, where some of the brightest minds debate the future of fashion's digital transformation. Over the years, we have democratically disseminated (a la zoom and recordings) fantastic, creative and inspiring content. Each year has been like a mini certification program for all things fashion and technology.

This year, 3D Tech Fest was entitled "The Physical-Digital Evolution" with great intention. Our Open Call judging committee and curatorial team set out to explore the opportunities created by converging physical and digital technologies in the creation and delivery of fashion. Our speakers selected for 2024 offered original perspectives on navigating the evolving relationship between the digital and real-world in fashion. The overarching theme that binds them all is the authentic integrity that every speaker has taken to their work.

3D Tech Fest is unique. There are no fees for showing up and no closed conversations. If you want to improve the implementation of any part of your technology and digital process, be it from, using AI to improve sizing, to creating a framework for better digital product creation processes; the stellar lineup of nearly 60 speakers has the resources for you. Just watch, discuss with your teams, and transform these ideas into action.

The Executive Summary Report highlights some of the key takeaways from this year's event. We hope you find this practical, informative, and inspirational and will forward it to a friend. CALL US if you want to talk, we are eager to listen.

With gratitude,



Janice Wang CEO, Alvanon

# CULTURE VS. ALGORITHMS: THE FUTURE OF STYLE & FASHION

In the current digital landscape, the line between culture and commerce is increasingly blurred, with fashion brands fighting to find themselves at the heart of viral narratives. Global culture is not shaped in isolation; it is algorithmically curated, flattened, repackaged, and disseminated through social media, style trends, and each day's latest "it" influencer. In the race for relevance, brands are sacrificing authenticity for engagement metrics, a reality that is actively reducing our global culture to flattened, universal representations of style and taste. Yet, as the fashion industry turns toward new design tools including AI, 3D, digital product creation (DPC), and creative innovation, there lies a transformative potential to reinvigorate cultural identity.

**The power of brands to shape culture lies in their authenticity**—a point Felita Harris emphasized during the "A Brand's Responsibility to Culture," panel that opened the festival. The Executive Director of [RAISEFashion](#), Harris recently collaborated with Abercrombie & Fitch (A&F) to establish a showcase for 25 BIPOC emerging designers during this year's [New York Fashion Week](#). This partnership asked each of the twenty-five designers to engage with Vo. 28, a recurring collection at A&F intended to highlight Black designers beyond Black History Month.

This showcase opened to rave reviews, underscoring a brand's need to authentically engage with marginalized cultures—not just by borrowing from them, but by creating platforms for underrepresented talent to lead from within and create resonating work. "You can't lose with culture," Harris said, "so double down on it." As she put it, brands must empower designers to reflect the cultures they draw from, making authentic contributions to apparel and connecting deeply to consumers ensuring longevity.

Panelist and brand strategist at [ISPO Group](#), Christoph Beaufils, agreed. "As a brand, of course, you need to make money, but at the same time you need to stay relevant," Beaufils said. "So what our job actually is, is to add to culture because it makes [a brand] more than just a piece of consumer goods; it's actually something that people will give a little bit of heart and emotion to."



**Culture is not a trend. Culture is everlasting because it comes from people,...**

- **Felita Harris**, Executive Director, RAISEFashion

Above and below courtesy of RAISEFashion.  
Photographed by Oren Siddo.



Courtesy of Seamm.

Art collective and apparel designer [MSCHF](#) views their work the same way. Seeking out cultural commentary rather than the next viral moment, their apparel products are known for gaining massive global traction on social media because of their strong point of view. “The goal is to find the ways you maximize your cultural power as artists,” said Kevin Wiesner, co-Chief Creative Officer. From their iconic Big Red Boots to the Global Supply Chain Telephone Handbag, or their Wavy Baby sneakers, MSCHF never designs with the intent of gaining traction on traditional platforms. “We are trying as much as possible to stay out of peoples’ platforms, other people’s ecosystems, because everything that lives within a platform becomes flattened, it all looks the same,” said Wiesner. “That’s all of social media; you need to make sure you’re running it, not it’s running you.”

This is where algorithms and culture intersect—brands that remain surface-level, chasing quick viral moments, are driven to fleeting success by the algorithms pushing low-value content. The sales are not sustainable, based on unpredictable trends and a lack of loyalty as customers seek the next hot item, not brand connection. But the brands that invest in deep cultural engagement, like those mentioned above, create meaningful, lasting relationships with consumers, ensuring longevity and fiscal sustainability for years to come.

In our continuously online world, brands and creatives are finding expansive opportunities to engage with consumers. Digital fashion, AR apparel, and the Metaverse are no longer just a gimmick; it’s a gateway to expanding cultural conversations and connecting with consumers wherever they are, whether it’s Roblox or TikTok.

“We’ve got a whole new generation living their lives on devices that are into fashion more so than ever before, but not in the real world,” said James Gaubert, founder and Creative Director at [Republique](#). “They’ll go to the supermarket in a T-shirt that’s got rips and holes in it, but where they are socializing [online] is where they want to express themselves. It’s a largely untapped market for brands, allowing them to reach new consumer segments, new target audiences, and [prepare] consumers to buy their real life products later on.”

**AI and 3D design tools are continuing to democratize design processes**, making apparel customization accessible to a broader range of creators. These tools are shifting the power dynamic away from brands as consumers now become trend co-creators.

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**Global retail sales in the metaverse and virtual stores are expected to see a 104.8% in the next six years, reaching \$453.3 billion by 2030.**

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**- Coresight Research**

A recent study from Coresight Research found an expected 104.8% CAGR growth in global retail sales in the metaverse and virtual stores from 2023 to 2030, reaching **\$453.3** billion in 2030. This emerging industry is ripe with opportunity for brand investment. AR garments and digital twins blending the physical and digital worlds are more than just playful; companies like [Seamm Technologies](#) are **monetizing AR apparel as a phygital solution to blend physical collections with digital social ecosystems**. Representing ourselves in digital worlds creates a demand for thoughtful digital fashion, and consumers are actively seeking out opportunities to personalize their digital personas, avatars and virtual worlds. Pairing a digital product with a physical one, [like the NFC hoodie from Beyond.Studio](#), allows consumers to represent their favorite brands across both worlds.



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**When you look into pricing [digital products] it is also about what it is associated with... these are 3D assets that give you access to a universe of a brand.**

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**- Dr. Giovanna Graziosi Casimiro**, Professor of Immersive Technologies and AI for Fashion at IFM



*Cover image for Cybr Magazine Issue #10, featuring Grimes.*

“When you look into pricing [digital products], it is also about what it is associated with,” said moderator Dr. Giovanna Graziosi Casimiro, Professor of Immersive Technologies and AI for Fashion at IFM. “One thing you [may] find are UGC garments. Another thing could be an NFT or a tokenized product passport that gives you access to brand loyalty programs. [These are] products, 3D assets, that give you access to a universe of a brand.”

The transformative potential of AI in fashion goes beyond just new ways of creating; **it redefines who gets to create**. James Joseph, founder of [CYBR Magazine](#), spoke about working with Canadian singer and songwriter Grimes to develop a [recent cover for CYBR](#) using AI tools. Using Midjourney she designed the back cover of her issue, and used a self-taught AI to conduct her interview in an art piece. “The internet’s so fragmented right at the moment, that people are scared about pushing boundaries and the creative line,” Joseph said. “What we do is we really try to allow the creators and the creatives to take full control.”

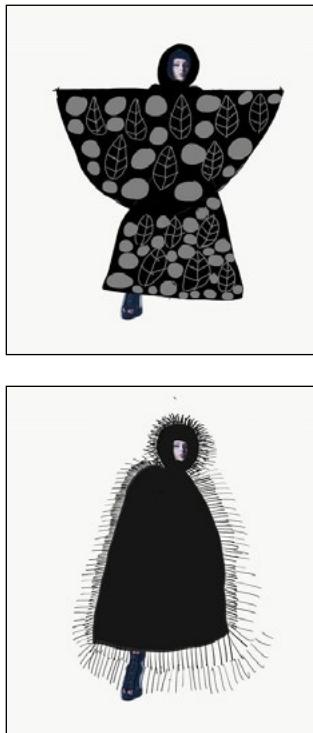
In this algorithmically-driven world the future of fashion, and global culture, depends on finding a delicate balance between consumer trends and thoughtful cultural contributions. From MSCHF to Abercrombie & Fitch, Seamm, and Republique, these leaders make a strong case for maintaining authenticity and integrity while embracing digital innovation—not chasing clicks, but creating work that genuinely resonates with their customer. This is where the value of empowering unique creative voices becomes essential: they hold the key to ensuring that fashion, in all its complexity, is not reduced to trends and chasing high brand awareness, engagement, or customer acquisition metrics. The future of fashion is not algorithmic—it’s cultural, and in an online world brands have a responsibility, and opportunity, to lead with vision.

