3D: ADDING A NEW DIMENSION TO PRODUCT DEVELOPMENT IN FASHION RETAIL

INTRODUCTION

In the Fashion Retail business, the change in customer expectations are unending, one day it is fast fashion that is in trend, next day it would be sustainable attributes. While trend can be triggered by influencers on social media a demanding customer will never shy away from a great price tag. With such a discerning set of customers It is only perceivable how much agility, speed to market and getting the right product are inevitable for brands. It is estimated that to keep pace with changing trends and preferences the fashion industry spends anything between USD 6 to 8 billion on samples. On an average at least five iterations on a sample happen before a decision is made. This process plays a major burden on resources and on lengthens the time to market. Fashion businesses can reduce physical prototyping approximately 70% by opting 3D technology, not only saving money and time, and in the process ensuring that their businesses keep pace with changing demands. The key to achieving this lies in integrating 3D design technology with Product Lifecycle Management (PLM) tools.

3D tools today help create a virtual, three-dimensional, life like product visualization with using cutting-edge technologies. A great degree of detail provided by 3D visualization allows attributes like the product colors, contours and drapes to be realistically simulated. The design can alter with ease to instantly view changes to product design without the need for physical samples and exported at the touch of a button. The advantages of 3D designs are 3-fold:

Lower cost: Fewer physical samples, patterns and reduced re-work to deal with

Faster time to market: Quick and informed decision making, faster design iterations

Sustainable products: Reduction in physical samples with zero waste

A BRIEF HISTORY OF 3D IN PRODUCT DEVELOPMENT

The Fashion Retail industry has been an early adopter of digital technologies in product design and development. This can be traced back to the use of Adobe's Illustrator software in the late 1980s. At the time, designs were limited to flat sketches and photographs that could be viewed and edited. The late 90s saw the introduction of the "whole body scanner" with which the industry began to appreciate the advantages of using 3D in product development. It did however take about a decade for 3D to arrive as an accessible tool for fast and cost-effective product development (see timeline in Figure 1)

2000-2002
- First virtual dressing room
- First 2D to 3D garment simulation

Fashion Brands to use 3D- Nike Adidas

2003-2005

2006-2009
- Introduction to 3D simulation
- First digital catalog
- Scaling global brands

Apparel Designers ventured into 3D

2010-2015

2016-2020
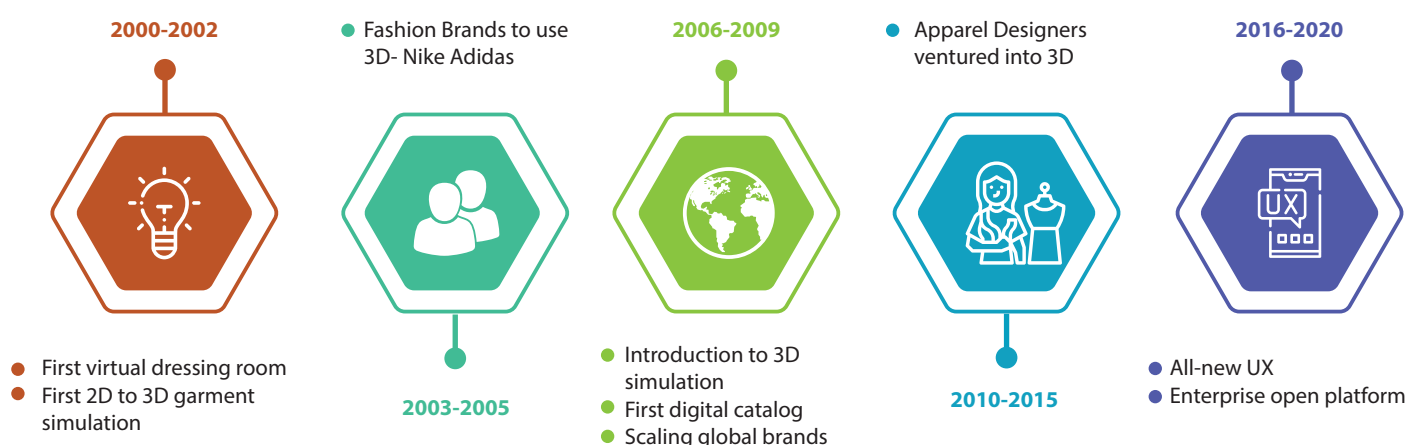- All-new UX
- Enterprise open platform

Figure 1

The early adopters of 3D are from the accessories and footwear space and Adidas became a trend setter when in 2013, they reported eliminating more than one million material samples from its global product development process using 3D. Others like Hugo Boss reported that digital prototypes had shortened development times and by 2017 product development for shirts, ties and knitwear for its Hugo brand has been fully digitized. Tommy Hilfiger recently announced that they would achieve 100% 3D design processes by 2022.