# INCLUSIVE DESIGNERS FOR INCLUSIVE DESIGN

In the current fashion landscape inclusive apparel is more than just a moral imperative, it is a proven business strategy; but what about inclusion from a creative standpoint?

Beyond size inclusivity, creating *with* marginalized designers—whether they are neurodiverse individuals, emerging designers, or underrepresented bodies—**can spark fresh innovation and create deeper connections with consumers**. Digital tools are making new methods of working possible, from creating career opportunities for neurodivergent designers, to products designed for marginalized consumers, to developing couture on larger bodies.

“Bringing people into your business who would otherwise be excluded brings so much more than just the labor that they’re able to provide,” said designer Jessica Goodyear. In a brief presentation, siblings Jessica and Sam Goodyear told Sam’s story. As a designer inspired by the work of Thierry Mugler and Alexander McQueen, Sam, who happens to have Down Syndrome, faced immense challenges finding a career in fashion. Coming from a family of fashion professionals, a creative career felt like a perfect fit but Sam’s skills made it difficult to hold a traditional job. Yet, with the right support and digital tools including CLO 3D, his creativity thrived.



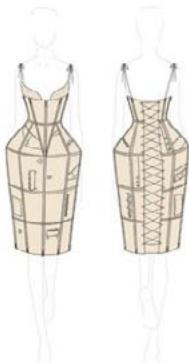
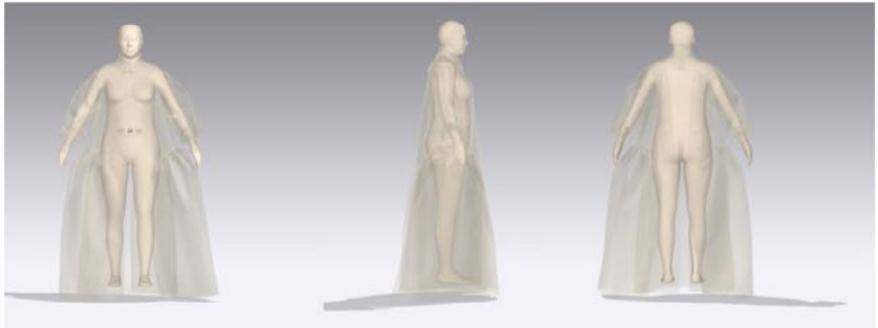
Sam Goodyear at work (left) with a few of his projects (right). Images courtesy of Jessica Goodyear.



Designs created by Sam Goodyear for NDV.

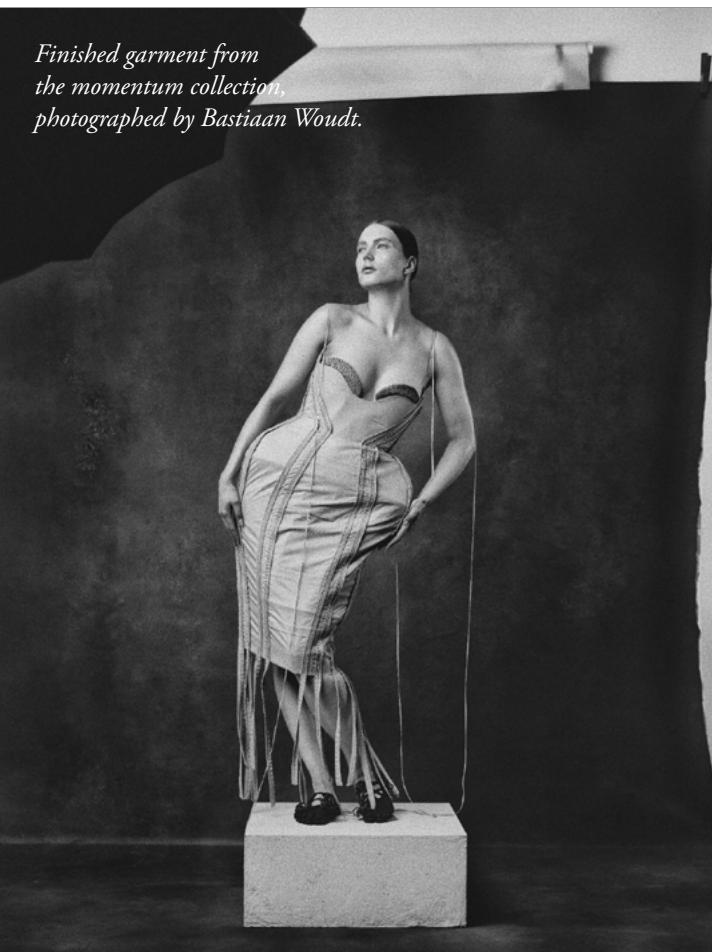
Together, Sam and Jessica have built [NDV](#), a digital fashion brand designed to **showcase how neurodiversity can bring forth innovative, digital-first solutions**. After learning CLO, Sam was hired as an artist-in-residence at [Modern Mirror](#), where he excelled creating innovative digital work and impressed leadership with his positive attitude and design sensibilities. “Sam doesn’t just bring his own creative genius, but he also brings joy to those who work with him—even outside of his personal contributions,” Goodyear said. Working with the [Down Syndrome Association](#), Modern Mirror was able to create a role for Sam, hiring him for his first-ever full time job as a member of the virtual sample-making team. A clear example of how digital tools are something that can really transform organizations and help individuals of all abilities find their strengths and contribute to the future of our industry.

Jenny Holloway, CEO of [Fashion-Enter](#), also underscored **how inclusive education in manufacturing can empower the next generation of apparel production.** [Hope FX](#), an award-winning six-month program in partnership with the NHS [North London Mental Health Partnership](#) was established by Jenny and Fashion-Enter to support individuals facing mental health challenges with education in apparel design and manufacturing. “We’ve taken each of the participants, who have become amazing designers in their own right,” said Holloway, “And we’ve seen such a difference with their confidence, their skills, their abilities, their networking. As with any learning, it’s that journey that is so important.” With a holistic approach to inclusive industry education, Fashion-Enter created a space for participants to grow their skills and confidence in garment production. Hope-FX proves that designing *with* a diverse workforce leads to tangible benefits—both for individuals and the brand.



Tess van Zalinge's *momentum* designs in process on Alvanon digital mannequins.

The commitment to inclusivity goes beyond talent—it permeates **how garments themselves are designed and made.** Harper Bazaar’s Rising Star designer [Tess van Zalinge](#) chose to begin designing her 2024 Copenhagen Fashion Week Collection *momentum* digitally on a size 44 Alvanon virtual avatar model, challenging fashion’s traditional sizing standards. “The interplay between the digital and the physical is the solution to a lot of [fit] problems and a lot of waste,” said van Zalinge, discussing the importance of designing on her largest size, combining her traditional craftsmanship with future-thinking digital design technology to create a more sustainable creative process. “As a classically trained designer, it’s important to stay open to making it a better and healthier process,” she said. To van Zalinge, inclusivity and sustainable digital practices doesn’t limit creativity—it broadens it, offering fresh perspectives on proportion, size, and fit.



Finished garment from the *momentum* collection, photographed by Bastiaan Woudt.

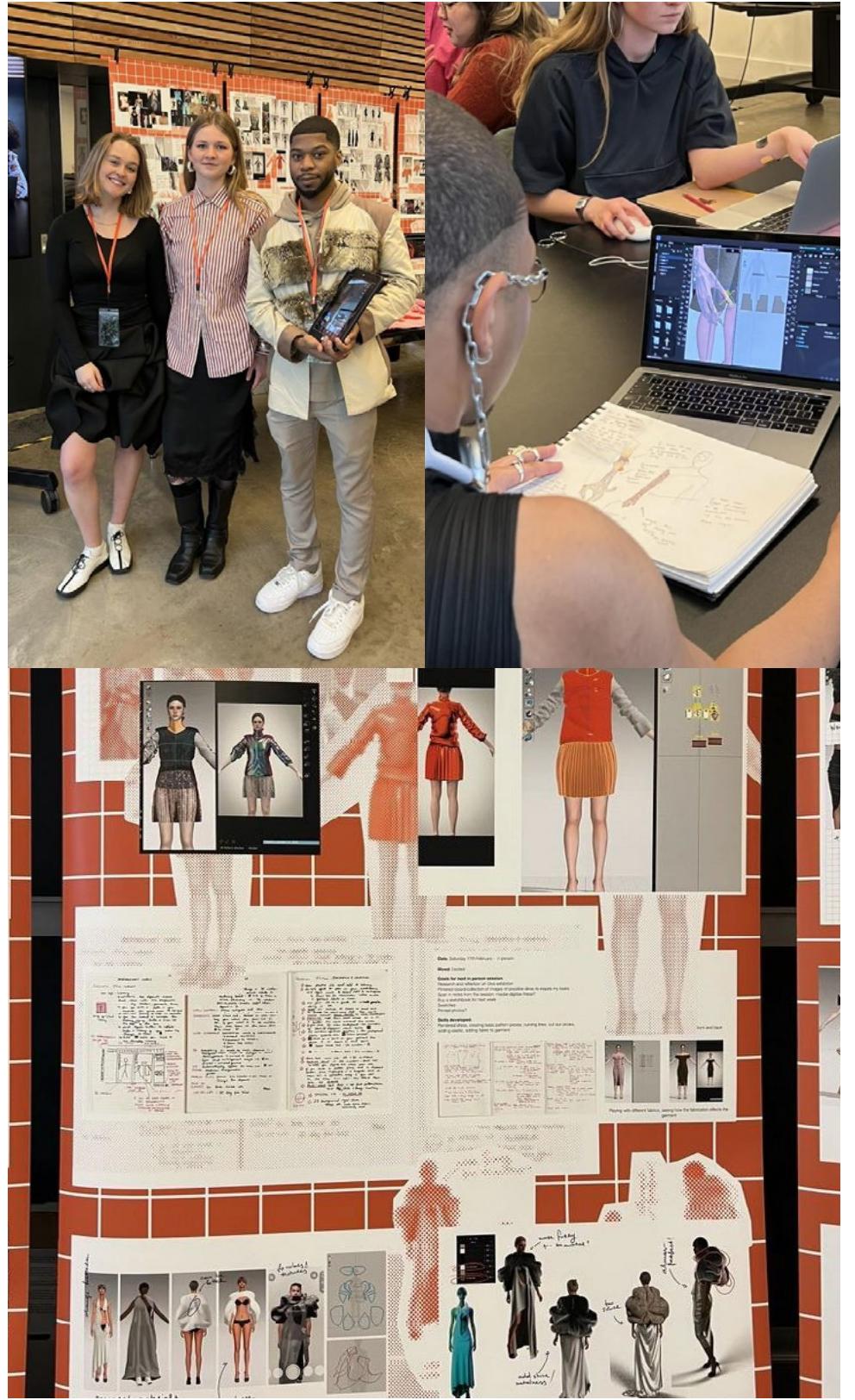
Across all these examples, one idea remains clear: leading with inclusivity in the creative process fuels innovative design. Whether empowering neurodiverse designers like Sam, culturally engaged collaborations like Tess van Zalinge’s *momentum*, or educating the next generation of apparel production with Hope-FX, these brands who prioritize designing *with* people, rather than for them, are the ones best positioned to thrive. In a fast-evolving industry, the future belongs to those who see inclusion not as a trend, but as a core tenet of good design.

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**As a classically trained designer, it’s important to stay open to making it a better and healthier process.**

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– **Tess van Zalinge**, Designer



Students (top left), works-in-progress (top right), and a collection of notes and student designs (bottom). Courtesy of Gabrielle Shiner-Hill and James Mack.

# LEARNING CLO IN 29 DAYS

Investing in education is crucial for the future of fashion, not only for students but for professionals navigating the industry's rapidly changing landscape. From digital fashion to creative workflows, many companies find a stark barrier to entry when it comes to creating the time and space for their teams to truly learn 3D tools. This case study challenges all existing conceptions of professional education and the power of investing in time for learning.

In collaboration with the [Fashion Minority Alliance](#) and the digital programs team at the [Victoria and Albert Museum](#) (V&A), Gabrielle Shiner-Hill and James Mack conducted a 29-day course on learning [CLO](#) 3D for fifteen 18 to 26-year-old students studying fashion design, textile design, costume and styling. The course was free and geared toward individuals with no prior knowledge of 3D softwares. It was held via blended learning, with four in-person sessions and the rest conducted virtually.

The course was framed around digital fashion, culminating in a virtual catwalk in partnership with the [V&A's DIVA exhibition](#). Though the curriculum concentrated on digital fashion, the team emphasized the importance of understanding the wider applications of the students' learning in their teachings. "We really focused on career development and transferable skills as well as the technical skills of and removing the fear of technology," said Gabrielle Shiner-Hill, co-founder of Bureau555.

**Digital fashion isn't just about creating virtual garments; it's about transforming the entire workflow—from design to marketing—with**

**faster, more efficient processes.** Beyond the classroom, brands are increasingly integrating digital avatars, AI, and 3D simulations to refine designs before fabric is even cut. Investing in education has real-world applications, offering agility in product development while making fashion more environmentally responsible and ultimately supporting a brand's bottom line.

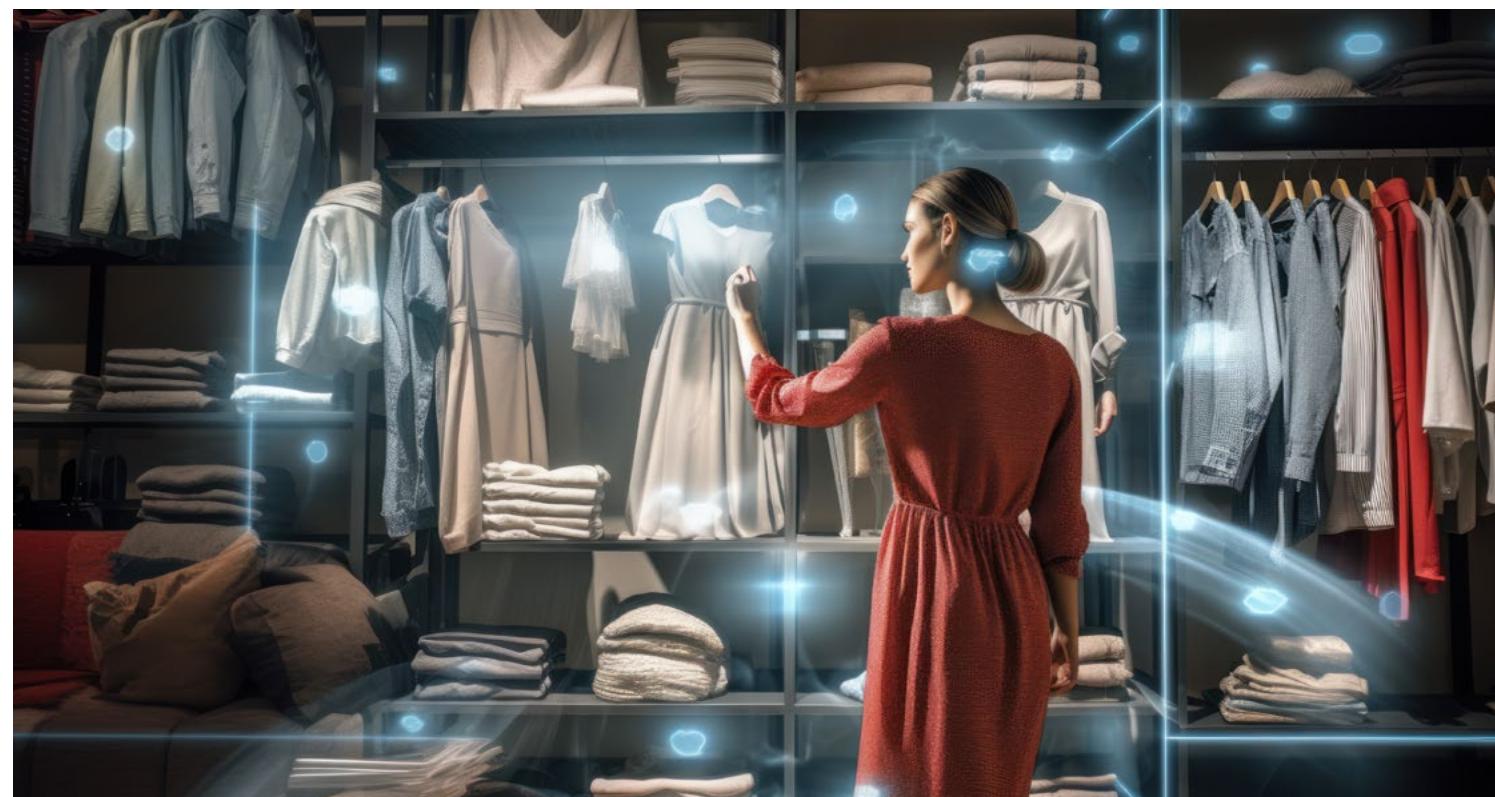
"We need this cross-pollination of information because it can be really difficult understanding how to take from one software and take it into another, because they don't all do the same thing," said James Mack, art director and digital image maker. "So rather than expecting someone to be able to pick up one software and be able to do a plethora of things, it should be expected that you have time and space to develop in multiple different softwares, tech companies that open the doors rather than draw the blinds."