PRODUCT DEVELOPMENT PROCESSES IMPACTED BY 3D

Fashion Retail Product Developmentat a high level can be divided in 5 stages - Concept, Design, Develop (specifications), Source and Produce (see Figure 2). While 3D tools can be used to create virtual, true-to life designs giving designers an opportunity to not only visualize products in very early in the process but also dress up this virtual product on an avatar. Designers can instantly add colors and materials and speed up the design decisions. There is an accurate representation of the various attribute of the product and hence outcome required. Thus, directly increasing the sample approval rates shorten the sampling process.

On the technology front, the development of the 3D platforms has been led by three industry leaders—Optitex, Browzewear and CLO.
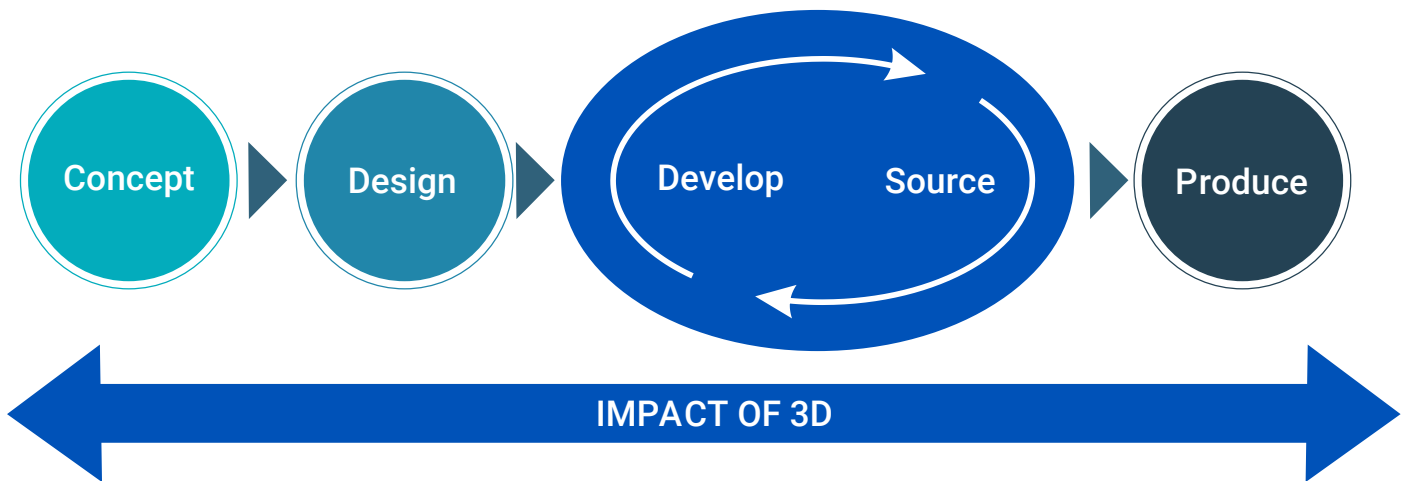
Figure 2

The explosion in demand for multiple & quick design options, faster time to market, lower costs and sustainable products is forcing the industry to adopt 3D to address the areas of Concept, Design Develop (specifications) and Source (see Figure 3).

DESIGN

- Convert sketches into 3D models
- Quickly Render Design Visualizations on Avatars/Digital Models

DEVELOP SPEC

- Easily move between 2D patterns and 3D Models
- Visualize drape, flow of the garment on the body
- Visualize impact of modifications

SOURCE

- Convey the development requirements clearly
- Communicate changes real-time
- Physical samples only when decisions mature

Figure 3

3D AND PLM

The key aspect for success in 3D product development is to firmly integrate the 3D platform with PLM platforms. Over the past couple of years, leading 3D service providers have engaged with PLM tool owners to develop integrations that help leverage the artifacts in PLM (color, materials, etc.) to develop 3D designs. The good news is that PLM providers like Gerber (Yunique PLM) and Dassault Systems have developed their own capabilities, making it simpler to adopt 3D technology.