The industry needs to integrate these tools to reshape not just how garments are made but also how fashion operates as a whole. This course is a prime example of how accessible, inclusive education can empower individuals, democratizing access to tools once reserved for elite professionals. By embracing democratized education in digital design platforms like CLO 3D, students—and seasoned designers alike—can push the boundaries of creativity while optimizing processes for a more sustainable future.

# AI DRIVING ENHANCED PRODUCT DEVELOPMENT AND INNOVATION

From data analysis and assortment planning, to product design and new ways of connecting with customers, **artificial intelligence** (AI) is touching all corners of the fashion industry. Whether enhancing creative capabilities or solving practical pain points, AI has been touted as the answer to issues with sustainability, overproduction, sizing, design, and the future of retail.

Bhaskar Vulapalli, Chief Strategist of Fashion AI Hub, described AI as an “umbrella term with different techniques for different purposes” and defined AI as “a set of techniques and toolkits that use data of all sorts to augment business decisions and processes.”



## Distinguishing Traditional versus Generative AI

Generative AI excels in creative applications, particularly in scenarios with minimal requirements and specifications. However, users must develop skills to effectively guide the AI, ensuring it operates within defined parameters. While generative AI is valuable for ideation and is likely to improve over time, traditional AI plays a crucial role in the apparel industry. Although it may lack the excitement of generative models, traditional AI is essential for managing the data-driven aspects of apparel production where precise measurements and specifications are critical for manufacturing physical products that meet market standards.

## Traditional AI

Predictive analytics

Fraud detection

Personalized recommendations

Business process automation

## Generative AI

Automated content creation

AI-generated art

Synthetic data generation

Automated content moderation

## AI IS AN UMBRELLA TERM. WITH DIFFERENT TECHNIQUES FOR DIFFERENT PURPOSES

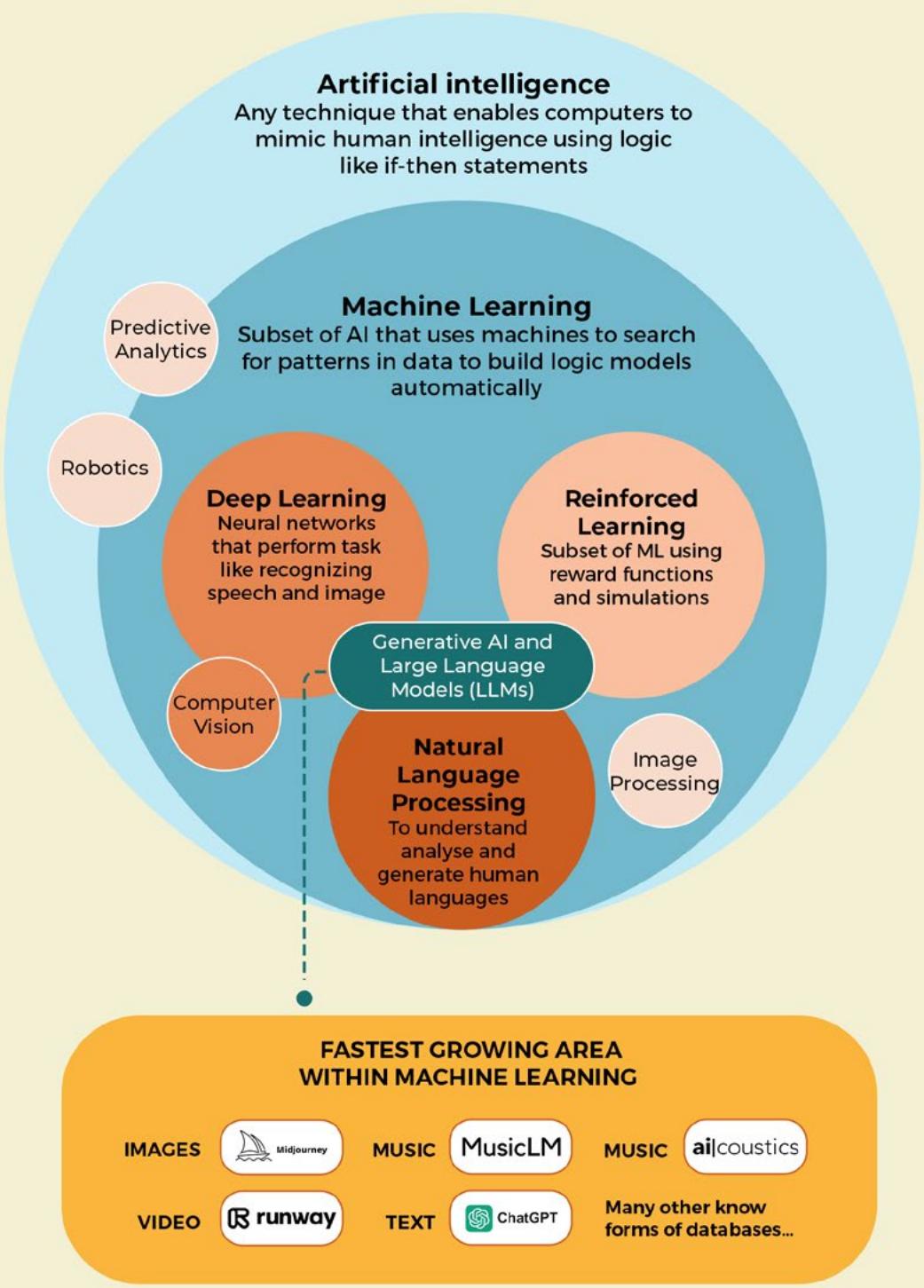


Diagram courtesy of Fashion AI Hub.

AI encompasses a wide range of specialized technologies. To fully harness its potential, business leaders must navigate the diverse landscape of purpose-specific AI solutions and strategically integrate them into their operations.

During several panels and presentations, retail leaders and technologists from [Fashion AI Hub](#), Timberland, Vizoo and Bandicoot Imaging among others demonstrated the growing influence of AI and shared their insights on how AI will reshape the way we develop apparel through enhanced product development and other innovations.

The fashion industry is approaching a new era, one in which technology and sustainability converge in an effort to create product development opportunities that are better for business and better for the planet. **AI is promising to be our transformational tool underpinning sustainable business models.** During his presentation, Vulapalli discussed [Stitch Fix](#), a personalized mid-to-high-end clothing and styling service founded in 2011. Stitch Fix is using consumer data and AI to enable stylists to optimize operations, seamless personalized shopping, strategically targeted advertising, and data-driven pricing for customer retention. The company utilizes customer segmentation and targeted advertising to stay ahead of fashion industry trends. Currently, Stitch Fix, a \$1.7B public company, uses a business operating model embedded with machine learning AI to design and allow for personalization and product-matching at scale for millions of customers and thousands of brands.

Vulapalli suggests that the future of the fashion industry relies on **investing in opportunities for teams to build their skills and capabilities with various types of AI**. Industry-standard programs like [AI Singapore's](#) AI Apprentice Program offer a good starting point and help professionals with the required technical knowledge and skills through hands-on projects, but larger enterprises eventually need their own programs. [Hugo Boss](#) and Levi's are leading the charge, with Hugo Boss investing in a €15 million data campus specializing in e-commerce, advanced business analytics, and technology while [Levi's](#) has begun offering an eight-week immersive course for their designers and merchandisers to adopt machine learning and agile ways of working.



Companies have the opportunity to **re-think their digital-to-physical apparel pipelines and assess how AI can drive responsible growth** in design, development, and production. “Everybody is using AI as individuals,” Vulapalli said. “The real challenge enterprises face today is how to make that an organizational capability.” As the capabilities of machine learning, natural language processing, and generative AI rapidly evolve, organizations are challenged to integrate these new tools as they are being created for effective digital transformation. The industry needs to build long-term strategies that effectively create ecosystems around their digital product creation, enhanced product development, innovation strategies and AI integration in order to both operate successfully and sustainably in the real world, while also preparing for the next stage of the digital revolution.

In her opening remarks, [Alvanon’s](#) CEO, Janice Wang, emphasized where these developments stand at the moment. “We saw so much hope that digital product creation would help to enable virtual prototypes,

reducing time, costs, and physical samples, allowing processes that could make better decisions,” she said. “And then post-covid, we saw brands in one fell swoop get rid of full technical departments, which were the institutional memory of the brands, not realizing what they were axing. It is like watching a library of rare books burn.”

The key to a successful digital product strategy is to build 3D assets once, then leverage those assets many times. This requires investment in technical expertise and infrastructure that helps you create standards. But Wang cautioned about the dangers of short-term cuts over long-term gains. “We have seen, for the first time in four years, a reduction of investment by brands in technical and more pressure on manufacturers to provide more service for less payment. We see teams too scared to make a decision and not able to move forward and try anything because their job might be at stake,” Wang concluded.



Digital renderings of knitwear products, courtesy of Dorelle McPherson.

## INNOVATIONS IN MANUFACTURING AND DIGITAL MATERIALS FOR SUSTAINABLE BUSINESS

In the evolving landscape of fashion, sustainability has become more than a buzzword—it's a necessity. With the [Corporate Sustainability Reporting Directive \(CRSD\)](#) now in place in the EU, the pressure on manufacturers and technical teams to create efficient, eco-friendly processes is immense, especially as the industry continues to face high demand for rapid quality production of trending goods.

The solution to these challenges lies not in innovation for innovation's sake but in adopting useful technology—**integrating technical tools that offer tangible benefits in both sustainability and operational efficiency**. At the heart of this technological revolution are digital product creation (DPC), quality digital materials, and AI-driven machine learning, which are transforming how our apparel is made, inspected, and scaled.

"It has to be a strategic decision," said Simon Platts, Co-Founder & Board Advisor at [Recommee](#), while discussing the challenges of integrating new technology into manufacturing and production. "You start off talking about something that might be a cost, then you start to realize that there's a value-saving with speed-to-market, then you potentially see cost savings, reduction in samples, reduction in costs and increased sales, but it's just making that leap of faith is the biggest challenge."

The transformative potential of technology extends across the entire design and production process. During the "Manufacturer's Roundtable," leaders from [MAS Holdings](#), [featuring LTD](#), and [Alpine Creations](#) highlighted the importance of DPC in streamlining operations. MAS Holdings found success integrating cross-functional teams—designers, fit technicians, CAD specialists—into a unified DPC system. This centralized approach allows them to handle over 4,000 unique styles annually, with the ability to customize solutions based on specific client needs. Investments in a centralized process for scanning digital materials, and investing in a team of 60 digital technologists make this volume of quality production for over 50 brands possible.

Coresight Research found that **69% of brands and retailers across the US, Canada and Western Europe consider speed-to-market critical to their business in 2024**. By automating workflows and creating digital twins of physical garments, the manufacturers can reduce the need for physical samples, cutting costs, speeding up timelines, and drastically lowering environmental impact.

However, the road to wide-scale adoption of DPC is not without challenges. “When we look at the [fashion] industry, quite a few companies are still stuck in their 3D initiatives,” said Renate Eder, Chief Commercial Officer at [Vizoo](#) during a panel on the state of digital fabrics and materials. “I’m stunned by how many resources are put into this endless comparison of the physical garment versus the virtual garment to make sure it looks identical, often losing sight of the business objectives. We should concentrate more on what 3D can achieve rather than attempting to prove its limitations.”

Currently, relying on digital products for design approval is nearly impossible due to the quality of digital fabrics. Many brands are struggling with the limitations of digital fabrics, causing them to shift rapidly back to physical samples, citing the high cost and low efficacy of 3D assets as their reasoning. While digital samples are often not one-to-one with physical samples due to limitations of digital fabrics, brands stuck in their 3D initiatives are missing a strong return on investment due to misguided expectations.

Understanding digital materials is essential for fashion companies to effectively balance design, quality, and marketing, especially as AI challenges traditional 3D design methods. Sylwia Szymczyk, 3D Apparel Specialist at [Timberland](#), noted that “the solution may lie in end-to-end digital product creation, from design to marketing assets,” while emphasizing the importance of a very clear understanding of the ‘real’ quality requirements and the necessary resolutions. “Throughout the design process, the quality requirements for digital fabrics vary based on use cases,’ Szymczyk said, “necessitating trade-offs between visual accuracy and processing speed depending on the application.”



*Digital rendering of a Timberland retail environment, courtesy of PixelPool.*

The value of embracing DPC, however, is clear: **the speed and flexibility offered by quality digital materials and effective digital twins allow companies to innovate faster and more sustainably.** The key to success lies in understanding the balance between digital accuracy and processing speed, depending on the product category. For more complex items, like lingerie or structured sweatshirts, standardized processes can shorten development timelines and allow for efficient scaling without compromising quality.

"We call it product advancement," said Katarina Bobrowski, General Manager for featuring LTD. "The ultimate goal would be to have products developed in 3D from [concept to technical design], including fitting, to manufacturing release with a minimum amount of samples." This approach works; for some product categories, featuring LTD has clients who have successfully moved a product from concept to production with zero physical samples.

In the end, the transformative potential of AI and DPC is not just in their technical capabilities but in their ability to redefine what is possible for sustainable manufacturing. By embracing centralized operations, standardizing processes, and leveraging the insights that digital tools provide, the fashion industry can create more efficient and environmentally conscious production lines. Now, more than ever, the role of useful technology is clear—it's the path to a more sustainable future in fashion.



Denim apparel products in process. Image courtesy of Otto International via LinkedIn.

# BERSHKA'S ROADMAP TO REDUCING RETURNS

Reinventing an established brand is no small feat in the fast-paced world of fashion. BERSHKA celebrated its 25th anniversary last year with a new corporate identity, the implementation of sizing standards, and a significant reduction in fit-related issues, leading to a 10% decrease in online returns — a savings of multiple millions for the brand. With nearly 900 stores across 69 countries, the brand is one of the largest revenue producers of Spanish group Inditex, second only to its big sister, Zara.

**Implementing consistent sizing standards across the business** was one of the drivers behind BERSHKA's rapid success. Aimed at enhancing fit consistency and improving customer satisfaction, José Miguel Garcia Maiques, Digital Pattern Development Manager, and Nicholas Fellows, Digital Pattern Development Artist from BERSHKA/Inditex Group unveiled the tools and strategies that facilitated this transformation. Diving deeper into this change process and the benefits of a size standard, they highlighted the critical importance of sizing standards and discussed foundational tools which included mannequins, digital avatars, and size sets, as part of a redesigned fit approval process that integrates both physical and digital elements.

"No real human is the same measurement day to day," said Fellows. Historically, BERSHKA relied on live models for fit sessions, using six different models with different body types which introduced significant variability and subjectivity into their sizing processes. This approach often resulted in fit issues, as the models' bodies would change over time, leading to inconsistent sizing across collections. In response,



BERSHKA recognized the need for a standardized sizing system to enhance fit consistency and improve operational efficiency. Now, BERSHKA works "towards the sizing standard of Alvanon mannequin[s] because [they're] consistent, and all our teams will be working towards this sizing chart," said Fellows. "We can change models, but we don't need to change the mannequin."