Despite the rapid progress made in 3D technology and its obvious advantages, the Fashion Retail industry has been sluggish in adopting it. There are emotional and technical reasons for this. The transition from the comfort of a traditional physical sample to a digital one is difficult for many industry veterans. The attachment for physical samples is ingrained. But like the publishing industry that is increasingly going digital—and discovering its upside—3D will eventually find traction in the industry.

At this point, the technical challenges appear more daunting:

Vendor partners: Not everyone has access to 3D platforms and getting files from vendors to partners is a challenge

Adaptability: Some technical garments example brasserie, are difficult to simulate with varying body sizes and shapes posing a challenge

Lack of end-to-end integration: A seamless transition from 2D (patterns) to 3D (models) and back is not always feasible; the transfer of Techpack files with updated grades for final production are, barring some exceptions, not completely automated

Expertise: 3D requires the expertise of a Tech Designer and Pattern Maker which are difficult to come by; most Tech Designers are at design locations (head office) and Pattern Makers are at production locations (factories)

FUTURE OF 3D IN FASHION RETAIL

Despite the shortcomings and challenges, 3D technology has been making some remarkable progress in visual rendering and digital prototyping. These are bound to encourage a greater number of businesses to look for 3D technologies. There is familiarity with the technology and solution providers are working to improve their products and make them more easily usable. Some of the key improvements include:

- **Realistic visualization:** There has been continuous enhancement in visual rendering with true-motion fit and pattern modification to increase accuracy which has gone a long way to address the needs of complicated products like intimate wear. Solution providers are performing beta tests to get closer to true-to-life visual rendering. We will see enhancements such as high-quality real time rendering for various light adjustments in different forms – rectangle, sphere, spot, direct, and IES.

- **Integration with leading PLM, other technologies:** It is difficult for any technology to operate without integration with other systems or technologies. Businesses strive to connect all hardware, software and processes to reduce tasks that don't add value. One of the most discussed integrations is between 3D and PLM which is now a reality. Leading 3D solution providers like Browzwear, Optitex and CLO are seeing increasing collaboration with different PLM systems. After collaborating with Browzwear, PTC plans to have native integration with CLO to deliver a rich PLM experience.

  Advanced integration would enable the transfer of images (materials, trims, avatars, patterns) coming from a DAM/CAD/CAM with PLM allowing the user to interconnect on a shared network. There could also be a multi-data or multi-directional interface where users can update data in realtime to immediately see the impact on BOM, costs and other interdependent functions.

  The pressure for faster, cheaper and sustainable products is going to become more intense. Technology to off-set these pressures will push 3D technology to the forefront, making it a distinct winner as the technology of choice. The question around 3D is no longer about "if" but about "when".

  In subsequent articles we will take a deeper dive into the functionalities provided by market leaders and the integration of 3D with other tools to create seamless information flows along with ITC Infotech's experience and advisory role with fashion retailers to plan and develop Integrated PLM and 3D roadmaps.

AUTHOR PROFILE

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Lakshmi is a Consultant & Pre-sales Lead for Fashion PLM at ITC Infotech. She has over 15 years of experience across various roles including Product Development, Merchandising, Vendor Management and Consulting in the Retail Footwear Apparel (RFA) space. In her role in Consulting, she has successfully delivered PLM projects that offer value based business outcomes across multiple IT engagements for global retailors and brands. As a Pre-Sales lead she has been instrumental in developing stack of industry specific apps and accelerators that have helped create transformational engagement opportunities.

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Ankita has worked with top retail brands worldwide to provide consulting services to help them build and adapt enterprise PLM systems around their business processes. She has over 7 years of experience across multiple fashion retail and ecommerce brands as buyer and planner. As part of ITC Infotech's Retail PLM team, she has been associated with 8+ PLM implementation and support engagements. She has been instrumental in positioning new solutions and service offerings to the clients to help them build smart connected products.

About ITC Infotech

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