*Garment ideations in process (top), and depictions of a garment lifecycle from the digital rendering to physical fitting (bottom). Images courtesy of BERSHKA/Inditex Group.*

Maiques' mantra, "good enough IS good enough" encapsulates the brand's new mindset. Referring to the importance of using 3D as a tool to check sizing and fitting rather than texturing, he said "if the foundations are followed, then positive results can be achieved by all pattern makers." By establishing size standards for key sizes—specifically sizes 36 and 42—the brand aimed to create a more objective reference point for all design and production teams. This shift not only minimized fit discrepancies but also eliminated the need for extensive adjustments during production. Standardizing these core sizes facilitated collaboration among designers, technical teams, and production staff, who could now work from the same body measurements throughout the development process.

Additionally, the move towards standardized sizing empowered BERSHKA to maintain size consistency across its extensive global network of stores. By ensuring that customers could expect the same fit regardless of location, the brand enhanced customer satisfaction and loyalty.

José Miguel Garcia Maiques and Nicholas Fellows are paving the way for a new era within the Inditex Group through their innovative approach to sizing standards. By championing the implementation of essential tools such as mannequins, blocks, avatars, and size sets, they are setting a benchmark for the entire organization.

"The other brands have seen where we're improving, and I think they're obviously interested in adapting and learning from us as well. But we obviously work as a team together, and we're all one family, so we're happy to give whatever benefits we have to the rest of the [Inditex] teams. The success of this transformation underscores the importance of collaboration and cooperation among all Inditex brands," Fellows concluded.

# FUTURE OF CONSUMER EXPERIENCE, FROM IMMERSIVE FIT TECH TO VIRTUAL RETAIL

Immersive technology is no longer a novelty in the world of retail; it's the engine driving a new wave of consumer engagement and brand interaction. In a study conducted by [Coresight Research](#), 93% of US-based brands and retailers plan to boost immersive experience investment in the next few years. From AI-driven fit technology to fully immersive virtual retail and showrooms, fashion and tech are fusing to create phygital experiences that not only solve e-commerce headaches but fundamentally reshape how we shop in a physical-digital world.

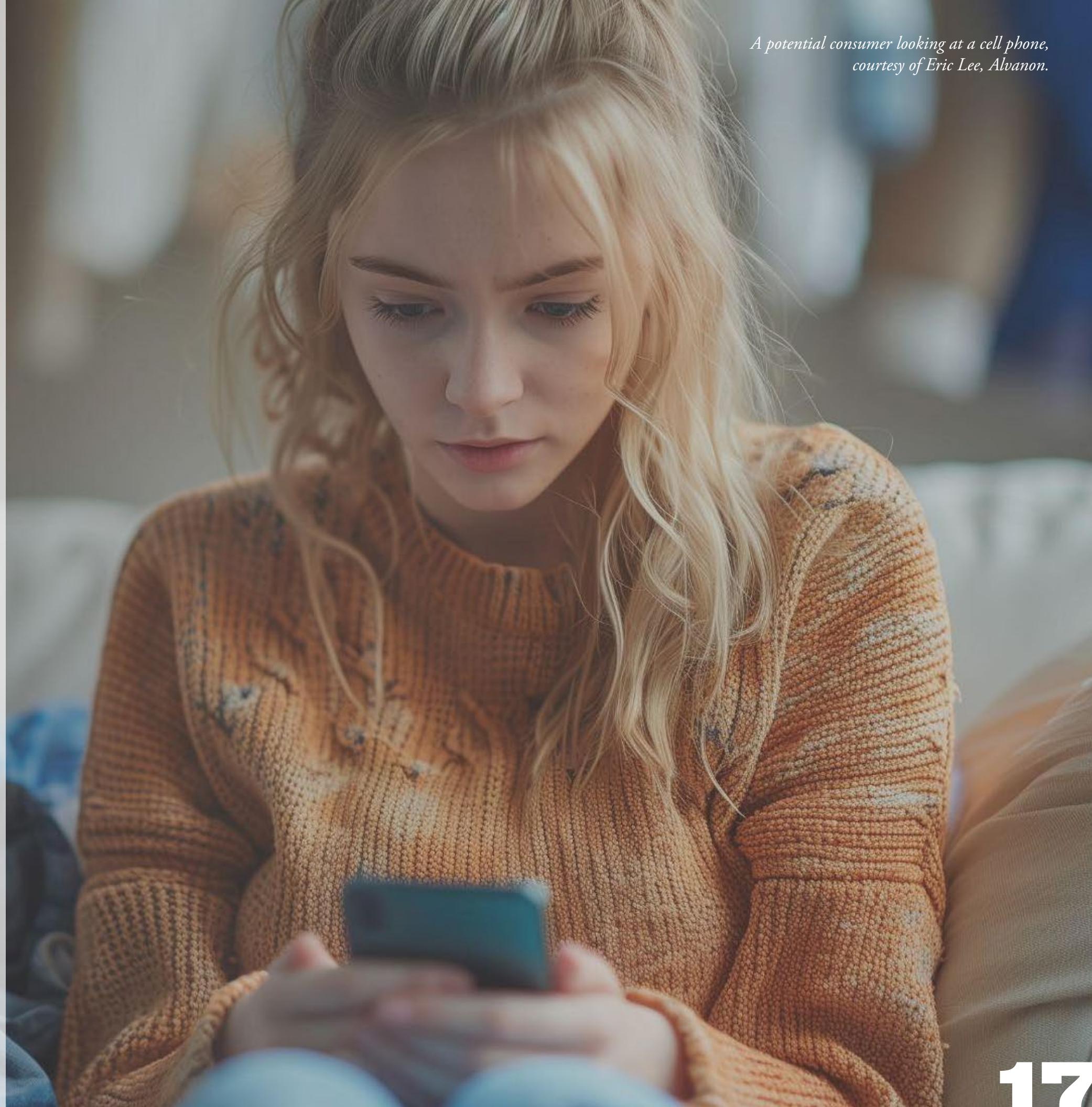
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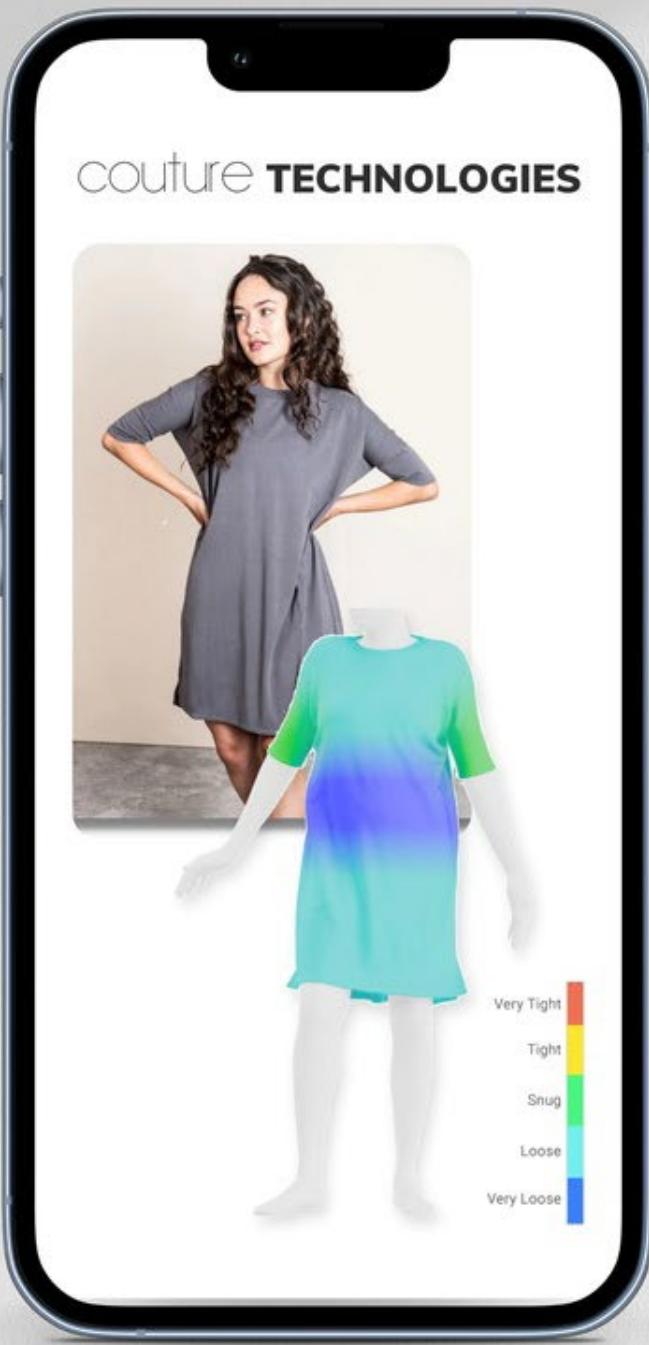
**If we're having the customer figure out their size in different products instead of making our products consistently fit the same customer, we're not solving the real issue at hand.**

”

- Eric Lee, Executive Director Americas, Alvanon

A potential consumer looking at a cell phone,  
courtesy of Eric Lee, Alvanon.





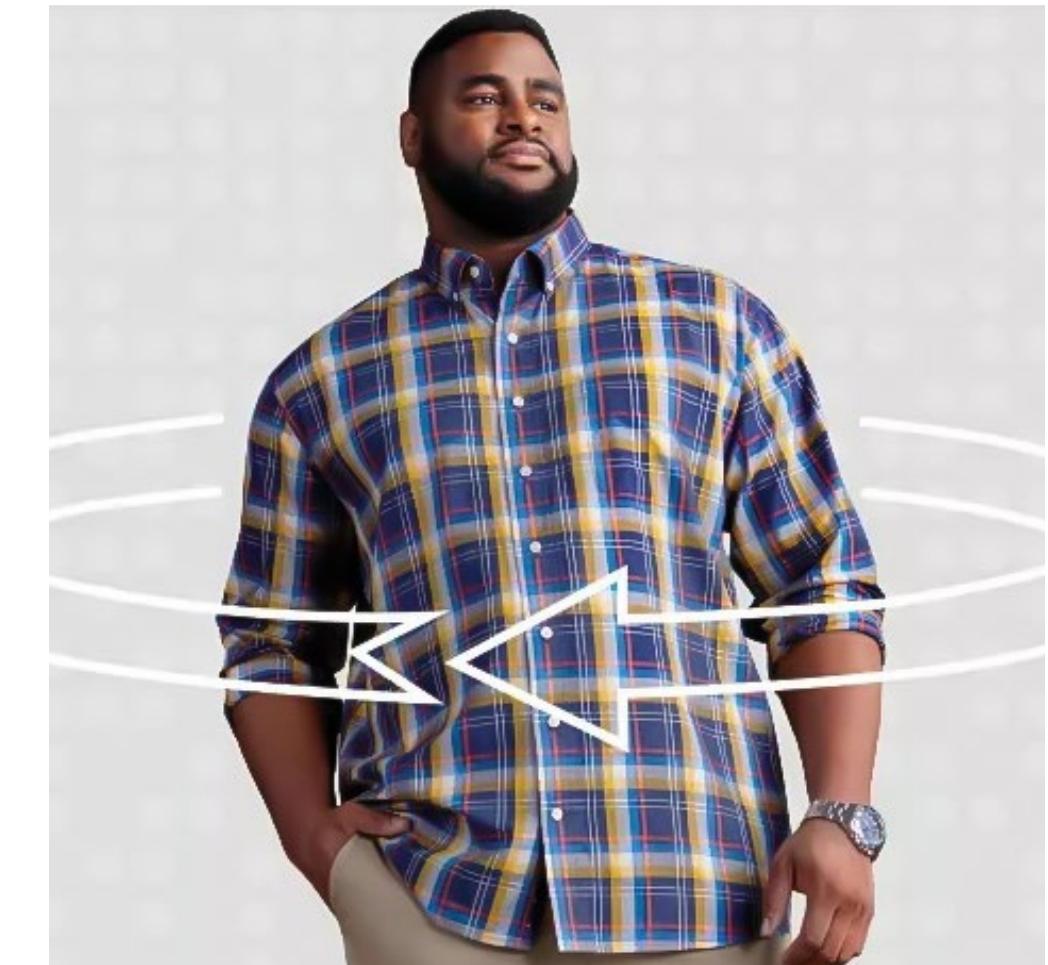
Digital depiction of garment fit on a virtual form, courtesy of Couture Technologies.

### **Take fit and sizing—a long-standing frustration of online shopping.**

As of January 2024, 58% of returns are due to sizing and fit, according to a PF survey conducted by Alvanon. “If we’re having the customer figure out their size in different products instead of making our products consistently fit the same customer,” said Eric Lee, Executive Director Americas for Alvanon in a presentation, “we’re not solving the real issue at hand.” As consumers shop more frequently online, inconsistent sizing and fit across a single brand create immense returns, increasing carbon footprints and affecting a company’s bottom line.

Body scanning and AI fit analysis are having a monumental impact on reducing the sky-high return rates plaguing e-commerce. [Workwear Outfitters](#) and [DXL](#) have already implemented AI-powered sizing solutions that help consumers find a better fit the first time. This is more than just streamlining logistics; it’s about creating a frictionless shopping experience. When consumers no longer have to worry about whether something will fit, the shopping experience transforms from practical and cumbersome to enjoyable—ensuring brand loyalty.

Diving deeper into virtual sizing tools, a panel of experts from DXL, Size Stream, Workwear Outfitters, Couture Technologies, and Alvanon are one step closer to making accurate fit tools a reality. “The evolution from booth scanners to mobile scanning really makes it accessible for all bodies, shapes and sizes,” said Jay Rudman, CEO of [Size Stream](#). “It really has to be inclusive if we’re going to ensure that we can provide sizing recommendations for anyone and everyone.” Size Stream partnered with big and tall brand [DXL](#) to develop [FITMAP](#), a body scanning and sizing process with over 200 points of measurement administered by an iPad located in a fitting room currently in 12 stores and planned to roll out to 100 stores by the end of 2024. “We’ve scanned a little over 7000 guests so far,” said Barbara Buhr, SVP of Global Sourcing, DXL, and “from those 7000 guests, we noticed that we have a much higher retention rate, more frequency of shopping with us.”



Graphic depiction of DXL's Big and Tall FITMAP technology.



Digital fashion courtesy of Republique.

**Algorithm-based learning models for fit analysis**, developed by [Couture Technologies](#), gather body data and return it to Workwear Outfitters' team, allowing the brand to have a much clearer understanding of their customers' fit preferences across a variety of styles and sizes. "The beautiful thing about collecting all this body data in a noninvasive way," said Shannon North, former Director of Design Technology, [Workwear Outfitters](#), "is understanding how we can best fit bodies; because at the end of the day, we're still trying to make a garment that fits and that's the most sustainable way of doing that."

This intersection of fashion and technology isn't only about convenience and cost-effectiveness; **it's also a powerful tool for retail storytelling**. From 3D retail environments to virtual stores, virtual reality (VR) and augmented reality (AR), consumers are in search of immersion and entertainment from their favorite brands. A 2024 study conducted by Coresight Research found that two in five brands have invested in virtual stores and AI/data-enabled content in 2024. Digital design and immersion tools, while still in their early stages, promise to reimagine the in-store experience.

"Gen Z, which is coming up with a lot of purchasing power, what they want are stories over product," said moderator Safir Bellali during a panel discussing the future of consumer experience. "Yes, they want to be informed, but they very much want to be part of the whole experience, and I think these technologies [3D, AR, and VR] definitely cater to that."

**“Gen Z, which is coming up with a lot of purchasing power, what they want are stories over product.”**

— **Safir Bellali**, Founder, Aliph and Consultant, Epic Games

Digital renderings of the future of retail, courtesy of PixelPool.



Roz McNulty and Noah Miller from [Fashion Innovation Centre](#) are exploring the future of retail through the Apple Vision Pro virtual fashion museums and showrooms. Though the technology is not yet widely available, they see great potential in developing digitized historical garments and personalized shopping experiences in VR. “I really do think the future of these immersive technologies is mostly mixed reality,” said Noah Miller. In an era where consumer loyalty is hard-earned, creating immersive, emotionally resonant experiences is becoming essential for brands to differentiate themselves.

As brands continue to spend millions on physical showrooms, and a good deal of time developing unsustainable physical environments, Josh Hansen, Managing Director at [PixelPool](#) sees **virtual showrooms as the future of retail space development and product showcases**. “Working in 3D, being able to iterate quickly, being able to present those products in a virtual space,” said Josh, “You can tell your audience a lot about the product, about the collection, about its seasonal story.”

The democratization of 3D, VR, and AR is ushering in a new era of consumer experiences. As younger, digitally-native generations drive demand for more immersive, thoughtful, and personalized shopping experiences, it’s clear that the future of retail lies in the integration of technology that doesn’t just make shopping easier but redefines what it means to engage with a brand. This isn’t just an evolution– it’s a revolution, one in which immersive technology will play a leading role.

*3D renderings and resulting products, activations, and goods courtesy of Tapestry/Coach.*

# CREATE ONCE, USE MANY WITH TAPESTRY/COACH

Across the apparel industry, companies are searching for proof of returns on their 3D investments. [Tapestry](#), in partnership with Coach, is leading the charge for change with their “create once, use many” approach to developing 3D assets to be used across the brand.

The 3D team here has found a way to **leverage digital twins** across all stages of product development and marketing to enhance customer experience. This approach relies on quality over quantity. “Create once, use many,” is a mantra that echoes throughout their offices. Its brilliance is simple: spending the time to invest in creating quality digital twins of every SKU of every product has had extensive returns across departments.

From developing digital assets for e-commerce to crafting a more sustainable product development process, quality 3D assets can be transformative. “Because our digital twins are so accurate, we receive requests from all of these different departments across the company,” said Brandon Keeney, Senior Manager at Tapestry. “We’re able to develop assets in-house...and it’s even more effective when communicating design intent through a digital twin of a product. This becomes especially powerful during global commercialization, where language and interpretation can be barriers.”

The brilliance of this approach lies not just in its efficiency—though cutting costs and speeding up time-to-market are certainly wins—but in how it pushes the boundaries of what’s possible for both creators and consumers. In his talk, Keeney explored a future where digital garments live in both the

fashion and gaming spheres, and where creating painstakingly accurate digital twins at every SKU is just as important as designing for the physical runway.

On October 2, WWD reported that Coachtopia, an initiative from Coach and Tapestry, is to receive the Innovation Award Presented by Amazon Fashion at the 2024 CFDA Fashion Awards. A collaborative lab for innovation, this groundbreaking initiative is aimed at accelerating the fashion industry’s transition toward a circular economy. Coachtopia is focused on sustainability, waste reduction, and circular fashion—values that resonate deeply with the new generation of consumers, especially Gen Z.

Coachtopia is a Coach sub-brand focused on circular craft and collaborative creativity that launched in April 2023. Coachtopia redesigns the product lifecycle from beginning to end, reducing the creation of new materials by crafting with waste and designing products that can be reimaged, remade, and recycled multiple times.

By embracing 3D technology, Tapestry **streamlines development workflows, improves team collaboration, cuts costs, and fosters sustainability by reducing physical waste**. The lessons drawn from Tapestry and Coach’s strategic initiatives underscore the necessity for executives to champion innovation, sustainability, and collaboration. By doing so, they will not only enhance their brand’s competitive edge but also contribute to a more sustainable and dynamic fashion ecosystem. With 3D, the design possibilities at Tapestry/Coach are truly infinite.



## G L O S S A R Y

**Artificial Intelligence (AI)** – technology that simulates human intelligence, widely used in design, production, and customer engagement.

**AI/data-enabled content** – Content created or optimized using AI to analyze and predict consumer preferences, engagement, and trends.

**Algorithms** – Mathematical models used in digital social media platforms to curate and recommend content based on user behavior.

**AR apparel** – Augmented reality clothing; digital garments that can be viewed and interacted with through AR technology.

**Augmented reality (AR)** – Technology that overlays digital content, such as garments or accessories, onto the real world.

**Body scanning** – Technology that digitally measures a person's body to create custom-fit garments or optimize sizing accuracy.

**Core sizes** – Sizes technical designers typically use to develop products on, meant to standardize manufacturing and reduce production costs.

**Cultural identity** – The representation of a group's shared values, traditions, and aesthetics.

**Consumer segments** – Groups of customers categorized by similar behavior, needs, or preferences.

**Digital avatars** – Virtual representations of physical mannequins used to design apparel products.

**Digital fashion** – Clothing and accessories created digitally for virtual use, often utilized in gaming, the Metaverse, and content creation.

**Digital materials** – Virtual representations of physical materials used in digital product creation, allowing designers to visualize and simulate textures, colors, and patterns.

**Digital product creation (DPC)** – The process of designing and developing products using digital tools and platforms, including 3D design and virtual prototyping.

**Digital product strategy** – A business approach that integrates digital tools into the fashion production and sales process to optimize efficiency and sustainability.

**Digital social ecosystems** – Online environments where brands interact with consumers through social media, virtual communities, and other digital experiences.

**Digital twins** – Virtual replicas of physical objects in 3D, such as garments or products, used for testing, visualization, and consumer interaction.

**DPC adoption** – The integration and acceptance of digital product creation practices within a company or industry to improve speed, efficiency, and sustainability.

**Digital native** – Refers to individuals, often from younger generations like Millennials and Gen Z, who have grown up with digital technology as a central part of their lives.

**Digital fabrics** – Physical textiles represented virtually for use in digital design and production, allowing for faster prototyping and visualization.

**Emerging technologies** – New or evolving tools, such as AI, VR, 3D, and blockchain.

**Engagement metrics** – Data used to measure consumer interaction with a brand's content or products.

**Fit technology** – Digital tools that help assess and optimize garment fit, including body scanning and virtual sizing tools.

**Generative AI** – AI that creates content or products, such as designing garments or generating fashion visuals, based on input data and algorithms.

**Immersive technology** – Technology that creates engaging, interactive environments, often through VR or AR.

**Low-value content** – Content that provides minimal engagement or return on investment.

**Machine learning AI** – A subset of AI that enables systems to learn and improve from experience, often used for trend forecasting, product recommendations, and more.

## G L O S S A R Y

**Marginalized designers** – Creators from underrepresented or disadvantaged groups who often face systemic barriers to entry and recognition.

**Metaverse** – A collective virtual space where users can interact, create, and consume, increasingly utilized by fashion brands for virtual experiences and digital fashion showcases.

**NFT** – Non-Fungible Token; a unique digital asset often used in fashion to sell and trade exclusive virtual garments or designs.

**Neurodiverse individuals** – People with cognitive variations, such as autism or ADHD, who often bring unique perspectives to fashion design and innovation.

**Phygital** – The merging of physical and digital experiences, often seen as a hybrid of in-person and virtual product interactions.

**Product passport** – A digital record containing detailed information about a product's origin, materials, and sustainability.

**Sizing standards** – Industry guidelines that define garment sizes to ensure consistency across brands and regions, aiding in production and customer satisfaction.

**Size sets** – A standard set of measurements and related mannequins used to standardize garment production.

**Sustainable business** – A business model that prioritizes environmental and social responsibility.

**Time-to-market** – The time it takes to develop and launch a product.

**Traditional AI** – Early forms of AI focused on rule-based systems and specific problem-solving, contrasted with more advanced machine learning and generative AI.

**UGC garments** – User-generated content garments; digital fashion items created or customized by consumers.

**Underrepresented bodies** – Body types that are often neglected in mainstream fashion sizing and marketing.

**Virtual catwalk** – A digital fashion runway where virtual models showcase digital clothing.

**Virtual reality (VR)** – A fully immersive digital environment experienced through headsets or devices.

**Virtual retail/virtual stores** – Digital shopping experiences where consumers can browse and purchase items in a fully virtual environment.

**Virtual sample-making team** – A team that creates digital garment prototypes for review, speeding up the design and production process without the need for physical samples.

**Virtual sizing tools** – Digital tools that help consumers determine the right size for clothing, enhancing online shopping accuracy and reducing returns.

**Viral moments** – Highly engaging or shareable content that spreads rapidly across social media, often driving brand awareness and influencing fashion trends.



## About Alvanon

Alvanon is a fashion technology company, focused on enabling companies to generate and leverage their authentic 3D digital assets across multiple platforms and applications. It has developed a unique and innovative body data-driven approach, with a consumer-scanning element, to solving the challenges of sizing and fit inherent in the apparel industry.

Since 2001, it has dedicated itself to body shape data research and has gathered more than 1.5 million body scans in 30+ countries, most recently, in China, Colombia, Costa Rica and the US. Combined with its deep apparel knowledge, this has allowed Alvanon to develop thousands of fit standards for hundreds of brands globally.

[www.alvanon.com](http://www.alvanon.com)

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